

IETC[★]2017

INTERNATIONAL EDUCATIONAL TECHNOLOGY CONFERENCE

AUGUST 16-18, 2017

LOCATION: HARVARD UNIVERSITY CAMPUS, CAMBRIDGE, MA, USA

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Editor

Prof.Dr. Aytekin İŞMAN

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Dear Guests...

Welcome to IETC & ITEC -2017 at Harvard University in Boston, USA.

International Educational Technology Conference (IETC) and International Teacher Education Conference (ITEC) are international academic conferences for academics, teachers and educators. They promote the development and dissemination of theoretical knowledge, conceptual research, and professional knowledge through conferences activities, the conference proceedings books and TOJET and TOJNED Journals. Their focus is to create and disseminate knowledge about new developments in these academic fields.

IETC & ITEC Conferences are now well-known international academic events and the number of paper submissions and attendees are increasing every year. This year we have been organizing 17th IETC Conference at Harvard University. Together with IETC 2017, we are organizing two other conferences; ITEC at the same time and place. These three Conferences have received more than 750 applications. The Conference Academic Advisory Board has accepted approximately 350 papers to be presented at Harvard University, Boston, USA.

We would like to thank Prof. Dr. Muzaffer ELMAS, Rector of Sakarya University for his support of organizing these conferences.

We also would like to thank Prof. Dr. Robert DOYLE from Harvard University for his collaboration and support. Without his efforts and help, this conference would not be possible at Harvard University. We would also like to thank to Harvard University for hosting us here during three days.

Also, we would like to thank to our distinguished guests, keynote speakers for their collaborations and contributions to the success of these conferences.

And we would like to thank all of you for coming, presenting, and joining in these academic activities.

Finally, we would like to wish you all a successful conference, pleasant stay in this historically prestigious university and good time in beautiful city of Boston.

Thank you...

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KEYNOTES



Active Learning in the 21st Century Classroom

Prof. Dr. J. Ana DONALDSON

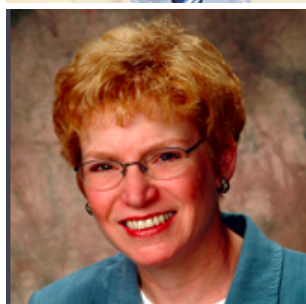
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The History of Harvard College

Prof. Dr. Robert G. DOYLE

Harvard University, United States



Technology and Teaching: Transformative Innovations

Prof. Dr. Sharon SMALDINO

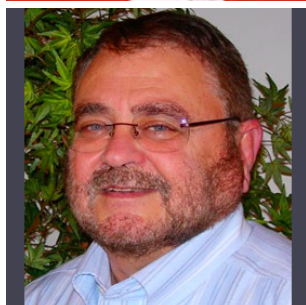
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Is it Time to Hit RESET on the Early 20th Century Model of Teacher Education?

Prof. Dr. Kay A. PERSICHITTE

Elected AECT President, United States



Fostering Inquiry Learning and Critical Thinking Using Formative Assessments and Gamification

Prof. Dr. J. Michael SPECTOR

University of North Texas, United States



How Cloud Push Service Can Change the Face of Education and Benefit Industrial Development

Prof. Dr. Vincent Ru-Chu SHIH
National Pingtung University of Science and Technology, Taiwan



Quality Process in Higher Education

Prof. Dr. Muzaffer ELMAS
Sakarya University, Turkey



Bringing research technology into the classroom

Prof. Dr. Alan Wolf
Harvard University, United States

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A BRIEF REVIEW OF COLLEGE PERSISTENCE MODELS AND THEORIES

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A brief review of the major college persistence models and theories are presented in this paper. Models and theories that explain college persistence, student engagement, and student involvement are examined. This succinct review of college persistence models and theories is a unique contribution for educators focused on degree completion. The major college persistence models and theories examined include (a) Spady's sociological model, (b) Tinto's Student Integration Theory, (c) Pascarella's Model, (d) Astin's Theory of Student Involvement, (e) Bean and Eaton's Student Attrition Model (f) Cabrera, Nora, and Castaneda's Structural Model of Student Persistence, (g) Schlossberg's Transitions Theory, (h) Padilla's Black Box Model, and (i) Mashburn's Psychological Model. The similarities, differences, and unique contributions of each college persistence model and theory are discussed.

A CONCEPTUAL DESIGN MODEL FOR CBT DEVELOPMENT: A NATO CASE STUDY..**Ayse KOK KOK***ayshe.kok@gmail.com*

CBT (computer-based training) can benefit from the modern multimedia tools combined with network capabilities to overcome traditional education. The objective of this paper is focused on CBT development to improve strategic decision-making with regard to air command and control system for NATO staff in virtual environment. A conceptual design for the CBT of the Web-based command and control system including a methodology and a model of content relations is described. The system helps the personnel to effectively plan, execute, monitor and assess Air operations in a responsive and timely manner. The developed prototype of CBT for Web-based air command and control system for NATO is illustrated.

A CRITICAL CULTURAL APPROACH TO STANDARDIZED EVALUATION TOOLS. A STUDY ON CLASS THROUGH THE VOICES OF ITALIAN, PORTUGUESE AND DUTCH ECEC TEACHERS

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The international application of standard-based measures to assess ECEC quality raises crucial questions concerning cultural consistency and ecological validity of instruments migrating out of their ‘cultural cradle’ (Pastori & Pagani, forthcoming). However, the topic has received only marginal attention in the literature (Ishimine & Tayler, 2014). This presentation, which aims to address this gap, focuses on the Classroom Assessment Scoring System (CLASS, Pianta et al., 2008). It presents the research design and findings from an international qualitative three-country study (Italy, Portugal, the Netherlands) set within the European project CARE. National ECEC experts and teachers have been involved in focused discussions, using CLASS as a lens and frame to observe and compare the perspective of the tool to the local-cultural and pedagogical perspective. Results offer interesting insights into a methodological and theoretical reflection on ‘universal vs culture-related’ views on education and quality, and on the international use of standardized evaluation tools.

A FLIPPED LEARNING DESIGN WITH PEER INSTRUCTION TO ENGAGE (ESL) STUDENTS

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ABSTRACT

This study examines the effects of flipped learning on enhancing ESL students' engagement and reading comprehension skills. Digital materials such as PowerPoint slides and other online materials was utilized in addition with classroom instructions and discussed among peers with the goal of improving the teaching and learning process. A total of 170 samples with each group consisting of 85, both groups underwent a five-week period intervention to examine the effects of flipped learning (FLO) and flipped learning with peer instruction (FLPI), the moderating variable, was gender. Results from the ANOVA analysis showed that students who underwent the FLPI mode outperformed students who underwent the FLO for adjusted mean difference of 4.052 similarly students from the FLPI had a higher engagement score when compared to students from the FLO mode. However, there was no significant interaction effect between the FLPI, FLO and students engagement with regards to gender though, female students had a higher adjusted mean score in average for engagement compared to male students for both FLO and FLPI groups. The study finds that peer instruction is able to promote students' engagement; therefore activities involving peer instruction activities in the classrooms is recommended. In conclusion, the study finds that flipped learning with peer instruction for the Malaysian learners is able to enhance students' engagement in an introductory English course. The findings of this research thus have implications for the academic community at, online designers, instructors and students. **Keywords:** flipped learning; engagement; peer instruction; gender; ESL

INTRODUCTION

Within a university system, students obtain instructional input through a lecture, then discuss or implement this information to activities and problems in subsequent sessions. Students can be equipped with high quality of deep learning because of the prominent role of improving an educational environment (Meyer, 2014). Flipped Learning (FL) or inverted classroom can be defined as a class where the homework and the lecture have been reversed; alternatively, the lecture that have traditionally taken place inside the classroom and moves to take place outside the classroom and vice versa so that students are enable to engage deeply (Alhasani, 2015; Giannakos et al., 2016; Kim et al., 2014; Szparagowski, 2014). Activities such as discussions, independent problem solving, student created contents, inquiry based learning and project based learning are constituents of active learning (Bergmann, Overmyer, & Wilie, 2012). An online technique, in the flipped classroom, was used to deliver the lecture content outside the classroom such as through the Learning Management System (LMS). Likewise, Dutton (2015) and Lindquist and Long (2011) highlighted that participant often rely on ordinary tools, like the LMSs due to its familiarity and time saving reasons; hence, technology can be effectually enable instructive objectives as well as student engagement in university-level humanities education.

The constructivist learning view is related with the Vygotsky theories suggesting that learners' cognitive development is undoubtedly dependent on his/her social interactions and peer collaboration. The personal experiences frequency increases in flipped classroom environment using certain activities such as forming groups of active learners, learning by analysis engagement, evaluation and synthesis engagement, more than passive learners who learn by collecting information from videos watching and listening (Flumerfelt & Green, 2013; Jensen, Kummer, & Godoy, 2015).

Zepke (2013) pointed out that engagement is dependent on the effort that students put to actively participate in learning tasks, moreover, institutions are responsible to create environment that provide learning opportunities and make learning possible. The challenge is to get engagement from all types of students (Brown, et al., 2014). In the context of Malaysia, positive results were found means that only 3.6 percent of ESL undergraduates are categorized as "passive participants" who were present without engagement in the class during lecture. The other ESL undergraduates were actively participating in the discussion with teachers and classmates (Teoh, et al., 2013). Furthermore, reading engagement refers to interaction with text in a motivated and strategic manner (Guthrie & Wigfield, 2004).

Peer instruction (PI) focused on a student-centred approach in a way of reflecting the flipping classroom function (Mazur, 1997) All indicators show better results with the flipped teaching approach associated with Peer Instruction (Dutton, 2015; Porter, Bailey Lee, & Simon, 2013; Herreid & Schiller, 2013). In spite of the large size of class, Brookfield (2015) confirmed that students get engaged and discussing together the subject matter by using Peer Instruction.

Design of the Article (Relate, Create and Donate) The basis of engagement theory is that the students must be engaged meaningfully in learning activities through useful tasks with the help of collaborative teams that work on certain designed projects that should be of practical nature and must be meaningful outside the classroom (DuFour & DuFour, 2013). Engagement theory is used as an approach to describe situations where students are engaged in learning activities meaningfully through group interactions and useful tasks. It seeks to create real-world problem situations that students may work on in groups. Students work in groups on assignments that are project based; thus, finding solutions to the real-world problems and individual exploration through online components, and they want to keep learning as they are motivated to learn (Mazur, 1997; Jones et al., 2013). Hence, any project is permanently designed around the three key elements of engagement theory which are "Relate-Create- Donate" (Kearsley & Shneiderman, 1999). Relating means learning activities occurred in a peer context or group (Peer Instruction), creating refers to the project based learning activities and donating refers to the learning activities that have an outside authentic concentration (meaningful task and authentic purpose). Figure 1 presents the suggested design for engagement theory coined with constructivist theory and flipped learning in which can create an interactive learning environment session in the future. Moreover, it will be exposed in certain projects for not only English courses but also in all subject matters.

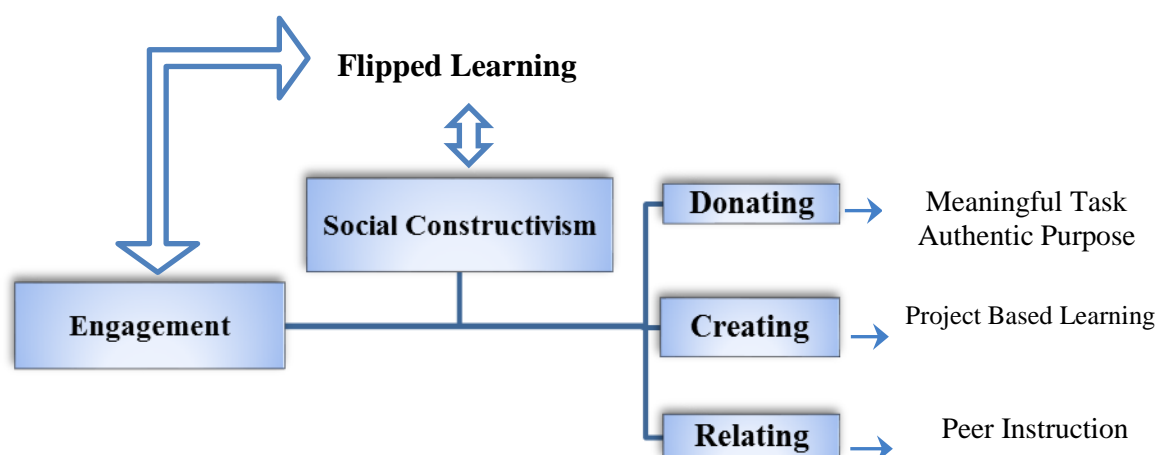


Figure.1. The design framework.

Gathering similar principles which include two different theories; Constructivist and Engagement, the paper showed the possibility of integrating them to achieve good level of engagement through the authentic focus on a problem. Educational technology can deliver access to the wide variety of materials, such as raw data and primary sources LMS, which students require to successfully accomplish authentic tasks (Lindquist & Long, 2011) (see Fig. 2). By focusing on Donating (authentic focus on a problem), as the final output of the project based learning, collaboration support and peer instruction (Wentzel, Battle, Russell, & Looney, 2010). Kearsley and Shneiderman (1999) concluded with relate to understand the variability and complexity of the engagement of student, and to recognize its value as a predictor of educational success. For example, Marshall (2007) claimed that teaching by using a combination of face-to- face lectures, online authentic material and workshops contributes to a significant feature of the course.

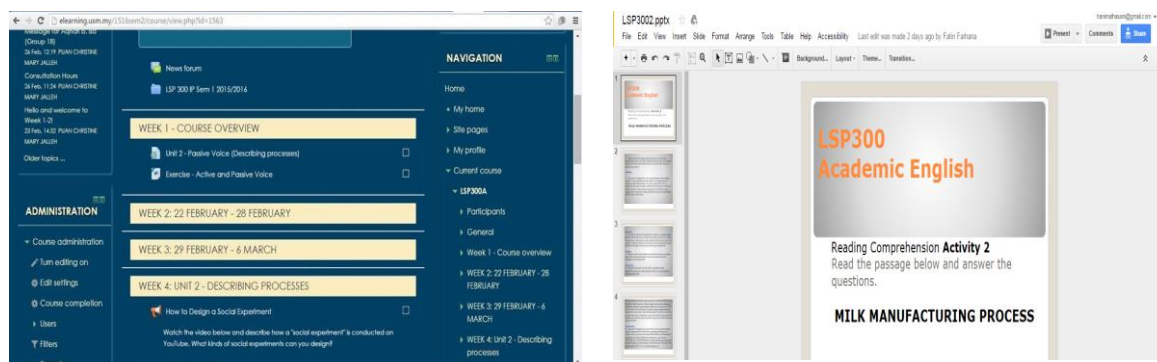


Figure 2. Using LMS in delivering the contents

THE STUDY

The main objective of this paper is to suppose a design of the suitable theories of flipped learning with peer instruction that guide to discover the student engagement level. The entire framework of this present research builds upon the engagement theory by Kearsley and Shneiderman (1999) which serves as the framework for the technology-based teaching and learning Engagement; then, it integrates with the constructivist theory by Vygotsky (1978) to engage students actively. To address this gap, professors/instructors require to design and coordinate teaching activities that engage students and require cultivating interactive participation, focusing on concepts and insuring that the students understand the material (Tay & Allen, 2011). Scant research found in English language is unclear, therefore, the efficacy level of flipped classroom for English language teaching (ELT) setting remains blurred (Miller & Maloney, 2016). Thus we investigated:

1. The effects of Flipped Learning Only (FLO) and Flipped Learning with Peer Instruction (FLPI) on students' engagement in an Academic English course.
2. The effects of FLO and FLPI on students' engagement in an Academic English course with regards to their gender.

METHODS

An experimental study was conducted in a public Malaysian University for five weeks. An experimental study was conducted in a public Malaysian University for five weeks. One hundred and seventy Malaysian students were chosen from intact classes from various fields. Their age ranged from 20 to 22 years which represents 80 % of the total number of students who registered for the basic Academic English course. The students were divided into two groups equally, 85 for FLO and 85 for FLPI. Convenience sampling was used due to the definite type of students which fit the current study, easy accessibility, geographical proximity, availability at a given time, or the willingness to participate (Etikan, Musa, Alkassim, 2016).

INSTRUMENT

The engagement questionnaire (EQ) for this research was adopted from Reeve (2013). Moreover, the questionnaire has 21 items divided into four dimensions: Behavioural, Agentic, Cognitive, and Emotional. The engagement questionnaire is conceptualized as behavioural engagement with five items which describe the participation on class work and contribution to learning; seven items for agentic engagement depicted the suggestion and opinion on learning and contribution to enhance learning; cognitive engagement with four items focused on motivation and effort in learning and desire to explore what had been learn; and

emotional engagement contains five items which concentrated on affective reaction in the classroom and sense of problem responsiveness. The Cronbach alpha for average engagement is .81 which is acceptable $>.70$. Table 1 shows the Cronbach alpha for the dimensions. The students were instructed to determine their engagement level following a 5-point Likert-Scale of 1-5 (5= strongly agree, 4=agree, 3=not sure, 2=disagree and 1=strongly disagree).

Table 1. Cronbach Alpha of Engagement Questionnaire

Aspect	Items	Alpha Value
Behavioural	5	0.81
Agentic	7	0.78
Cognitive	4	0.81
Emotional	5	0.80
Average Engagement	21	.81

FINDINGS

The descriptive statistics of average students' engagement is presented in Table 2 and Figure 3. It is shown that the mean, median and mode are 3.86, 3.82 and 3.57, respectively. Moreover, the minimum, maximum and standard deviation are 2.62, 4.95 and 0.46, respectively. From the responses to the 21 items, a student could score a maximum of 120 or a minimum of 21.

Table 2 Descriptive Statistics Students' Engagement

	N	Mean	Median	Mode	Standard Dev.	Minimum	Maximum
Behavioural Engagement	170	4.039	4.000	4.000	.570	2.20	5.00
Agentic Engagement	170	3.861	3.857	3.57	.529	2.14	5.00
Cognitive Engagement	170	3.720	3.625	3.50	.755	1.25	5.00
Emotional Engagement	170	3.773	3.800	3.800	.730	1.80	5.00
Average Engagement	170	3.856	3.821	3.57	0.455	2.81	4.95

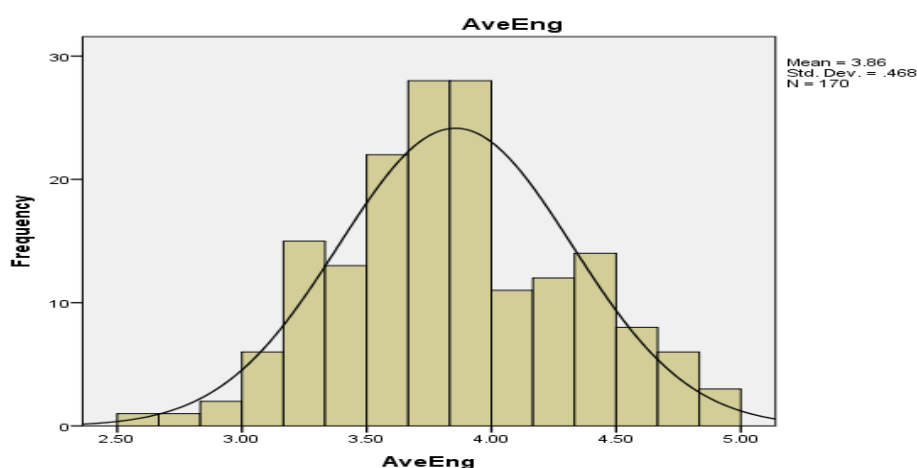


Figure 1.3 Frequency distribution of Average students Engagement

Description of Students' Engagement Scores Based on Groups

The study makes comparison between FLO and FLPI groups based on the adjusted mean scores of students' engagement. Table 3 indicates that there are differences between the adjusted mean scores of average students' engagement in FLO and FLPI groups. It is shown that the adjusted mean scores of FLPI (4.052) with standard error (0.046) is larger than the adjusted mean of FLO (3.671) with standard error (0.046).

Table 3. *Description of Students' Engagement Scores Based on Groups*

Dependent Variable	Groups	N	Mean	Std Dev.	Adjusted Mean	Std Error
AveEng	FLO	85	3.667	.389	3.671 ^a	.048
	FLPI	85	4.041	.442	4.052 ^a	.046

Table 4 shows the Z-values for both skewness and kurtosis as well as the statistics utilized for their computation. The Z-values were computed using the formula proposed by Tabachnick and Fidell (2007). Since it is shown that the computed Z-values for both skewness and kurtosis are lower than the critical value of Z-distribution at .01 level, the assumption about normality failed to be rejected. Hence, the distribution has no skewness and kurtosis problems. It is shown that the distribution of student's engagement are negatively skewed. Similarly, both the distribution of student's engagement have negative kurtosis. In the following part, Figure 1.4 shows normal Q-Q Plot of average students' engagement.

Table 4. *Z-Value for Student's Engagement*

	Average Engagement
N	170
Minimum	2.81
Maximum	4.95
Mean	3.854
Std Error of Mean	.035
Median	3.809
Mode	3.57
Std Deviation	.455
Skewness	.276
Std error of Skewness	.186
Z-value for Skewness	1.484
Kurtosis	-.413
Std Error of Kurtosis	.370
Z-value Kurtosis	-1.116

Description of Students' Engagement Scores Based on Groups

Table 5 indicates that there are differences between the adjusted mean scores of average students' engagement in FLO and FLPI groups. It is shown that the adjusted mean scores of FLPI (4.052) with standard error (0.046) is larger than the adjusted mean of FLO (3.671) with standard error (0.046).

Table 5. *Description of Students' Engagement Scores Based on Groups*

Dependent Variable	Groups	N	Mean	Std Dev.	Adjusted Mean	Std Error
AveEng	FLO	85	3.667	.389	3.671 ^a	.048
	FLPI	85	4.041	.442	4.052 ^a	.046
BehEng	FLO	85	3.878	.583	3.914 ^a	.064
	FLPI	85	4.200	.512	4.201 ^a	.061
AgeEng	FLO	85	3.713	.555	3.718 ^a	.059
	FLPI	85	4.009	.459	4.007 ^a	.057
CogEng	FLO	85	3.473	.756	3.464 ^a	.082
	FLPI	85	3.968	.671	4.022 ^a	.078
EmoEng	FLO	85	3.562	.738	3.576 ^a	.082
	FLPI	85	3.984	.662	3.993 ^a	.078

Description of Students' Engagement Scores Based on Groups and Gender

Table 6 reports the adjusted mean scores of both male and female students in FLO and FLPI groups. It reveals that there is a difference between the adjusted mean scores of male and female in average engagement in FLO and FLPI groups. The adjusted means of male and female students in both FLO and FLPI indicate that the adjusted mean score of female students in FLPI (4.059) with standard error (0.058) is higher than the adjusted mean score of male students in FLPI (4.046) with standard error (0.072). Similarly, the adjusted mean score of female in FLO (3.687) with standard error (0.056) is higher than the adjusted mean score of male in FLO (3.655) with standard error (0.078).

Table 6. Description of Students' Engagement Scores Based on Groups and Gender

Dependent Variable	Groups	Gender	N	Mean	Std Dev.	Adjusted Mean	Std Error
AveEng	FLO	Male	30	3.635	.388	3.655 ^a	.078
		Female	55	3.685	.392	3.687 ^a	.056
		Total	85	3.667	.389		
	FLPI	Male	33	4.039	.459	4.046 ^a	.072
		Female	52	4.041	.434	4.059 ^a	.058
		Total	85	4.040	.442		

Results of Students' Engagement Scores Based on Groups and Gender

The results presented in Table 7 show that the interaction effect on average students' engagement is not statistically significant at the 0.05 level $F(1, 161) = 0.022, p=0.882$. Thus, it cannot be concluded that female students in FLPI have more average students' engagement relative to male students in FLPI. Also, it cannot be inferred that male and females students in FLPI have greater average students' engagement compared to male and females students in FLO. But, we cannot reject the hypothesis that there is no interaction effect between groups and gender in students' engagement at 0.05 statistically significant level. The results reveal that the effect of the FLO and FLPI on average students' engagement is statistically significant at the 0.05 level $F(1, 161) = 32.976, p=0.000$. Since the adjusted mean of FLPI (3.996) is larger than the adjusted mean of FLO (3.710), it could be concluded that FLPI is more effective relative to FLO. Hence, we reject the hypothesis that 'there is no significant difference in students' engagement when using FLO and FLPI'. The effect size is large ($\omega^2 = 0.153$) based on the criteria set by Kinnerra and Gray (2008). Accordingly, the size effect is small with $\omega^2 < 0.06$, medium with $0.06 \leq \omega^2 < 0.14$ and large with $\omega^2 > 0.14$. Finally, the statistical results support the hypothesis that students who treated with FLPI were more engaged compared to students who treated with FLO.

Table 7. Results of Average Students Engagement scores based on Groups, Gender

Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig	Partial Eta Squared	Observed Power ^b
Corrected Model	AveEng	7.861a	8	.983	5.825	.000	.244	1.000
Intercept	AveEng	63.615	1	63.615	3771.13	.000	.701	1.000
Group	AveEng	5.562	1	5.562	32.976	.000	.170	1.000
Gender	AveEng	.020	1	.020	.118	.732	.001	.063
Group*Gender	AveEng	.004	1	.004	.022	.882	.000	.052
Error	AveEng	27.157	161	.169				
Total	AveEng	2559.935	170					
Corrected Total	AveEng	35.018	169					

a. R Squared =.224 (Adjusted R Squared=.186) b=Computed using alpha =.05

DISCUSSION

The adjusted mean score of the average students' engagement in the FLPI was significantly higher than the adjusted mean scores of students' engagement in the FLO group. The statistical results support the hypothesis that students who treated with FLPI have more average engagement than students who were administered with the FLO.

The results of the ANOVA was not statistically significant at 0.05 level $F(1, 161) = .008, p = .929$. The results of the ANOVA reveal that none of the dimensions of engagement was statistically significant at 0.05 level. Although it could be argued that female students have more engagement (considering adjusted mean scores of average engagement) compared to male students, but the effects are not statistically significant at 0.05 level.

The results presented in Table 7 show that the interaction effect on average students' engagement is not statistically significant at the 0.05 level $F(1, 161) = .022, p = .882$. Thus, it cannot be concluded that female students in the FLPI have more average students' engagement relative to male students in FLPI. Also, it cannot be inferred that male and females students in FLPI have greater average students' engagement compared to male and females students in the FLO. But, we fail to reject the hypothesis that there is no interaction effect between groups and gender in students' engagement at 0.05 statistically significant level.

Female students have a higher adjusted mean score in the average engagement than male students regardless of group. However, the statistical results did not support the hypothesis that students' engagement was more effective with regards to gender. As for the dimensions of engagement, the study finds mixed results for gender. While the adjusted mean scores of female students are greater than the adjusted mean scores of male students in agentic engagement, the reverse is the case in behavioural, cognitive and emotional engagements. This finding refutes Teoh et al. (2013) who compared students' engagement and its indices across gender and year of study. They found that female students showed greater engagement than male students, albeit there was no significant difference on year of study.

This study suggests that the difference between the adjusted mean scores of male and female students in engagement is statistically insignificant. Several reasons could be responsible for this phenomenon. First, it implies that there was no difference in the level of interaction between the students (male and female) and the instructor. Similarly, the students irrespective of gender also interacted with the content of the course. Unlike some countries (Saudi Arabia) where male and female students are physically segregated in the learning environment (and respectively taught by the same gender, which could have effect on their learning outcomes (Albalawi, 2007), this study finds that both male and females students have same level of interactions.

Second, the attitudes of the students towards the lessons could be responsible for the results. Both male and female students have the same attitudes towards their tasks during the lessons. This refutes the assertion that male students have more positive attitudes than female students in the use of computer technology assisted learning or when working with the internet because the latter is a male-dominated technology (Gunn et al., 2003). The outcomes of this study confirm some recent studies (Ono & Zavodny, 2003) that indicated no significant difference in the use of technology and computer among male and female students.

Furthermore, there was no significant difference in the level of participation in the learning environment between female and male students. The guidance and direction received by male and female students were also identical. The discussion among the groups and with the teacher gives valuable direction to the students to follow and this improved the participation of male and females students thereby having identical engagement level. As noted by Dixson (2010) for task completion individually and in groups, the instructor acts as catalyst for the students in order for them to have greater engagement with the presence of the instructor. This has positive effects on their engagement and learning experiences.

Also, the male and female students in this research were given the same module, same learning activities and were exposed to the same e-learning processes (pre-test, presentation/discussion and post-test feedback). The male and female students were given the same orientation regarding the objectives of the study, and they attained identical level of engagement. Wen (2008) computed the way student engagement in same task could well be oriented to the objective of learning language because the students finds it fundamentally fascinating which have positive impact on learning outcomes. Sierra and Wang (2002) found no significant gender differences in online discussions.

IMPLICATIONS AND RECOMMENDATIONS

Either learners or faculty members will have a greater knowledge in using the flipped classroom approach as it has later empowered students to take into their consideration of their learning tasks and to be engaged in peer instructions. For practical purposes, this project will be limited to an investigation of on-campus small-class size delivery, hence, monitoring of students individually enable the project to be acknowledged achievement. Agreeing with the claim of Szparagowski (2014) that the flipped classroom lessons with a small time table, the instructor might focus the use of developing student background knowledge more effectively. Further work is needed to establish the real connection between the theories of student engagement, student learning and their implementation through applicable teaching methods. These hints will be emerged via continuous teaching, research, and publication. Ultimately, this study urges for a new understanding of how the FLO can be useful for engagement, but not as effective as the FLPI, when it compared to the same results of engagement. The study recommends repeating these flipped lessons with peer instruction again due to additional practice problems can be added via videos to give students more practice than just the video quiz.

CONCLUSION

The aim of this paper is to provide a structured framework for class activities that is fixed in good educational practice and theory, and to address the student engagement interaction inside the class that are identified in the literature of university engagement. This research explicitly highlighted the major implications of the findings from the study. It stressed the importance of PI as a complement to FL. The finding of this research could increase the opportunities for collaboration between researchers and the academic community at the national, regional and international levels. This research could accentuate the establishment of a theoretical framework on FL with PI on how to promote students' engagement and reading comprehension. It also makes useful contribution to the study on PI. The findings of this research would be beneficial to course designers and instructors in designing learning environments that would give consideration to students experience instruction, construct and knowledge process in such a way that the course design focus on meaningful learning in-line with the curriculum.

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A FRAMEWORK FOR MANAGING COMPLEXITY IN HIGHER EDUCATION

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ABSTRACT

This theoretical paper depicts the changes in the context of higher education with the help of complexity theory and the Cynefin framework. The framework is developed with the intention to offer perspectives to explore complex systems in knowledge work characterized by uncertainty and lack of cause-effect relationships. There is an ambitious national project in Finland aiming at changing the work life in Finland the best in Europe by 2020, because work life in Finland has encountered many reforms lately, and these changes have increased the demand level of work, which in turn requires changes from higher education and its outcomes.

INTRODUCTION

There is a national project (Työelämä 2020, 2013) in Finland aiming at making Finland the most educated nation by year 2020. The program also aims at improving the quality of work life in Finland - to make it the best in Europe by year 2020. At the same time, the country has encountered a long financial recession where the state budget money spent in education has been cut. Improving the quality of education and work life at the same time as cutting the financing of education has put the institutions of higher education in a difficult – if not impossible – situation. In sum, higher education institutions are required to produce more results and better results with less money. This paper discusses the challenges the universities of applied sciences have faced in this complex situation denounced by conflicting requirements, and the paper also suggests a theoretical framework to help in sense making of the situation.

The Finnish higher education systems consists of first cycle university degree (bachelor's degree), the second cycle university degree (master's degree) and postgraduate studies (third cycle) that lead to a licentiate or a doctoral degree. The universities offer all three cycles. The universities of applied sciences offer either bachelor's degrees consisting of 3.5-4.5 years of full-time study including a mandatory period of practical training and master's degrees requiring 1-2 years of part-time study. In addition to educational tasks, the universities of applied sciences have an important position in regional development in terms of research, development and innovation.

The higher education sector is going through changes concerning both their financing and their administration. This has required a change in legislation. The first phase of renewals started in the beginning of 2014 concerning the change in the financing model. The financing of universities of applied sciences used to come from municipalities, but in the new financing model, it comes from the state budget. Due to these changes, the universities of applied sciences lost one fifth of their financing between years 2012-2015. The new financing model is based mainly on the amount of degrees produced and on the pace of proceeding of studies. 85% of money comes based on outcomes in education and the rest 15 % from outcomes in research and development activities. (Salminen, 2013.) From the beginning of year 2015, all universities of applied sciences have operated as corporations under public law. Operations as an independent legal person are supposed to give the universities of applied sciences a more independent status and more flexibility. This has also implications to the leadership model and decision-making of the schools. However, despite the corporal structure, the universities of applied sciences operate as non-profit organizations.

The evaluation criteria for universities of applied sciences are the quality, effectiveness, efficiency and the economic soundness of operations. To fulfill the targets the universities of applied sciences among other institutions of higher education have been urged to lengthen the work careers by cutting the time spent in higher education studies and by introducing new learning environments, new ways of learning and new ways of teaching. Alasoini (2011) states that it has been recognized on national level that developing the quality of work life conditions and productivity support each other. Differences in the production level are created mostly inside working communities by the way that work is done. Recognizing this change requires renovation and innovation. There is a quest for new practices in working, new kinds or work life skills and ability to utilize the possibilities offered by (digital) technology to enhance the quality and effectiveness of teaching and research and development in universities of applied sciences.

Traditional management research considers organizations as machine-like mechanisms that can be controlled (Morgan, 1996). It is common for traditional management theories to assume that organizations need some kind

of hierarchical management. Indeed, these kinds of management models function well in the context of physical production, for instance. However, they seem to be ill suited in knowledge-oriented economy like educational institutions. (Uhl-Bien et al., 2007.) The change of paradigm from traditional management towards complexity theory in defining the context of organizations has changed the ways of working and organizing. Redefining organizational practices means moving away from mass production efficiencies, hierarchical organization and central control and introducing flexible, learning organizations that constantly change and solve problems through interconnected, self-organizing processes. (Daft & Lewin, 1993.)

SHORT INTRODUCTION TO COMPLEXITY THEORY

Complexity theory grew out of systems theory in 1960's. Complexity theory – including the concepts of chaos, emergence and self-organization – has been considered one of the most revolutionary products of the 20th century having influence on science, technology, economics, finance and social sciences among others. Complexity theory suggests that organizations tend to self-organize themselves to a state where they regulate themselves. Any complex systems, such as organisms, societies or the Internet, have emergent properties that cannot be reduced to the mere properties of their parts. The behaviour of these systems is unpredictable and uncontrollable, and it cannot be described in any complete manner. (Heylighen, 2009.)

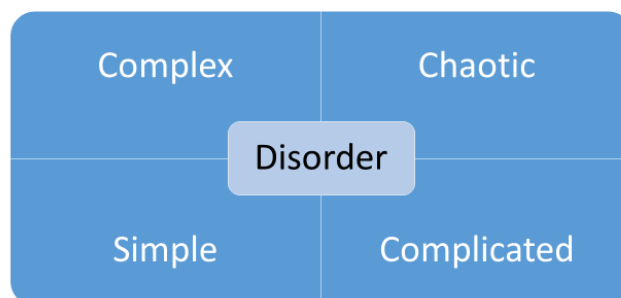
Complexity theory posits that systems begin as collections of individual actors who organize themselves and create relationships that form in response to positive or negative feedback. New structures and behaviours then emerge as the actors act and react to each other – creating value because of individual interactions. The emergent result is often more than, or qualitatively different from, the sum of individual actions. (Haffeld, 2012.) Feedback loops serve as the driver for the evolution of the system. Positive feedback moves individual actors or groups of actors closer to a goal perceived to be important while negative feedback suppresses change and drive the system towards equilibrium. (Mason, 2008). This kind of non-mechanistic approach and resistance to reductionism made a worldview different from the traditional scientific approach. By the 1980s, researchers at the Santa Fe Institute attempted to unify some of these core concepts into a model known as a complex adaptive system (CAS). While this model shares commonality with elements of all the preceding theories, the nature of complex adaptive systems is an entity itself and still an evolving construct. (Alhadeff-Jones, 2008.)

CYNEFIN FRAMEWORK

Kurtz and Snowden (2003) and later Snowden and Boone (2007) developed the Cynefin framework as a sense-making tool for strategic decision making in business problems and situations. The conceptual thinking draws from knowledge management and complexity science. The framework challenges the assumptions of order, rational choice and intent (Massy, 2005). The Cynefin framework offers a perspective of complex systems characterized with uncertainty. The framework is based on the idea that many problems in management are caused by the mismatch of management style and organizational environment. The objective of the framework is to reach consensus to reduce the unknown domain. (Ahmed et al., 2014.)

The Cynefin framework is described in figure 1. The quadrants represent types of situations that organizations typically face and need to manage. The ordered domains are called simple and complicated; the unordered domains are called complex and chaos. The fifth are is the domain of disorder. Unorder does not mean lack of order in the model, but instead it describes emergent order. The Cynefin framework is not a categorization framework that implies that the most desirable situation is in the upper right corner. On the contrary, none of the domains is better than the others. (Kurtz & Snowden, 2003.)

Figure 1: The Cynefin framework



Different contexts in the Cynefin framework are described as follows by Kurtz and Snowden (2003) and Snowden and Boone (2007) as follows:

1. A simple context is the realm of known where the cause and effect relationship is known and repeatable and where it is possible to determine, based on facts, a correct action or right answer for each situation in advance. Repeatability allows the use of predictive models and it is possible to operate based on routines and standard operating procedures. A simple context represents the domain of best practice that are derived from past experience.
2. A complicated context is the realm of known unknowns. It is also predictable but more varied because the cause and effect are separated over time and space. However, it is possible to move from this domain to the simple domain if only enough time and resources can be used. There are clear relationships with multiple answers but all these challenges can be tackled using analysis, scenario planning and systems thinking. It requires expertise and communication between experts. This is the domain of learning organization and good practice.
3. A complex context is the realm of unknown unknowns and the domain of emergent practice. It is the domain of complexity theory. Complex is something that situates between order and disorder exhibiting predictability in some and unpredictability in other aspects at once. Complexity theory studies how patterns emerge through the interaction of many agents. A complex context is one where the cause and effect relationships are not known and where there is no predictability. This is why categorization or analytic techniques are not available. Information is unstructured and related but people do not know how. Taking decisions cannot be based on knowledge or analytical approach but instead, the actions are based on emerging patterns, experimentation and increased interaction. The management is based on facilitating because this space requires multiple perspectives. It is possible to evaluate the adequacy of actions only in retrospective because emerging patterns are such that they can be perceived but not predicted.
4. A chaotic context is more turbulent, complicated, surprising and challenging than a complex context. The cause and effect relationships cannot be defined. Every piece of information is a fragment with no relationship to any other. Applying best practice is what probably what precipitated chaos and there is nothing to analyse nor will patterns emerge. In a chaotic context people need strong contention, authoritarian intervention and crisis management to reduce the turbulence. Novel practice and innovations come to the force in a chaotic context and it is possible to enter this domain on purpose in order to open up new possibilities.
5. Disorder is a context where an organization ends up from any of the above-mentioned contexts when it is unable to recognize its context. It is a domain to understand conflict among decision makers looking at the same situation from different points of view. In this kind of situation people tend to pull it towards the domain they feel the most comfortable. That is why it becomes important to reduce the size of the disorder domain and to achieve consensus among decision makers – both on the situation and on the most appropriate response.

MANAGING IN COMPLEX CONTEXT

The Cynefin framework provides pointers on how to study complex systems (der Walt & de Wet, 2008). It can be utilized for contextualization. Most decision-making situations in organizations take place in a complex context. In this kind of context management practices include, among others, the improvement of communication, the promotion of new ideas, tolerance for difference and the constant observation of the organizational context. (Snowden & Boone, 2007.) Indeed, it is as interesting to investigate the possibilities concerning moving between the different domains of the Cynefin framework as to think of the present domain because a move across boundaries requires a shift to different way of understanding and interpretation – and thus a different leadership style. The simple and complicated domains are the domains of order where the most important boundary for sense making is what can be used immediately because it is known and what needs time and energy to be found out but is knowable at the end. In the complex and chaotic domains, knowability is less important but interaction is important – that is, what we can pattern in complex domain and what needs to be stabilized for patterns to emerge in chaotic domain. (Kurtz & Snowden, 2003.)

The order domain, i.e. the simple and complicated ones, represent an area where the connections between managers and staff are strong. There are structures that control behaviour like procedures and forms. On the other hand, the disorder domains, i.e. the complex and chaos, are such that the connections between managers and staff are weak and control through structure usually fails. In complex and complicated domains, connections between staff are strong and stable group patterns can emerge. In simple and chaotic domains, connections between staff are weak and emergent patterns do not form on their own. (Kurtz & Snowden, 2003.)

The simple domain is characterized by a clear relationship between cause and effect. The decision model in this domain is to sense the situation, categorize it and respond. The response is based on best practice. The complicated domain is also characterized by cause and effect but there may be multiple right answers. The decision model is to sense, analyse and respond. This requires expert work and the response is based on good practice.

The complex domain is unpredictable in a way that cause and effect can only be understood in retrospect. Answers are found by experimentation and the decision model is to probe, sense and respond. This way practice emerges. (Kurtz & Snowden, 2003.)

The domain of chaos is such that there is no link between cause and effect nor are there any right answers. The decision model is to act, sense and respond as, for example, in crisis management. Crises often occur when weak signals have been omitted and there has been an unrecognized context change in the simple domain. It is a situation where best practice ceases to work and the system collapses catastrophically into chaos. In that kind of situation there are two different approaches: either the decisive, directive management control to re-establish the good practices, i.e. forcing the organization to move from chaos back to the simple domain, either to look for small patterns in the chaos that show the type of practice the organization wants to have. Managers can thus support these beneficial patterns and try to replicate them throughout the organization. This is a way to move from chaos to the complex and then the complicated domains. However, neither of these approaches automatically guarantees success. Finally, the domain of disorder is one where the domain cannot be defined or decided. (Kurtz & Snowden, 2003).

In a complex environment, the employees have to make an effort to collaborate. Thus, flatter hierarchies, decentralization of decision-making, self-organization, emergence, the empowerment of employees and the creation of new order are key characteristics of complex systems (Daft & Lewin, 1993; Mitleton-Kelly, 2003). In the case of a complex or occasionally even chaotic environment (Kurtz & Snowden 2003), which are typical for knowledge work (Donnelly, 2006) there is a need for other kinds of ways of working and ways of managing. The probe, sense and respond model becomes useful for the management (Kurtz & Snowden, 2003).

IMPLICATIONS FOR HIGHER EDUCATION INSTITUTIONS

Educational governance usually tends to be complex rather than complicated and its solutions are not necessarily replicable and transferable (Snyder, 2013). However, educational initiatives often attempt to dwell in the realm of the complicated when in fact they are operating in the realm of the complex (Duit et al., 2010). This means that problems are often solved by experts launching a solution they believe is whole, complete, widely replicable and easily actionable. However, complex problems cannot be captured with such linear approaches. (Morrison, 2010; Duit et al., 2010.)

Educational governance thus requires an approach that allows for changing initial conditions, the emergence of non-mechanistic phenomena and flexibility. Above all, it must allow for the fact that reductionism will not work – there will be no single right answer, no single approach that holds the key to successful implementation. Flexibility and feedback are necessary to manage successfully in a complex system, but doing so requires a fundamental reframing of the way we look at common problems in educational governance. Policies must move from one-size fits all solutions to iterative processes derived from constant feedback between all stakeholders and the barriers between design and implementation should be collapsed. The whole undertake becomes process-driven rather than outcome-driven. This requires strong leadership at all levels, and focusing on the complex interactions of the actors within educational systems, creating a broader view of educational systems as holistic organisms. It will also require an approach that allows key issues to be identified within complex systems so that the nature of educational systems does not lead to systemic paralysis and to the temptation of oversimplification. Viewing governance issues in isolation and seeking reductionist approaches targeting specific policy areas or pedagogical changes is unlikely to yield positive, sustainable change on a large scale. To be effective in a complex realm requires a fuller understanding of complexity itself. (Snyder, 2013.)

As the complexity of context increases, organizations must increase their own complexity to correspond the complexity level of their environment, because it takes complexity to defeat complexity (Uhl-Bien et al., 2007). Organizations in complex environments have consciously given up pursuing order and control and this is reflected in the ways of working and managing. They are operating at the “edge of chaos”, which is the balance necessary for adaptation and self-organization to occur. There are a number of positive features, such as flexibility, autonomy and robustness, that traditional mechanistic organizations lack. The positive qualities are aspects of the process of self-organization, where order is created out of disorder. These kinds of systems organize themselves to the state where they want to be and where they regulate themselves as to better cope with internal and external conflicts and this allows them to adapt to a constantly changing environment. (Heylighen, 2009).

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A PROPOSAL SUGGESTED FOR MATHEMATIC TEACHERS' PROFESSIONAL DEVELOPMENT IN THE KINGDOME OF SAUDI ARABIA BASED ON STEM EDUCATION

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INTRODUCTION

the Ministry of Education in the Kingdom of Saudi Arabia has placed a significant importance on teachers' professional development, in an effort to cope with education reform worldwide. National strategy initiatives for public education development took many forms in order to ensure the best qualitative shift in the performance of Saudi educational systems (King Abdullah Project for Public Education Development, 1431AH). One of the most notable efforts of the Ministry of Education is STEM initiative launched on 2010 within a package of national strategies for public education development. This kind of education is based on the integration between engineering, technology, science, and mathematics; as well as the elimination of barriers among these cognitive areas. It also aims to find creative optimal solutions for real problems, and to develop students' on going learning abilities; encouraging them to create and innovate. The role of engineering is highlighted by the importance and effectiveness of finding several solutions with high, global efficiency; developing thereof critical thinking skills necessary for the modern life (Kennedy & Odell, 2014).

The Ministry seeks through STEM initiative to develop public education by enhancing students' understanding and acquisition of research and scientific skills; as well as increasing their achievement levels. The Ministry also spares no effort to improve teachers' competencies of effective teaching and expand opportunities of applying knowledge, and mathematical, scientific skills. The above-mentioned initiative concentrates on teachers' professional development through building global partnerships with pioneering universities and organizations in science and mathematics education, establishing scientific centers, and developing the digital content supporting teaching and learning process (Ministry of Education, 2010).

STUDY REVIEW

Several modern researches, literatures and studies highlight the importance of teachers' development in Saudi Arabia in light of STEM education; one of which is a study conducted by Aldossari (2015) "Diagnosing STEM Education in Saudi Arabi in Light of International Experiences" which recommended to establish pre-and in-service training programs to train mathematics and science teachers on STEM education. Moreover, the 1st Excellence Conference in Teaching and Learning of Science and Mathematics: STEM (King Saudi University, 2015) shed the light on the importance of conducting further researches on Saudi teachers' practices and performance, and developing various programs necessary for enhancing STEM teaching in public education in the Kingdom by improving teachers' capabilities.

Accordingly, this study provides a proposal for mathematic teachers' professional development in the Kingdome of Saudi Arabia based on STEM education as a new modern approach in mathematics education.

Question of the Study:

what is the proposal suggested for mathematic teachers' professional development in the Kingdome of Saudi Arabia based on STEM education?

Importance of the Study:

the proposal suggested in this study plays a key role in assisting education policy makers to design programs for mathematics teachers' professional development in accordance with STEM approach. It also helps colleges of education in Saudi universities to develop teachers' training programs based on that approach. Moreover, the proposal can guide educational supervisors to design in-service mathematics teachers' performance and encourage those teachers to develop themselves.

Study limitations:

The study was restricted to providing a proposal for mathematic teachers' professional development in the Kingdome of Saudi Arabia based on STEM education from the prospective of seventeen experts in mathematics education during the first and second semesters 2015/2016.

Study terminologies:

STEM Approach: it is the abbreviation of four cognitive learning areas: science, technology, engineering, and mathematics. These areas are integrated in the learning and teaching process through creating a learning environment that can help learners to listen and involve in educational workshops and projects; making them able to develop their skills and knowledge to comprehensively, coherently, easily and enjoyably understand the various sciences.

STUDY METHODOLOGY

the study used the analytical descriptive methodology through reviewing international researches, literatures, and experiences relevant to STEM approach. The proposal was formed based on the following:

- Reviewing STEM education's researches and studies.
- Investigating the reality of mathematics teachers' professional development concerning STEM education in Saudi Arabia.
- Reviewing international experiences in STEM education particularly with regard to STEM training programs for teachers in the United States and United Kingdom.

Accordingly, the initial proposal was established and a questionnaire was developed to receive feedback from seventeen experts in mathematics education using Delphi method via three intervals. After these intervals, the study suggested the following proposal based on five main themes; each one is linked with several sub-requirements:

The first theme: "Educational System Development"	
1	Developing educational systems to meet STEM requirements
2	Allocating enough budget to support and meet STEM requirements
3	Identifying professional development programs, times, and regulations of FTE for candidate teachers
4	Identifying incentives mechanisms and promotion systems for teachers enrolling to STEM programs
The second theme: "The Concentration of STEM Deep Cognitive Content"	
1	Realizing teachers' abilities and motivations to fully understand STEM concepts
2	Identifying components necessary for development through various experiences related to real-world problems relevant to STEM education
3	Emphasizing on building current teachers' capabilities in STEM by designing developmental programs based on appropriate contexts
4	Developing specialized materials in STEM for teachers such as digital simulations and videos
5	Providing teachers with all resources concerning STEM education
6	Publishing researches, and studies supporting STEM education
The third theme: "Educational Skills Necessary for STEM Professional Development"	
1	Developing teachers' accurate understanding of STEM education
2	Recognizing students' misconceptions regarding STEM, and identifying correctional methods by teachers
3	Encouraging students to research, design experiences, and process data in STEM education
4	Recognizing the optimal way to increase students' enthusiasm toward learning STEM topics
The fourth theme: "STEM Professional Development Strategies"	
1	Using various strategies to enable teachers to design and transfer experiences that reflect their scientific understanding of STEM
2	Improving teachers' teaching methods through ongoing discussions about STEM issues
3	Enabling teachers to use various tools of self-reflection such as peer coaching and portfolios
4	Encouraging the exchange of experiences among teachers through supervisors, trainers, and outstanding teachers to provide STEM professional development opportunities
5	Benefiting from high performance teachers to serve as STEM resources
6	Enhancing the use of technology to create direct and virtual learning communities for exchanging best practices
7	Providing learning opportunities and developing procedural research skills to create new STEM knowledge
The fifth theme: "Support and Assistance toward STEM Professional Development"	
1	Providing clear opportunities appropriate for teachers' professional development within one school's context
2	Creating appropriate affective STEM teaching environment inside and outside schools
3	Establishing partnerships between Ministry of education and local and international institutions to develop STEM professional development

RECOMMENDATIONS:

- Developing training programs for teachers in Saudi universities to meet STEM requirements and establishing new standards to ensure high quality of these programs in light of STEM education.
- Designing training programs for mathematic teachers in accordance with STEM education.
- Benefiting from partnerships between Ministry of Education and institutions of local and international society in concluding agreements to develop teacher's STEM abilities.
- Designing the curriculum to consist with STEM approach.

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A STUDY OF HYPERMEDIA ANNOTATION TYPES AND LEARNING STYLES AMONG TURKISH EFL LEARNERS

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The use of technology in education in general and on ESL teaching and learning has gained great popularity among educators and scholars as there are many educational institutions adopting these new technologies in the conventional classroom environment. Mobile phones, tablets, computers and many diverse forms of information technologies are in use in today's foreign language learning environments. It is a widespread belief that learners have different styles in getting new information in language learning and the effectiveness of teaching without taking into account of these different styles is questionable. Among many components of language learning, vocabulary attracted much attention in language learning and teaching. To date, vocabulary is the dimension of language that has been most intimately involved with technology. This presentation will concentrate on the effects of hypermedia annotation types and different learning styles on Mobile Assisted Vocabulary Learning and retention levels of English learners through a reading text. In other words, it first examines hypermedia annotation preferences of EFL learners with specific reference to different learning styles during a hypermedia reading text. Second it will explore the relationship between annotation use and mobile assisted vocabulary learning and retention. This study will take place in 2014-2015 academic year in a Turkish state school. The medium of instruction is English and students take 4 hours of English courses per a week with a curriculum which is applied in all secondary education schools in Turkey. The students have both paper-based coursebooks and electronic equivalents of their coursebook in their tablet computers. Participants of the study were two seventh grade classes of a state elementary school. One of the classes will be chosen randomly as treatment group and the remaining class will be control group which receives no gloss. The number of the students in each class is approximately 30. They share similar educational backgrounds. Data for this study will come from (a) Log files which will be driven from multimedia software (developed by the researcher), (b) SAS Learning style questionnaire, (c) data from interviews, (d) think aloud protocols, (e) pre-test immediate vocabulary test, delayed vocabulary test and late delayed vocabulary test (developed by the researcher). The results will be discussed in detail.

A STUDY OF TECHNOLOGY-MEDIATED ORAL TRAINING IN THE FOREIGN LANGUAGE CLASSROOM

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This study proposed a multimodal approach, adopted from VARK model (visual, aural, reading/writing, and kinesthetic/gestural), that aimed to enhance English oral competence with the support of audio and video technologies in a collegiate speech class. Specifically, this pre-test-post-test research intended to explore how the audio and video technology-mediated approach as training tactics affected the participants' level of presentation self-efficacy and perceptions of their presentation skill levels. Data was collected over an academic year through two perception questionnaires and oral presentation marks. The findings indicated that the multimodal approach was effective in enhancing the participants' oral presentation performance and led to heightened speech self-efficacy and self-perceived competence in speech skills at the end of the project. To sum up, this study bridges the gap in the literature on multimodal training for EFL oral communication. In addition, the research results have important pedagogical implications for teaching and learning in EFL speech education.

Keywords:

EFL speech competence, presentation self-efficacy, technologies, VARK

A STUDY ON FACTORS AFFECTING ENVIRONMENTAL RISK PERCEPTION, ATTITUDES AND BEHAVIOUR OF SECONDARY SCHOOL STUDENTS

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ABSTRACT

The aim of environmental education is to give the students awareness and knowledge regarding environmental issues to make them have pro-environmental attitudes and behavior. In accordance of this aim, there is a growing body of researches regarding to the influence of the environmental education at school. On the other hand, the researches have shown that students' knowledge regarding environmental issues is influenced by environmental education at schools. In contrast to this, environmental education at school has very little influence on pro-environmental behavior and attitudes. Most of these researches are focused on teaching program effectiveness, teaching methods and effects of socio economic status of students on their pro-environmental characteristics. There are few studies about this in literature, which are aimed to seek the schools' physical and cultural characteristics, which can influence the environmental education at school. In the study, it was aimed to investigate the relationship between environmental education at school and environmental awareness of secondary school students, their environmentally responsible behaviors and environmental attitudes. In scope of environmental education at school, it was aimed to find out the features of schoolyards and school buildings and the frequency of such environmental education activities which are implemented additionally to in-class activities.

Survey research method was employed in the research. The study was conducted with 1003 secondary education students whom are residents in Ankara. In terms of gender, 56% of the students were male and 44% were female. The Prosperities of Schoolyards, School Building Questionnaires (PSYSBQ), and Environmental Education Activity Questionnaire (EEAQ) were developed and administered in order to determine the state of environmental education at secondary schools. In PSYSBQ, students were asked whether the listed organization existed in the school building and schoolyard. If an organization on the list exists, 1 point is assigned and 0 if not. In EEAQ, twelve environmental activities were listed and students were asked how often these activities were carried out. The items of questionnaire were rated with 4-point Likert type scale. The Environmental Appraisal Inventory (EAI), Environmentally Responsible Behaviors Scale (ERBS) and New Ecological Paradigm Scale (NEP) were used in order to determine the participants' environmental awareness, environmentally responsible behaviors and environmental attitudes respectively. The EAI was developed by Daneshmandi & MacLachlan (2000) and adapted by researchers to Turkish language. The NEP scale was designed as 5-point Likert-type scale, developed by Dunlap and Van Liere (1978) and revised by Dunlap, Van Liere, Mertig, & Jones (2000). It was adapted by researchers (Atav, Altunoğlu & Sönmez, 2015). The ERBS was developed by researchers as a 5 point Likert-type scale. In scope of construct validity of the scale, the factor analysis was conducted. To identify the loadings of the items, Principal Axis Factoring was used with the promax rotation method. The factor analysis revealed a three-factor solution to which we assigned the following labels: 'Conscious consumption', 'Energy and water saving' and 'Warning others'.

The results of the study suggested that students have evaluated schoolyard and school building as not appropriately organized to create pro-environmental school climate. According to students' responses, it was determined that implementation of most of the environmental education activities and personal involvement on these activities were very rare. Pearson correlation coefficients show that environmental education at school (PSYSBQ and EEAQ) had low but positive relationships with environmental awareness (EAI), environmentally responsible behaviors (ERBS) and environmental attitudes (NEP).

In the light of the research, it can be concluded that students attributed the physical feature and cultural climate of secondary schools as less environmentally friendly. Therefore it can be suggested that in secondary schools, the schoolyards and building should be designed in a more environmentally friendly way.

Keywords: Environmental education, Environmental risk perception, Pro-environmental world view (NEP), Pro-environmental school, environmentally friendly behavior and activit

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A STUDY TO ANALYZE THE NOVICE TEACHERS' PERCEIVED ADOPTION OF TEACHING STYLES IN THE INITIAL TEACHER EDUCATION INSTITUTIONS IN PAKISTAN

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Teaching styles have been the center of focus in the preparation of novice teachers in the initial teacher education institutions. The current study deals with the perceived adoption of teaching styles by the novice teachers at the initial teacher education (ITE) institutions in Pakistan. The study involved 282 novice teachers at two largest initial teacher education institutions in Pakistan i.e., the university of the Punjab and BZ University Multan. The respondents were selected through random sampling technique while involving final year's novice teachers. The survey instrument "Teaching Style Inventory" was administered to analyze the novice teachers' perception regarding teaching styles. The descriptive results revealed that the novice teachers were more inclined towards the traditional teaching styles such as "teacher as expert" and "teacher as a formal authority" instead of the constructivist teaching styles such as "teacher as a personal model" "teacher as a facilitator" and "teacher as a delegator". Several recommendations and implication are suggested for the policy makers, curriculum developers, teacher educators and heads of initial teacher education institutions.

A THEORETICAL FRAMEWORK MAPPING BARRIERS OF INTEGRATING AND ADOPTING EDUCATIONAL TECHNOLOGY

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In the field of educational technology, a decades-long research question is: what barriers exist in integration and adoption of information and communication technology (ICT) in education educational technology? The intensity of integration and the rate of adoption are significantly low and the interdependencies of barriers within the complex education system are under-represented in the existing categorization of the barriers. So, based on an interest in re-categorizing, mapping, and analyzing the barriers from a transformative paradigm, this study builds on a systematic literature on 9 peer-reviewed review articles. Existing categorizations of barriers are identified and an analysis is conducted to establish a macro-meso-micro level approach as a theoretical framework representing the education system and its external environment. A second analysis identifies, maps, and analyzes some of the barriers in existing literature by using the theoretical framework. The paper manifests that the macro level's (national) pre-set goals conflict with expectations from the meso level's (institutional) educational technology integration. Moreover, factors at the macro and meso levels influence the micro-level (individual) adoption decision. Instead of "system blame" or "individual blame", an integration and adoption approach should consider national holistic view for careful strategic changes in policies, procedures, and practices at each decision level of the educational system and related external systems.

A VIRTUAL VOCABULARY TEACHER FOR LITERARY TEXT EVALUATION

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Computerized classification of Turkish texts according to its emotional context requires language-specific dictionaries where the individual words are processed in the same way. In Turkish literature courses it is necessary to introduce new words to the students and evaluate a literary text/texts using these words. In this study, chosen texts are processed by the computer to reveal their overall emotion content. A pre-determined number of native Turkish speaking test users are asked about the emotion aroused in them with the given words, then the words are classified according to these emotions. Then these emotions corresponding to the words are used to automatically evaluate a literary text/texts. The students can compare this automatic result with his/her own evaluation. These tests were repeated on several users to compare and interpret the results. This way, a step is taken towards the creation of a Turkish-specific emotion dictionary. We hope this study will pave the way for further studies on automatic text classification in Turkish and enable students to better understand what they read, write, and listen.

ACADEMIC AND SOCIAL MEDIA PRACTICES OF ARABIC LANGUAGE AMONG MALAYSIAN STUDENTS

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ABSTRACT

Nowadays, more and more countries are paying attention to graduates' language skill and sending their students abroad to learn languages. As an Islamic country, Malaysia has sent many students to learn Arabic language and Islamic knowledge. This paper aims at examining the level of practice of Arabic language among Malaysian students in Jordanian universities. The study seeks to answer the following questions: What is the level of practice of Arabic language (academic, social media) among Malaysian students of Jordanian universities? Do any significant differences exist in the level of Arabic language practiced by Malaysian students of Jordanian universities in relation to certain variables? Results indicate that the Malaysian students had a medium level of practice of Arabic language. Significant differences were observed among gender, marital status, and field of study variables, whereas no significant difference was identified among university, level of study, distance of residence to the university, previous school, housemate qualities, nor CGPA.

INTRODUCTION

Many nations have acknowledged the need to produce more graduates who are multilingual in the effort to compete in the global society. Malaysia has confirmed the importance of proficiency in a third language in order to develop human capital that helps the economy besides remaining competitive in the international arena (Zubairi & Sarudin, 2009 ; Pufahl, Rhodes & Christian, 2000). As an Islamic country, Malaysia is one of the countries paying most attention to the study and preservation of Arabic language, and it provides scholarships to

support a large number of students to study abroad in different fields related to the study of Arabic (Latifah binti Abdul Latiff, 2004).

According to Oberg (2006) students studying abroad undergo four stages in their adjustment and practice of the target language. In the first few weeks, most of the students were observed to have a fascination with the new environment and language. This stage may last from a few days or weeks to six months depending on circumstances. The second stage is characterized by a hostile and aggressive attitude toward the host country, resulting in troubles at home and school, in language study, transportation, and shopping, whereas the people in the host country are largely indifferent to all these troubles. The consequence is aggression and the tendency of the students to join their fellow countrymen in criticizing the host country. People who overcome the second stage stay in the host country; otherwise, they leave before reaching the stage of a nervous breakdown. If the students succeed in obtaining knowledge of the language, which is a basic requirement in learning, and begin to use the language, their learning will be facilitated. In acquiring a complete adjustment at the fourth stage, one not only adapts to the food, drinks, habits, and language, but also begins to enjoy them. Students who are in the process of practice and understanding will attain enjoyment in time.

The language acquisition process does not involve a conscious or organized effort, but it is a tradition and simulation dependent on social learning theory. According to Bandura, a basic role of social learning theory is an individual obtaining opportunities in various life situations and spontaneously as required in social communication. For example, the children acquire language by exposure to many opportunities involving the practice of the language with the community and learning the origins of the language and its rules (Abdulsalam, 2012; Lightbown & Spada, 2002).

So, the high interaction within a group will result in an individual learning the target language more rapidly than an individual performing self-learning because of the continued use and practice of the language. Alternatively, a student who does not engage in interaction will fall behind because of inadequate practice and use of the language (David, 1997).

De Keyser (2007) indicated that practice has a central importance in skill acquisition in both cognitive and educational psychology. In cognitive psychology, Anderson (2000) mentioned the adaptive control of thought theory that hypothesizes practice as the driving force behind skill acquisition and the vehicle that can transform declarative knowledge to procedural and then to automatized knowledge. In educational psychology, Ericsson, Krampe, and Tesch-Romer (1993), Ericsson and Charness (1994), and Ericsson (1996) demonstrated the effect of deliberate practice in developing expert skills in a wide range of domains. In addition, numerous hours of specific practice and training are necessary in reaching the highest levels of performance (Ericsson, 2006). Contrary to common belief, the effects of extended deliberate practice are highly extensive. Performers can acquire skills that circumvent the basic limitations on working memory capacity and sequential processing. Deliberate practice also induces anatomical changes as a result of adaptation to intense physical activity. The study of expert performance has important implications for our understanding of the structure and limits of human adaptation and optimal learning. The scientific study of deliberate practice will enhance our knowledge

about how experts optimize the increase in performance and motivation through a high level of daily practice continued for days, months, and years (Ericsson, 2004).

De Keyser (1998) viewed the relevance of practice in second language learning as an essential skill to be acquired, and the engagement in deliberate practice predicted higher performance ratings (Sonnetag and Kleinc, 2000). Ushida (2005) identified students who are most successful in learning a second language as those who consistently speak the language and integrate with the culture connected with the language. This is strongly associated with the personality of the individual (Smith and Renk, 2007).

On the other hand, we are currently surrounded by new technology, such as computers, the Internet, e-mail, voice mail, compact discs, and fax machines, which create meaningful and relevant contexts for learning language. According to modern language principles and practice, the use of ICT can bring people directly into contact/practice with others from around the world, and provide real-life contexts that motivate students and young people and help them to see a purpose to their language learning and help them to develop their knowledge, understanding and appreciation of the culture surrounding the language being studied (Education Scotland, 2015).

In this study, we discuss about social media, Grahl (2013) revealed that social media can be divided into six different which include: 1.social networks (e.g., Facebook, LinkedIn); 2.bookmarking sites (e.g., Delicious, StumbleUpon); 3.social news (e.g., Digg, Reddit); 4.media sharing (e.g., Instagram, YouTube, Flickr); 5.microblogging (e.g., Twitter); and 6.blogging, particularly comments and forums. The popularity of social media tools has increased dramatically over the past years.

Hillman and Säljö (2016) advocated that academic learning was not only limited in the school, the use of social media is also one important resource. Hence, the practice of Arabic language learners does not only depend on the academic aspect, that is, the atmosphere of learning and teaching in the field of education, but also on the direction and extent of practice in various areas, such as random exposure, involvement in the social community, culture and customs, participation in different clubs and activities, and use of media or television (Ahmed, 2011).

Moreover, Mikal and Grace (2012) commented that social media and electronic connections to family members can reduce stress and help students with psychological adjustment in living abroad. Emotionally well-adjusted students find it easier to enjoy their experience in a foreign culture and to be more satisfied when engaging with locals (Mikal, Yang, & Lewis, 2014).

Álvarez Valencia (2015) declared that “social networking has compelled the area of computer-assisted language learning (CALL) to expand its research palette and account for new virtual ecologies that afford language learning and socialization”.

New technical possibilities result in new types of text and then to new social possibilities, as people find different means of communicating and practicing a language with each other (Shortis, 2001). Gray et al. (2007) revealed that students overall have a positive perception on the use of Internet tools in language study. A computer-mediated communication environment was revealed to decrease the psychological barriers of students,

enabling them to freely express their opinions and to actively communicate on the Internet, while their critical thinking, problem-solving, and communication skills are enhanced by online activities or class homepage construction. The criterion of success is whether students have a strong and authentic sense of development and evolution in their language practice, their understanding of their language practice, and the situations in which they practice (Atweh et al., 2002).

Godwin-Jones (2016) discussed in his study the personal and learning benefits of technology use while abroad, the formation of second-language identities, the affordances for pragmatic language development, the integration of mobile devices for place-based language learning, and the opportunities for enhancing intercultural communication competence; all of this explained that social media help students in language learning while abroad.

Only a few studies have discussed the impact factors on language learning abroad, for example: gender (Kinginger, 2013; Pellegrino Aveni, 2005), age, racial or ethnic characteristics (Simon & Ainsworth, 2012) and Social class and economic status also can be factors as well (Kinginger, 2004). A major contributor to success or failure is motivation, or the degree to which students are invested in becoming part of the target linguistic and cultural community (Godwin-Jones, 2016).

Hence the purpose of this study is to investigate the level of practice of Arabic language (academic, social media) among Malaysian students in Jordanian universities. And to see if any significant differences exist in the level of Arabic language practice of Malaysian students in Jordanian universities in relation to gender, university, field of study, level of study, marital status, distance of residence to the university, previous school, housemate qualities, and CGPA.

METHODS

Participants and Sampling

The participants of this study comprised Malaysian students who are studying in Jordanian universities. After researchers refer to some of the studies (Harmer, 1991; Raban, Brown, Care, Rickards & O'Connell, 2011). The language practice questionnaire covered 35 items and the researchers distributed them to a random sample of 386 students from the following institutions see [Table 1]

Table 1. Frequency and percent scores on variables

Study Variables	variables levels	Frequency	Percent
Gender	Male	170	44.0
	Female	216	56.0
University	University of Jordan	15	3.9
	University of Yarmouk	160	41.5
	University of Mu'tah	53	13.7
	Jordan University of Science and Technology	37	9.6
	Al Bait University	121	31.3
Field of Study	Study of Islam (Shariah/Usuluddin/Islamic Economics...)	260	67.4
	B.A. (Language/Literature Arabic...)	87	22.5
	Science (Medical/Dental/Pharmacy...)	39	10.1
Level Of Study	Year 1	189	49.0
	Year 2	86	22.3

	Year 3	68	17.6
	Year 4	43	11.1
Marital Status	Single	371	96.1
	Married	15	3.9
Distance of residence to the university	About 500 meters	223	57.8
	Around 1000 meters	60	15.5
	More than 1000 meters	103	26.7
Previous School	National Religious Secondary School	92	23.8
	Religious Government Aided School	149	38.6
	People of Religious school	65	16.8
	National Secondary/Boarding School	80	20.7
Housemates	From one country (Malaysia) only	106	27.5
	the various states (Malaysia)	263	68.1
	A variety of countries, including Jordan	17	4.4
C. Percentage G.P.A.	84 to	20	5.2
	68-75	177	45.9
	76-83	162	42.0
	68 and below	27	7.0
Total		386	100.0

Table 1 shows the details of the participants. From this table we can see that the number of female students (216) exceeds the male students (170); University of Jordanian (10 males and 5 females), Yarmouk (72 males and 88 females), Mu'tah (12 males and 41 females), Science and Technology (22 males and 15 females), and Al Bait (12 males and 41 females). Some 96.1% of participants are single and 67.4% participants study in field of Islam. Furthermore, around 80% participants' previous schools are religious schools and around 96% participants' housemates are Malaysian.

Reliability of the Instrument

According to Pallant (2007), reliability refers to internal consistency, which denotes the extent of cohesion among the items of the instrument; that is, how the items measure the same underlying construct (language practice). The results are shown in [Table 2]

Table 2. Coefficient reliability of the language practice scale

Cronbach's alpha	N of Items
.94	36

Among various statistical references, the main test used to check the reliability or the internal consistency of the instrument was the Cronbach's alpha coefficient, which should have a value of more than .7 (Pallant, 2007). With the Cronbach's alpha coefficient of .94 for the entire instrument (36 items) of the language practice scale, therefore the instrument is acceptable and has good internal consistency (.94 > .7).

FINDINGS

The study answers the following three questions:

1. What is the level of Arabic language practice (academic and social media) of Malaysian students in Jordanian universities?

To answer this question, the researcher analyzed the language practice score from SPSS. Means and standard deviations scores were used to clarify the level of Arabic language practice of Malaysian students in Jordanian universities.

Table 3. Means and standard deviations scores on the practice item

	N	Mean	Std. Deviation
Academic Practice	386	3.4624	.59768
Social media Practice	386	3.2205	.75220
Valid N (list wise)	386		

Table 3 shows that students have a medium level of academic practice ($M=3.46$, $SD=0.59$), and social media practice ($M = 3.22$, $SD = 0.75$) for Arabic language. And the participants practice using social media less than academic practice.

2. Do any significant differences exist in the level of Arabic language practice of Malaysian students in Jordanian universities in relation to gender, university, field of study, level of study, marital status, distance of residence to the university, previous school, housemate qualities, and C. percentage G.P.A.?

The following Table 4 gives the mean and standard deviation scores on the practice language according to variables of the study.

Table 4. Means and standard deviations scores on the practice language by variables of the study

Study Variables	Variables levels	Mean	Std. Dev.
Gender	Male	3.40	0.61
	Female	3.38	0.61
University	University of Jordan	3.19	0.45
	University of Yarmouk	3.34	0.62
	University of Mu'tah	3.45	0.59
	Jordan University of Science and Technology	3.01	0.59
	Al Bait University	3.56	0.56
Field of Study	Study of Islam (Shariah/Usuluddin/Islamic Economics...)	3.38	0.57
	B.A. (Language/Literature Arabic...)	3.62	0.61
	Science (Medical/Dental/Pharmacy...)	2.97	0.58
Level Of Study	Year 1	3.37	0.62
	Year 2	3.28	0.54
	Year 3	3.57	0.53
	Year 4	3.41	0.73
Marital Status	Single	3.37	0.60
	Married	3.92	0.55

Distance of residence to the university	About 500 meters	3.41	0.63
	Around 1000 meters	3.39	0.45
	More than 1000 meters	3.34	0.65
Previous School	BC National Religious	3.42	0.53
	Religious BC Government Assistance	3.41	0.62
	SM Agama Rakyat	3.45	0.64
	BC National/Residential	3.26	0.64
Housemates	From one country (Malaysia) only	3.29	0.55
	the various states (Malaysia)	3.39	0.62
	A variety of countries, including Jordan	3.95	0.47
C. Percentage G.P.A.	84 to	3.21	0.66
	68-75	3.37	0.63
	76-83	3.47	0.57
	68 and below	3.17	0.61

As shown in Table 4, significant differences were observed between the averages of second language practice among the respondents, considering the previously mentioned variables. To examine the significance of these statistical differences, nine-way ANOVA without interaction analysis was performed, and the results are presented in Table 5.

Table 5. 9-way ANOVA without Interaction on the practice Arabic language by variables of the study

Source	Sum of Squares	df	Mean Square	F	Sig.
Gender	2.561	1	2.561	8.297	0.004
University	2.448	4	0.612	1.982	0.097
Field of Study	3.631	2	1.816	5.882	0.003
Level of Study	2.484	3	0.828	2.682	0.047
Marital Status	3.013	1	3.013	9.761	0.002
Distance of Residence	0.375	2	0.188	0.608	0.545
Previous School	0.706	3	0.235	0.762	0.516
Housemates	4.746	2	2.373	7.687	0.001
C Average GPA	2.908	3	0.969	3.140	0.025
Error	112.366	364	0.309		
Total	142.396	385			

Table 5 shows the statistically significant differences among the following variables at the level of $\alpha \geq 0.05$ in the second language practice: there are no significant difference $\alpha \geq 0.05$ among universities, Distance of residences and Previous schools. Moreover, there are significant difference $\alpha < 0.05$ in male ($M = 3.40$, $SD = 0.61$) and female ($M = 3.38$, $SD = 0.61$) the results favored male respondents, Marital status married ($M = 3.92$, $SD = 0.55$) and not married ($M = 3.37$, $SD = 0.60$) the results favored respondents who were married.

To derive the statistically significant difference field of Study (Study of Islam or B.A. or Science), Level of Study (Year 1 or Year 2 or Year 3 or Year 4), Housemates (From one country (Malaysia) only or the various states (Malaysia) or A variety of countries, including Jordan), C Average GPA (84 to or 68-75 or 76-83 or 68 and below) the researcher conducted the Levene test to check the homogeneity of variances, power and robust to non-normality (Gastwirth & Miao, 2009), the results are shown in [Table 6].

Table 6. Levene test results of practice by variable (Field of Study, level Of Study Housemate, C. Average GPA)

F	df1	df2	Sig.
1.387	254	131	0.018

The results indicated a violation of the homogeneity of variance at the significance level of $\alpha = 0.05$ because of the variables of the study, which include field of study, level of study, housemate qualities, and CGPA. Hence ($\alpha < 0.05$). Thus, the researchers implemented the Games–Howell test to detect significant differences between the arithmetic mean which include field of study, level of study, housemate qualities, and CGPA. Hence. The Games-Howell is essentially a *t*-test for unequal variances that accounts for the heightened likelihood of finding statistically significant results by chance when running many pairwise tests (Howell, 2012). The results of this test are presented in Tables 7, 8, 9, and 10.

To detect significant differences between Field of Study (Study of Islam or B.A. or Science), the researcher used the Games –Howell test to analysis the language practice scores and the results are shown in Table 7.

Table 7: Games –Howell test the degree of practice by variable Field of Study

Field of Study	Games-Howell	
	Mean	Sig.
Science (Medical/Dental/ Pharmacy...)	2.965	
Study of Islam (Shariah/ Usuluddin/ Islamic Economics...)	3.376	0.411
B.A. (Language/Literature Arabic...)	3.618	0.653

The findings demonstrate a statistically significant difference at the level of $\alpha \geq 0.05$ for the arithmetic mean of field of study, which favored students of B.A. in Language/Literature Arabic ($M = 3.62$, $SD = 0.65$) compared with those specializing in Science (Medical/Dental/Pharmacy) ($M = 2.97$, $SD = 0.41$) and *Shariah/Usuluddin/Islamic Economics* ($M = 3.37$, $SD = 0.24$). By contrast, the differences were more favorable to students of *Shariah/Usuluddin/Islamic Economics* than to students of Science (Medical/Dental/Pharmacy) in Arabic language practice.

To detect significant differences between Level of Study (Year 1 or Year 2 or Year 3 or Year 4), the researcher used the Games-Howell test to analysis the language practice scores and the results are shown in [Table 8].

Table 8. Games –Howell test the degree of practice by variable level of Study

Level Of Study	Year 2	Year 1	Year 4	
Games-Howell	Mean	3.279	3.368	3.410
Year 1	3.368	0.089		
Year 4	3.410	0.131	0.042	
Year 3	3.574	0.295	0.206	0.164

As shown in Table 8, a statistically significant difference for level of study was observed, favoring Year 3 students ($M = 3.57$, $SD = 0.29$) more than Year 4 students ($M = 3.41$, $SD = 0.13$), Years 2 students ($M = 3.28$, $SD = 0.09$) and Year 1 students ($M = 3.36$, $SD = 0.042$) in Arabic language practice.

To detect significant differences between Housemates (From one country (Malaysia) only or the various states (Malaysia) or A variety of countries, including Jordan), the researcher used the Games-Howell test to analyze the language practice scores and the results are shown in [Table 9].

Table 9. Games –Howell test the degree of practice by variable Housemate

Housemates	From one country (Malaysia) only		The various states (Malaysia)
	Games-Howell	Mean	
the various states (Malaysia)		3.286	3.395
A variety of countries, including Jordan	3.395	0.108	
	3.946	0.660	0.551

The differences that appeared of housemates as in the Table 9 were in favor students of variety of countries including Jordan ($M = 3.95$, $SD = 0.66$) compared with from one country (Malaysia) ($M = 3.29$, $SD = 0.11$) and the various states (Malaysia) ($M = 3.39$, $SD = 0.55$) in Arabic language practice.

To detect significant differences between CGPA (84 and above or 68-75 or 76-83 or 68 and below), the researcher used the Games-Howell test to analysis the language practice scores and the results are shown in [Table 10]

Table 10. Games –Howell test the degree of practice by variable C. Average GPA

C. Percentage G.P.A.	Games-Howell			
	Mean	68 and below	84 and above	68-75
84 and above	3.206	0.034	3.206	3.373
68-75	3.373	0.201	0.167	
76-83	3.466	0.294	0.260	0.092

Table 10 presents a statistically significant difference for CGPA, which favored students of 76 to 83 ($M=3.47$, $SD=0.29$) compared with 68-75 ($M=3.37$, $SD=0.09$), 84 to ($M=3.21$, $SD=0.17$), 68 and below ($M=3.17$, $SD = 0.03$) in Arabic language practice.

CONCLUSIONS

The overall result showed that participants have a medium level in practice (academic and social media) Arabic language. Michael and Ibrahim (2013) described Malaysians as naturally simple, calm, timid, and low in initiative compared with Jordanians who Malaysian students perceived as having a strong and serious personality. Simultaneously, the findings in the present study are similar to those of Michael and Ibrahim (2013) who argued that Malaysian students are weak in using the Arabic language and practice this language less intensively than native speakers. Moreover, Malaysian students tend to avoid conversing in Arabic with others.

According to Ismail, Mahmod, Qadous, and Mohamed (2013), the Malaysian students who study abroad said during the interviews conducted by the researchers, one challenge they face in the academy is the language, because the lecturers, local students and the university staff do not use the standard Arabic language in their communication. This makes the Malaysian students confused and anxious as they read books and references in standard Arabic. Thus, they will refrain from participating and interacting with classroom climate or outside the classroom. (Barron, 2006; Saghir, 2001; Tinto, 1996). In this regard, Macintyre (1998) suggested that to address this weakness, a comfortable environment should be established inside the classroom to increase the confidence of students and encourage them to communicate in Arabic with others. Concurrently, teachers should create

suitable classroom conditions for Malaysian students to motivate and promote communication with others inside the classroom. Malaysian students will subsequently develop a positive attitude toward Arabic language practice (Ushida, 2005). Furthermore, Haron, Ahmad, Mamat, and Mohamed (2010) suggested that from the academic practice side knowledge of vocabulary and grammar seem to be inseparable and indispensable to speak a second language, because in order to say something learners must have the knowledge of vocabulary and grammatical structure to form sentences correctly. The result also found that students prefer to do academic practice on Arabic language more frequently than social media practice. The reason more likely academic language is typically found in textbooks, it always used in the classrooms for education purpose (Bailey, 2007), probably because the participants are residing outside their countries, so they resort to using social media much more to connect with relatives and friends in their own language. Thorne (2010) declared that the upsurge of online social interaction may be attributed in part to a desire to connect with new people, to share opinions, to stay in touch with old friends and colleagues, and to share different types of information with a widespread community of followers. Mikal and Grace (2012) commented that social media and electronic connections to family members can reduce stress and help with psychological adjustment in those living in abroad. And emotionally well-adjusted students find it easier to enjoy their experience in a foreign culture and more satisfying to engage with locals (Mikal, Yang, & Lewis, 2014).

This study concluded that there are significant difference in Malaysian male and female students in practice, with the results favoring male respondents. This finding differed from that in Malek, Noor-Azniza, and Farid, (2011) where the results revealed no gender differences. With regard to this, Cook's (1995) study shows that female students face a lot of the problems during the adjustment and the establishment of relations on campus compared with male students.

Ismail, Mahmud, Qadous, and Mohamed (2013) resulted that it is clear that the marital status factor has a great role in the adjustment and is very important for the students who are under pressure during their studies. This study results favored respondents who were married in practice Arabic language. Although (Ismail, Zailaini, Mohamed, Ali & Xuan, 2015; Poyrazli & Kavanaugh, 2006) concluded that unmarried students reach higher levels of adjustment compared to married students, because most of the married students living abroad leave their wives behind. But the Malaysians students in the current study are residing in Jordan with their wives so the factor of marital status is a positively contributing factor in helping them to adjust and cope with the difficulties.

As for the result on the statistical differences, we can see that students whose housemate come from a variety of countries (including Jordan) were favored in Arabic language practice more than students living with housemates from the same country. Bergström, Klatte, Steinbrink, and Lachmann (2016) described "Immersion appears to be a successful method for early second language learning; it fosters second language receptive skills without any cost for the first language."

Additionally, Cohen (1990) supports the teaching context should with the intent that learners become active, independent users of the strategies wherever they see opportunities to do so; this can make students become self-regulated learners and help them to overcome the challenges they meet and acquire the language. Ushida (2005) emphasized that teachers should create a unique class culture that will affect student motivation and attitude toward second language study. Teachers should also demonstrate the skills at a high degree, better than those practicing language at the low level.

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ACCEPTANCE OF TECHNOLOGY AND ITS IMPACT ON TEACHER'S ACTIVITIES IN VIRTUAL CLASSROOM: INTEGRATING UTAUT AND COI INTO A COMBINED MODEL

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This study examines the acceptance and use of learning management systems (LMS) among higher-education teachers and the relation between their use of such systems and their teaching approaches in the context of online learning, following the community of inquiry (CoI) framework. A total of 326 teachers at University of Ljubljana completed a questionnaire. Our main research goal was to examine the impact of a basic Theory of Acceptance and Use of Technology (UTAUT) structural model, with the CoI framework as a complement. The latter adds three new aspects to the use of LMS for educational purposes, representing complex cognitive and social dimensions of teaching in the virtual space. We found that the crucial factor for LMS acceptance by university teachers is the immediate social influence at work, but the formation of the learning process largely depends on the characteristics of the LMS tools and the perceived usefulness of the application.

ACHIEVING BETTER LEARNING PERFORMANCE THROUGH THE DISCUSSION ACTIVITY IN FACEBOOK

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This study was conducted to see the effectiveness of using Facebook for expressing opinions on given topics to improve students' oral proficiency and critical thinking skills in an English class at a private university. The participants were 80 students enrolled in a course which emphasized the use of English for expressing ideas. Three research questions were formulated to evaluate the effectiveness of teaching and learning. Data were collected by two small group discussion tests, a questionnaire and postings in Facebook. The results indicated that students achieved better performance in the second small group discussion test. Also, they had a high level of satisfaction with the discussion activity they did in Facebook. The results revealed positive correlations between students' score results and their participation. The findings suggest that different learning activities be included in future courses to allow students to practice more on discussion, making them improve not only their critical thinking, but language usage as well, and we can relate performance with students' participation to evaluate the effect of those activities.

ACTION RESEARCH AS A TOOL TO INFORM PRE-SERVICE INSTRUCTION

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ABSTRACT

Authors investigate ways teacher education programs utilize data to prepare teachers. Authors use knowledge from graduate-level action research projects to drive change in an undergraduate pre-service teacher-training program. Authors argue that action research can be a catalyst for a better design of instruction and classroom dynamics on across educational levels.

Key words: Action research, pre-service teacher education, classroom teaching

Action research is teacher engagement in inquiry, the type of inquiry that enables practitioners to take action and then act upon the results (Dana, 2013). Dana points out that, historically, the action research process asks teachers to reflect upon individual learners, curriculum, pedagogy, student learning styles, and/or classroom structure with the goal of gathering information that will enable a teacher to:

- develop reflective practice
- effect positive changes in the school environment
- alter long standing educational practices
- create a classroom environment that is qualitatively different from environments that exist in test-driven classrooms.

At the same time, it is also important that we, in our role as teacher educators, provide opportunities for our students to become change agents, decision makers, consultants, curriculum developers, activists, and school leaders while they are in the classroom (Cochran-Smith & Lytle, 1999). This, we suggest, can be done through the introduction of action research. Current emphasis on reflective teaching practices makes action research easy to use, primarily because the action research process itself enhances one's own quest for improvement (Neapolitan, 2000). Action research is not imposed upon teachers by someone else, but is a self-directed process (Mills, 2011); therefore, it allows the practitioner to express his/her own unique identity as a teacher (Dana, 2013).

As an action researcher, one reflects upon the results of the data collected. While this is paramount to improving teaching and learning in the PreK-12 classroom, understanding the results of action research can also help higher education faculty as they prepare teacher educators and consider the structure of their teacher education programs. Ironically, some of these educational training programs are criticized as inadequately addressing issues that occur in the field (Brydon-Miller, Greenwood, & Maguire, 2003). This omission in relevancy might possibly be attributed to the fact that teacher education faculty no longer participate in the daily activities of PreK-12 classrooms. Consequently, we have decided to fill that void through our graduate student action research projects. We, as faculty in a university education program, use conclusions from the projects of the graduate students that we oversee to inform our own teaching of undergraduate students enrolled in our teacher preparation program.

In our graduate action research courses, we require students to analyze the data collected. But once the data are analyzed and interpreted, our students need to discuss the implications of these data. This information enables us to demonstrate to our pre-service teachers how collecting data results in change. For a classroom teacher, action research can serve as a tool to understand what works and what does not work in a given classroom for a given set of students. At the same time, action research that concerns itself with school-wide issues can lead to change on a school-wide level. For higher education professionals, working with practicing teachers in graduate

level programs, this new information can be a window through which to view current teaching trends. This new knowledge can then inform college level pre-service educators as to what is important as we train future PreK-12 teachers. It is from this perspective that we address action research in the current paper.

METHOD

Sources of Data

The data analyzed in this work comes from four cases that the authors examined following the teaching of a year-long Educational Research course for masters students in a small private university in the Northeast. The students in the course were practicing teachers who had completed their course of graduate study and were in the last, capstone style course. The goal of the research course was to have each student develop and execute an action research study in their respective classrooms. As instructors, we allowed students to explore their area of interest, coached students through the literature review process, and helped students design the study. Students then collected data for 6-10 weeks, spent time analyzing the data, and ultimately, wrote their final reports.

The four cases presented in this paper are illustrations of how each action research project gives insights to the higher education faculty who teach pre-service education students with regards to current PreK-12 classrooms.

Case 1

Setting. An example of an action research project that influenced learning was a study about student reactions to authentic assignments versus traditional textbook assignments. The study occurred in a ninth grade Algebra I class. For part of the week, the concept was introduced and students completed textbook generated exercises. For the latter part of the week, students had an authentic assignment such as analyzing the correlation between the hours of sleep a student received and his/her last algebra test to understand the topic of scatterplots and lines of best fit. This process occurred over a 4-week period with each week having different authentic assignments.

Findings. Results revealed that students found these authentic assignments to be more challenging than traditional textbook exercises and they felt they understood the concept better because of them. Students also commented that they were more focused and motivated when completing authentic assignments. However, some preferred the traditional assignments because they were more straightforward and simple, although they did believe that the authentic assignments were more useful and applicable to the real world. Observational results also indicated that students remained more on task during the authentic assignments than during the traditional activities. Yet, some students astutely commented that traditional assignments were more useful because tests were often in that tradition.

Implications for Higher Education faculty. As teacher education faculty, much learning was derived from this study that we have adapted into the pre-service teacher preparation courses. One, while we often discuss authentic assignments, we also began to model and discuss what an authentic assessment may look like, ways it should align with the objective, and the integration with traditional activities. Next, we incorporated discussions about creating challenging assignments and comparing those with ones that are too challenging and beyond student ability with those that do not challenge enough. This led to activities and discussions about the validity of student complaints regarding too much work and their abilities at varying ages. Also, time management which is often addressed in a teacher education program, was now viewed with a different perspective. The task analysis of the skills needed to complete authentic assignments prompted students to realize that more time was needed on the given topic. Preservice teachers needed to understand that spending more time on the authentic activities would affect the instruction of other topics that would need to be shortened or omitted to complete the unit of study. Finally, through this process we have realized that more time is needed in analyzing assignment and assessment results to determine common misunderstandings and ways to adjust subsequent lessons.

Case 2

Setting. This case was a single subject study that involved a 4-year old, male, pre-school student diagnosed with Autism Spectrum Disorder (ASD). The child under study exhibited serious deficits in social skills development and, as a result, displayed negative behavior in school playgroups as well as at home with siblings. The teacher, a graduate student in this case, felt that it was the role of the special education teacher to teach these social skills to the student as he “began his educational journey.” In order to help revamp the student’s limited social skills, the teacher created a social story intervention. That intervention included the reading of a social story on a daily basis, the discussion of a comprehension checklist and a modeled play scenario that occurred between the student and the teacher. The social story had been created and illustrated by the teacher specifically for that student. This tailor-made story used the student’s name on each page, pointed out the positive social interactions performed by the student, and finally incorporated colorful illustrations on each page that displayed items of personal importance to

the student under study. The teacher-researcher used comprehension checks, field notes, and partial interval record forms in order to measure growth in the student's behavior and social interaction.

Findings. The results of this 5-week study indicated that applying a social story intervention on a daily basis can effectively improve a preschool ASD student's social skills both in school and at home and provide that student with an opportunity to be socially successful during structured and unstructured dramatic play time.

Implications for Higher Education Faculty. I was able to share the findings of this study with my undergraduate students. This particular intervention garnered a great deal of discussion. Further, I was able to point out that this type of individualized approach to specific social problems, along with the creation of a colorful personalized storybook illustrating acceptable behaviors read on a daily basis, can have a positive impact on the behavior of students with limited social skills. Finally, this particular study allowed all of us to think in terms of the overall need to infuse more information about strategies and interventions into our undergraduate education courses. These special education strategies can be used by all PreK-6 teachers within the classroom for any student who may have limited social skills.

Case 3

Setting. The case was a school-wide study. Working in a diverse school district with a large English as a Second Language (ESL) student population, the teacher-researcher was interested in understanding how peer tutoring affects vocabulary development, namely recognition, of low SES bilingual and monolingual students in second grade. The teacher also noticed that bilingual and monolingual children tended not to interact across groups. The teacher wanted to examine if peer tutoring helped boost the across-group interactions.

To study these issues, the teacher solicited help from her colleagues and her administration. She set up a class with peer tutoring groups. In each peer group there was one ESL student and one monolingual student. She also had classes where there were no peer groups. One such class had only students who spoke Spanish and were learning English at school in the ESL program, and one such class had only monolingual English speaking students. No peer groups or buddy system were used in these two classes, and the instruction was traditional teacher-directed learning in these two classes. In the peer tutoring class, students also had traditional instruction but with one key difference. Students met with their peer buddy four times each week for 30-minute sessions to work on the recognition of the vocabulary sight words and the words from the *Cat in the Hat*, a famous children's book by Dr. Seuss. The teacher also spent time observing children during lunch and recess to note any changes in social interactions. The study lasted 6 weeks.

Findings. The results of the study indicated that the children in all three groups improved; however, ESL students who worked with English speaking buddies showed an almost 53% improvement in the growth of their vocabulary, whereas the ESL students who did not work in peer groups showed 36.83% improvement. Monolingual students who were in a buddy system classroom also outpaced their monolingual counterparts who did not engage in peer tutoring in the growth of their vocabulary. Both monolinguals and bilinguals who were a part of the peer buddy classroom had a higher increase in the number of words they correctly read per minute than did the students who did not have a buddy to work with in either of the two classrooms. In general, students who worked with a buddy for 6 weeks seemed more motivated and happy to work with their partners. In addition to the increased academic achievement, the results of the study indicated that both monolingual and ESL students who had a buddy to work with also spent more time together on the playground and seemed to overcome the barrier of feeling they belonged to only one group.

When the teacher-researcher shared her findings with her fellow teachers and administrators, the discussion about the ability to help ESL students succeed on many different levels ensued. That discussion led to the school-wide change, where the entire elementary school embraced the buddy system.

Implications for Higher Education faculty. The purpose of the study was to investigate the vocabulary recognition during the buddy system tutoring sessions and to understand whether social interactions between the two groups of children can be improved. Higher Education faculty can utilize these findings in their undergraduate classes in many different ways. First, the results of the study affirmed to us that the innovations teachers use in their classrooms matter. Talking to undergraduate students about the fact that these innovations do not need to have classroom boundaries but can and should be open to all teachers in the grade or even a school level is important. It allows pre-service teachers to see the big picture and to understand the types of interactions that are possible.

Evident from the study is that structured social interactions benefit all learners. Higher Education faculty can spend time speaking with the undergraduate students about the fact that pairing of the students was thoughtfully constructed by the teacher based on numerous factors. That means that the teacher in the study had to take the time to know each student and to make sure that the pairing takes into account not only the language skills but also interests, prior knowledge, and experiences. This type of structural interaction is important not only socially, but academically. To be successful, however, the buddy system has to be sustained over a period of time. To ensure the sustained implementation of the system, the teacher had to think about the big picture, namely how the buddy system was set up, the types of supervision and checks that needed to be built in to ensure the seamless work of the tutoring pairs, the preparation of materials, and many other things that ensure the success of a program. Discussing these issues allows us, as faculty, to talk to undergraduate students about the importance of organization, self-discipline, preparation, and teamwork on the part of the teacher.

Working with the graduate student on understanding what works and what does not work in her school and how what works can be used in the daily school activities, helped us as teachers understand the information our undergraduate students need to know about the daily workings of an elementary teacher classrooms with a bilingual population.

Case 4

Setting. This particular action research study was conducted in an eighth grade language arts class; however the results of this study can be applied to both middle and high school levels.

Findings. The teacher-researcher in this case decided that she wanted to address and improve reasoned, logical argument skills in the writing of eighth grade students. The newly instituted Common Core requirements (Standard #1) were at the heart of this study and informed the intervention that she chose to apply. That particular standard reads:

1. Students will be able to write arguments to support claims with clear reasons and relevant evidence:
 - a. introduce claims, acknowledge and distinguish the claim(s) from alternate or opposing claims, and organize the reasons and evidence logically.
 - b. support claims with logical reasoning and relevant evidence, using accurate, credible sources and demonstrating an understanding of the topic or text.
 - c. use words, phrase, and clauses to create cohesion and clarify the relationships among claims, counterclaims, reason, and evidence.
 - d. provide a concluding statement or section that follows from and supports the argument.

The teacher-researcher implemented instruction in critical questioning strategies and used the seven-part Toulmin model of argument as the intervention in order to assist and direct the writing of students under study as they: a) made claims; b) acknowledged claims and distinguished them from opposing claims; c) supported claims with logical reasoning, and d) clarified relationships between claims. The research objective was to have students develop the requisite skills that would lead to logical, reasoned arguments based on analysis of data. Over a 6-week period, students read a number of text in a variety of genres and developed written arguments in response to their readings. Data were collected through pre- and posttest writing scores as well as through a student attitudinal survey. The results of this study indicated that critical question strategies, in conjunction with the Toulmin model, can effectively improve the quality of student argumentative writing.

Implications for Higher Education Faculty. For the members of the teacher education faculty, this was a highly informative action research project. Preliminarily, it reminded us of the fact that the Common Core standards were now stressing argumentative writing and for those who were teaching language arts at either the middle school or high school this was a standard that needed to be considered and addressed. Middle school and high school students would be tested on this skill and it was important that our pre-service teachers (6-12) became aware of that reality. We, as a faculty, further realized that we needed to teach our pre-service teachers the importance of exposing middle school and high school students to the art of taking a position and backing that position up with logical, reasoned data. For those of us who taught writing classes at the graduate level, the results of this action research were extremely helpful. We, as writing instructors, now became familiar with a very prescriptive, but successful and easy-to-follow model (Toulmin) that we could introduce to our pre-service students. Moreover, the design, as well as the results of this action research reminded me, in particular, of the importance of encouraging critical thinking on the part of students in each of my pre-service classes. Requiring our pre-service teachers to think

critically exposes them to the types of questions and strategies that foster the logical and reasoned thought we wish to have students incorporate into their required writing.

Discussion and Conclusion

Based upon gathering and analyzing student data, action research empowers the teacher to take action and address learning differences (Ornstein, Pajak, & Ornstein, 2015) while simultaneously improving student learning and teacher pedagogy (Arends, 2007). Likewise, it does so for Higher Education faculty. Based on the four cases, the following pedagogical implications for pre-service teacher educators can be discerned:

- Modeling authentic activities and assessment while also ensuring their alignment with objectives is an important tool for Higher Education pre-service teacher faculty have to explicitly teach.
- Students in pre-service teacher education programs must understand that making curricular adjustment to provide adequate time for authentic activities and assessments may be necessary to make these activities meaningful.
- Pre-service teachers should have explicit discussions to understand that authentic activities require teachers to have high expectations for students.
- Pre-service teacher educators must also understand that they must continuously challenge students by providing appropriate scaffolding.
- Pre-service teachers need to be cognizant of the idea that in some instances the approach, whether social or academic, needs to be individualized. This needs to be practiced in field placements and discussed across multiple situations and courses.
- In order for individualized approaches to be successful, the teacher has to understand specific strengths, weaknesses, and interests of struggling students. Pre-service teachers need to understand that learning about students takes time, effort, and collaborative work with other constituents.
- Higher Education faculty should bring more focus to special education strategies. Such strategies have to be explicitly and consistently addresses across all general education courses in teacher education programs. Doing so helps all future teachers with all students.
- Higher Education faculty should remind the pre-service students that structured social interactions benefit all learners.
- Innovations can transcend the classrooms to impact school level change.
- The classroom is a part of a larger system. Pre-service teachers need to realize that teachers in a building are a part of this system and can and should use the system resources beyond the classroom.

In our experiences requiring graduate students to develop an action research project to earn their MA degree, we have reflected and analyzed these outcomes to address teaching in our undergraduate education programs. Teaching for understanding and application and not just recall requires teachers to understand student thinking (Darling-Hammond & Snyder, 2002). However, student mindset and experiences change over time, thus, university faculty need to know the composition of students in today's Pre-K-12 schools. This can occur through working with graduate students and their action research projects.

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ACTIVE METHODOLOGIES FOR IMPROVING COMPETENCIES IN PROJECT MANAGEMENT

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ABSTRACT

This article aims to assess the influence of a methodological strategy, based on new active methodologies, designed for the development of professional competences in the management of projects, which are necessary for the good development in the labor market of future industrial engineers. The analysis shows that there is an improvement in the student's knowledge regarding these competences. This development is contrasted with the growth that the learner perceives in his/her competences, with the purpose of proposing improvements to the designed strategy.

First of all, there is an independent analysis of the student's perception of his/her competences and the actual knowledge gained from these competences, and then to compare both developments in a general way, in each area of competence and in a specific way in each element of competence. The results show, through the comparison of the students' states taking the Engineering Projects course, that there is strong evidence of improvement of competences with high statistical significance that can be attributed to the evaluated learning process.

INTRODUCTION

Given the constant change and current economic and social development that society is experiencing, where systems are increasingly large and where social rather than technical issues play increasingly important roles, problems cannot be solved by applying only one technical solution to achieve the expected efficiency and effectiveness. It is therefore important, that engineers be trained not only in terms of their particular technical field, but also their ability to identify non-technical aspects of problems, the interaction between these aspects and possible solutions (Lehmann, Christensen, Du, & Thrane, 2008). Therefore, there is a greater requirement for engineers, who must develop their skills to: innovate, solve complex problems, work in multidisciplinary contexts and practice their profession either as generalist or specialist, but always adapting to technological advances (Ramírez, 2009; Guerrero & La Rosa, 2014)

Today, the training of the engineer is a challenge, since it is certainly not an easy task to introduce and integrate these aspects in engineering education that require innovative approaches, in addition to the globalization of markets, the large amount of information available, the increasing complexity of the problems and projects that must be faced in their profession (Fernández & Duarte, 2013). In this new context, the conception of competences constitutes the essential basis of the professional world and, therefore, becomes a key element of any educational model, since the competences that society demands must be considered when designing any educational strategy (De los Ríos, Cazorla, Díaz-Puente, & Yagüe, 2010).

Technological, economic, social, cultural and political changes define new profiles in view of what companies need from their professionals and engineering education must consider these changes, as it constantly seeks to develop and adapt new pedagogical and didactic strategies helping the training of engineering professionals with the skills required by increasingly dynamic work and social environments (Fernández & Duarte, 2013). It is important that these new learning methodologies enable the outlining of general competences, necessary in a professional of today, as well as specific competences, which depend on each academic program or area of knowledge.

The present research work is framed within the necessary competences in a project manager or any person who manages part of it. This approach to project development motivates young people to learn because it allows them to select topics that interest them and are important to their lives and develop them through a project, experiencing real situations regarding what they will face in their professional life (Katz & Chard, 1989). This paper explains the impact of a methodological structure based on active methodologies with an emphasis on Project Based Learning (PBL) for the development of project management competences in students of Industrial and Systems Engineering and shows sufficient evidence of the significant improvement in these students' learning. The methodology was used in the course Projects in the Degree of Industrial and Systems Engineering of the University of Piura in Peru. The data of 2016 is taken as a study base, however, it should be noted that the methodological strategy has been implemented since 2011 with improvements in each year according to the students' achievements and the feedback received from them. The PBL is a learning model in which students plan, implement and evaluate projects that have real-world application beyond the classroom, fostering their

interest in the problems of their social environment (Galeana, 2006; Blank, 1997; Dickinson et al., 1998; Harwell, 1997). These projects are complex tasks, based on difficult questions or problems, involving students in design, problem solving, decision making, even in research activities (Cörvers, Wiek, De Kraker, Lang, & Martens, 2016; Jones, Rasmussen, & Moffitt, 1997).

The research is defined in three sections and the final conclusions. The first part explains the concept of competence as a starting point to understand what is meant by competence in the management of projects and which ones are those. Then the methodology used in the course is explained, i.e. the methodological structure under which is taught to the students, as well as the methodology used in this research. As a third point the findings are presented when analyzing the students' results obtained within the course. Finally, the research will provide the conclusions and recommendations.

COMPETENCE

There are different definitions of the word competence, as it is customary to talk about it. It is normally understood as an amplification of the concept of ability and qualification resulting from rapid technical developments in the organization of work and planning activities. However, the holistic approach defines competence as the result of a mix of underlying personalities, such as communication, self-development, creativity, problem analysis and problem solving, which are called meta competences which enable the existence of cognitive, functional, behavioral and ethical values that together determine professional competence (Guerrero, De los Ríos, & Díaz-Puente, 2008). This makes the holistic approach as the most appropriate for the codification of competences for obtaining academic degrees in higher education, even in engineering. The International Project Management Association (IPMA), following this holistic approach, has identified 46 project management competences, which are grouped into three dimensions: behavioral competences, technical competences and contextual competences (see Figure 1).

Technical competences	Behavioural competences	Contextual competences
1.01 Project management success	2.01 Leadership	3.01 Project orientation
1.02 Interested parties	2.02 Engagement & motivation	3.02 Programme orientation
1.03 Project requirements & objectives	2.03 Self-control	3.03 Portfolio orientation
1.04 Risk & opportunity	2.04 Assertiveness	3.04 Project programme & portfolio implementation
1.05 Quality	2.05 Relaxation	3.05 Permanent organisation
1.06 Project organisation	2.06 Openness	3.06 Business
1.07 Teamwork	2.07 Creativity	3.07 System, products & technology
1.08 Problem resolution	2.08 Results orientation	3.08 Personnel management
1.09 Project structures	2.09 Efficiency	3.09 Health, security, Safety & environment
1.10 Scope & deliverables	2.10 Consultation	3.10 Finance
1.11 Time & project phases	2.11 Negotiation	3.11 Legal
1.12 Resources	2.12 Conflict & crisis	
1.13 Cost & Finances	2.13 Reliability	
1.14 Procurement & contract	2.14 Values appreciation	
1.15 Changes	2.15 Ethics	
1.16 Control & reports		
1.17 Information & documentation		
1.18 Communication		
1.19 Star-up		
1.20 Close-out		

Figure 1. Competences in Project Management under the IPMA approach (IPMA, 2009)

METHODOLOGY

Methodological Strategy

The project course is taught to students of the last year of the Industrial and Systems Engineering of the University of Piura, and its main objective is to provide students with methodological tools for project management. The course is based on general project knowledge and international standards, and the development of project management competences, under the approaches of the International Project Management Association (IPMA, 2009) and the Project Management Institute (2008). In addition, both approaches are used to design a methodological strategy that promotes the adequate development of the competences in project management.

This strategy is a mix of new active methodologies, with a greater emphasis on project-based learning (PBL), but other activities are also included. The PBL allows students to form teams integrated by people with different profiles, where they acquire, use and apply the concepts of the subject through their research, developing skills in the planning, implementation and evaluation of projects that have application in a real world that goes beyond

the classroom. Other teaching-learning methodologies used are collaborative work; case-based learning, problem-based learning, all of these methodologies presented in different research (Bará, 2003; Blank, 1997; Dickinson, et al., 1998; Galeana, 2006; Harwell, 1997; Jenkins & Lackey, L.W, 2005; Jones, Rasmussen, & Moffitt, Real-life problem solving.: A collaborative approach to interdisciplinary learning, 1997; Menéndez, 2003; Thomas, 2000).

This strategy is steadier over the last 5 years, where the results obtained year by year are evaluated by the students who take the course and improvements are made so that the student can better achieve the course objectives. Students not only listen to lectures, but also have workshops where the theory is combined with the practical part, encouraging them to apply the knowledge they acquire to a real project developed by them, as well as to use case studies and examples of real projects. The course encourages self-study with the use of information and communication technologies, as they have a platform where they can access complementary reading and case studies in order to promote the acquisition and development of project management skills.

During the term the student must develop a project in a group of 5 people, where they can solve a problem, meet a need or create a business opportunity, in parallel with this, the student is developing deliverables regarding the direction of his/her project. In this way, the student not only develops knowledge and attends to a current problem but also develops interpersonal skills of teamwork and interaction with other actors such as companies in the region, communities, managers, among other interested parties, that are the key factors of their project success and with which they must interact in the professional field.

This methodological structure also considers the method of evaluation of the learning expected by the student, including the student's perception. At first, the student of the course assesses his/her own competence that allows him/her to identify his/her state regarding the competences in project management, which will be contrasted at the end of the course with another self-assessment. The student's knowledge of competences is measured by written examinations, following the characteristics of the written examination for IPMA level D and include questions from the 46 competences. The students receive immediate feedback, which helps them to identify their weaknesses.

The student must carry out a semester project that is reflected in a report and an exhibition under certain criteria that are directly related to the graduate career profile required. The professor provides guidance in a personal way and reinforces this role with monitors for each group, who are certified in the IPMA management projects, and are in charge of accompanying the team throughout the project, solved doubts, providing advice in the formulation, design and implementation. Likewise, the student's continuous participation in the workshops, the project assessments and the formal evidences in the acquisition of competences and the formal presentation of deliverables are evaluated.

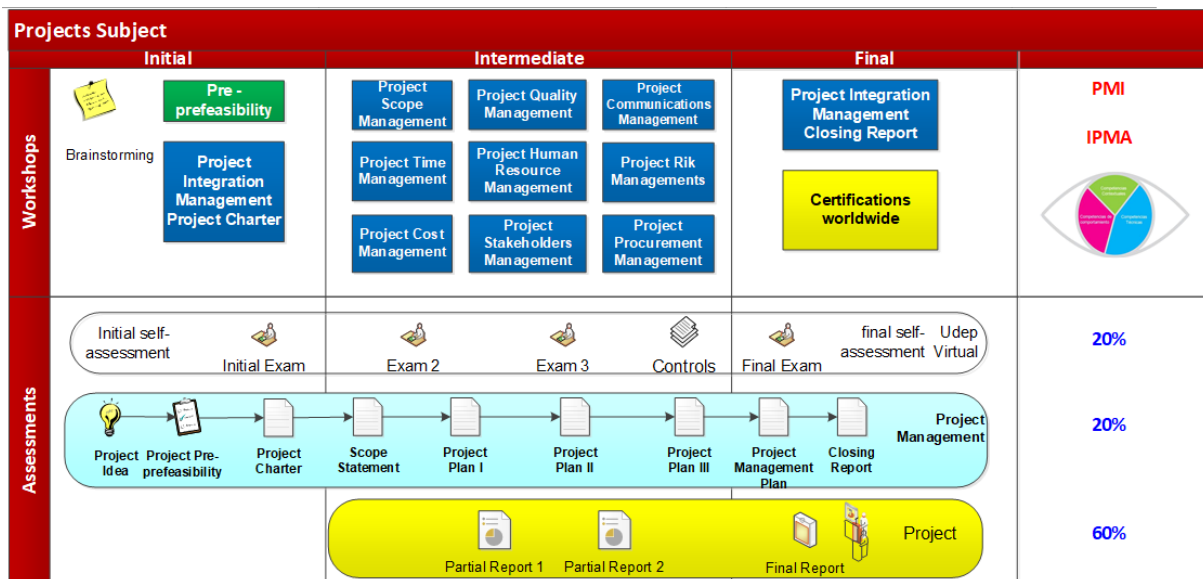


Figure 2. Methodological Structure 2016

In the year 2016, controls have been included in each class which allow the student to be in a constant evaluation of their knowledge; exhibitions about the direction of their project by the students that allows the development of communication skills, a workshop on human talent and situations that emphasize behavioral competences. The

methodological structure is presented in Figure 2, where it is possible to visualize, through the workshops, the subjects studied in relation to the competences in, as well as the evaluations taken in the semester 2016 and the formal documents requested in the semester. The student must formally present the documentation regarding the project management.

Research Methodology

The sample is 43 students of the course of Project Management of the semester II of 2016, who receive the methodological structure discussed above. From the evaluation system presented, it is decided to take two evaluation instruments: the exams and the self-assessments, since they both have enough data expressed in an objective way and through a system that can be measured by competence.

In order to evaluate the learning process and its influence in the acquisition of project management competences in industrial engineering students, the following questions are raised: (1) Is there a development of project management competences by the students of the project course in both evaluation instruments? (2) Is the perception of competence development on the part of the students and the development presented in their exams the same?

In order to know if the difference obtained when comparing two samples of data is statistically significant, tests of hypotheses are made that enables to compare the means of two samples. In this research the same individuals will be assess, at different times and before different evaluations, therefore, the results of each evaluation are taken as a different data sample. We compare the results obtained in the initial exam, the final exam, the initial and final self-assessments (student perception). Therefore, the hypothesis for this investigation is given by:

- Null hypothesis: The means to analyze are equal.
- Alternative hypothesis: The mean 1 is different from the mean 2.

A statistical analysis is performed, making a t-Student test where a confidence interval for the difference between the means is constructed. Since the confidence level established for this investigation is 96%, the P values obtained when comparing the means should be less than 0.04 to indicate that the results are statistically significant. For this case, it is assumed that the variances of the two samples are the same, based on Test F for the comparison of standard deviations obtained in the same program that is used to compare the means. The program used is STATGRAPHICS Centurion which enables comparisons as well as graphical results of the samples.

First, there are general results regarding the behavior of the 4 evaluations according to the range of competence. In the first section of the results a comparison of the initial and final self-assessments is made to identify the development perceived by the student, which is a good source of information, since it not only involves the acquired knowledge but also other factors that lead to indicate if there is an increase in their competences. In this first analysis a statistical analysis of the areas of competences are presented, as well as the identification of competences with greater significant development for each area.

In the second section, a comparison is made between knowledge at the beginning of the course and at the end of the course, in order to identify if there is a significant difference in the groups of competences, evidencing the development in the professional competences of the students. It should be noted that the degree of difficulty of the exams is increasing, for the first exam a level 8 exam in the IPMA scale (0 to 10) is made and in the final exam a level 10 exam on the IPMA scale is given. To analyze the 47 competences, a comparative analysis of the average of the scores obtained in each competence is carried out, in order to identify the competences with the greatest significant development.

Finally, the student's perception regarding the development of his professional competences and the real increase of the knowledge of the professional competences obtained is analyzed. In this way, it will be identified if the variation of knowledge is recognized by the student, as well as if the student recognizes the state in which he/she initiates and the state he/she arrives in order to identify if there is an overvaluation or undervaluation of the knowledge acquired. In this last section it is also graphically presented the comparison of the scores of both evaluation instruments for each scope, as well as the average scores obtained in each competence in its initial and final state. The results presented are supported by a statistical analysis, and the graphs obtained are representative of the sample taken.

FINDINGS

Figure 3 presents an overview of the evaluations analyzed for the present research. It can be observed that graphically there is an increase in the three areas of competence independently of the evaluation instrument, i.e. there is graphically an increase in both self-assessments, when comparing Initial Self-Assessment and Final Self-Assessment, as in the exams when comparing Initial Exam and Final Exam. It is also clearly observed that the score obtained in the Final Exam is higher than the other assessments in the three areas.

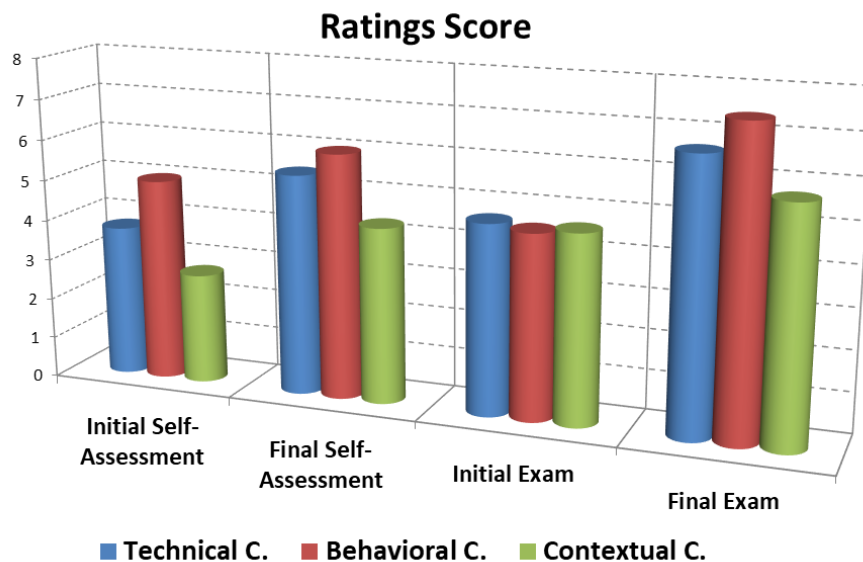


Figure 3. Overview of Assessment

Figure 3 also shows that the level at which students start is similar in the three domains of competences according to the initial examination, however, the student in the self-assessment considers to have a greater knowledge of behavioral competences than the other domains and even indicate a higher score than the one obtained in the initial examination. On the contrary, in the final evaluations it can be observed that the student, upon self-assessment, considers having a lower knowledge of what was actually achieved at the end of the course.

The results will be presented in detail as follows. It will be analyzed if the difference observed graphically between the instruments of evaluation is statistically significant, in both the initial and final state of the evaluation instrument, as well as between the two different evaluation instruments. The detailed analysis of competences with the greatest significant development will also be carried out.

Self-assessment

The results when analyzing this evaluation instrument reflect the student's perception regarding the knowledge in management competences of acquired projects.

[Table 1] shows the statistical analysis by means of the t-Student test for the self-assessments in the areas of competences in project management. It can be affirmed that there is a significant difference to 96% in the three areas of competences; that is to say, there is an improvement perceived by the students. Since the P-value shown in the last column is less than 0.04 which means the rejection of the null hypothesis.

Table 1: Statistical analysis of self-assessment

Range of Competence	I.S.	F.S.	$\Delta A\%$	t-Student	P-Value
Technical C.	3.73	5.43	16.9%	-6.681	0.0000
Behavioral C.	4.99	6.01	10.2%	-3.804	0.0003
Contextual C.	2.72	4.32	16.1%	-5.523	0.0000

Note: I.S. = initial self-assessment, F.S. = final self-assessment.

In the case of Technical C. there is an increase of 16.9 percentage points, slightly higher than the increase of 16.1 percentage points in Contextual C. and with greater difference than those of Behavior (10.2%), however, the highest score is given by the behavioral competences which reach a score of 6.01 on a scale of 1 to 10. It means that students perceive that they possess a higher degree of behavioral competence both at the beginning of the

course and at the end of the course, and this has a great sense because of the human formation that the group receives in addition that many of the students already have experience in the labor field, which has led them to develop some of these competences.

With regard to technical competences, it is discovered that 18 competences of the 20 present a statistically significant development, since they obtain a P-value lower than 0.04 that means that the null hypothesis is rejected and in this way it is affirmed that there is an improvement of the competences in 90% of the competences of this area when the student assesses his/her own competence. [Table 2] presents the technical competences that obtained a difference greater than or equal to 20 percentage points.

Table 2: Technical Competences with greater development - Self-Assessments

Competence		I.S.	F.S.	$\Delta S\%$	t-Student	P-Value
1.20	Close-out	2.34	5.07	27%	-5.961	0.000
1.04	Risk and Opportunities	3.30	5.93	26%	-5.963	0.000
1.01	Project management success	2.93	5.50	26%	-6.856	0.000
1.14	Procurement and contracts	1.32	3.67	23%	-6.085	0.000
1.12	Resources	3.34	5.50	22%	-5.751	0.000
1.17	Information and documentation	3.68	5.79	21%	-4.570	0.000
1.10	Scope and deliverables	4.20	6.29	21%	-4.701	0.000
1.03	Project requirements and objectives	4.50	6.57	21%	-4.592	0.000

Note: I.S.= initial self-assessment, F.S. = final self-assessment, $\Delta S = F.S - I.S$

The close-out competence has the perception of a higher improvement; a cause might be because it is the last subject in which it is deepened and the one closest to the final self-assessment. Also, the competence for project management success is a competence with great development, being for many students the first time they relate to everything that involves a project and specifically in how to deal with success when managing it, which implies to go beyond the success of the project itself. Similarly, new topics for students are risk and procurement management. In addition, it can be observed that the student recognizes that there is an improvement in the competences linked to the objectives and the scope of the project, since it is an area that works with greater emphasis due to its importance.

The elements of behavioral competence present a smaller difference between the initial and final state than that presented in the elements of technical competence, which indicates a lower development. It can be identified that there is a significant development in 9 of the 15 competences, i.e. it can be affirmed that in 60% of the elements of this area of competence there is a statistically significant increase with a reliability of 96%. In [Table 3] the competences have been placed with a difference greater than or equal to 15%; it can be observed that the P-values are smaller than 0.04.

Table 3: Behavioral Competences with greater development - Self-Assessment

Competence		I.S.	F.S.	$\Delta S\%$	t-Student	P-Value
2.12	Conflicts and Crises	3.80	5.52	17%	-3.894	0.000
2.05	Relaxation	4.52	6.07	15%	-3.431	0.001
2.03	Self-control	5.27	6.79	15%	-3.802	0.000
2.09	Efficiency	4.50	6.00	15%	-3.900	0.000
2.11	Negotiation	3.86	5.36	15%	-3.218	0.002
2.08	Results Orientation	4.05	5.50	15%	-3.400	0.001

Note: I.S.= initial self-assessment, F.S. = final self-assessment, $\Delta S = F.S - I.S$.

According to the student's perspective, the most developed behavioral competence element is Conflict and Crisis; Although students have worked in groups previously, completing a full project involves working under situations with greater pressure, as well as there are different parts working together with their own different objectives, but must be integrated to achieve a common goal, which is the project's objective. Another important competence is the negotiation, because the student relates not only with his/her peers but also with professionals immersed in the project's area they are developing, as well as with people outside the project and all those interested in it.

All elements of contextual competence present a significant development in self-assessments. The main reason is that many of the students were not familiar with the competences of this area, since these elements of competence are related to the context of a project, a completely new area for most of the students, and when they

assess themselves, at the end, they think that they have acquired knowledge in this area by the fact of carrying out a project in a real context. [Table 4] shows the elements with a difference greater than 15 percentage points. Basically, they are the elements directly related to project management.

Project orientation is the term used to describe the orientation of organizations in the administration of projects and the development of the competence for the project management; which is why the student perceives to have a greater development of this competence because they carry out a project, managing and directing it to the success.

Table 4: Contextual Competences with greater Development - Self-Assessment

Competence		I.S.	F.S.	ΔS%	t-Student	P-Value
3.01	Project Orientation	2.89	5.36	25%	-6.163	0.000
3.06	Business	2.82	4.79	20%	-4.549	0.000
3.05	Permanent organizations	1.80	3.69	19%	-4.391	0.000
3.08	Personnel management	3.70	5.36	17%	-3.534	0.001
3.03	Portfolio Orientation	1.43	3.05	16%	-3.882	0.000
3.04	Projects, programs and portfolios implementation	2.36	3.83	15%	-3.291	0.001

Note: I.S.= initial self-assessment, F.S. = final self-assessment, ΔS = F.S – I.S.

A. Exams

The results when comparing the initial and final knowledge according to the scope of competences are favorable in the 3 groups, since there is a significant difference to 96%, which means that the methodological strategy helps in the acquisition and development of competences in Project management. [Table 5] presents the statistical analysis for this evaluation instrument, indicating that there is a significant increase of 19.6 percentage points in the technical competence, 28.8 in the behavioral competence and 11 in the contextual competence. Contrary to what happens in the self-assessments, the greater development, under this evaluation instrument, is given in behavioral competences. It is also the area with the highest mean in the final exam. This means that the student acquires greater knowledge regarding the personal aspect that a professional must have for the Project Management, that is to say that the student develops a broader knowledge of the skills and attitudes that a Project Manager must have.

Table 5: Statistical analysis of knowledge

Range of Competence	I.E	F.E	ΔE%	t-Student	P-Value
Technical C. (TC)	4.66	6.63	19.6%	-7.713	0.0000
Behavioral C. (BC)	4.53	7.41	28.8%	-10.875	0.0000
Contextual C. (CCx)	4.63	5.72	11%	-4.002	0.0001

Note: I.E. = Initial Exam, F.E. = Final Exam, ΔE= F.E. – I.E.

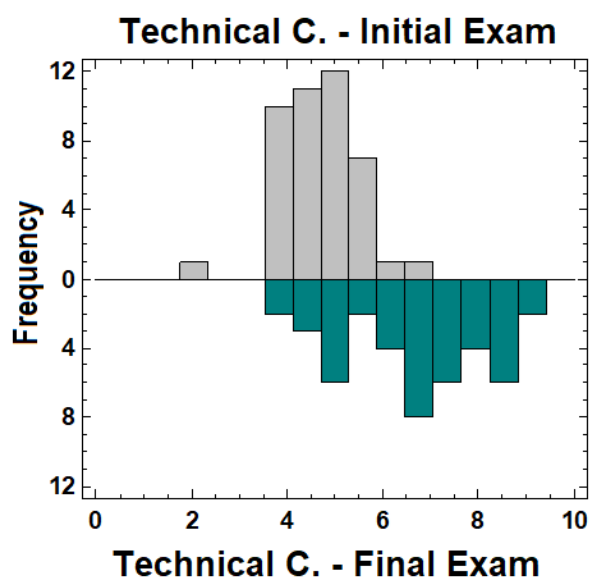


Figure 4. Distribution of technical competences

Figure 4 shows the behavior of the scores obtained by the students in the area of the technical competence in both the initial and final examinations. There is a positive shift, with increase in the mean, the minimum and maximum score obtained and a greater dispersion.

[Table 6] presents the technical competence elements with significant development, with a P-value lower than 0.04 indicating that the means of the initial and final examination are not equal, therefore there is a statistically significant increase.

Table 6: Technical Competences – Exams

Competence		I.E.	F.E.	ΔE%	t-Student	P-Value
1.17	Information and documentation	2.82	8.41	56%	-5.224	0.000
1.10	Scope and deliverables	3.20	6.59	34%	-3.144	0.002
1.11	Time and project phases	3.23	6.27	30%	-2.823	0.005
1.05	Quality	4.55	7.27	27%	-2.565	0.010
1.02	Parties involved	4.49	7.14	26%	-2.491	0.013
1.19	Start-up	5.00	7.61	26%	-2.507	0.012
1.06	Project Organization	4.45	6.93	25%	-2.322	0.020
1.03	Project requirements and objectives	4.86	7.27	24%	-2.287	0.022

Note: I.E. = Initial Exam, F.E. = Final Exam, ΔE= F.E. – I.E.

The biggest increase occurs in the information and documentation competence, which involves the management of information from its collection to the data retrieval of a project, including formats, optimal information to submit, a documentation system, standards, among others. Students, in the course, learn about the importance of good documentation and information to submit, as well as compliance with standards. Another important competence to highlight is "Scope and deliverables", because the scope of a project defines its limits, and if these are not defined well and are not properly documented, it may cause a lack of control in the project. The competences obtained in this analysis are directly related to the main pillars of the project success, which is one of the course objectives.

With regard to the behavior scope, Figure 5 shows that that there is a large change; graphically, there is a quite marked shift to the right, which indicates scores increase in the group; the concentration of scores on the final exam is even higher than the highest score on the initial exam.

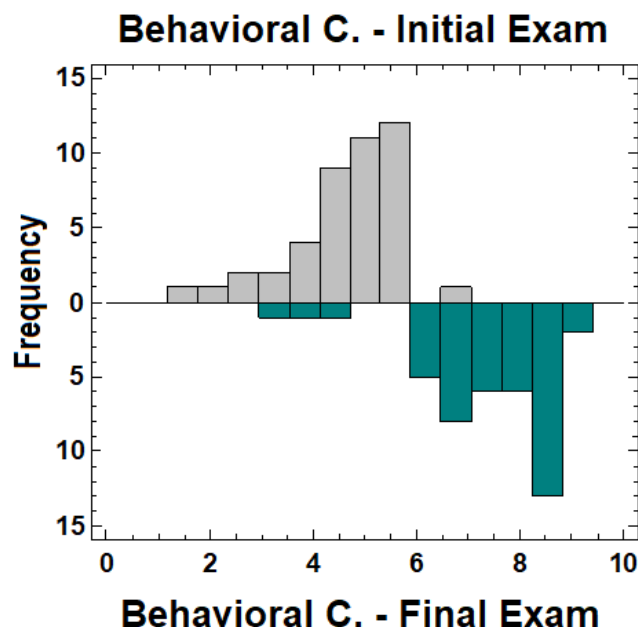


Figure 5. Distribution of behavioral competences

In the analysis carried out at the level of elements of this competence range, it can be obtained that 9 out of the 15 elements (60%) have increased their mean value statistically significant to a 96% reliability, see [Table 7].

Table 7: Behavioral Competences – Exams

Competence		I. E.	F. E.	$\Delta E\%$	t-Student	P-Value
2.14	Values Appreciation	2.36	9.55	72%	-6.793	0.000
2.15	Ethics	3.27	9.32	60%	-5.809	0.000
2.02	Engagement and motivation	3.64	9.55	59%	-5.783	0.000
2.03	Self-control	5.64	9.32	37%	-3.930	0.000
2.07	Creativity	2.36	5.91	35%	-3.343	0.001
2.01	Leadership	5.82	9.32	35%	-3.784	0.000
2.09	Efficiency	5.27	8.41	31%	-3.132	0.002
2.06	Openness	6.73	9.32	26%	-3.017	0.003
2.10	Consultation	1.27	3.86	26%	-2.750	0.006

Note: I.E. = Initial Exam, F.E. = Final Exam, $\Delta E = F.E. - I.E.$

The development of the knowledge reached in the behavioral range is high, since the students' reach scores close to 10 (in a scale of 1 to 10) in several of the elements. It is important to emphasize that the measurement of this development of these elements within the exams is through cases, where they must choose the best decision against alternatives that are good. The student throughout the project can experience situations as those presented.

The importance of the elements can be and will be different according to the situation of the project, in this case from the perspective of the knowledge acquired, the students in this semester have a marked development in the appreciation of values, which relates specifically to mutual respect, as well as being able to understand other points of view and perceive the intrinsic qualities of other people. There is also a substantial development in the element of ethics and one of the reasons is that in the semester the students also complementary take a course of ethics for engineers, where issues related to professional ethics are studied and study cases are discussed in this regard.

Figure 6 shows the behavior of the contextual competence area distributions. A slight shift can be visualized together, but a visible shift of the mean, however, the tail is similar with greater intensity to the left side. This indicates that there is growth as a group, but maintaining the distribution form.

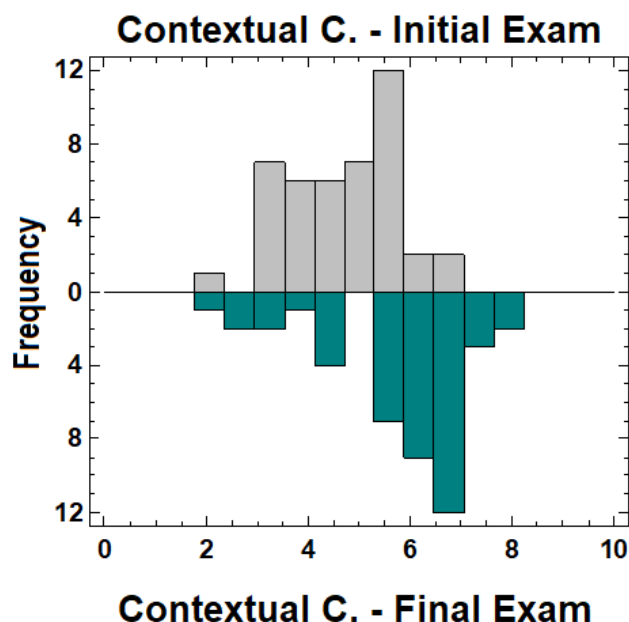


Figure 6. Distribution of contextual competences

There is a significant development only in 36% of contextual competence elements. One of the causes is that the level of exigency increases because in the first evaluation it is taken into account that the student is not related to subjects regarding the context in which a project operates, nevertheless, the scores obtained in this first examination are not so low, which shortens the difference, so that the variation is not statistically significant.

In [Table 8] contextual competences that have a significant development are presented, that is to say that the mean of the initial examination differs from the mean of the final examination, therefore a significant development is added to 96%. The developed competences are directly related to the project environment in the organization.

Table 8: Contextual Competences – Exams

Competence		I. E.	F. E.	$\Delta E\%$	t-Student	P-Value
3.03	Portfolio Orientation	3.91	9.09	52%	-5.036	0.000
3.05	Permanent organizations	2.91	7.73	48%	-4.479	0.000
3.11	Legal	4.55	7.95	34%	-3.256	0.001
3.02	Program Orientation	6.00	8.18	22%	-2.225	0.026

Note: I.E. = Initial Exam, F.E. = Final Exam, $\Delta E = F.E. - I.E.$

Knowledge vs. Perception

According to the statistical analysis presented in [Table 9], it can be seen that when comparing the initial state of the self-assessments and the exam, there is a significant difference in the technical and contextual competences, that is to say that the student perceives to know less about these areas of what they really know, since in the exam they get a better score than in the self-assessment, in the case of the techniques 9.3 percentage points more and in the contextual ones, 19.1 percentage points.

Regarding the final state, it is observed that the P-value for this comparison is zero ($FS=FE$) in all three areas, i.e. the state they arrive at in the exams is different from the self-assessments; it is noticeable that the student assesses his/her own competence low with a perception of lower level with respect to his developed knowledge.

Regarding the variation analysis in both the competences and the self-assessments, it can be said that only in the behavioral competences there is a greater variation in the exams than that obtained in the self-assessments; this shows that there is a greater development in the exams than the student's perception. The variation in the exams is twice of the one obtained in the self-assessments.

Table 9: Statistical analysis of the perception of competence improvement and the developed knowledge

Competences range	Initial Self-Assessment (IS)	Initial Exam (IE)	Final Self-Assessment (FS)	Final Exam (FE)	ΔS	ΔE	IS=IE	FS=FE	$\Delta E = \Delta S$
Technical C.	3.73	4.66	5.43	6.63	1.69	1.96	0.000	0.000	0.362
Behavioral C.	4.99	4.53	6.01	7.41	1.02	2.88	0.073	0.000	0.000
Contextual C.	2.72	4.63	4.32	5.72	1.61	1.10	0.000	0.000	0.147

Figure 7 shows a graphical analysis of what happens to the technical competences with both evaluation instruments. It can observe the variation of initial and final state, which indicates a development in both perception and knowledge as a group, as the box-and-whisker plot has an upward shift. Thus, it can be seen that all students at the end of the course are above 4 points and 25% are between 8 and 9 points (on a scale of 1 to 10).

Technical Competences

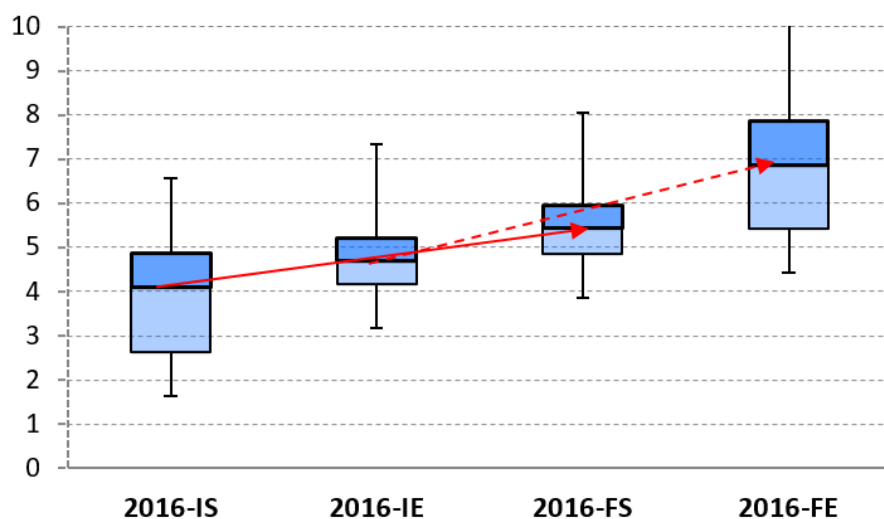


Figure 7. Technical Competences - Comparison

As for behavioral competences, Figure 8 shows that in the initial state, the exam has the lowest scores, where 50% of the group obtain between 1.6 and 4.8 points, less than 5 which is the least desired score; even the perspective that students had was greater than knowledge. By contrast, at the end of the course, 25% of students score between 8.6 and 9.3 on the exam, with a clear difference compared to 25% of students in self-assessments where they obtain scores between 6.8 and 8 points.

Behavioral Competences

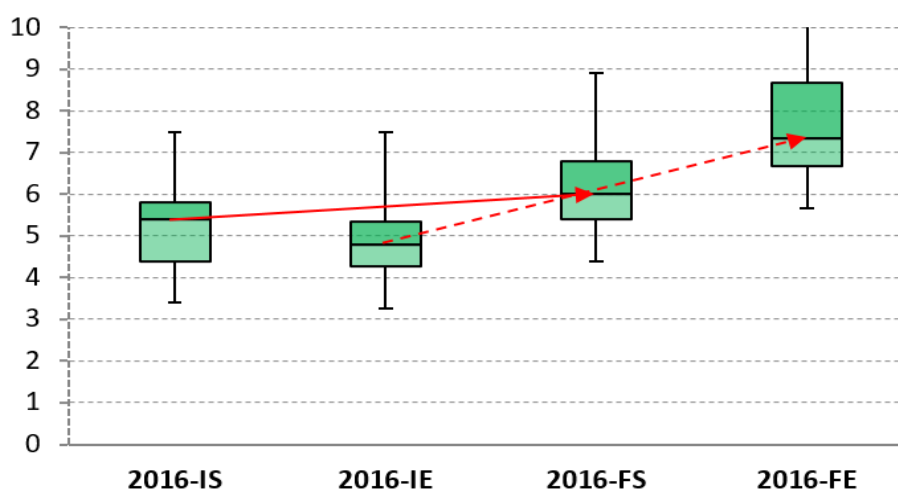


Figure 8. Behavioral Competences - Comparison

In the case of contextual competences, see Figure 9, as can be seen the mean increases at the end of the course in both self-assessments and exams. The students, when they self-assess in an initial state, they perceived that they did not have knowledge about this area, since 25% of the students scored between 0 and 1.8, the lowest in the present analysis.

Contextual Competences

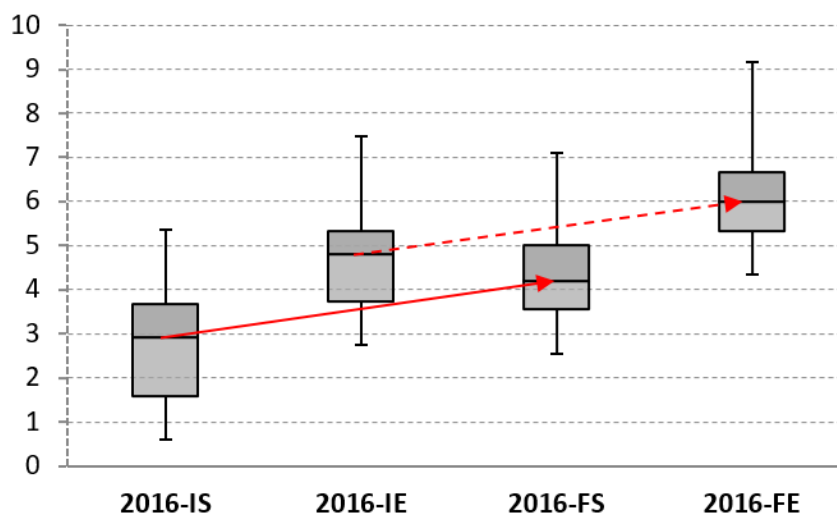


Figure 9. Contextual Competences - Comparison

To know the competences that are achieving a significant development perceived by the student the competences with significant development are compared in both self-assessments and exams.

In respect to the technical competences, there are 8 of them, which are all presented in [Table 6], since in self-assessments the student perceives the development in more competences, involving those developed in terms of knowledge.

As for competence 1.17 Information and documentation, it has been explained that within the course it is required what information and how to present it. In an initial state the students know what a report is, however, in the development of the project, they know in depth the formats required to present a project, the necessary regulations and the importance of the information in the project, which leads us to the second competence with greater development which is 1.10 Scope and Deliverables, since it is vitally important that the scope and deliverables are well defined in order to know what should be obtained from the project, what is included and what is left out of it. Another competence linked to the development of this competence is the 1.03 Project requirements and objectives, which is the identification, definition and agreement of the project to meet the needs and expectations of the parties involved.

Element 1.11 Time and project phases, also has a significant development, which means that the student increases his ability to organize time and knows how to reflect it into a diagram in order to meet the objectives of it. When referring to time and scope, it is inevitable to mention about the quality of the project, which includes meeting the project's objectives and achieving its success. The students understand the need for quality as a tool for the satisfaction of the parties involved, which is another competence with greater development, and which is perceived by the student, being a new area of knowledge that has taken vital importance in recent years. It is necessary to know how to deal with all parties involved and interested in the project. The competence for project organization is also present, and indicates how the necessary work should be divided in order to meet the objective considering as well the tools needed.

As can be inferred, the competences presented are closely related, suggesting what the students develop the most in the course is knowing how to reproduce the project scope and what it involves to do it. Competence 1.19 Start-up is also presented and it relates to the end of the project.

As for the behavioral competences, only 5 are considered: Self-control, Open Attitude, Creativity, Efficiency and Consultation. These competences are necessary in a professional today, because he/she must have creativity to solve the constant problems and changes that society presents, maintaining an openness, that is to say be ready to listen to others and receive criticism or opinions from different levels, and therefore, maintaining the control of the situation and making the necessary consultations with the aim of exchanging opinions that contribute to the project. All this is included in the efficiency competence with which one must work to achieve the success of both the project and its management. The contextual competences, which are found in both analyzes with significant development are those obtained in the exams, since for the students all the competences of this area have significant development.

Figure 10 shows a detailed analysis by competences, comparing the initial and final state of the self-assessments with the exams.

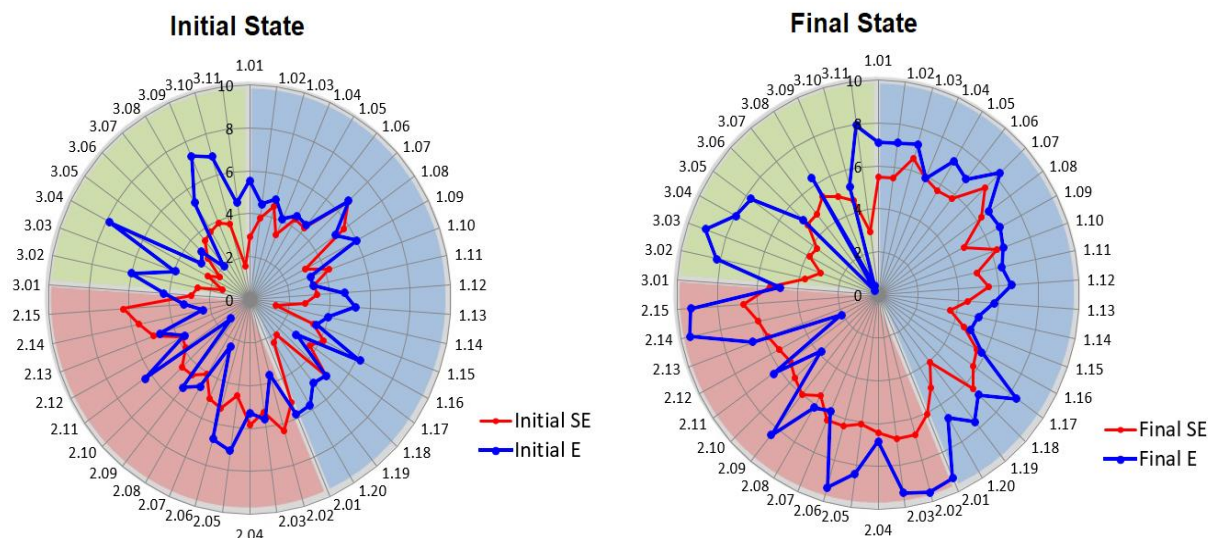


Figure 10. Comparison of competences: Self-Assessment and Exams in Initial and Final State

In an initial state it can be seen that in most of the competences the score obtained in the exam is higher than the one obtained in the self-assessment, being more evident in the contextual competences, however, the scores are low. Some of the competences where the student perceives that he/she has less knowledge about what is shown in the exam are: success in project management (1.01), project structures (1.09), Relaxation (2.05), Negotiation (2.11), Program Orientation (3.02), Portfolio Orientation (3.03). Nevertheless, there are also some competences where the student assesses his/her own work better, in the area of behavior; these are: Engagement (2.02), Creativity (2.07), Consultation (2.10), Values Appreciation (2.14) and Ethics (2.15).

In the final state, the difference is evident, since it is larger than the initial graph in behavioral and contextual competences.

CONCLUSIONS

In general, it has been demonstrated through statistical analysis that the competences in project management have been improved under the methodological structure proposed with the main focus on the PBL. This leads to the conclusion that this methodological structure helps the acquisition and development of competences, which can be replicated in other groups of students. Therefore, it is considered feasible to integrate the experience in other Engineering courses, reinforcing the professor's role as a tutor, defining the evaluation criteria according to the competences that the course wish to develop and identifying and evaluating the improvement of the competences during the learning process.

It was also shown that when students self-assess their competences, they judge themselves lower than the course professor. This could be attributed to the lack of maturity and the lack of professional experience that allows them to adequately assess their own abilities.

With respect to the development of competences, there is clearly the development of competences linked to the optimal management of the project scope, which is one of the pillars for the project success and one of the main course objectives. It is also concluded that there must be an appropriate interaction, a diversity that is provided by project-based learning.

The research also reveals that the methodological strategy fosters the student's research spirit and promotes the integration of the theoretical and practical elements, involving the student in a real project, developing competences helping to face situations and problems of daily life.

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AİLE TUTUMLARININ SINAV KAYGISI İLE İLİŞKİSİ

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ÖZET

Gerek liseye girmek için sınava hazırlanan öğrenciler gerekse üniversiteye hazırlanan öğrenciler gelecek kaygısı taşıdıkları için sınavla ilgili kaygı yaşamaktadır. Bu kaygı durumu öğrencilerin bir kısmını olumlu etkilerken çoğunu olumsuz etkilemektedir. Yaşadıkları bu kaygının nedenleri arasında ana-baba tutumlarının etkisi önem arz etmektedir.

Yapılan bu çalışmada üniversite sınavlarına hazırlanan lise son sınıf öğrencilerinin sınav kaygı düzeyini ana-baba tutumları ile ilişkisi incelemiştir. Belli ana-baba tutumları ile öğrencilerdeki kaygı düzeyleri arasında anlamlı ilişkiler bulunmuştur.

Anahtar Kelimeler: Gelecek Kaygısı, ana-baba tutumları,

GİRİŞ

İstediğimiz liseye veya üniversiteye girebilmek için hayatımız boyunca hep sınavlara maruz kalmışızdır. Bu sınavları hayatımızın bir dönüm noktası, gelecek yaşantımız için bir basamak olarak görmüşüzdür. Bu yüzden de bu sınavlar aşamasında belli başlı zorluklar yaşamaktayız. Bu zorluklar bizleri olumlu etkileyebildiği gibi çoğu zaman olumsuz da etkilemektedir.

Sınav kaygısı da bizlere zorluk çıkartan bir diğer noktadır. Kaygı çoğu zaman bizleri ve sınava hazırlanan öğrencileri olumsuz etkilemektedir. Bu kaygı durumu durumdan duruma, zamandan zaman ve önem verdiğimiz duruma göre farklılık göstermektedir. Çoğu öğrenci de üniversite sınavını hayatlarında bir dönüm noktası, istedikleri hayatları yaşamada bir basamak olarak gördükleri için bu sınava çok fazla anlam yüklemektedir. Fazlaca yüklenen bu anlam da bireyi kaygılı yaşamaya itmektedir.

Hayatımızın belli dönemlerinde bazı şeylere daha çok önem veririz ve daha çok beklentimiz olur. Bunun doğrultusunda beklentimiz sonucunda istediğimiz duruma ulaşmaya daha çok çaba harcarız. Olmadığı zamanlarda ve zorlandığımız durumlarda bir çökkünlük, sıkıntı hissederiz. Bu durumlar sınava hazırladığımız zamanlarda da geçerlidir. Özellikle üniversite sınavına büyük önem veririz. Çünkü gelecek yaşantımız ve hayallerimiz için büyük önem taşımaktadır.

Üniversite sınavına hazırlanma sürecinde ve sınav esnasında bazı olumsuzluklar yaşanabilmektedir. Bazen hem öğrenci hem de ebeveynler sınavın önemini abartarak, olası bir başarısızlığı dünyanın sonu gelmiş gibi algılayabilmektedirler. Bunun sonucu olarak da sınavlar bir ölüm kalım meselesi haline getirilmektedir. Bu gibi durumlarda öğrenci zaten yaşamakta olduğu sınav kaygısını daha da fazla hissetmektedir. Bu sınav kaygısı çeşitli durumlardan etkilenebildiği gibi beklenti düzeyine göre değişebilmektedir. Bu zaman zarfında anne babanın tutumu da öğrencinin kaygı yaşamada ve sürdürmesinde oldukça etkili olmaktadır. Baskıcı, otoriter bir tutumda olan anne baba çocuğundan hep isteklerine uymasını beklerken mükemmeliyetçi tutumda olan anne baba ise çocuğundan hep yüksek başarı beklemektedir. Bu gibi ebeveyn tutumlarının çocuğun sınav kaygısı üzerinde olumsuz bir etkisinin olabileceği düşünülürken, demokratik tutumu benimsemiş ailelerde ise sınav kaygısı üzerinde olumlu bir etkisi olabileceği beklenmektedir.

Öncelikle kaygının nasıl bir duygu olduğuna bakmak gerekiyor. Birçok bilim adamı kaygıyı farklı şekillerde tanımlamışlardır. Kaygı, bir kişinin uyarılarla karşı karşıya kaldığı durumda yaşamış olduğu duygusal ve zihinsel değişimlerle kendini gösteren bir uyarılmışlık hali durumudur (Softa, Karaahmetoğlu, Çabuk, 2014). Morgan'a (1977) göre kaygı, insanların varoluşundaki en temel duygulardandır ve korku, öfke, keder, sıkıntı gibi duygularla iç içe geçmiş olduğu için anlaşılması ve tanımlanması oldukça güçtür. Kaygı, bireylerin varlığı için esas olarak benimsedikleri değerlerin, üstesinden gelemeyeceği tehditler altında kaldığını hissettiğinde yaşadığı duygudur. Günümüz insanında kaygı; canlılığın, yaşamla baş etmenin yeni şeyler bulma ve yaratabilmenin, rekabet ortamında üretken olmanın ve kendini kabul ettirebilmenin bir gereği olarak yaşanmaktadır ve kendi varlığını veya özdeşim yaptığı nesnelere koruyucu bir nitelik taşımaktadır (Güler, 2012). Kaygı, üzüntü sıkıntı, korku başarısızlık duygusu, acizlik sonucu bilememe ve yargılanma heyecanlarından birini veya birçoğunu içeren duygudur (Cüceloğlu, 2000).

Psikanalitik görüşe göre anksiyete (kaygı) toplumsal ya da çevreden gelebilecek olan tehlikelere karşı bireyi uyarma, gerekli uyumu sağlama ve yaşamı sürdürme işlevlerine katkıda bulunur. Fakat bu kaygı nevrotik anksiyete de olduğu gibi fazla ve mantık dışı bir hal almaya başladığı zaman uyum işlevini yitirir. Böylece normal olmayan davranışların ortaya çıkmasına neden olur (Çolak, 2009).

Freud'a göre insan davranışları tüm yönleriyle uyum sağlamaya yönelik bir amaç taşır. Hiçbir davranış rastlantısal değildir ve organizmanın yaptığı her şey yaşamı sürdürme çabasının farklı biçimleridir. Freud'a göre kaygı, fiziksel ya da toplumsal çevreden gelen tehlikelere karşı bireyi uyarma gerekli uyumu sağlama ve yaşamı

sürdürme işlevlerine katkıda bulunur. Ne var ki kaygı mantık dışı bir nitelik alırsa uyum işlevini yitirir ve normal dışı davranışların ortaya çıkmasına sebep olur (Akt: Geçtan, 2003).

Kaygı insanın temel duygularından biridir. Her insan tehlike olarak gördüğü durumlarda bir miktar kaygı duyar. Bu durum olağan ve normal olarak karşılanır. Fakat bu kaygı durumu kişinin yaşantısını etkilediği ve engellediği durumlarda anormalleşir.

Kaygının kökeni çocukluk yaşantılara dayanır. Çocuğun anne, baba, öğretmenle olan ilişkisi kadar çevresiyle olan ilişkisi de önemlidir. Kaygı ilk olarak çevrede olan kaygılı kişiler aracılığıyla gelişir. Buna göre kaygı bulaşıcı bir duygudur. Çocuğun etkileşime girdiği ilk kişi annedir. Bu durumda annenin göstermiş olduğu tepkiler çok önemlidir. Kaygılı bir annenin ses tonu, davranışları ve genel havası çocuğu etki alanına alır. Anneden çocuğa geçmiş olan bu kaygı sonucu çocuk zihninde yeni bağlantılar kurar. Bunun sonucunda çevresindeki kişilere veya durumlara karşı kaygı duymaya başlar. (Çolak, 2009).

Kaygı, kişilerde görülme şekillerine göre sürekli kaygı ve durumluk kaygı olmak üzere ikiye ayrılmaktadır. Sürekli kaygı bireyin kaygı yaşantısına olan yakınlığı olarak tanımlanır. Buna, kişinin içinde bulunduğu durumları genellikle stresli olarak algılaması veya stres olarak yorumlama eğilimi de denilebilir. Sürekli kaygı nötr olan durumların birey tarafından tehlikeli olarak algılanması sonucu ortaya çıkan hoşnutsuzluk durumudur (Çolak, 2009). Sürekli kaygı, kaygısı fazla olan kişilerde rastlanır. Bireyin kaygı yaşantısına bağımlılığı olarak adlandırılır. Devamlı olarak tehdit oluşturulan tehlikeli durumlar karşısında kişi sürekli olarak kaygı tepkisi gösterir. Bu kaygı direk olarak çevreden gelen tehlikelere bağlı değildir. İçten gelen bir durumdur. Bu tür kaygı seviyesi yüksek olan bireylerin çok kolay incindikleri ve karamsarlığa kapıldıkları görülmektedir (Güler, 2012).

Spielberger'e göre, sürekli kaygı durumculuk kaygıya oranla durağan ve sürekli dir. Kişilik yapısına göre kaygının şiddeti ve süresi değişmektedir. Kişilik yapısının kaygıya meyilli oluşu sürekli kaygı düzeyini etkilemektedir. İnsanların sürekli kaygı seviyelerinin birbirinden farklı olması, tehdit eden durumun algılanmasını ve yorumlanmasını değiştirmektedir (Köknel, 1995).

Durumluk kaygı ise bireyin içinde bulunduğu stresli durumlarda hissettiği özel duygudur. Stresin yoğun olduğu zamanlarda durumluk kaygı seviyesinde yükselme olur. Stres durumunun ortadan kalktığı zamanlarda ise kaygı durumunda düşme meydana gelir (Çolak, 2009). Bu kaygı türü sürekli değildir, durumdan duruma göre farklılık gösterir. Birçok kişi hayatının belirli dönemlerinde durumluk kaygı yaşamışlardır. Geçici olarak yaşanan bu kaygı türü genellikle tehlikeli bir sonuç doğurmamaktadır (Şeyhoğlu, 2005).

Spielberger'e göre, bu tip kaygı insanın içinde bulunduğu durumu tehdit eden, tehlike oluşturan şekilde algılanmasından, yorumlanmasından kaynaklanır. Bu durum elem veren, hoş olmayan bir duygulanım durumu oluşturur. Bu duygulanım durumu algılanır, duyumsanır, anlaşılır. (Köknel, 1985)

Kaygı, her insanın yaşayabileceği olağan bir heyecandır. Karşılaştığımız durumlar bize göre belli ölçüde bir tehlike içeriyorsa, az ya da çok kaygı yaşarız. Örneğin; bir sınava gireceğimiz veya bir topluluğun önünde konuşacağımız zaman ya da bir yere geç kalacağımız zamanlar kaygı yaşayabiliriz. Bu gibi olaylar kişilerde kaygı yaratır. Fakat bu kaygıyı kişilerin nasıl algıladığı önemlidir. Kişi kaygıyı hoş bir heyecan olarak algılamaz. Böyle durumlarda kişi tehlikelere maruz kalmamak için bu durumdan kaçınmaya çalışır. Kaçınma davranışı da kendisini belli bedensel tepkilerle açığa çıkarır. (Andre, 2014).

Kaygı vücudumuzun tehlikeye verdiği doğal bir yanıttır. Sağlıklı kaygı bizim dikkatimizi odaklamamızı ve uyanık kalmamızı kolaylaştırır, harekete geçirir ve problemlerimizi çözebilmemiz için motivasyon sağlar. Kaygı durumunun belirtileri genelde bedensel tepkiler olarak dışa vurulur. Bu dışa vurumlar kişiden kişiye farklılık gösterse de genel olarak tepkilerin çeşitleri aynıdır. Buna göre belirtiler genel olarak kalp çarpıntısı, nefes almada güçlük, ellerde uyuşma, baş dönmesi, ellerin terlemesi, sık sık idrara çıkma, yorgunluk, bitkinlik ve kusma şeklindedir. Kaygının bedensel belirtileri olduğu kadar psikolojik belirtileri de vardır. Bunlar; tedirginlik ve endişe duyma, gergin hissetme, en kötü sonuçları düşünme, huzursuzluk, sinirlilik şeklindedir. Bu psikolojik belirtilerde kişiden kişiye, durumdan duruma göre değişmektedir. Kaygının şiddetini kişinin önemli gördüğü olaylara göre değiştiğini söyleyebiliriz. Kaygının gelişimi birçok faktörden etkilenir. Bu faktörler genetik olabileceği gibi dış uyarıcılardan da kaynaklanabilir. Kaygı, genetik, biyolojik etkenlerden, öğrenmelerden, çeşitli deneyimlerden, yaşanan ortamda karşılaşılan uyarıcılardan etkilenir. Kaygının genetikle doğuştan mı geldiği yoksa çevresel etkenlerle öğrenilmiş mi olduğu konusundaki tartışmalar hala devam etmektedir. Spielberger bu konuda durumluk ve sürekli kaygı yaklaşımını ele almıştır. Buna göre durumluk kaygı, kişilerin özel durumları tehdit edici olarak yorumlaması sonucu oluşan duygusal tepkidir. Sürekli kaygı ise, bireyin kaygı yaşantısına yakınlığıdır. Sürekli kaygısı yüksek bireyler, durumluk kaygıyı da diğerlerinden daha sık ve yoğun yaşarlar (Çolak, 2009). Sürekli kaygı birçok farklı durumlarda ortaya çıkar. Bunlar durumlar alışveriş yaparken veya telefon çalarken ortaya çıkabilir. Durumluk kaygı da ise bireyler özel durumlarda kaygı hissederler. Bunlar sınav kaygısı gibi durumlardır.

Kişinin yaşadığı çatışmalar kaygının oluşmasına neden olan etmenlerden birisidir. İki veya daha fazla ihtiyacın aynı anda doyuma ulaştırılmak istenmesi ve ulaştırılamaması sonucu çatışma meydana gelir. Kişinin amaca yönelik davranışlarının önlenmesi veya yavaşlaması kişiyi engellenme hissi ile karşı karşıya bırakır, bu engellenme de kaygıyı doğurabilir (Morgan, 1981). Korku her dönemde sık rastlanan bir durumdur. Özellikle

bebeklikten ergenlik dönemine kadar olan süreçte yoğun olarak yaşanmaktadır. Araştırmalar, çocukların % 90'ının, gelişimlerinin bir döneminde herhangi bir şeyden korktuklarını göstermektedir (Burkovik ve Tan, 2006). Korku ve kaygı arasındaki benzerliklere dayanarak psikologlar, korku esnasında meydana gelen fizyolojik oluşumların, kaygı anında da gözlenebileceğini belirtmişlerdir. Bu nedenle, kalp atışı, kanın kimyasal yapısı, kan basıncı, galvanik deri tepkisi, nefes alış-veriş oranı gibi farklı fizyolojik belirtileri kaygı düzeyini ölçmede de kullanılmaktadırlar (İnanç, 2010).

Kaygı, yaklaşan bir tehlikeye karşı önlem alınmasını sağlayan bir alarm niteliği taşır. Korku ise bilinen ve dış dünyadan kişiye yöneltilmiş bir tehdide karşı yanıt iken, kaygı bilinmeyen, içten gelen, kaynağı içsel bir çatışma olan bir tehdide 27 cevaptır. Kaygı, beraberinde gelen belirsizlik sebebiyle sıkıntılı bir bekleyişe neden olurken, korku yoğun duygular ve bedensel duyumların oluşturduğu donakalım durumları dışında tehdide yönelik bir eylem başlatır. Kaygı, bozucu bir etki yaratır, buna karşılık olarak korku kişinin uyum sağlamasına yardımcı olur (Palti, 2012). Bu iki durum birbirlerine yakın olmalarına rağmen, birbirlerini dışladıkları, ikisinin aynı anda bulunamadığı kabul edilmektedir.

Yapılan araştırmalar, kaygı düzeyi yüksek olan kişilerin, basit malzemelerin öğrenilmesinde daha iyi fakat zor öğrenme malzemeleri karşısında daha başarısız olduklarını göstermektedir. Çünkü kaygı, karmaşık malzemelerin öğrenilebilmesi için gerekli olan yoğun dikkat toplasımını bozabilen bir nedendir (Börü, 2000).

Kaygı düzeyi yüksek kimselerin, başkalarının bulunduğu ortamda kötü öğrenme performansı gösterdikleri saptanmıştır. Buna karşılık kaygı düzeyi düşük olan kişilerin, ister başkaları ile birlikte ister yalnız olsunlar, başarı düzeylerinin aynı kaldığı bulunmuştur. Öğrencinin yeteneklerini dikkate alarak yapılan çalışmalarda, ortalama okul yeteneğine sahip fakat kaygı düzeyi düşük olan öğrencilerin, kaygı düzeyi yüksek olanlara göre daha başarılı oldukları görülmüştür. Üniversite birinci sınıfında aldıkları kötü notlar nedeniyle öğrenimi tehlikeye girmiş kaygılı öğrenciler üzerinde yapılan bir araştırmada, bu öğrencilerin bir bölümü danışma programına katılmış, dönem sonunda danışmaya katılmayan öğrencilere göre notlarını büyük ölçüde düzelttikleri bulunmuştur (Topçu, 1986).

Okulda daima iyi not almak, iftihar listesine geçmek isteyen öğrencilerin, okulda yüksek not alamazlarsa kaygılanmaları ve korku yasamaları normaldir. Fakat bu kaygı ve korku durumu devam ederse öğrencinin davranışları etkilenir. Öğrenme üzerinde bir miktar kaygının olumlu etkisi vardır; fakat aşırı kaygı bir süre sonra öğrenmeyi olumsuz etkiler. Aşırı kaygılı bir haldeyken öğrenci, sınav sırasında soruları tam olarak kavrayıp anlayamaz, bilgileri hatırlayamaz. Genelde eğitim ve öğretimde kaygının az olmasından çok, fazla olmasından doğan zararlarla karşılaşmaktadır (Baymur, 1996).

Spielberger'e göre (1972) sınav kaygısı; formal bir sınav veya değerlendirme durumunda yaşanan, bireyin gerçek performansını ortaya koymasını engelleyen bilişsel, duyuşsal, davranışsal özellikleri olan, bireyde gerginlik yaratan hoş olmayan bir duygu durumudur (Çolak, 2009).

Sınav kaygısı ise, sınavdan önce veya sınav anında yaşanan belirtileri herkeste farklı olan bir kaygı türüdür. Sınavların içerdiği belirsizlik, kaygının beslenmesine sebep olur (Keskin, 2001).

Sınav kaygısının bilimsel olarak incelenmesi 1960'lı yılları bulmuştur. İlk olarak Richard Alpert incelemiştir. Richard Alpert sınavlara girerken üstünde bir baskı hissettiğini bu baskı altında sınav sonuçlarında düşüşlere neden olduğunu fark etmiştir. Richard'ın meslektaşısı olan Ralph Haper ise sınavlardan önce hissettiği baskının sınav sonuçlarına olumlu bir etkisi olduğunu fark etmiştir. Böylelikle sınav kaygısıyla ilgili ilk bilimsel çalışmalar yapılmaya başlanmış, bu iki farklı durumların karşılaştırılması, nedenleri arasındaki ilişkiler daha sonraki çalışmalara örnek olmuştur.

Richard ve Ralph'ın yaptığı çalışmalar ve kendi durumları düşünüldüğünde sınav kaygısının öğrencilerde iki farklı sonucu olduğu tespit edilmiştir. İlki hissettikleri bu kaygıdan dolayı sınav başarısı düşenler, ikincisi ise hissettikleri bu kaygıyı güdüleyici olarak yorumlayıp başarısı artanlar (Goleman, 1999). Bundan yola çıkarak denilebilir ki sınav kaygısının etkisi bir birey üzerinde farklıdır. Yani her bir birey hissettikleri bu baskı ve kaygıyı farklı yorumlayıp farklı sonuçları olduğunu anlamışlardır.

Bireyin sınavdan korkması ile sınav kaygısı yaşaması farklı durumlardır. Sınavdan korkan bir kişi, çalışma sistemini düzenleyerek daha sistemli şekilde çalışmaya çalışır. Oysa sınav kaygısı yaşayan bir kişi daha farklı davranır. Sınav kaygısı öğrencinin sınavdan önce korkar, sınav anında heyecanlanır, tutuşur. Sınav zamanına gelmeden önce ise sınav kaygısı olan öğrencinin ise öğrenmesini engeller (Palti, 2012).

Sınav kaygısı kaygı düzeyi normal olan insanlarda da yoğunlukla ortaya çıkmaktadır. O güne kadar hiç kaygı yaşamamış birisi dahi sınav kaygısı yaşayabilir. Sinirlilik, gerginlik, dikkat dağınıklığı, kuruntu, aceleci olma sınav kaygısı yaşayanların karakteristik özellikleridir. Bu gibi durumlar bireyin soruları doğru okuma ve doğru yapma durumlarını olumsuz etkilemektedir. Böylece bireyin başarısız olmasına neden olacaktır (Palti, 2012).

Sınav kaygısının iki yönü vardır. Bunlar kuruntu ve duyuşsallıktır. Kuruntu, sınav kaygısının bilişsel (zihinsel) yönüdür. Bireyin genelde kendisi hakkındaki olumsuz değerlendirmelerini, başarısızlığına, beceriksizliğine ilişkin olumsuz düşüncelerini ve iç konuşmalarını içerir. Yapılması gerekeni yapacağına, işi başaracağına, karşılaştığı problemi çözeceğine; "ya yapamazsam, ya başaramazsam" gibi olumsuz düşüncelerle dikkatin dağılmasına neden olan bir süreçtir. "Daldım, kendimi veremiyorum, okuduklarımı anlamıyorum, ben zaten

yapamıyorum” gibi cümleler kuruntu tarzı cümlelere örnektir. Bireye çoğunlukla zarar verir. Verim ve üretkenliğini olumsuz etkiler, başarıyı düşürür.

Sınav kaygısının bir diğer bileşeni ise sınav kaygısının duygusal fizyolojik yönünü oluşturan otonom sinir sistemi uyarılmasıdır. Sınav kaygısı yüksek olan bireyler herhangi bir sınav durumunda öz varlığının tehdit edildiği korkusuna kapılır. Kişinin kalp atışları hızlanır, terleme, üşüme, kızarma, mide bulantısı gibi belirtileri olur. Sınav sorularını okuma ve doğru cevaplama; konuşurken düşüncelerini organize etme, doğru sözcükleri seçme ve düzgün ifade etme gibi davranışlarda başarısız olurlar (Genç ve ark. 1999).

Öner'e (1986) göre "özel" bir kaygı türüdür. Sınav kaygısının oluşma nedeni ise herhangi bir değerlendirme durumunda kişinin kendini tehdit ya da tehlike durumunda algılamasıdır. Ayrıca Öner (1986), sınav kaygısının bir kişilik özelliği olarak çeşitli testlerle ölçülebileceğini ve çeşitli davranışlarla ilişkisinin tespit edilebileceğini ileri sürmektedir. Öner'e göre, sınav kaygısı ile davranışlar arasında ilişkiler çok boyutlu olabilir. Örneğin; sınav kaygısının okul başarısı ile ilişkisini etkileyen faktörler arasında zekâ, cinsiyet, geçmiş öğrenme yaşantıları, çalışma alışkanlıkları, öğrenme ortamları vb. bulunmaktadır.

Kaygıların çoğunlukla sebepleri mantık dışı düşünce ve inançlardır. Çünkü düşüncelerimize göre duygularımız ve davranışlarımız şekillenir. Kaygılanan öğrenci de kaygılanmasına sebep olan olumsuz düşünceleri çağırarak, bu düşüncelerin gerçekleşeceği inancına kapılır. Bu düşünce yapısı “başarısız olmaya” odaklanmıştır. Zamanla birey başarısız olacağına kendisi de inanmaya başlar ve kaygı durumu ortaya çıkar.

Sınav kaygısının fiziksel ve psikolojik belirtileri olmak üzere iki tür belirtileri vardır. Fiziksel belirtilerini sıralayacak olursak bunlar; nabzın artması, solunum güçlüğü, kaslarda gerilme, ağrılar, ağız kuruması, ishal, baş ağrısı, mide bulantısı, kusma, uyku bozuklukları, kâbus görme, terleme, rengin soluklaşması, gözbebeklerinde büyüme olarak ifade edilmektedir (Şahin, 1995).

Ruhsal belirtiler ise, gerginlik, sinir, karamsarlık, panik, güvensizlik, endişe, heyecan, çaresizlik olarak sıralanmaktadır (Özer, 2002).

Sınav, bir stres kaynağı olarak düşünüldüğü ve bu doğrultuda fizyolojik, bilişsel, duygusal ve davranışsal tepkiler doğurduğu için, sınav kaygısı ile başa çıkmayı sağlayan yöntemler, stresle baş etme yöntemlerine benzerlik göstermektedir (Şahin, 1995).

Öğrencinin başarının değişken bir kavram olduğunun bilmesi, sınavın tipini tanıyıp olması, kendi ders çalışma alışkanlıklarının farkında olması ve gerektiği şekilde yeniden düzenlenmesi önerilir. Öğrencinin yaşadığı kaygının bir kısmı, içinde bulunduğu rekabet ortamından kaynaklanan gerçek ve akılcı bir temele dayanır ancak bu kaygıyı, olası bir başarısızlık durumunda öğrencinin ebeveynlerine ne diyeceği, arkadaşlarının yüzüne nasıl bakacağı gibi akılcı olmayan sebepler de besler. Bu durumda anne babanın duyarlılığı önem kazanır. Anne ve babanın, çocukları ile sınav hakkındaki beklentileri ile ilgili konuşmaları, onu bilgilendirmeleri gereklidir. Sınava girmeden önce, olası bir başarısızlık durumunda anne ve babasının çocuğuna olan sevgi ve güvenlerinde azalma olmayacağı çocuk ve genç tarafından bilinmelidir. Gevşeme teknikleri, doğru ve derin nefes almanın öğrenilmesi, düzenli uyku saatleri, yeterli ve dengeli bir beslenme programı da öğrenciyi fiziksel olarak destekler (Palti, 2012).

Öğrencinin sınav sonrasında oluşacak kötü sonuçlara kendini hazırlaması, bu başarısızlığın dünyanın sonu gibi algılanmaması ve bütün ümitlerin bir anda yok olduğu bir kayıp gibi alınmaması, kaygıyı azaltacak faktörlerdendir. Sınavın öğrencinin eğitim sürecinin bir parçası olduğu hatırlatılmalıdır (Özer, 2002).

Çocukların zihinsel, bilişsel, duygusal ve davranışsal yönden gelişmesinde anne babaların tutumu oldukça öneme sahiptir. Ayrıca ana baba tutumları çocuklarının kişilik gelişmesinde de oldukça etkilidir. Çocuğun çevresine uyumuna veya uyumsuzluğuna neden olabilecek etkilerin büyük çoğunluğu aile çevresinde geliştiği görülmektedir. Anne babanın çocuğun sosyalleşme süreci içinde seçtiği ödül ceza teknikleri, çocuğun farklı kişilik özellikler kazanmasına neden olmaktadır. Anne babaların farklı tarzdaki yetiştirme tutumları ile bireyde farklı kişilik örüntüleri oluşmaktadır. Çocuğun nesnelere, diğer bireylere ve tüm yaşama karşı benimsemiş olduğu tavır ve tutum anne babanın çocuğunun yetişmesinde sergilemiş olduğu farklı yöntem ve tekniklerden kaynaklanmaktadır. (Yolcu, 2015).

Çocuğun sağlıklı bir şekilde fiziksel, sosyal ve zihinsel yönden gelişmesini en fazla etkileyen faktör aile içi ilişkiler ve anne baba tutumlarıdır. Anne baba tutumları çocuğun kişiliğini şekillendirdiğinden büyük önem taşır. Hatalı ana baba tutumu, sağlıksız aile içi iletişim, aile içindeki çatışmalar, kavgalar çocuğun gelişimini olumsuz yönden etkilemektedir. Anne baba bu tutumları sergilerken bazen çok umursamaz davranırken bazen ise gereğinden fazla ilgi gösterebiliyorlar (Peker, 2012). Tüm bu dengesiz şekildeki tutumlar çocuğun ileride sağlıklı bir kişilik oluşmasında engellere neden olabiliyor.

Çocuğun doğduğu andan itibaren ilk etkileşimde bulunduğu ve güven duygusunu kazandığı kişi annesidir. Bu nedenle bebekte annenin bebeğiyle kurduğu iletişim güven duygusunun gelişmesinde oldukça etkilidir. Aynı şekilde çocuğa tuvalet eğitimi kazandırılırken ki sergilenen tutum da büyük önem taşımaktadır. Bu dönemde çocuk güven ve bağımsızlık duyguları kazanır. O yüzden bu dönemde sergilenen tutumlar katı, sert ve çok kuralcı olmamalıdır.

Çocuk yetiştirme tutumları toplumdan topluma farklılık göstermektedir. Hatta aileden aileye farklılıklar gösterirken aynı ailede anne baba arasında bile farklılıklar olabilmektedir. Aynı şekilde anne babanın

çocuklarına yönelik takındıkları tavır da farklı olabilmektedir. Anne baba bir çocuğuna aşırı ilgili ve hoşgörülü olurken bir diğerine aşırı kuralcı ve otoriter olabilmektedir. Anne babanın sergilemiş oldukları bu farklı tavırlar kardeşlerin kişiliklerinin farklı bir şekilde gelişmesine neden olmaktadır. Yani anne babanın çocuklarına göstermiş oldukları farklı tutumlar aynı ailede yetişmiş olan çocukların farklı kişilik özelliklerinde yetişmesine neden olabilmektedir (Yolcu, 2015).

Aile içinde aşırı koruyucu ve hoşgörülü bir disiplin anlayışı kadar, aşırı sert ve otoriter bir tutum da yanlış ve zararlıdır. Tutarsız, baskılı ve hoşgörüden uzak disiplin uygulaması, olumsuz ve itaatsiz çocukların yetişmesine sebep olacakken, çocuğu tamamen dürtülerinin ve isteklerinin doğrultusunda serbest bırakan, aşırı hoşgörülü ve umursamaz bir tutum da çocuğun bencilce davranışlar sergilemesine yol açacaktır (Yavuzer, 2007).

Ergenlik dönemindeki ergene anne babanın sergilemiş olduğu tutum da oldukça önemlidir. Özellikle sınavı yaklaşan ve sınav döneminde olan bir ergene anne babanın yapmış olduğu baskı ergeni tükenme durumu ile karşı karşıya bırakmaktadır (Yolcu, 2015). Zaten sınav stresinde olan ergen anne babasının bu tutumları karşısında daha fazla yorulmakta ve bunalmaktadır. Bu açıdan bakıldığında da sadece doğduğu ilk yıllarda değil de büyüdüğü zaman ve özellikle sınav dönemlerinde anne babanın sergilemiş olduğu tutumlar daha bir önem kazanmaktadır. Bu dönemde anne babanın sergilemiş olduğu destekleyici, hoşgörülü ve anlayışlı tutumlar ergeni motive edebilmektedir.

Ergenlerin risk alma davranışını aile içinde sürekli olan tartışma ve kavga durumları artırırken risk alma davranışını destekleyici ve hoşgörülü anne baba tutumları azaltmaktadır.

Otoriter ana-baba tutuma sahip anne baba çocuğunun davranışlarını denetlemeye, biçimlendirmeye ve kontrol etmeye çalışır. Çocuğunun kendisine mutlak itaat etmesini bekler. Aile içerisinde alınan kararlar çocuğa sorulmadan alınır. Otoriter aileler çocuğunun davranışını şekillendirmeye çalışır (Köse, 2015).

Otoriter anne babalar çocukları istedikleri şekilde davrandığı müddetçe sevgilerini gösterirler. Yani bir şart söz konusudur. İstenen davranışlar çoğunlukla geleneklere uygun şekildedir. Bu tutumu benimsemiş aileler isteklerinin tartışmadan yerine getirilmesini ister. İstekleri yerine getirilmediği takdirde ise ceza uygulanır. Aile cezayı iyi bir ders olsun, bir daha hata yapılmaması mantığı ile verir (Peker, 2012).

Otoriter anne babalar katı kurallar koyup, bu kurallara uyması için çocuğu zorlarlar. Çocuğun istenmeyen davranışı şiddet kullanılarak engellenebilir. Bu zorlama genellikle bağırma ve fiziksel cezalandırma yoluyla olur. Böyle bir ortamda yetişmiş çocuklar genellikle boyun eğici olurlar. Kapana kısılmış ve öfke dolu hisseder. İsteklerini dile getiremediğinden dolayı mutsuz olur. iç çatışmalar yaşar ve sonrasında sınırlı davranışlar sergiler (Aydiner, 2004).

Bu tutumdaki anne babalar anlayışsız, hoşgörüsüz, katı ve baskıcıdır. Kontrol hep kendilerinde olsun isterler. Çocuklarının hata veya yanlış yapma hakkı yoktur. Evde her şey bir kurala bağlıdır ve bu kurallara uyulmasını isterler. Yaptırım güçleri hep kendilerindedir. Kendileri hep haklıdır.

Demokratik aile ortamının temel ilkesi, çocuğun aile içinde bir birey olarak kabul edilmesi ve alınan kararlara katılmasıdır. Bu tutuma sahip anne babalar çocuklarını ayrı bir kişilik olarak görürler ve bağımsız bir kişilikte yetişmelerine destek olurlar. Bu tutumdaki ebeveynler çocuklarına içten sevgi duyarlar ve koşulsuz sevgilerini gösterirler. Evde alınan kararlar çocuklarıyla tartışarak alınır ve nedenleri anlatılır. Çocuğun görüşlerine değer verilir. (Aydiner, 2004).

Bu tutumdaki ailelerde hem annenin hem babanın hem de çocukların fikirleri önemlidir. Evin kuralları çocuğa belirtilir fakat çocuğun tepkilerini göstermesine de izin verilir. Evdeki sınırlar bellidir. Fakat bu sınırlar içerisinde çocuklar serbesttir (Yolcu, 2015).

Bu tutumdaki anne babalar çocuklarına hoşgörü ve sevgi gösterirler. Çocuklarını olduğu gibi kabul ederler. Aile ortamı çocuğa kendini anlatma fırsatı verir. Çocuğun ilgi ve yetenekleri göz önünde tutulur. Bu ilgi ve yeteneklerinin gelişebilmesi için ortam hazırlanır. Aile içerisinde güven duygusu hâkimdir. Çocuğun fikirleri dinlenir ve saygı duyulur. Çocuk konuşmaya teşvik edilir.

Bu tutuma sahip anne babanın çocukları sosyalleşmişlerdir. Arkadaş canlısı ve duygusaldırlar. İşbirliği yapmaktan kaçınmazlar. Sorumluluk bilinci gelişmiş bireylerdir. Özgüvenleri yüksektir. Girişken ve atılgan tavır sergilerler. Sosyal açıdan dengeli ve mutlu bireylerdir. Kurallara ve otoriteye saygı duyarlar.

Koruyucu ana-baba tutuma sahip anne babalar çocuğun gelişimine göre davranmasına fırsat vermez. Aşırı koruyucu anne, çocuğuyla öyle bütünleşir ki onun büyüdüğünü ve olgunlaştığını asla kabul etmek istemez. Çocuğun kıyafetini bile anne baba seçer. Çocuğun çok fazla söz hakkı yoktur (Yolcu, 2015).

Ebeveynler çocuğunu aşırı korurlar ve çocuğa gereğinden fazla özen gösterirler. Bunun sonucunda da çocuk başkalarına aşırı bağımlı hale gelir ve güvensiz biri olur. Aşırı koruyucu tutum çocuğun kendi kendini yöneten bir birey olmasını engeller, sosyal gelişimini zedeler ve bağımlı bir kişi olmasına sebep olur. Bağımlı kişilikte olduğu için girişken değildir ve zaman zaman toplum dışı kalabilirler (Köse, 2015).

Bu tutumdaki anne babalar çocuklarını kendilerinin bir uzantısı olarak görürler. Bu aileler çocuğun kontrolünü ellerinde tutmak isterler ve çocuğun tek başına bir şey yapmasını engellemeye çalışırlar. Bunun sonucunda çocuk ilerleyen yaşantılarında bağımlı bir kişilik gösterir. Tek başına bir iş yapamaz hale gelir. Sorumluluk almaktan kaçınır ve yanında hep birisi olsun ister.

Koruyucu tutum daha çok anne çocuk arasında gözlenir. Ayrıca tek çocuklu ailelerde görülmesi daha olasıdır. Bu tip anne babalar çocuklarını el üstünde tutarlar ve çocuklarının üstüne çok fazla düşmektedirler. Çocuğu zarar görecektir ortamlardan uzak tutmaya çalışırlar.

Mükemmeliyetçi ana-baba tutumdaki aileler genellikle kendilerinin yapamadıklarını, yaşayamadıklarını çocuklarından beklerler. Yüksek başarı beklentisi içinde oldukları için çocuklarını başkaları ile kıyaslama eğilimindedirler. Çocuğunun hep en'ler arasında olmasını bekler. Çocuğunun istek ve beklentilerinde çok anne babanın beklentisi ve isteği önemlidir.

Çocuklarını olduğu gibi kabul etmezler ve bir şeyler yaptırmak için onları hep zorlarlar. Çocukların hata yapma gibi bir lüksü yoktur. Çocuk anne babasının beklentisini karşılayamayınca bunalıma girebilmektedir. Bu beklentiyi karşılayamadığı için sürekli bir baskı altında olabilmektedir.

Bu tutumda yetişen çocukların kendilerine güvenleri yoktur. Hep başarılı olmak isterler ve başarısızlık onlar için kabul edilemez bir durumdur. Davranışları nettir. Ya çok dağınıktır ya da çok titiz ve düzenlidir, ortası bulunmamaktadır.

1.1.Araştırmanın Amacı

Bu araştırmanın amacı bazı ana-baba tutumlarının gençlerde oluşan ve var olan sınav kaygısı arasındaki ilişkisini incelemektir. Bu amaca ulaşmak için aşağıdaki alt problemlere cevap aranacaktır:

Alt Problemler

Sınav dönemindeki kaygı başarıyı etkilemektedir.

Ailenin sınav dönemindeki çocuğuna karşı tutumu çocuğun sınav kaygısını etkilemektedir.

Cinsiyete göre sınav kaygısı değişmektedir.

1.2. Araştırmanın Önemi

Üniversite sınavına hazırlanan öğrenciler gelecek beklentisinde oldukları için hali hazırda bir kaygı yaşarlar. Bu kaygı durumu çeşitli faktörlerden etkilenmektedir. Bu dönemdeki öğrencilerin yaşadığı kaygı anne babanın beklentisine göre de artmakta ya da azalmaktadır. Ayrıca sınav kaygı durumu cinsiyete göre de farklılık göstermektedir. Bu faktörlerin incelenmesi açısından yapılan bu çalışma önemlidir.

1.3. Araştırmanın Sınırlılıklar

Bu çalışma 2016-2017 eğitim ve öğretim döneminde Hendek Atike Hanım Anadolu Lisesi lise son sınıf öğrencileri ve ebeveynlerini kapsamaktadır. Hendek Atike Hanım Anadolu Lisesi lise son sınıf öğrencilerine ve ebeveynlerine gerekli ölçek ve anketler uygulanmıştır.

2. YÖNTEM

2.1. Sayıtlar

Öğrencilerin sınav kaygısını anlayabilmek amacıyla Spielberger tarafından geliştirilmiş olan Sınav Tutum Envanteri uygulanmıştır. Ayrıca ana-baba tutumlarını belirleyebilmek amacıyla ise cevaplar evet hayır olacak şekilde 10 soruluk bir anket hazırlanmış olup anne ya da babanın cevaplama istenmiştir.

2.2. Çalışma Grubu

Bu çalışmanın temel amacı sınav kaygısının ana-baba tutumları arasındaki ilişkisini ortaya koymaktır. Bu amaç doğrultusunda Hendek Atike Hanım Anadolu Lisesinde öğrenim gören 58i kız 36sı erkek olmak üzere toplam 94 öğrenci çalışmaya katılım sağlamıştır. Ayrıca 41'i kadın 19'u erkek olan toplam 60 veliye kendi hazırlanmış olduğumuz anne-baba tutumları ölçeği uygulanmıştır.

2.3. Veri Toplama Aracı

Çalışmada D. SPIELBERGER ve arkadaşlarının A.B.D.'de İngilizce olarak geliştirdiği Sınav Tutum Envanteri kullanılmıştır. Necla Öner ve Deniz Albayrak Kaymak tarafından Türkçeye uyarlanmıştır Ölçek toplam 20 maddeden oluşmaktadır. Araştırma modelinin uygulanabilmesi için elde edilmesi gereken bilgi, anket yöntemiyle elde edilmiştir. Ölçek formu tek bölümden oluşmaktadır. Ölçekte, öğrencilerin duyuşsal kaygılarını ve kuruntularını ölçmek üzere sorular sorulmuştur. Ve bu soruları kendilerine göre derecelendirmeleri istenmiştir. Cevaplayıcılardan da sıralamayı 1 ile 4 arasında yapmaları istenmiştir. Dörtlü likert ölçeği kullanılarak hazırlanan bu sorularda "Her zaman" en pozitif cevap olmak üzere, "Hiçbir zaman" en olumsuz cevabına kadar 4 seçenek sunulmuştur. En olumlu cevaba 4, en olumsuz cevaba ise 1 rakamı verilmiştir. Ayrıca değerlendirme aşamasında 1.madde ters olarak olumsuz cevap 4 olumlu cevap 1 olarak kodlanmıştır.

Çalışmamızda anne babalara uygulanacak olan ölçek tarafımızdan geliştirilmiş olup toplamda 10 maddeden oluşmaktadır. Bu ölçek evet hayır şeklinde iki cevaptan oluşmakta olup ilk üç madde otoriter ana baba tutumu,

dördüncü ve beşinci maddeler mükemmeliyetçi ana baba tutumu, altıncı ve yedinci maddeler demokratik anne baba tutumu ve son iki madde koruyucu anne baba tutumunu değerlendirmektedir.

2.4. Verilerin Analizi

Araştırmada kullanılan ölçek sonuçları istatistiksel veriler ışığında analiz edilmiştir. Araştırma sonucunda elde edilen veriler bilgisayar ortamında değerlendirilmiş, istatistiki çözümlere için SPSS 20.0 programından yararlanılmıştır. Elde edilen sonuçlar ayrıntılı olarak verilmiştir. Bu incelemeler T Testi ve korelasyon analizleri ile yapılmıştır. Sonuçları değerlendirmede öğrencilerin betimsel sonuçlarını ve görüşlerini belirten puanlarda frekans ve yüzdeler kullanılmıştır.

3.BULGULAR

Araştırmanın bu bölümünde, öğrenciler üzerinde yapılan değerlendirme formundan elde edilen bulgulara ve bunlarla ilgili araştırmacının yorumlarına yer verilmiştir. Tablolar özetlenecek olursa; uygulanan testin her bir maddesi ölçmek istenen davranışı veya durumu ölçebilecek geçerlikte ve güvenilirliktedir.

3.1.Birinci Probleme Ait Bulgular

Tablo1: Toplam puanın cinsiyet değişkenine göre incelenmesi

Grup	N	X	S	sd	t	P
Kız	58	43,41	14,433	92	,841	,403
Erkek	36	41,06	10,957			

Veriler cinsiyet değişkenine göre t-testi ile incelenmiştir. Elde edilen sonuçlara göre anlamlılık değerleri 0,403 bulunmuştur. Bu değer 0,05 in üstünde olduğundan dolayı duyuşsal ve kuruntu kaygılarının toplam puanı cinsiyet faktörüne göre bir anlamlılık ifade etmemektedir.

Tablo2:Duyuşsal puanının cinsiyet değişkenine göre incelenmesi

Grup	N	X	S	sd	t	P
Kız	58	26,9483	8,80475	92	1,244	,214
Erkek	36	24,8056	6,84865			

Veriler cinsiyet değişkenine göre t-testi ile incelenmiştir. Elde edilen sonuçlara göre anlamlılık değerleri 0,214 olarak bulunmuştur. Bu değer 0,05 in üstünde bulunduğundan dolayı duyuşsal kaygı cinsiyet faktörüne göre bir anlamlılık ifade etmemektedir.

Tablo3: Kuruntu puanının cinsiyet değişkenine göre incelenmesi

Grup	N	X	S	sd	t	P
Kız	58	16,3793	5,83344	92	,433	,666
Erkek	36	15,8889	4,43221			

Veriler cinsiyet değişkenine göre t-testi ile incelenmiştir. Elde edilen sonuçlara göre anlamlılık değeri 0,666 olarak bulunmuştur. Bu değer 0,05 in üstünde bulunduğundan dolayı kuruntu kaygı cinsiyet faktörüne göre bir anlamlılık ifade etmemektedir.

3.2.İkinci Probleme Ait Bulgular

Tablo 4: Mükemmeliyetçi anne baba tutumu ile duyuşsal, kuruntu ve toplam kaygı puanı ilişkisi

		Duyuşsal puanı	Kuruntu puanı	Toplam puan
Mükemmeliyetçi tutum	Sig.(2-tailed)	,023	,050	,037
	Correlation	,855	,698	,876

Mükemmeliyetçi anne baba tutumu ile duyuşsal, kuruntu ve toplam kaygı puanı ilişkisi incelendiğinde anlamlılık değerleri 0,05in altında olduğu görülmüştür. Bundan dolayı sınav kaygısı ile mükemmeliyetçi anne baba tutumu arasında bir ilişki bulunmaktadır.

Tablo 5: Demokratik anne baba tutumu ile duyuşsal, kuruntu ve toplam kaygı puanı ilişkisi

		Duyuşsal puanı	Kuruntu puanı	Toplam puan
Demokratik tutum	Sig.(2-tailed)	,748	,875	,985
	Correlation	-,042	,021	-,002

Demokratik anne baba tutumu ile duyuşsal, kuruntu ve toplam kaygı puanı ilişkisi incelendiğinde anlamlılık değerleri 0,05in üstünde olduğu görülmüştür. Bundan dolayı sınav kaygısı ile demokratik anne baba tutumu arasında bir ilişki bulunmamaktadır.

Tablo 6: Koruyucu anne baba tutumu ile duyuşsal, kuruntu ve toplam kaygı puanı ilişkisi

		Duyuşsal puanı	Kuruntu puanı	Toplam puan
Koruyucu tutum	Sig.(2-tailed)	,047	,036	,005
	Correlation	-,452	-,698	-,736

Koruyucu anne baba tutumu ile duyuşsal, kuruntu ve toplam kaygı puanı ilişkisi incelendiğinde anlamlılık değerleri 0,05in altında olduğu görülmüştür. Bundan dolayı sınav kaygısı ile mükemmeliyetçi anne baba tutumu arasında bir ilişki bulunmaktadır.

Tablo 7: Otoriter anne baba tutumu ile duyuşsal, kuruntu ve toplam kaygı puanı ilişkisi

		Duyuşsal puanı	Kuruntu puanı	Toplam puan
Otoriter tutum	Sig.(2-tailed)	,805	,297	,525
	Correlation	,138	,033	,084

Otoriter anne baba tutumu ile duyuşsal, kuruntu ve toplam kaygı puanı ilişkisi incelendiğinde anlamlılık değerleri 0,05in üstünde olduğu görülmüştür. Bundan dolayı sınav kaygısı ile otoriter anne baba tutumu arasında bir ilişki bulunmamaktadır.

4.SONUÇ VE ÖNERİLER

Bu araştırmayı öğrencilerin psikolojilerini olumsuz olarak etkilediği kabul edilen sınav kaygısını cinsiyet ve anne baba tutumu arasındaki ilişki bakımından incelemek için planladık. Bu araştırma sonucunda edindiğimiz bilgiler ışığında ulaştığımız sonuçları genelleyerek aşağıda belirtilmiştir.

Cinsiyete göre öğrencilerin üniversite sınavlarına karşı kaygı seviyesinde anlamlı farklılıklar görülmemiştir. Aile tutumlarından 4 tutum çeşidi incelenmiş, bu tutum çeşitlerinden koruyucu ve mükemmeliyetçi anne baba tutumu ile öğrencilerin duyuşsal, kuruntu ve toplam kaygı puanı arasında anlamlı bir ilişki bulunmuştur. Otoriter ve demokratik anne baba tutumu incelendiğinde ise öğrencilerin sınav kaygısı arasında anlamlı bir ilişki bulunmamıştır.

Bireyler yaklaştığını hissettiği tehlikeler karşısında müthiş bir güvensizlik duygusuna kapılmaktadır. Üniversite sınavının yaklaşması da öğrencilerde kendine güvenememe durumuna yol açmakta ve bunun sonucunda daha sınava girmeden kazanamayacağını düşünmeye ve kaygı duymaya başlamaktadır.

Yapılan çalışmada dört tane anne baba tutumu incelemiş olup bu tutumların ikisinin sınav kaygısı ile ilişkisi bulunmuştur. Okula yönelik bir çalışma yapılacaksa okul rehber öğretmeninin bu tutumları belirlemeye daha fazla önem vermesinin gerekliliği önerilmektedir. Ailede yerleşmiş olan bu tutumların yerini daha demokratik tutum almalıdır. Aileler çocuklarına karşı daha destekleyici bir tutum sergilemelidir. Bu durumda okul rehber öğretmenlerinin de ailelerle olan ilişkisi iyi yönde olmalı ve ailelere yönlendirici tutum sergilemelidir. Ayrıca sınav döneminde öğrencilere destek olabilecek yegâne kaynak okul rehber öğretmenleridir. Bu dönemdeki öğrencilere rehber öğretmen destekleyici bir tutum geliştirmelidir. Ayrıca öğrenciler 12.sınıfa gelmeden okulda sınava yönelik çalışmalar yapılırsa öğrencilerin sınav kaygı düzeyinin azalacağını düşünmekteyim.

Ülkemizde sınav kaygısını ölçmek amacıyla yeni ölçme yöntemleri ve araçlarının geliştirilmelidir. Bunların yaygın ve etkin kullanılması için ise yaş ve sınıf düzeylerine göre ayrılabilir ve okullardaki uygulamaları için “okul formları” oluşturulabilir. Yine öğrencilerle birlikte olan öğretmenlerin “sınav kaygısı” konusunda bilgilendirilmesi, öğrencilere nasıl yaklaşmaları ve davranmaları gerektiği hakkında eğitim almaları uygun olabilir.

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AKADEMİSYENLERİN AR-GE VE İNOVASYON UYGULAMALARINA YÖNELİK DEĞİŞİME KARŞI DİRENCİ

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ÖZET

Bu çalışmanın amacı, akademisyenlerin Ar-Ge ve inovasyon uygulamalarına yönelik değişime karşı direnci incelemektir. Bu amaç doğrultusunda, akademisyenlerin Ar-Ge ve inovasyona karşı gösterdikleri direncin sebepleri ve bu direncin kırılması için alternatif çözüm önerileri literatür ışığında ele alınmıştır. Araştırma sonucunda teknolojik gelişim sürecinde akademisyenlerin; üniversitelerdeki Teknoloji Transfer Ofislerinin aktif olmaması, yeterli mali destek bulunmaması, entegrasyon sıkıntısı, yasal hakların sınırlı olması gibi sebeplerle direnç gösterdikleri söylenebilir. Bu direncin kırılması için üniversite yönetimlerinin, değişimin benimsenmesine yönelik bir örgüt kültürü oluşturarak inovasyon performansı sergilemek için etkili stratejiler geliştirmesi gerekmektedir. Ayrıca inovasyona yapılan yatırımlarda ihtiyaç duyulan maddi kaynakların elde edilmesine yönelik sınırlılıkların ortadan kaldırılması için sanayinin girişimci akademisyenleri desteklediği olanakların artırılması ve bu konudaki bürokratik engellerin azaltılması önerilmektedir.

Anahtar kelimeler: Ar-Ge, inovasyon, üniversite, akademisyenler, değişime direnç.

The Resistance of Academics Towards Change in R&D and Innovation Practices

ABSTRACT

The purpose of this study is to examine the resistance of academics towards change in R&D and innovation practices. For this purpose, the reasons for the resistance of academics to R&D and innovation and the alternative solution for breakage of the resistance are discussed in the literature. As a result of the research, in the technological development process, it can be said that, the academics resists for some reason like the Technology Transfer Offices in universities are not active, lack of financial support, integration problems and limited legal rights. To break this resistance, university administrations need to develop effective strategies to demonstrate innovation performance by creating an organizational culture for adoption of change. It is also proposed to increase the possibilities that the industry supports by entrepreneurial academics and to reduce the bureaucratic obstacles in order to remove the limitations on the acquisition of material resources needed for investment in innovation.

Keywords: R&D, innovation, university, academics, resistance to change

ALIENATION AMONG SCHOOL TEACHERS IN RELATION TO JOB SATISFACTION SELF-ESTEEM AND VALUES

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ABSTRACT

This study is conducted to study the alienation among teachers in relation to job satisfaction, self- esteem and values. A sample of 600 with nearly an equal number of male and female teachers is selected at random from elementary government schools. For studying alienation among school teachers in relation to job satisfaction, self-esteem and values it is proposed to use descriptive statistics mainly mean ,median , mode and standard deviation is applied, Relevant statistical techniques such as t-test and analysis of variance is used where two or more groups are to be compared.

INTRODUCTION

Under the impact of the forces of modernization and globalization, the traditional support systems such as the joint family and community living are under strain and so are the value systems which have been a successor to an individual under stress. Large scale migration of people in search for better life elsewhere, new modes of production, communication and economic activity on account of globalization have accelerated the feeling of alienation among people. The increasing use of facebook and whatsapp etc bear a testimony to an increasing need for social support arising from the problem of alienation among people.

Alienation is a state of being cut off or separation from a person or group of people. The Latin word for alien is alienus which means belonging to another". The idea of not belonging, or not fitting in, gave rise to the Latin verb "alienare" meaning "estrangle", which alienation comes from.

Oxford Dictionary (1940), defines alienation as the state of isolation, alienation as an experience in which the person consider himself as an alien creature.

According to Seeman (1959),the feelings of normlessness, powerlessness, self estrangement , meaninglessness, and isolation and their consequences as a result of social, institutional and relational problems result in the development of alienation.

Powerlessness describes the conditions, under which the individual lacks any control over not only their own product, but also over the outputs of the instruments they have used in this process.

Normlessness means to disapprove of the necessity of the behaviors, which are required to achieve one's objectives.

Isolation, describes either the lack of any bond of friendship, or participation in an organizational environment at the lowest level. Isolation may be experienced due to either the individual's departure from the society, or due to the individual's exclusion from its community.

Meaninglessness, describes the individual's failure in understanding their own activities, a failure in building a bridge between the present and the future.

Self-estrangement can be defined as the psychological state in which person deny one's own interests – of activities giving extrinsic satisfaction, rather than activities giving intrinsic satisfaction. A person becomes stranger to oneself, or to some parts of oneself or has a problem of self-knowledge or authenticity.

In a broader philosophical context, especially in existentialism and phenomenology, alienation describes the insufficiency of the human being in relation to the world. The human mind sees the world as an object of perception, and is alienated from the world, rather than living within it.

In the theory of psychoanalysis, alienation is the divisions and conflicts between the conscious state and unconscious state of mind, and between the id and civilized.

Psychologists define alienation as an extraordinary variety of psychological disorders, including apathy, loss of self, loneliness, pessimism, powerlessness, isolation, anomie, anxiety states, anomie, despair, depersonalization, rootlessness, loneliness, atomization, and the loss of beliefs or values.

ALIENATION

Alienation is a concept that refers to both a psychological condition found in individuals and to a social condition that underlies and promotes it.

Karl Marx's theory of alienation describes that alienation results from the private ownership of capital and the employment of workers for wages, and arrangement that gives workers little control over what they do. In alienated systems, people no longer work because they experience satisfaction or a sense of connection to the life process, but instead work to earn money, which they need in order to meet their needs.

Teachers effect the schools both quantitatively and qualitatively as they are responsible for maintaining social, political, and economic functions of the schools. Alienation to work averts teachers to be creative and to work for the improvement of vocational qualifications of the students, to make contribution in the development of the society, to make learning more effective and to cooperate with management and other teachers.

Types of alienation found in teachers are:

1. The alienation of the Teacher from their work.
2. The alienation from teaching itself where teaching becomes meaningless and mundane.
3. The alienation of the teacher from themselves as a social agent.
4. The alienation of the teacher from other students and teachers.

Teachers feel that they are controlled by economic forces, political forces and the social forces i.e. the force of negative public discourse. The professional views of the teachers have always been excluded from the process of decision making and it is very frustrating. They feel useless and worthless as they have no real say in shaping their work lives .For those teaching is worship, it becomes difficult to accept that they are mere workers who have to follow the commands of the management, even in most of the cases the management really does not know anything about teaching.

Job satisfaction

It is a feeling when an individual is satisfied from his job. This feeling is mainly based on an individual's profundity of satisfaction. Job satisfaction can be influenced by a person's ability to complete required tasks, the level of communication in an organization, and the way management treats employees.

Numerous definitions of job satisfaction have been given. According to some, job satisfaction simply defines that whether a person is happy from one's job and the working environment. But according to others it is more complex as multidimensional psychological responses are there.

The factor of job satisfaction has a great impact on the performance of the teachers. If the teacher is satisfied with the working conditions at the school, opportunity for advancement exists, respect from colleagues and students is there, relationship with authorities is cordial, financial reward like honorarium compensation for extra work are there, workload is also bearable, then the teacher in all livelihood will be satisfied with their job and this will result into the lower level of alienation, alienation is one of the by-products of dissatisfaction in job.

VALUES

In examining the relationship between the manner in which we direct business and the principles to which we personally attribute, we are inextricably impacted by our respective bringing up, societal environments and academic influences. Robert Rue (2001) emphasizes that values are the essence of who we are as human beings. The way we live, behave and even do our daily activities are controlled by the values. Our decisions and also how do we make those decisions are all under the control of values we possess.

Allport and his colleagues, Vernon and Lindzey, created the Allport-Vernon-Lindzey Study of Values. The values scale outlined six major value types:

1. **The Theoretical** person gives more importance to search the truth and reality. And everything is knowledge based. No importance is given to beauty.
2. **The Economic** individual gives more priority to money. Their sole aim of life is to accumulate wealth. For them making money is the most important work on this earth.
3. **The Aesthetic** person places high value of form and harmony. They believe life to be a series of events that are to be enjoyed for its own sake. They have high aesthetic sense. For them life is very beautiful and should be enjoyed. They give least importance to money.
4. **The Social:** The highest value of the social type is love of people. Social persons are very kind, unselfish, down to earth, and full of sympathy for others. They give no importance to economic, aesthetic and theoretical values. They love the society selflessly and always work for the betterment of the people. Their main goal of the life is upliftment of the society. They give topmost priority to love.
5. **The Political:** The person with political values has sole aim to be dominant and has power in his hands. In each and every field struggle is there for power. The person would always try to be the leader. Such individual has a quality to lead the group. A content of selfishness will also be present in the personality of that individual.
6. **The Religious:** Religious individuals give the most importance to the unity. The values are normally based on the scriptures. For them political power has no importance. Religion is above all. Each and everything which is beyond the boundaries of religion norms is wrong. Religion is supreme.

The behaviour of the students is also influenced by the personality and the values of the teacher. The students perform better in the classes of their favourite teachers. They take more interest in subject of their favorite

teacher. Even the percentage of attendance is high in the lectures of the favourite teachers. The teachers who are found to be outgoing, realistic, emotionally stable, enthusiastic, intelligent, assertive, independent, socially bold, confident, hard to fool, practical, experimenting, controlled, relaxed, conscientious give high performance as compare to the teachers who are reserved, less intelligent, emotionally less stable, humble, taciturn, expedient, shy, tender-minded, easy to get on with, imaginative, shrewd, depressive, conservative, prefers own decisions, undisciplined, tense.

High performing teachers are relatively high in social, religious theoretical, aesthetic, political, value than low performing teachers whereas in low performing teachers economic values are at peak.

Self-esteem

Self-esteem reflects a person's overall subjective emotional evaluation of one's own worth. It is, how do a person feel about oneself, whether the feeling of pride or shame, triumph or despair towards oneself. Self-esteem depends upon various factors like happiness, achievement in academics, satisfaction from job, marriage and relationships, etc.

Possessing little self-regard can lead people to become depressed, to fall short of their potential, or to tolerate abusive situations and relationships. Too much self-love, on the other hand, results in an off-putting sense of entitlement and an inability to learn from failures (It can also be a sign of clinical narcissism).

Self-esteem motivates people to give importance to themselves and also encourage them to work with their full potential to achieve their goals. High self-esteem act as great factor which motivate to fulfill one's dreams. On the other hand low self-esteem inculcate inferiority complex in the person, and the person is not motivated to pursue their goals.

Self-esteem is considered to be a trait reflecting an individual's characteristic affective evaluation of self, low self-esteem and low general self-efficacy led to low teachers' efficacy and consequently substandard performance in the class. On the contrary, high teachers' efficacy is a reflection of high self-esteem and high general self-efficacy. Self-esteem influenced only in decision making, perceived education self-efficacy, perceived disciplinary self-efficacy, ability to get cooperation from community, and in the development of positive school environment of teachers' efficacy. A teacher with high self-esteem is full of confidence and satisfied from inside, one perform his functions with full potential and is always ready to accept new challenges and never becomes a victim of alienation.

STUDY

OBJECTIVES OF THE STUDY

1. To construct Punjabi adaptation of Alienation scale by Hardeo Ojha (2010).
2. To construct Punjabi adaptation of Job Satisfaction Scale for Teachers by Meera Dixit.
3. To construct Punjabi adaptation of Value Test by R. K. Ojha and M. Bhargava (1992).
4. To construct Punjabi adaptation of Self-esteem Inventory developed by Stanley Coopersmith (1981).

- 5 To study alienation among elementary school teachers in relation to job satisfaction.
- 6 To study alienation among elementary school teachers in relation to self esteem.
- 7 To study alienation among elementary school teachers in relation to values.

HYPOTHESES OF THE STUDY

The following non-directional research hypothesis have been formulated.

- 1 Teachers with high, average and low levels of job satisfaction will significantly differ on alienation.
- 2 Teachers with high, average and low levels of self-esteem will significantly differ on alienation.
3. Teachers who are high, average and low on theoretical values will significantly differ in alienation.
4. Teachers who are high, average and low on economic values will significantly differ in alienation.
5. Teachers who are high, average and low on aesthetic values will significantly differ in alienation.
6. Teachers who are high, average and low on social values will significantly differ in alienation.
7. Teachers who are high, average and low on political values will significantly differ in alienation.
8. Teachers who are high, average and low on religious values will significantly differ in alienation.

DELIMITATIONS OF THE STUDY

1. The study will be delimited to the elementary school teachers working in government elementary schools.
2. The study will be delimited to the districts of Gurdaspur, Mohali and Jalandhar.

OPERATIONAL DEFINITIONS OF THE TERMS USED

1. **Alienation:** Alienation is a state of being cut off or separate from a person or group of people.
2. **Job Satisfaction:** Job satisfaction is the state of satisfaction a person feels regarding one's job.
3. **Self-esteem:** Self-esteem is a confidence in one's own worth or abilities. It is measured with the help of Self-esteem Inventories developed by Stanley Coopersmith (1981).
4. **Values:** The values include six major values, such as theoretical (discovery of truth), economic (what is most useful), aesthetic (form, beauty, and harmony), social (seeking love of people), political (power), and religious (unity) as measured through.

METHOD AND PROCEDURE

For the present study, descriptive method of research is used to examine Alienation among school teachers in relation to certain demographic variables, self-esteem and values.

Sample

A sample of 600 with nearly an equal number of male and female teachers is selected at random from elementary government schools in the district of Gurdaspur, Mohali, Jalandhar.

Research Tools

1. Punjabi adaptation of Alienation Scale by Hardeo Ojha (2010) will be used which contains 20 items spreading over six dimensions i.e. (a) powerlessness, (b) normlessness, (c) meaninglessness, (d) social

isolation, (e) self estrangement and (f) cultural estrangement.

2. Punjabi adaptation of Job Satisfaction Scale for Teachers by Meera Dixit will be used which contains 52 items divided into eight areas i.e. (a) Intrinsic aspect of job, (b) Salary, Promotional avenues and service condition, (c) Physical facilities, (d) Institutional Plans and Policies, (e) Satisfaction with authorities, (f) Satisfaction with social status and family welfare, (g) Rapport with students, (h) Relationship with co-workers.
3. Punjabi adaptation of Value Test by R. K. Ojha and M. Bhargava (1992) will be used. This test contains 45 statements which measure six values i.e. (a) theoretical, (b) economic, (c) aesthetic, (d) social, (e) political and (f) religious on the basis of Allport Vernon as per Spranger's classification.
4. Punjabi adaptation of Self-Esteem Inventories developed by Stanley Coopersmith (1981) will be used. It contains 25 items which are scored on a dichotomous scale ("like me" or "not like me") to provide a global measure of self-esteem. Higher scores indicate higher self-esteem.

FINDINGS

Teacher is a very important part of the society and is playing a crucial role in preparing the society to attain new levels of success and fame. Teachers play a significant role in preparing young people to live successful and productive lives.

The values which are developed in the teacher have a significant effect on the performance of the teacher. The theoretical, economic, aesthetic, political and religious value attained by a teacher, affect their personality. They are less alienated from their profession.

It is found that a teacher with religious value, is less alienated, as they have high self esteem and even the environment at the working place does not affect them.

It is found that the teacher who has economic values, if its satisfied with the salary, is less alienated from teaching

It is found that the teacher, who has theoretical values, is alienated when the student's performance is not up to the mark.

It is found that the teacher, who has political values, is alienated when his ego is not satisfied.

It is found that the teacher, who has aesthetic values, is alienated when he is not respected by his students.

High self-esteem also plays a significant role in the performance of a teacher. It is found that a person with high self-esteem is less alienated.

A teacher who is satisfied from his/her job is found to be less alienated, and on the other hand an unsatisfied teacher is found to be more alienated.

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AN ASSESSMENT OF A MINDFULNESS INTERVENTION WITH BUSINESS STUDENTS

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ABSTRACT

A pretest-posttest design was used to assess the effectiveness of a Mindfulness Intervention with 289 first year students of a business school in Ecuador. They were randomly assigned into three groups: Guided-Mindfulness meditation class sessions (Group A), Self-guided mindfulness meditation sessions (Group B) and the control group (Group C). Through an Analysis of Covariance (ANCOVA), the experiment explores for any differences between those groups on three outcomes: (1) Mindfulness Attention Awareness Scale Test (MAAS), (2) Five Facet Mindfulness Questionnaire Test (FMMQ), and (3) Academic performance (AP), of all students, before and after the intervention. It was found that those students taking the mindfulness class improved their MASS compared to those in the control group. However, there was no statistically significant effect on their FMMQ scores and academic performance.

AN EXPLORATORY STUDY: UNDERGRADUATES' PERCEPTIONS TOWARDS E-LEARNING PLATFORMS IN ENGLISH LANGUAGE TEACHING (ELT) IN ECUADOR.

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ABSTRACT

Information and Communication Technology (ICT) has transformed today's society, having an increasingly essential role in many different areas. In the scope of English Language Teaching (ELT), as technology continues to become more attractive and pervasive, Learning Management Systems (LMS), Learning Content Management Systems (LCMS) and Content Management Systems (CMS) have become more and more popular for managing and delivering content. These otherwise known as learning platforms have spurred engaging discussion in terms of the extent to which they are beneficial for learning, and what their limitations are. Thus, this study aimed to analyze the Ecuadorian ICT context and what is being done to convince the learner of the 21st century to become proficient in English via these platforms. To do so, a qualitative research design was applied through a General Scanning Model; an exploratory study was applied in four universities in Ecuador to determine undergraduates' perception towards e-learning platforms, considering variables like students' biographies, digital competences, and access to technology. On-line questionnaires, focus-groups and individual interviews were carried-out to collect and analyze the data. This study allowed us to better understand how the shifts brought about by technology have produced a new view of what constitutes learning a foreign language.

Key words: Information and Communication Technology, English Language Teaching, e-learning platform, Learning Management System, Learning Content Management System.

INTRODUCTION

This article looks at the variety of learning systems available for use in English Language Teaching and some platforms, which have been introduced in Ecuador in recent years. The systems discussed include Learning Management Systems, Learning Content Management Systems, and Content Management Systems. As they have become more and more used in schools in Ecuador, the question becomes how beneficial they are to learning and what their limitations are from students' perceptions. As we explore the realm of digital systems to aid in the ELT in Ecuador, it becomes necessary to address specific aspects of the Learning Management Systems (LMS), Learning Content Management Systems (LCMS), and Content Management Systems (CMS). Moreover, it is also essential to discuss: what the above systems are; considerations of implementation; and barriers to implementation in ELT settings.

What are the various kinds of systems?

As this study was prepared, it was important to address the three different types of systems available for use to aid the instructor in providing content. As noted in the introduction to this section, the three systems are Learning Management Systems (LMS), Learning Content Management Systems (LCMS), and Content Management Systems (CMS). Below are found definitions as to the differences between them.

A Learning Management System (LMS) is a robust Web-based software system that allows instructors “to build, structure, and deliver e-courses using educational resources of a variety of media on appropriate platforms” (Donnelly, Benson, & Kirk, 2012).

A Learning Content Management System (LCMS) is rooted in Web 2.0 technology that allows for a cost effective means of allowing an instructor to efficiently utilize learning objects throughout the process of “content development, management, and publishing” for teachers (Kim & Moon, 2012). An effective LCMS allows the instructor to create learning objects and to disseminate these objects to students

A Content Management System (CMS) also utilizes Web 2.0 technology for “content creation, maintenance, versioning, and publishing on portals and search engines” (Kim & Moon, 2012). These systems are used to store learning objects and support their consistent availability for an instructor. In a sense, a CMS is but a warehouse for an instructor to push out learning objects for use in classrooms.

While these three systems seem to be similar, there are degrees of separation as to their effectiveness and their ability to aid in the development of learning. An LMS provides multiple tools to aid in the instruction of a class in an independent manner. An LMS can allow a student to learn independently with minimal intrusion of the instructor. This tool allows a class to run with minimal maintenance on the behalf of the teacher. These web-based systems have evolved to include tools such as discussion boards, server based grading, structuring of learning groups, and other Web 2.0 applications. An LCMS allows for instructors to create and disseminate materials within the learning system, but the other robust pieces found in an LMS are not found as easily. Likewise, a CMS is even less robust, which only allows an instructor to receive objects shared by the instructor that are created outside of the application, much like a cloud memory system.

Considerations of Implementation

In the implementation of Management Systems in the classroom, it is important to keep in mind that these learning environments are dependent upon the desires of the instructor. The more robust the system, the instructor has greater possibilities in their classroom. If to use a LMS instead of a CMS, the instructor has the potential to promote greater interaction amongst their students thanks to the Web 2.0 capabilities of the LMS. As they analyze the potential of the LMS, there are multiple concerns to the choice of Management System. There are extrinsic and intrinsic factors to consider, among which, tenure is a concern (Aziah & Marzuki, 2005). But to use technology as a content repository, those that choose systems must consider the methodologies of the teacher. If this is not done, training becomes necessary to fully take advantage of the benefits of the system (Conole, 2004). With a robust enough system, collaboration and cooperation become possible and should be encouraged to take full advantage of the potentialities (Weaver, Spratt, & Sid, 2008).

As discovered in this research, in considering what system is most appropriate for specific learning situations, the process involves planning, implementation, evaluation, revision, and updating. These considerations revolve around the teachers' habits of planning, implementing, assessing, and learning. As discovered, the selection of Management

Systems takes into account not only what is cost effective, but also what is beneficial for students (Mullinix & McCurry, 2003; Fabre, Boroto & Soto, 2016) and in particular what is good for assessment of that learning (Laster 2005; Smith 1996). But what is of greater concern is the engagement of students in their learning (Laster, 2005). In this sense, we need to pursue the creation of an engaging learning environment, which is essential to increase students' motivation and commitment to work, producing a positive effect on participation and productivity (Fabre & Boroto, 2017).

As for the benefits of using a management system in an ELT program, there are definite benefits. To explore the benefits, recent research shows that the most current systems allow for collaboration in writing (Yim & Warschauer, 2017), asynchronous peer review processes (Saeed & Ghazali, 2017), autonomous learning (Lee, 2016), and of great benefit to ELT learners deeper identity development (Fong, Lin, & Engle, 2016) which enhances Biographical Driven Instruction, a proven model for ELT instruction and Culturally and Linguistically Diverse students (Herrera, Holmes, & Kavimandan, 2012).

Challenges to Implementation

There are two distinct concerns to the implementation of a Management System, the quality of the system and the concerns of accessibility and regulations in the Ecuadorian system.

The first is the issue of quality of the system. When we look at the system, the most obvious concern is that of quality. The technology must be effective and it must enhance the process of teaching and learning (Weaver, Spratt & Sid, C, 2008). However, the quality of a system is not a guarantee of effective learning. There must be training to improve quality (Covington, Petherbridge & Warren, 2005). This becomes evident when we find that 70% of academic staff experience limitations when applying technology due to poor training (Weaver, Spratt & Sid, C, 2008). Most Ecuadorian universities are still during implementation phases; they train teachers, socialize the systems with the students, implement the LMS but they do not apply a continue assessment to evaluate the quality

Additionally, within the Ecuadorian ICT context, accessibility is one of the major issues when effectively applying LMS. The policies and regulations that frame Ecuadorian universities' promote and demand the use of technological resources and virtual platforms to ensure quality in their educational systems. However, they are just starting in this innovative area and there is so much to improve, especially in terms of accessibility. Some universities have costly, fancy resources, but they do not wisely use them because of poor Internet access or infrastructure.

Since the changes to the Ecuadorian Constitution in 2008, several laws were passed and consequent reforms took place. One such reform occurred in education on all levels. Particular to this study are the changes in Higher Education. Among the most important implementation was the establishing of an accreditation process that among some of the most drastic effects ended in the closing down of fourteen universities (CEACES, 2013). The demands of this process of accreditation stipulates among other things that universities in Ecuador must have an integrated electronic system that articulates all the activities pertaining to student-teacher life. This virtual system would need to allow students to enrol and engage in classes, among other things.

The four universities within their system have an LMS whose level of advancement and integration is at varying degrees based on factors such as financial resources allotted, level of training on the part of the staff in charge, and supplier of the software. However, little by little, these centres have been learning from the mistakes and feedback from instructors and students. For example, at one of the universities, during the first year of implementation, there was a lot of opposition on the part of the teaching staff because for example the LMS allowed opportunities to upload homework and learning resources via embedded material or links, but did not allow to grade homework. This however was fixed the following semester and reluctant teachers embraced the idea more optimistically. So, the process is still on and the comments and suggestions from teachers and students are key in the process.

As for how these LMSs have been used to promote foreign language learning, it must be mentioned that this has also been handled based on each university's structure, internal regulations, resources and staff. In all cases however, these universities have the responsibility of guaranteeing English language learning at the B2 proficiency level of the Common European Framework of Reference for Languages (CES, 2017). And because of this, the centers for English language learning as well as undergraduate and graduate degree programs of these universities have taken actions for English language teachers to manage their classes via the LMS in their general platforms.

THE STUDY

A qualitative research study was conducted through an exploratory design, which was applied in four Ecuadorian universities located in different cities to determine undergraduates' perceptions towards e-learning platforms. The data was gathered using online questionnaires, focus-group and individual interviews which were previously designed and validated by the participants and other external experts. The focus-group and individual interviews were applied in different sessions to better validate the data collected, which gave us the opportunity to reflect and to re-transcribe the information, obtaining more visible and trustable results. The data analysis was carried-out through a General Scanning Model, which allowed us to interpret and to find that features like students' age, previous academic exposure, and access to technology strongly affect their perceptions toward learning English through technology. This study was focused on students' biographies, access to technology, digital abilities, and their attitudes and willingness to work with technology, which were discussed together with the questionnaires and interviews during the data collection stage.

RESULTS & DISCUSSION

The questionnaires provided us with relevant information to build participants' profiles, which were essential variables to determine students' perceptions, finding strong variations among their attitudes towards learning English through technology features depending on their age see [Figure 1], gender see [Figure 2], level of English proficiency see [Figure 3], and the development of digital skills see [Figure 4], which are the most relevant aspects of participants' profiles.

Figure 1: Percentage of the sample's profiles grouped according to their age. Data obtained from the on-line questionnaires applied to participants.

Figure 2: Percentage of the sample's profiles grouped according to their gender. Data obtained from the on-line questionnaires applied to participants.

Figure 3: Percentage of the sample's profiles grouped according to their English proficiency level. Data obtained from the on-line questionnaires applied to participants and academic records.

Figure 4: Percentage of the sample's profiles grouped according to their academic background in terms of digital ability exposure and training. Data obtained from the on-line questionnaires and interviews applied to participants.

After analyzing students' profiles and the data collected through the interviews and questionnaires, the outcomes of the research demonstrated that students' perceptions and willingness to work with technology is mainly influenced by their age, which is a main factor that teachers need to take into account when designing and applying a technological curriculum design. The data analyzed revealed that younger students are more willing to work with technology because they were born in the technological era, which means that their digital abilities are more developed, having few issues when manipulating new software and not needing much teachers' help or explanation to operate technology. Most of them mentioned repeatedly, "Technology is fun and easy for learning." However, younger students have limited access to it. A high percentage of them only have access to technology within the university facilities or in places like Internet-cafes because they do not have an income that allows them to acquire mobile technology or Internet access at all times. Thus, this drives us, as teachers, to consider not sending too much homework that require the use of technology outside the university campus when we are teaching a class with a high population of teenagers or young adults, say between 15 to 24 years of age. Likewise, this analysis also guided us to bear in mind that it is possible to explore and to introduce novel technological innovations within this group of students since it is easy for them to learn how to manage new tech resources in a shorter and faster time. Thus, they demonstrate positive attitudes and an active participation in any activity that involves working with virtual means.

On the other hand, adult students have a better access to technology, but their motivation and commitment to work with technology is low. One of the aspects that repeatedly appeared as a main cause of this issue was the poor training on digital abilities, which made it harder for them to manipulate the different technological tools. Most of them mentioned, "I really prefer to do it using traditional means, paper and pen." This analysis made us to consider that it is essential to provide students alternatives and support them to develop their digital skills before exposing them to technological resources when working with adults. Some of the students mentioned that they would appreciate if their teachers took the time to sit down and to individually explain to them how to use technology, step by step. They mentioned that they strongly agree that technology is highly necessary and that it has many features, websites, apps, etc. that can be beneficial for them; nevertheless, it is difficult for them to manage technology

without scaffolding. The relationship among the themes and variables in terms of students' profile are better displayed on [Figure 5].

Figure 5: Relation among variables and participants' age. Data gathered from online-questionnaires, individual and focus-group interviews applied to participants.

Beside the variations found in the different age and gender groups of students, all of them agree that e-learning platforms are very useful and necessary when learning a foreign language, especially in a country where the exposure to the language in everyday tasks is almost null. Therefore, the research demonstrated that students have positive perceptions towards learning English through virtual means. However, participants also mentioned that technology is not being used wisely; they consider that the educational programs must be better planned and they, as students, need to receive strong support when they have poor training in digital abilities.

The data analysis also brought-out a relevant aspect in terms of how technology is being used currently. Most of the students mentioned that they are currently using only basic features of technology such as sending assignments, checking progress and grades, and uploading and downloading formats and information; technology is seen as a content repository, see [Graph 1]. Thus, is technology only a content repository? Is this way that teachers and curriculum designers want learners to use technology? This situation guided us to reflect and to consider that students' perceptions towards e-learning have also been strongly affected by how technology is being used; students lose motivation and commitment to work with technological features when they notice that technology is not supporting them to achieve the goals their programs offered them, i.e. their expectations at the beginning of the course are normally high, but they are negatively affected along the development of the course program.

Graph 1: The common features of technology that are currently been used

In this sense, the study demonstrated that;

- a.) Students' perceptions towards ELT through e-learning platforms varied depending on different variables,
- b.) Students believe that technology is helpful and that it provides them great features to learn English,
- c.) Some of them claimed not receiving the correct scaffolding to use technology wisely,
- d.) Age is a relevant aspect of students' profile to take in mind when designing and applying technological curriculum designs, and
- e.) Poor scaffolding may negatively affected adults' motivation and commitment to work with technology.

CONCLUSION

It is undeniable that technology has impregnated the classrooms of second language teaching. More and more our students need to have access to learning activities and environments that allow them the so necessary contact with the language being learned. LMS in that sense have become a promising alternative that many Higher Education establishments have decided to adopt to articulate a space to organize content, facilitate student-teacher and student-student interaction, and promote effective lasting learning. However, universities need to look into how learners are reacting to these new environments; without doing so, we run the risk of having a costly, fancy but sub-exploited resources.

This paper is a first step towards fully taking advantage of LMSs. New research is necessary to determine how effective LMSs in these four universities are. Also, it would be interesting to know what learning activities, resources, or phases in the teaching-learning process are yielding better results. In both cases, the opportunity for conducting research in this new arena is there and it is up to language learning advocates of these institutions to take action

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AN INSTRUCTIONAL DESIGN WITH ITUNES U TO DEVELOP ONE-TO-ONE TEACHING STRATEGIES IN K12 SCHOOLS

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ABSTRACT

The tablet is one of the most important developments of the educational environments today. It is used at schools especially at private schools. The number of teacher and student using the tablet is rising day by day due to the development of digital instructional objects. Many approaches are being used in the schools and companies where tablets are used for education. LMS's which are introduced to the market and applications which can be reached from application stores are being used more effectively classrooms via web software.

The most important points that schools and teachers have to emphasize are:

- 1- How to run the strategies of education with the help of BYOD or tablets given to students.
- 2- To form 1:1 instructions for teaching with the help of tablets.

Modelling of education to be studied on is applied with functions like;

- Getting students involved before the lesson;
- Getting them taking part in the lessons in an efficient way;
- Make them a part of the process even when the lesson is over.

This instructional model has started at IELEV Schools with 310 students and 160 teachers during 2014/15 in Istanbul, Turkey and continuing with closely 1000 students now. In this study, the focus is on the model that has been in progress.

INTRODUCTION

The world is in a great advancement period within the field of technology in the 21st century. Every passed day, hour, minute and even second, a brand new technology appears on the stage. Technology usage has been inevitable for the people. The technological devices that we use everyday are being replaced by the advanced ones even if they are not old. The people are getting to find it difficult to keep step with the advancements. Scientists are all of one mind that the 21st century is going to be the era of knowledge. In the world, these fast advancements in technology also reflect on the education system and affect the actions in learning and teaching (İşman, 2005). The togetherness of education and technology causes them to affect each other. Instructional advancements increase the pace of technology. Especially by tablets, interactive boards and internet technologies, the schools becomes an educational technology valleys. These technologies can anytime forward any information to students easily anywhere on the earth. Today, the progress level of the countries and the effectiveness in the competitive market is being measured by the capacity of educated man resources. The nations of today and the future need individuals who are aware of how and what to learn, able to reach the true information and create solutions for them. For this reason, the individuals need devices that can bring them information and devices that can provide the use of the knowledge. Interactive boards are efficient in compensating this need in instructional environments. In the new social structure, ISTE has defined the revised standards of basic information technologies and advised the institutions and the schools to develop the information and

skills immediately (ISTE, 2017). Currently, the most up-to-date news about education is the use of technology in classrooms and teaching via tablets. Education and technology are the two basic factors playing an important role in humans' lives. Education is the act of uncovering inherent powers and talents of humans and developing them as more powerful, mature and creative beings (Yaylacı&Yaylacı, 1999). Technology, on the other hand, helps humans to profit from their earnings, e.g. knowledge and competences etc., more efficiently and apply them more consciously (Alkan, 2005). Regarding this, the rapid development of technology and emerging novelties are reflected in education systems and influence teaching and learning processes.

The problems making educators look for new ideas and approaches can be summarized as follows:

The inability

- to serve crowds simultaneously,
- to consider students' abilities and interests,
- to give necessary information efficiently in a short time (Kaya, 2002).

In today's world, economic, social and technological conditions shaping contemporary education systems are changing rapidly. As a result, the need to provide high-quality education to every individual emerges. Information and communication technologies serve very important functions in building a know-how society. In this way, attaining information and its transfer is getting faster and easier. The most important matter in this topic is to choose the right and applicable teaching model.

SUBJECT OF THE TASK

According to the specialists, tablets and applications which made by interactive tools will affect education sector in a good way. The ability of the individuals to learn efficiently and interactively without depending on time brings us the idea that educational technology era is going to affect education sector in a good way. The basic subject of this study tablets makes the learning and teaching easier and faster if we use it efficiently. Because they are just tools. Main component is still teacher in education. The efficiently way of using the tablet that believing it is useful and we should try to create interactive instructional applications. The real problem in educational institutions is how to run a teaching model in one-to-one learning projects of tablets. Many institutions have problems in how to get teachers and students become involved efficiently during the process. Studies, which have to be shaped in classes or out of the classes, take time (Gürğün, 2015). Being a part of Project-based teaching has to be taken into consideration in a different way. It is important how to use the educational technologies at the right time. Therefore, a new digital teaching model has been studied via taking different models into consideration. The question is: How can one-to-one teaching be possible with the help of tablets?

THE AIM AND THE IMPORTANCE OF THE STUDY

The changing and developing technological restructurings not only provide expansive and common solutions to develop, but also they cause the educational quality to be evaluated in the international standards and the expectations from the individuals to increase highly. Increasing the quality of education and expanding the educational facilities are argued out primarily in every international platform on each continent. The national based expectations and projects have started to expand to international criterions in order to accord with transformations of hardwares and softwares, gaining new experiences and new skills, learning a language, accessing to international information in problem solving and facilities to use them, expansions to new cultures (Erbarut, 2003). The new communication technologies have the power and facilities to make radical changes in the educational communication processes that have lost the up to dateness. Apart from that, the assessment roll technologies can create significant changes in the management and application procedures of the educational communication systems (Demiray, 1995).

The advancements in the technology contribute to the self-development of the individuals by enabling them to be aware of the happenings on the earth. As there is an information pool, the individuals expect much from their educators and with the help of these developments; the educators also have to update themselves. (Ülgen & Acar, 224). By the courtesy of technological developments, the structure of the educational system, learning and teaching environments and the experiments carried out varies. We observe that, the new generation children nearby are endeavoring to learn something and apply with the effect of developing technology and the consciousness of the millennium era we are now in. This situation requires new ways to be found in order to make the education more quality and to make the student more learner. Using tablet is one of the most preferred way for this search.

To use tablet effectively, first we need to detect problems about availability. This approach is important for usage, improving and generalizing of this educational technology (Üstün, Şılıbr, Kurşun & Göktaş, 2013). Especially grewed and growing countries' governments such as UK, USA, South Africa and Australia allocated a huge amount of state funding to education sector for purchasing interactive technologies. For example the results of a research has been made at all primary schools and 98 percent of secondary schools in UK in 2007 were obtained that whole classrooms have interactive technologies (Lai, 2010, Bulut & Koçoğlu, 2013). The main aim of this study is to administer the process of the one-to-one teaching to be able to keep it effective and constant. The developed teaching model is focused on which material is important, where to teach and what sources we need to use. This method can be effective in the process that has come forward by the help of Nano teaching if it is used with the right school materials, the students and teachers. The e-teaching process will be one of the most important thing that if we use the technology in the right place and at the right time. The most important thing that we must not forget that using the educational technology is different from the technology which is used in education. It doesn't mean that to buy the equipment that is related to technology or to bring the computer into the classroom. It requires a lot more academic work. So, multifunctional interactive teaching method has helped to develop the process that has changed to educational technology from the technology in education.

ONE-TO-ONE MULTIFUNCTIONAL INTERACTIVE INSTRUCTIONAL METHOD, EDUCATION VIA TABLETS

“Multifunctional Interactive Instructional Method” has been created and developed by Serhat Gürgün was improved by taking pedagogical, cognitive, academical and technical feasibility and 5E learning modals by SAMR into account. The modal we discuss is a teaching modal which handles the features of getting attention, conceiving, applying and improving, measuring and evaluating, creativity, configuring, blended learning and flipped classrooms via iTunes U to the subject and acquisition dimension with different functions which are different strategies oriented. During the lead of teaching modal, teaching applications which strategies are in harmony with, digital teaching objects which are enriched and web based applications are presented to use. This teaching modal which is improved, is handled as an approach which actively handles 1:1 tablet-oriented teaching learning facilities and which provides participation interactively in the lesson in the frame of constructivist approach of students by measuring learning products during the process. There are 5 different functions which consist of 6 strategic steps and the relation among those steps in the modal concept. Teachers are expected to manage these teaching-learning processes by using these functions. Functions can be chosen according to lesson, subject and acquisition. The suitable functions which are stated according to the planned lesson process can be used. *Entire function* where all strategic steps take place shows the highest level teaching facilities. The aim is to use the entire function effectively to manage teaching facilities efficiently. Function selection during the lesson and out of the class comes from being able to place to both activities and theoretical expression. In the name of being able to be used for entire function, it will be beneficial for the departments to shape their study for the purposes of modal action. Strategic steps and functions in the extent of modal are defined with their explanations below.

STRATEGIC STEPS

A: Handing out introduction parts of the topic to the students in advance:

Flipped Classroom application is performed here. That is, teacher gives information about the important parts for the students via related education applications or ready digital teaching objects (textbook, presentation, video, sound) before the work on the wide subject which is aimed to be taught. Teacher asks students to observe the related parts. The videos are short on this application and entire subject presentation is not done. The aim is to encourage students to come to the class well prepared about the subject and make the class ready to learn at some point. Time at lesson, subject and acquisition pace and explanation method can be differentiated according to the departments. For instance, for Maths lesson, the formulation of a problem and basic concepts can be emphasized but not the solution of a problem. For Social Science lesson, spark events about why The First World War began can be highlighted. For Physical Education lesson, basketball rules can be told as preliminary information.

B: Online measurement of students being ready before lesson, forming a web based discussion atmosphere

This step is used with the step A. By following the step A, to identify the learning level of information, a test/quiz prepared with online test/form applications (which may include optional, open ended, questions to mark, etc.) and/or a discussion on a web based platform are applied. As teacher will receive that report at that time, this will help teacher about how to start with that subject.

C: Evaluation and application through activities in class:

Nearpod or similar apps, which enable the teacher to enrich a topic's important sections and activities, are covered in a teaching-learning activity. This presentation allows the teacher to only use the necessary bits according to the lesson plan. Throughout the implementation, students manage their own learning environment by using interactive activities in the lesson.

D: Teaching a topic with whiteboard applications, lesson presentations with presentation tools, shared implementation with apps:

Whiteboard Applications in the lesson are used throughout. Topics are covered on the whiteboard with applications such as Explain Everything and the lesson recorded can be shared with students. The lesson is done through presentations prepared by the teacher on apps such as Explain Everything, Keynote etc. The teacher asks students cover tasks individually or in groups with iWork and Google Apps.

E: Online test applications and test/quiz classroom applications at the end of lessons and topics:

Test/quiz prepared with Google form etc. are applied in the classroom by planning the numbers of questions according to the condition of the subject at the end of lesson and acquisition. Thanks to this application, it is identified at what level the subject at the end of the subject, information given about what is taught is understood. In order not to make students experience the exam excitement, some gamification applications like Kahoot is used to make the application enjoyable at the end of subject.

F: Online Homework and Projects to assign, collect, give feedback and evaluate:

The aim on this step which is highly recommended to be used for all functions, especially at the end of the subject is to get evaluation of teaching process in force. The important point which is necessary not to confuse with E step is that F step includes a wide assessment and evaluation. It is discussed to send students and collect by forming large-scale tests, debates or projects by taking the advantage of feedback on the step E. Homework given up it's seat to great projects on this step which takes place of homework given in classical teaching.

Functions (from easy to complicated functions):

Each function is formed by companying the strategic steps with each other. Letters state the strategic steps. The letters following each other states related strategic steps in order (Figure 1).

Fn1: CDE (CE and DE sub-functions can be used separately)

Fn2: ABCE

Fn3: ABDE

Fn4: ABCDE

Fn5: ABCDEF (Entire function)

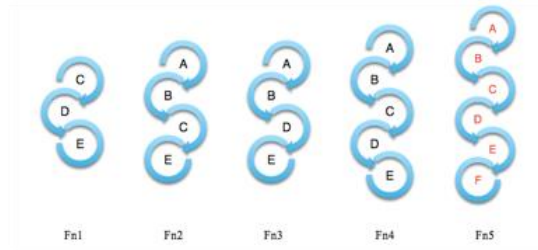



Figure 1. Functions

iTunes U > İELEV Eğitim Kurumları



Abone Ol

Atatürk'ü Anlamak

İELEV Eğitim Kurumları

[Ayrıntılar](#) [Oylar ve Yorumlar](#) [Benzer](#)

Tanım

Ünitemizin bu konusunda Atatürk inkılabının öncesi ve sonrasını karşılaştıracaktır. Ardından Atatürk'ün öncülük ettiği inkılaplar ile Atatürk ilkelerini öğleştireceğiz.

Ders Taslağı

- I. Atatürk'ü Anlamak
 - a. Nearpod Uygulaması
 - b. Atatürk İnkılabının Özellikleri Konulu Keynote Sunumu
 - c. Kazanım Değerlendirme Çalışması
 - d. Atatürk İlike ve İnkılapları Konu Değerlendirmesi "Kahoot"
- II. Atatürk'ü Anlamak Konulu Etkinlikler
 - a. Google Form Etkinliği
 - b. Pages Uygulaması ile Poster Çalışması

İELEV Eğitim Kurumları
Kategori: Müfredat ve Eğitim
DE: Türkiye
1 Nis 2015 Tarihinde Yayımlandı
Bu ders, iOS için iTunes U uygulamasıyla görüntülendiğinde öğretmen notları ve ödevler gibi gelişmiş materyaller de içerebilir.

Figure 2. iTunes U Public Page

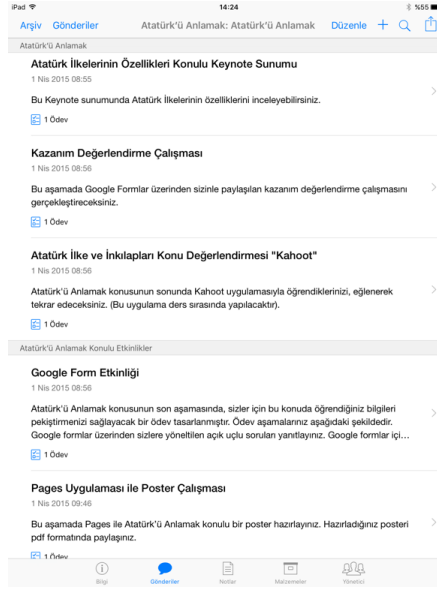


Figure 3. iTunes U Course Content

CONCLUSION

For one-to-one learning with tablets can be successful if we understand the main objectives. The teachers' role of this method should be explained so clearly. Teachers training is also so important to accomplish this process. The applications which are recommended to use on strategic steps are the applications in which all necessary research and study are done, tested and found suitable for efficient teaching-learning atmosphere. The applications which can be used suitable for the aim can be used separately.

Explain Everything: Board in the classroom, presentation and projection preparation out of the classroom <http://www.explaineverything.com>

Textbook: Interactive coursebooks prepared with iBooks Author. <http://www.apple.com/ibooks-author>

Nearpod: A lesson management classroom application <http://www.nearpod.com>

Google Apps: Google education applications. <http://www.google.com/edu/apps>

Kahoot: A game - based learning platform. <http://getkahoot.com>

iWork Apps: Apple applications. <http://www.apple.com/iwork>

Important points to take into consideration

- F step can be used for each function; but it should precisely be applied at the end of the lesson.
- E step should be applied for each function.
- If A step is applied, B step should exactly be applied.

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AN INVESTIGATION ON THE ACCEPTANCE OF MOBILE LEARNING (M-LEARNING) AMONG UNIVERSITY STUDENTS IN HONG KONG

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ABSTRACT

Mobile learning is considered as a learning process conducted by mobile devices. The term “mobile” is refer to execute certain process any place, any time using portable equipment such as wireless laptops, Personal Digital Assistants (PDAs) or smart phones. Due to the rapid development of technology, mobile learning is becoming more important as almost every student has his/her own mobile device. It seems that using mobile devices for learning is gradually replacing the traditional method like using textbooks, hand-written notes, etc. According to Hahn (2008), people can access network information anytime, anywhere with the usage of mobile wireless devices in mobile wireless network. Based on the flexibility of using the mobile devices, mobile learning is not limited to certain areas, people can perform it wherever they like, and it encourages people to be more motivated to learn more. The purpose of this investigation is to analyze the acceptance of mobile learning among university students in Hong Kong and identify factors which might influence the intention to accept m-learning. Two models were involved in this project, which were the Technology Acceptance Model 2 (TAM2) proposed by Venkatesh & Davis (2000) and the UTAUT model proposed by Venkatesh et. al. (2003). The finalized conceptual model has seven constructs and eleven hypotheses, hypotheses are the relationship between different constructs. Questionnaires were distributed to students from different universities. At the end, the intention of using mobile devices for learning among university students in Hong Kong has been studied through the result of the questionnaires collected. The result shows that a model consists of seven components which could be used to explain the topic issue. Relevance and Effort Expectancy are two critical constructs. Besides, there are eleven valid relationship established, identifying the relationship between different components.

INTRODUCTION

For the traditional learning mode, materials like textbooks and written notes are regarded as the most common and important learning tools for students, using mobile devices as a learning tool seems unfamiliar with them, especially for students in Hong Kong. According to Bakia, Mitchell, & Yang. (2007), the concept of mobile learning has been around for years, the design and creation of mobile devices and its application have improved a lot, especially in recent years. The Information Technology (IT) has already been incorporated into the learning process, with the purpose of supporting and assisting students in the learning process. (Gutiérrez, Trenas, Ramos, Corbera, & Romero, 2010). The word ICT (information and communication technologies) refers to technologies which provide us to access information via telecommunications, mainly focus on communication technologies. The above-mentioned ICT has had an important impact on the way we learn and teach (Eristi, & Haseski, & Uluuysal, & Karakoyun, 2011; Martin et al., 2011; Suki & Suki, 2011). Besides, different types of advanced modern technologies and devices such as mobile devices have been introduced in education. (El-Gayar, & Moran, & Hawkes, 2011; Eristi et. al, 2011; Williams & Pence, 2011) In addition to this, with the rapid development of modern science and technology, mobile devices is not just a simple device which can only present a single function. Diverse kind of mobile devices like PDA, smartphone or notebook are actually offering more and more functions to users. From the perspective of user, it is convenient to access the internet and get the information they need by just clicking a simple button directly on the mobile devices. Actually, when compared with the

old-fashioned learning method, the advantages of using mobile devices for learning are obvious and dominant. Ubiquitous access to internet enable user to access the internet on different platforms to extend its flexibility. According to Sharples, M., & Sanchez, A., & Milrad, M., & Vavoula, G. (2008), mobile learning does not require fixed place or area, instead, it can be finished across locations. Also, Ozdemir (2010) mentioned that mobile devices are technologies that we can approach whenever and wherever we are. Thus, mobile learning is closely related to students, it is a new trend and it is worth to be a research topic.

Areas covered in this project are:

1. Do personal characteristic, for example, gender difference, have impact on university students' intention to use mobile devices for learning?
2. What is the relationship between different variables in the research model?
3. Are the hypotheses involved in this investigation substantiated?

THE STUDY

Mobile devices

According to Valk, Rashid, & Elder (2010) and Keegan (2005), mobile devices refers to technologies that are transportable and included in mobile computing devices, just like smartphones, tablet computers or netbooks. Nowadays, mobile devices were not just focusing on telephone calls or text messages, but also focus on different purposes (Dewitt & Siraj, 2011). Aldhaban (2012) stated that the number of research on the importance of mobile devices has raised sufficiently. Roschelle, Sharples, & Chan (2005) stated that "the devices are becoming part of the day-to-day wardrobe for students everywhere" (p.159-161). So, mobile devices are everywhere, becoming a part of our daily life, especially for students. With so many mobile devices available for students, they can have opportunity to create their own mobile learning environment to enhance the learning effectiveness and performance.

Mobile Learning

Actually, mobile learning is not totally as same as e-learning, mobile learning is a characterized technology and has its own terminology. Normally, we simply regard mobile learning as a learning process with the use of mobile devices. A general definition of mobile learning are defined as a learning process, which is facilitated by mobile devices (Herrington & Herrington, 2007; Valk, J. et al., 2010) or "a process of learning through the use of mobile devices and wireless transmission" (Peng, Chou, & Tsai, 2009, p.171-183). Besides, mobile learning is a new form revealed in the 90s. (Wains, & Mahmood, 2008). Mottiwalla (2007) stated that mobile learning refers to an individualized learning process which is no time and geographical limitation. Jairak, Praneetpolgrang & Mekhabunchakij (2009) also found the following:

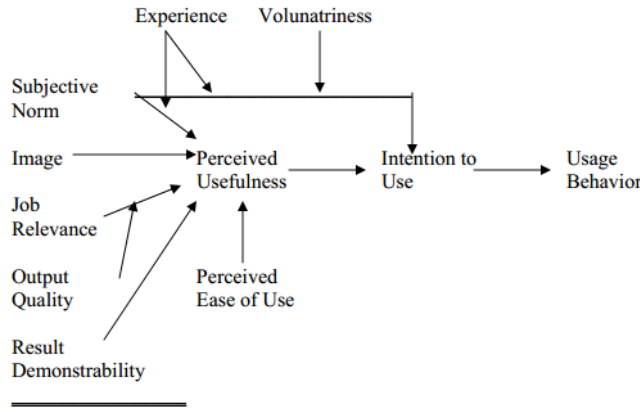
The delivery of electronic learning materials to mobile devices that in currently exploits both handheld computer such as laptop PCs in small size, tablet PCs and mobile phone such as mobile phone, smart phones,

Personal Digital Assistants (PDAs), Pocket PCs including the learning that can happen anywhere and at any time. (p.36.3)

Development of the research model

Background

In this project, the conceptual model used is a combination of two models, the Technology Acceptance Model (TAM2) and the Unified Theory of Acceptance and Use of Technology Model (UTAUT model). Venkatesh and Davis (2000) extend the original TAM in 2000, named "TAM2". They developed several extension, perceived usefulness is in terms of two processes, the first one is "cognitive instrumental processes", including job relevance, output quality, result demonstrability, and perceived ease of use. The second one is "social influence processes", including subjective norm, voluntariness, and image. They call the new generation of TAM as "TAM2". A diagram of TAM2 is presented in [Figure 1].



Adopted from Venkatesh and Davis (2000)

Figure 1: The Technology Acceptance Model, version 2. (Venkatesh & Davis 2000)

On the other hand, the UTAUT model is also considered. The UTAUT [Figure 2] proposed by Venkatesh et al., in 2003, is one of the models used to account for the user acceptance of a new technology. Since empirical results of the UTAUT model revealed that it was able to account for 70% of variance in usage intention (Venkatesh et al., 2003; Shaper & Pervan, 2007), so, it is obvious that UTAUT is a robust model.

The UTAUT model

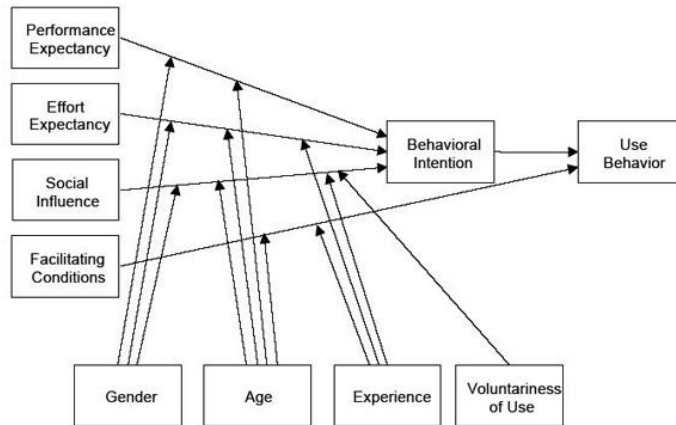


Figure 2: The Unified Theory of Acceptance and Use of Technology Model, (Venkatesh, Morris, Davis, and Davis 2003)

Based on the previous references, since perceived usefulness and perceived ease of use can be regarded as performance expectancy and effort expectancy, so, it is suitable to combine two models and link the variables together, to form a new, robust, reliable model.

Conceptual model

The research model in this project

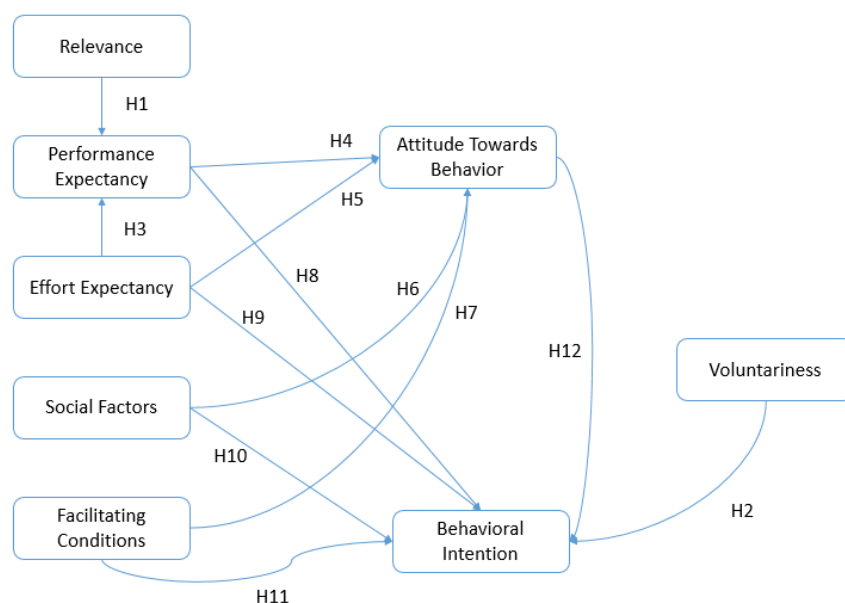


Figure 3: The Conceptual Model

The proposed conceptual model is shown in [Figure 3].

DEVELOPMENT OF HYPOTHESES

The relationship between Relevance and Performance Expectancy

Venkatesh and Davis (2000) defined job relevance as “an individual’s perception regarding the degree to which the target system is applicable to his or her job” (p.191). TAM2 posits that job relevance has a positive effect on perceived usefulness. Besides, Hong et al. (2006) argued that perception of job relevance has a positive effect on perceived technology usefulness. Therefore, we hypothesize:

H1: There is a positive effect of Relevance to the Performance Expectancy

The relationship between Voluntaries and Behavioral Intention

Venkatesh and Davis (2000) mentioned that when a usage is considered as voluntary, the influence of others will decrease since the experience is increased. Besides, According to the study conducted by Sun and Zhang (2006), it is found that voluntariness is a variable which can help shape the behavioral intention to accept a technology. Venkatesh et al. (2003) conducted a study comprised of voluntariness and experience as variables and found that the explanatory power of the TAM increased from 35% to 53%. So, we hypothesize:

H2: There is a positive influence of Voluntary to the Behavioral Intention.

The relationship between Performance Expectancy and Effort Expectancy

Several studies conducted have confirmed that perceived ease of use of a technology has an effect on the perceived usefulness. (Liaw & Huang, 2003; Shang, Chen, & Shen, 2005). According to King & He (2006a), it stated that perceived ease of use is a predictor of perceived usefulness which is already proved by many studies. Several researchers mentioned that when all other factors are equal, users likely consider a technology useful when they believe it is easy to use. (Bruner & Kumar, 2005; Hu et al., 1999; Igbaria & Iivari, 1995). Besides, Adams, Nelson & Todd (1992) and Davis (1989) mentioned that perceived ease of use has a direct influence on the perceived usefulness. Thus, the following hypothesis have been proposed:

H3: There is a positive influence on Effort Expectancy to the Performance Expectancy

The effect of Performance Expectancy and Effort Expectancy on Attitude towards Behavior

The Technology Acceptance Model (TAM) proposed by Davis (1989) clearly pointed out that perceived usefulness and perceived ease of use are the two beliefs about using a technology. Research indicated that the

attitude towards behavior was influenced by both Performance Expectancy and Effort Expectancy. (Childers et al., 2001; Dabholkar & Bagozzi, 2002; Davis, 1989; Mathieson, 1991). Thus, we hypothesize that both P.E. and E.E. has positive effect on technology acceptance via the variable attitude towards behavior:

H4: Performance Expectancy has a positive relationship with Attitude towards Behavior

H5: Effort Expectancy has a positive relationship with Attitude towards Behavior.

The relationship between Social Factors and Attitude towards Behavior

Based on the TAM2 proposed by Venkatesh & Davis (2000), it pointed that social influences have a direct effect on the intention to use. Besides, some researchers had supported this relationship. For instance, Lucas and Spitler (1999) claimed that “organizational variables such as social norms and the nature of the job are more important in predicting the use of technology than are users’ perceptions of the technology” (p. 304). Schepers, J. & Wetzels (2007) also find that social norms are important in influencing users’ attitude towards use. Hence, we hypothesize:

H6: Social Factors has a positive relationship with Attitude towards Behavior

The relationship between Facilitating Conditions and Attitude towards Behavior

According to Teo (2011), it indicated that facilitating conditions were found to have a positive effect on the attitude towards computer use, in this case, it refers to the attitude towards the acceptance of mobile learning. Besides, several studies have found that technical support is one of the important factors in the acceptance of technology, user satisfaction and in promoting more positive attitudes towards computer use. (Igarria, 1995; Williams et al., 2011). So, the following hypothesis has been suggested:

H7: Facilitating Conditions has a positive relationship with Attitude towards Behavior.

The effect of Performance Expectancy and Effort Expectancy on Behavioral Intention

According to Macharia (2010), there are TAM research postulated that if people think that the technology is useful, they will have positive and encouraging behavioral intention. Further, Davis (1989) and Venkatesh & Bala (2008) pointed out that perceived usefulness has a positive influence on behavioral intention. According to Taylor & Todd (1995) and Venkatesh & Davis (2000), performance expectancy is the strongest component to predict the intention of a user behavior in either mandatory or voluntary context. Also, it is proved that perceived usefulness and perceived ease of use are the main factors which can influence an individual’s intention to use a system. (Ma & Liu, 2004; Schepers & Wetzels, 2006). Moreover, there are also some evidence to reflect that behavioral intention is influenced by perceived usefulness. (Adams et al., 1992; Davis et al., 1992; Hu et al., 1999; Venkatesh & Davis, 2000). Venkatesh et al. (2003) stated that constructs related to effort expectancy are important in early stages of the introduced behavior. So, two hypotheses have been proposed:

H8: There is a positive influence of Performance Expectancy to the Behavioral Intention.

H9: There is a positive influence of Effort Expectancy to the Behavioral Intention

The relationship between Social Factors, Facilitating Conditions and Behavioral Intention

Jairak et al. (2009) mentioned that facilitating condition have an impact on behavioral intention. Foon and Fah (2011) conducted a study about the adoption of e-banking in Malaysia, and the result showed that facilitating conditions significantly impact the behavioral intention to use. Besides, Alrawashdeh, Muhairat, & Alqatawnah (2012) also pointed that social influence and facilitating conditions are factors that affect the behavior intention of a user. Besides, Yamin, & Lee, (2010) found that there is an important relationship between social influence and behavioral intention. So, two hypotheses have been proposed:

H10: There is a positive influence of Social Factors (S.F.) to the Behavioral Intention.

H11: There is a positive influence of Facilitating Conditions to the Behavioral Intention.

The relationship between Attitude towards Behavior and Behavioral Intention

In the TAM, it is proved by many research that behavioral intention is affected by attitude towards behavior. Also, Bagozzi, Baumgartner, & Yi, (1992) stated that attitude means a feeling, either comfortable or uncomfortable, on a particular behavior. Moreover, Jairak et al (2009), Ndubisi (2006) & Teo (2011) indicated that attitude towards behavior had a vital impact on the intention to use education technology. Ndubisi (2006) claimed that the “attitude towards behavior” has a direct effect on the behavioral intention, and its variance was similar to variance of perceived usefulness and perceived ease of use. The previous finding by Ndubisi was further supported and

strengthen by Jairak et al. (2009). So, we hypothesize:

H12: Attitude towards Behavior has a positive effect on Behavior Intention.

Comparison of students' Performance Expectancy between Genders

According to Tannen (1990) & Coates (1986), men and women have different pattern of oral communication. Men focus on social hierarchy and competition while women focus on a networking approach, using discourse to achieve intimacy, support and cooperative behavior. It means that women tend to let all participants speak and men tend to use discourse to build a hierarchy of domination. As Coates (1986) concluded, these difference should apply to electronic media as well. Zack (1993) suggested that context is a crucial factor, when communicating with others by using email, there will be more interactive exchanges and context building exchanges of women than men because women tend to use communication for rapport and cooperative behavior whereas men tend to focus on content. The fit between discourse pattern and media characteristics would affect the way a person perceive media effectiveness. Moreover, according to Davis (1986, 1989), increase media effectiveness is equal to increase in perceived usefulness.

RESEARCH METHODOLOGY

In this study, a questionnaire survey has been conducted to gather data from different students. Useful data on the questionnaires are regarded as important information and those kind of information will be processed and generated a variety of charts and tables. There are totally eight variables in the research model and each variable is tested by multiple questions in the questionnaire. When the necessary information are collected, the validity of each variable and the relationship among different variables can be tested.

Multiple articles were considered, the questions in the questionnaire were extracted from these articles. For instance, some questions are extracted from the article "An Acceptance of Mobile Learning for Higher Education Students in Thailand" written by Kallaya Jairak, & Prasong Praneetpolgrang, & Kittima Mekhabunchakij (2009), since this article is related to the acceptance of mobile learning, so, this article can provide vital information to design a questionnaire. All of the questions extracted from different questionnaires were modified to generate the questionnaire used in this survey. The questionnaire was divided into five parts and consists of totally 40 questions. For the questionnaire, the Likert scale has been adopted, it is a widely used approach to scale response in survey. There are totally five level Likert items, in this questionnaire, "1" represents "Strongly Disagree", "2" represents "Disagree", "3" represents "Neither agree nor disagree", or "Neutral", "4" represents "Agree" and finally, "5" represents "Strongly Agree".

Totally, 200 questionnaires were distributed and 150 were returned. Therefore, the response rate is:

$$\begin{aligned} &= \text{collected samples} / \text{total numbers of questionnaires distributed} \\ &= 150/200 \times 100\% \\ &= 75\% \end{aligned}$$

*Factor Analysis***Communalities**

	Initial	Extraction
SN_1	1.000	.722
SN_2	1.000	.645
SN_3	1.000	.587
REV_1	1.000	.757
REV_2	1.000	.780
REV_3	1.000	.784
VOL_1	1.000	.656
VOL_2	1.000	.710
VOL_3	1.000	.682
PU_1	1.000	.750
PU_2	1.000	.758
PU_3	1.000	.755
PEOU_1	1.000	.682
PEOU_2	1.000	.569
PEOU_3	1.000	.659
SF_1	1.000	.720
SF_2	1.000	.704
SF_3	1.000	.647
SF_4	1.000	.710
FC_1	1.000	.637
FC_2	1.000	.590
FC_3	1.000	.686
FC_4	1.000	.591
AT_1	1.000	.723
AT_2	1.000	.721
AT_3	1.000	.715
AT_4	1.000	.742
BI_1	1.000	.674
BI_2	1.000	.703

Table 1: Factor Loading of the Measurement Scale

As mentioned in the data analysis part, Fornell & Larcker (1981) suggested that the acceptable value of factor loading and the corrected item-total correlation was 0.3. From the above factor loading [table 1], it showed that the value of factor loading of all of the items in the questionnaire were greater than 0.3, so, this scale was reliable.

Reliability Analysis

The value of the Cronbach's Alpha for the attribute "Relevance" was 0.882.

The value of the Cronbach's Alpha for the attribute "Voluntariness" was 0.694.

The value of the Cronbach's Alpha for the attribute "Performance Expectancy" was 0.887.

The value of the Cronbach's Alpha for the attribute "Effort Expectancy" was 0.728.

The value of the Cronbach's Alpha for the attribute "Social Factors" was 0.775.

The value of the Cronbach's Alpha for the attribute "Facilitating Conditions" was 0.692.

The value of the Cronbach's Alpha for the attribute "Attitude towards Behavior" was 0.866.

The value of the Cronbach's Alpha for the attribute "Behavioral Intention" was 0.805.

The Cronbach's Alpha of all variables were closer/greater than 0.7 (Nunnally, 1978). So, the scale was reliable.

ANALYSIS OF RESULT & DISCUSSION

Demographic Information of Respondents

		Frequency	Percent	Valid Percent	Cumulative Percent
Gender					
Valid	Male	89	59.3	59.3	59.3
	Female	61	40.7	40.7	100
	Total	150	100	100	
Age					
Valid	18-20	62	41.3	41.3	41.3
	21-23	71	47.3	47.3	88.7
	24-26	9	6	6	94.7
	27-30	3	2	2	96.7
	>30	5	3.3	3.3	100
	Total	150	100	100	
University					
Valid	City University of Hong Kong	140	93.3	93.3	93.3
	The Hong Kong Polytechnic University	3	2	2	95.3
	Hong Kong Shue Yan University	1	0.7	0.7	96
	The University of Hong Kong	4	2.7	2.7	98.7
	The Chinese University of Hong Kong	1	0.7	0.7	99.3
	Others	1	0.7	0.7	100
	Total	150	100	100	
Year of Study					
Valid	Year 1	4	2.7	2.7	2.7
	Year 2	84	56	56	58.7
	Year 3	40	26.7	26.7	85.3
	Year 4 or above	2	1.3	1.3	86.7
	Postgraduate	20	13.3	13.3	100
	Total	150	100	100	
Using mobile devices					

Valid	Yes	147	98	98	98
	No	3	2	2	100
	Total	150	100	100	
Using mobile devices for internet connection					
Valid	Yes	147	98	98	98
	No	3	2	2	100
	Total	150	100	100	
The most influential person					
Valid	Teachers	13	8.7	8.7	8.7
	Friends	116	77.3	77.3	86
	Parents	5	3.3	3.3	89.3
	Others	16	10.7	10.7	100
	Total	150	100	100	

Table 2: The demographic information of respondents

	N	Mean	Std. Deviation	Variance
Relevance				
REV	150	3.8267	0.85025	0.723
Valid N (listwise)	150			
REV_1	150	3.73	0.967	0.935
REV_2	150	3.82	0.963	0.927
REV_3	150	3.93	0.906	0.82
Valid N (listwise)	150			
Voluntariness				
VOL	150	3.8022	0.68444	0.468
Valid N (listwise)	150			
VOL_1	150	4.24	0.841	0.707
VOL_2	150	3.39	1.023	1.046
VOL_3	150	3.77	0.891	0.794
Valid N (listwise)	150			
Performance Expectancy				
PU	150	3.6933	0.84037	0.706
Valid N (listwise)	150			
PU_1	150	3.83	0.893	0.798

PU_2	150	3.63	0.923	0.851
PU_3	150	3.61	0.975	0.95
Valid N (listwise)	150			
Effort Expectancy				
PEOU	150	3.8289	0.70657	0.499
Valid N (listwise)	150			
PEOU_1	150	4.11	0.734	0.539
PEOU_2	150	3.57	0.979	0.958
PEOU_3	150	3.81	0.903	0.815
Valid N (listwise)	150			
Social Factors				
SF	150	3.4383	0.64045	0.41
Valid N (listwise)	150			
SF_1	150	3.82	0.715	0.511
SF_2	150	3.36	0.892	0.796
SF_3	150	3.2	0.867	0.752
SF_4	150	3.37	0.832	0.692
Valid N (listwise)	150			
Facilitating Conditions				
FC	150	3.6667	0.63303	0.401
Valid N (listwise)	150			
FC_1	150	3.63	0.824	0.678
FC_2	150	3.6	0.927	0.859
FC_3	150	3.92	0.84	0.705
FC_4	150	3.52	0.918	0.842
Valid N (listwise)	150			
Attitude towards Behavior				
AT	150	3.7167	0.77051	0.594
Valid N (listwise)	150			
AT_1	150	3.83	0.88	0.775
AT_2	150	3.76	0.887	0.788
AT_3	150	3.63	0.923	0.851
AT_4	150	3.65	0.956	0.915
Valid N (listwise)	150			
Behavioral Intention				
BI	150	3.7867	0.88868	0.79
Valid N (listwise)	150			
BI_1	150	3.85	0.961	0.923
BI_2	150	3.73	0.982	0.965
Valid N (listwise)	150			

Table 3: Descriptive Statistics

Relevance

The overall mean of attribute “Relevance” was 3.83. It means that the respondents rated the attribute “Relevance” positively. From the five-point scale in the questions related to the attribute “Relevance”, point 3 indicated “Neutral”, so, the value 3.83 indicated that the respondents agreed “Relevance” was important on the intention to use a mobile device for learning. Item REV_3 gained the highest mean with the statement “The use of mobile learning is appropriate to my different studies-related tasks.”

Voluntariness

The overall mean of attribute “Voluntariness” was 3.80. It means that the respondents rated the attribute “Voluntariness” positively. From the five-point scale in the questions related to the attribute “Voluntariness”, point 3 indicated “Neutral”, so, the value 3.80 indicated that the respondents agreed “Voluntariness” was important on the intention to use a mobile device for learning. Item VOL_1 gained the highest mean with the statement “It is voluntary for me to use mobile devices.”

Performance Expectancy

The overall mean of attribute “Performance Expectancy” was 3.69. It means that the respondents rated the attribute “Performance Expectancy” positively. From the five-point scale in the questions related to the attribute “Performance Expectancy”, point 3 indicated “Neutral”, so, the value 3.69 indicated that the respondents agreed “Performance Expectancy” was important on the intention to use a mobile device for learning. Item PU_1 gained the highest mean with the statement “Using mobile devices could make me easier to learn.”

Effort Expectancy

The overall mean of attribute “Effort Expectancy” was 3.83. It means that the respondents rated the attribute “Effort Expectancy” positively. From the five-point scale in the questions related to the attribute “Effort Expectancy”, point 3 indicated “Neutral”, so, the value 3.83 indicated that the respondents agreed “Effort Expectancy” was important on the intention to use a mobile device for learning. Item PEOU_1 gained the highest mean with the statement “Learning to use mobile devices is easy for me.”

Social Factors

The overall mean of attribute “Social Factors” was 3.44. It means that the respondents rated the attribute “Social Factors” positively. From the five-point scale in the questions related to the attribute “Social Factors”, point 3 indicated “Neutral”, so, the value 3.44 indicated that the respondents agreed “Social Factors” was important on the intention to use a mobile device for learning. Item SF_1 gained the highest mean with the statement “My interaction with a mobile devices would be clear and understandable.”

Facilitating Conditions

The overall mean of attribute “Facilitating Conditions” was 3.67. It means that the respondents rated the attribute “Facilitating Conditions” positively. From the five-point scale in the questions related to the attribute “Facilitating Conditions”, point 3 indicated “Neutral”, so, the value 3.67 indicated that the respondents agreed “Facilitating Conditions” was important on the intention to use a mobile device for learning. Item FC_3 gained the highest mean with the statement “I have the knowledge necessary to use mobile devices for learning.”

Attitude towards Behavior

The overall mean of attribute “Attitude towards Behavior” was 3.72. It means that the respondents rated the attribute “Attitude towards Behavior” positively. From the five-point scale in the questions related to the attribute “Attitude towards Behavior”, point 3 indicated “Neutral”, so, the value 3.72 indicated that the respondents agreed “Attitude towards Behavior” was important on the intention to use a mobile device for learning. Item AT_1 gained the highest mean with the statement “Using mobile devices for learning would be a very good idea.”

Behavioral Intention

The overall mean of attribute “Behavioral Intention” was 3.79. It means that the respondents rated the attribute “Behavioral Intention” positively. From the five-point scale in the questions related to the attribute “Behavioral Intention”, point 3 indicated “Neutral”, so, the value 3.79 indicated that the respondents agreed “Behavioral Intention” was important on the intention to use a mobile device for learning. Item BI_1 gained the highest mean with the statement “I intend to use mobile devices whenever possible.”

Pearson Correlation among Components

If the result of the Pearson Correlation Coefficient is positive (+), it indicates that when the value of one variable increase, the value of another variable also increase, vice versa. Otherwise, if the result is negative (-), it indicates

that when the value of one variable increase, the value of another variable would decrease. Besides, the range of the Pearson correlation coefficient (r) is from -1 to +1. If the coefficient (r) is close to +1 or -1, it refers that there is a strong relationship between two variables, one variable is strong correlated with another variable. Otherwise, when the value of coefficient (r) is close to 0, it refers that there is a weak relationship between two variables, one variable is not correlated with another variable. Moreover, if the significance level (2-tailed) is less or equal to 0.05, it means that there is a statistically significant correlation between two variables. If the significance level is greater than 0.05, it means that there is no significant correlation between two variables. According to Evans (1996), the absolute values of Pearson Correlation Coefficient has the following meanings:

Coefficient(r)	Relationship Representing
.00 - .19	“Very Weak”
.20 - .39	“Weak”
.40 - .59	“Moderate”
.60 - .79	“Strong”
.80 - 1.00	“Very Strong”

Relationship between Relevance and Performance Expectancy

The correlation between Relevance and Performance Expectancy is $r = 0.610$ and $p = 0.000$. Therefore H1: There is a positive effect of Relevance to the Performance Expectancy” is supported.

Relationship between Voluntariness and Behavioral Intention

The correlation between Voluntary and Behavioral Intention is $r = 0.101$ and $p = 0.218$. Therefore, “H2: There is a positive influence of Voluntary to the Behavioral Intention” is not supported.

Relationship between Effort Expectancy and Performance Expectancy

The correlation between Effort Expectancy and Performance Expectancy is $r = 0.339$, $p = 0.000$. Therefore, “H3: There is a positive influence of Effort Expectancy to the Performance Expectancy” is supported.

Relationship between Performance Expectancy and Attitude towards Behavior

The correlation between Performance Expectancy and Attitude toward Behavior is $r = 0.703$ and $p = 0.000$. Therefore, “H4: Performance Expectancy has a positive relationship with Attitude towards Behavior” is supported.

Relationship between Effort Expectancy and Attitude towards Behavior

The correlation between Effort Expectancy and Attitude towards Behavior is $r = 0.542$ and $p = 0.000$. Therefore, “H5: Effort Expectancy has a positive relationship with Attitude towards Behavior” is supported.

Relationship between Social Factors and Attitude towards Behavior

The correlation between Social Factors and Attitude towards Behavior is $r = 0.678$ and $p = 0.000$. Therefore, “H6: Social Factors has a positive relationship with Attitude towards Behavior” is supported.

Relationship between Facilitating Conditions and Attitude towards Behavior

The correlation between Facilitating Conditions and Attitude towards Behavior is $r = 0.604$ and $p = 0.000$. Therefore, “H7: Facilitating Conditions has a positive relationship with Attitude towards Behavior” is supported.

Relationship between Performance Expectancy and Behavioral Intention

The correlation between Performance Expectancy and Behavioral Intention is $r = 0.587$, $p = 0.000$. Therefore, “H8: There is a positive influence of Performance Expectancy to the Behavioral Intention.” is supported.

Relationship between Effort Expectancy and Behavioral Intention

The correlation between Effort Expectancy and Behavioral Intention is $r = 0.358$ and $p = 0.000$. Therefore, “H9: There is a positive influence of Effort Expectancy to the Behavioral Intention” is supported.

Relationship between Social Factors and Behavioral Intention

The correlation between Social Factors and Behavioral Intention is $r = 0.591$ and $p = 0.000$. Therefore, “H10: There is a positive influence of Social Factors (S.F.) to the Behavioral Intention” is supported

Relationship between Facilitating Conditions and Behavioral Intention

The correlation between Facilitating Conditions and Behavioral Intention is $r = 0.507$ and $p = 0.000$. Therefore,

“H11: There is a positive influence of Facilitating Conditions to the Behavioral Intention” is supported.

Relationship between Attitude towards Behavior and Behavioral Intention

The correlation between Attitude towards Behavior and Behavioral Intention is $r = 0.752$ and $p = 0.000$. Therefore, “H12: Attitude towards Behavior has a positive effect on Behavior Intention” is supported.

Result of Relationships among all components

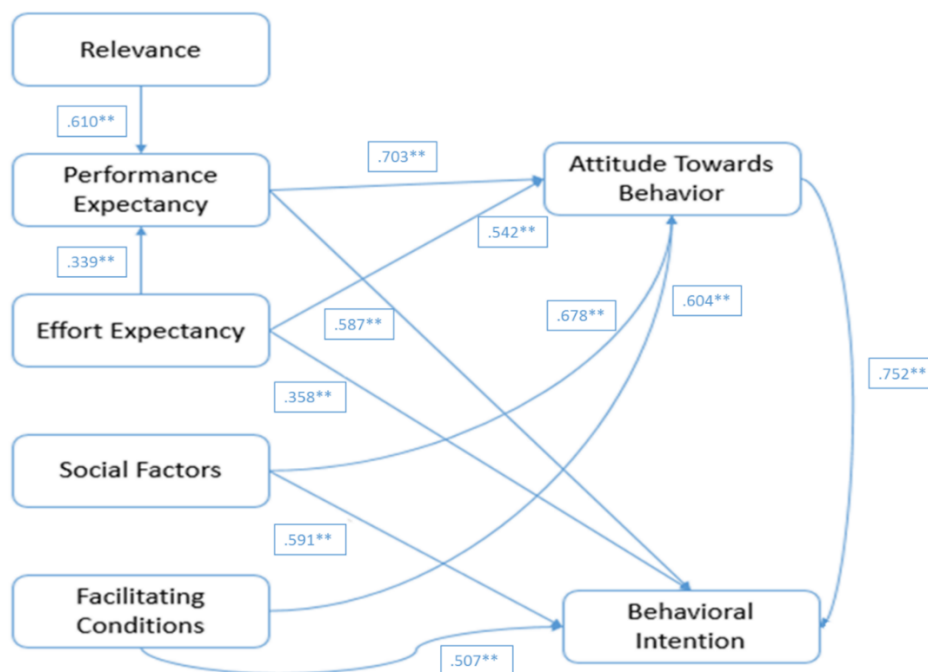


Figure 4: Resulting Model of the relationships among all components

The resulting model is shown in [Figure 4].

Comparison of Students’ Performance Expectancy between different Genders

Group Statistics					
	Gender	N	Mean	Std. Deviation	Std. Error Mean
PU	Male	89	3.6704	.93541	.09915
	Female	61	3.7268	.68451	.08764

Table 4: Summary of Gender statistics on Performance Expectancy

The t-test of Gender on Performance Expectancy was 0.671, which was greater than 0.05. Therefore, there was no statistically significant gender difference about Performance Expectancy in using mobile devices for learning.

From [table 4], it showed that the mean value for male students was 3.6704 whereas the mean value for female students was 3.7268, thus, from the perspective of Performance Expectancy, there was no significant difference on both gender.

DISCUSSION OF THE FINDINGS

Discussion for the relationship between Relevance and Performance Expectancy

From the result of “Relationship between Relevance and Performance Expectancy”, the Pearson correlation coefficient (r) between Relevance and Performance Expectancy was 0.610^{**} , it represents that there was a significant relationship between Relevance and Performance Expectancy. The result indicated that there is a strong statistical correlation between Relevance and Performance Expectancy. Agudo, Hernandez & Pascual (2013) proposed a structural model analysis, the Pearson correlation coefficient (r) for the hypothesis “Relevance for

learning positively predicts perceived usefulness of e-learning systems by students” was 0.48***, and the hypothesis was supported and adopted in the final model. According to Goodhue (1995), there was an interactive effect between job relevance and perceived usefulness. The research proposed that judgments on usefulness is affected by job relevance, although the interaction was not explicitly hypothesized, such kind of interaction could be observed. A possible explanation could be, students were required to use mobile devices with a view to complete the assignments, and so, they tend to believe that mobile devices is useful for them. Hence, the hypothesis proposed in this investigation H1 is supported.

Discussion for the relationship between Voluntariness and Behavioral Intention

From “Relationship between Voluntariness and Behavioral Intention”, the result showed that the Pearson correlation coefficient was 0.101, it means that there was no significant relationship between Voluntariness and Behavioral Intention. According to the previous literature review, Sun and Zhang (2006) proposed that voluntariness could help shape the behavioral intention to accept a technology, however, the result showed in ” Relationship between Voluntariness and Behavioral Intention” proved that the voluntariness to use mobile devices was not significantly related to the intention of a user to accept mobile learning. It could be explained as even though students were using mobile devices voluntarily, it does not represent that they were enjoying, maybe they just have to accomplish certain targets, and thus, the behavioral intention could be relatively low. So, it can be concluded that there is no significant relationship between voluntariness and behavioral intention. So, the hypothesis H2 was rejected.

Discussion for the relationship between Effort Expectancy, Performance Expectancy and Behavioral Intention

Effort Expectancy Vs Performance Expectancy

From the result of “Relationship between Effort Expectancy and Performance Expectancy”, the Pearson correlation coefficient (r) between Effort Expectancy and Performance Expectancy was 0.339**, it represents that there was a significant relationship between Effort Expectancy and Performance Expectancy. The result indicated that there is a weak statistical correlation between Effort Expectancy and Performance Expectancy. Also, there are various research confirming the relationship between Effort Expectancy and Performance Expectancy.

Agudo, Hernandez & Pascual (2013) performed an experiment related to the acceptance of electronic learning systems, the result supported the hypothesis H3 which confirmed that Effort Expectancy will positively affects the Performance Expectancy.

A research proposed by Vasileios & Anastasios (2011) also showed that Effort Expectancy will have a positive effect on the performance expectancy, the result pointed out that effort expectancy has a significant effect on the performance expectancy. As the concept mentioned in Venkatesh et al. (2003), students in universities may perceived mobile learning is useful if mobile learning did not require special techniques.

Performance Expectancy Vs Behavioral Intention

Besides, from the result of “Relationship between Performance Expectancy and Behavioral Intention”, the Pearson Correlation Coefficient between Performance Expectancy and Behavioral Intention was 0.587**, it means that there is a significant relationship among the above mentioned components. Moreover, King & He (2006b) indicated that most studies found that Performance Expectancy strongly affect the Behavioral Intention, and this result is consistent with various studies, such as Wong & Hiew (2005) and Kim & Garrison (2009).

Effort Expectancy Vs Behavioral Intention

Besides, Vasileios & Anastasios (2011) performed an experiment on the acceptance of computer-based assessment, the result showed that the Pearson Correlation coefficient between Effort Expectancy and Behavioral Intention was 0.202***, and the hypothesis “Perceived Ease of Use will have a positive effect on the Behavioral Intention” was supported. Meanwhile, the impact of Effort Expectancy on Behavioral Intention was mostly via Performance Expectancy. In this investigation, perceived usefulness and perceived ease of use of mobile learning are two crucial factors to affect the students’ intention to accept mobile learning. Thus, hypotheses H3, H8 and H9 were supported.

Discussion for the relationship between Performance Expectancy and Attitude towards Behavior

From the result of “Relationship between Performance Expectancy and Attitude towards Behavior”, the Pearson correlation coefficient (r) between Performance Expectancy and Attitude towards Behavior was 0.703**, it represents that there was a significant relationship between Performance Expectancy and Attitude towards Behavior. The result indicated that there is a strong statistical correlation between Performance Expectancy and Attitude towards Behavior. Also, there are various research confirming the relationship between Performance Expectancy and Attitude towards Behavior. Chang et al. (2009) investigated the acceptance of mobile learning in

Thailand via distributing questionnaires. The result found that the correlation (r) between Performance Expectancy and Attitude towards Behavior was 0.398*** and the hypothesis “PE has a significant positive relationship with AT” was supported. In this survey, it could be explained as, once students perceived that mobile devices is useful for self-learning, they would have a better positive attitude towards mobile learning. Thus, H4 was supported.

Discussion for the relationship between Effort Expectancy and Attitude towards Behavior

The relationship between Effort Expectancy and Attitude towards Behavior was investigated in “Relationship between Effort Expectancy and Attitude towards Behavior”, the result showed that the Pearson Correlation coefficient was 0.542** and the hypothesis H5 was supported. Chang et al. (2009) investigated the acceptance of mobile learning in Thailand via distributing questionnaires. The result found that the correlation (r) between Effort Expectancy and Attitude towards Behavior was 0.219*** and the hypothesis “EE has a significant positive relationship with AT” was supported. So, it can be concluded that the degree of ease of use could determine the attitude towards the acceptance of mobile learning. Thus, H5 was supported.

Discussion for the relationship between Social Factors, Attitude towards Behavior and Behavioral Intention

The Pearson correlation coefficient among the relationship between social factors and attitude towards behavior was 0.678** and the coefficient among the relationship between social factors and behavioral intention was 0.591**, the result indicated that hypotheses **H6 and H10** were supported. Following are literatures supporting the above-mentioned two hypotheses. Chang et al. (2009) investigated the acceptance of mobile learning in Thailand via distributing questionnaires. The result found that the correlation (r) between Social Factors and Attitude towards Behavior was 0.142** and the hypothesis “SFs has a significant positive relationship with AT” was supported. Marchewka & Liu (2007) found that the correlation coefficient between Social Factors and Attitude toward Behavior was 0.501** and it showed that Social Factors has a significant impact on the Attitude towards Behavior. Besides, an investigation performed by Ayman (2012) proved that Social Factors could positively affect the Attitude towards Behavior. However, there is a research found that the social factors was the weakest variable to influence the acceptance level of mobile learning. Jairak, Praneetpolgrang & Mekhabunchakij (2009) found that among various variables, such as performance expectancy, effort expectancy and social factors, social factors was the weakest variable since students might not be affected by others, this research was further supported by Alawadhi & Morris (2008). Actually, social factors is crucial in affecting the acceptance of mobile learning among students. Since the rapid development of technology, students tend to use tablets for studying, and it becomes a norm in universities. Once students perceived that Social Factors are important for them and they have a positive attitude towards mobile learning, their intention might increase correspondingly. So, I strongly believed that social factors is crucial for students to accept mobile learning.

Discussion for the relationship between Facilitating Conditions, Attitude towards Behavior and Behavioral Intention

Facilitating Conditions Vs Attitude towards Behavior

From “Relationship between Facilitating Conditions and Attitude towards Behavior”, the Pearson Correlation Coefficient between Facilitating Condition and Attitude towards Behavior was 0.604**, implying there is a significant relationship between these two components. An investigation conducted by Marchewka & Liu (2007) showed that the correlation coefficient between facilitating conditions and attitude towards behavior was 0.470**, indicating there is a significant relationship among the above-mentioned variables. Ayman (2012) conducted a survey to investigate the acceptance of mobile learning for higher school students in Saudi Arabia, the summary of hypotheses showed that the hypothesis “Facilitating conditions will have a positive influence on attitude towards behavior” was supported and the correlation coefficient was 0.210**.

Facilitating Conditions Vs Behavioral Intention

From “Relationship between Facilitating Conditions and Behavioral Intention”, the Pearson Correlation Coefficient between Facilitating Condition and Behavioral Intention was 0.507**, indicating there is a significant relationship among these two components. Chang et al. (2009) investigated the acceptance of mobile learning in Thailand via distributing questionnaires. The result found that the correlation (r) between Facilitating Conditions and Behavioral Intention was 0.257*** and the hypothesis “FCs has a significant positive relationship with BI” was supported. In universities, the environmental factors such as the availability of mobile devices, the learning environment could have a vital impact on the students’ attitude and intention to perform mobile learning, the more resources they get, the higher chance they perform mobile learning. Therefore, hypotheses H7 and H11 were supported.

Discussion for the relationship between Attitude towards Behavior and Behavioral Intention

From “Relationship between Attitude towards Behavior and Behavioral Intention”, the Pearson Correlation Coefficient between Attitude towards Behavior and Behavioral Intention was 0.752**, indicating there is a positive, significant relationship among these two components. Different researches have provided evidence on such relationship. Chang et al. (2009) investigated the acceptance of mobile learning in Thailand via distributing questionnaires. The result found that the correlation (r) between Attitude towards Behavior and Behavioral Intention was 0.278*** and the hypothesis “Attitude towards Behavior has a significant positive relationship with Behavioral Intention” was supported. So, H12 was supported.

Discussion for the relationship between gender difference and Performance Expectancy

The UTAUT model attempts to explain how the difference among individuals, such as gender, age and experience could affect technology use. As the original model proposed by Venkatesh, et.al. (2003) as follows, it can be observed that the Performance Expectancy could be moderated by gender. From the result of “Comparison of Students’ Performance Expectancy between different Genders”, it can be concluded that gender is not a crucial factor on behavioral intention and there is no significant effect of different genders on Performance Expectancy. However, Jack & Chang (2007) mentioned that the strength between Performance Expectancy and Behavioral Intention varies with gender such that it is more significant for male and young workers. The result from the research was conflict with the result from “Comparison of Students’ Performance Expectancy between different Genders”. A possible explanation is, different results would be generated depending on different situations. In this survey, Performance Expectancy refers to whether students agree that mobile learning is useful for them, the context is the academic field. Thus, it seems that gender difference would not affect the perceived usefulness of mobile learning.

CONCLUSION AND RECOMMENDATION

A new research model was generated after this investigation, it is an important outcome as it could be used to explain students’ acceptance on mobile learning. The main summary of this project is as follows. In this project, the main purpose is to investigate the general acceptance of mobile learning among university students and to identify factors which can affect the intention to accept mobile learning. Students from different universities were invited to provide valuable data via the distribution of questionnaires. For the questionnaires, Likert Scale has been adopted and it consists of five scales, students were required to select one scale for each question. Besides, an independent samples t-test was carried out to test whether personal factors such as gender will affect the acceptance of mobile learning. In this survey, the relationship between gender difference and Performance Expectancy was investigated. Also, the relationship between diverse independent variables in the proposed model were tested.

From the result generated from the independent samples T-test, there was no statistically significant gender difference about Performance Expectancy in using mobile devices for learning. It can be concluded that gender difference would not affect the Performance Expectancy, it means that gender is not a crucial factor on deciding whether mobile learning is useful. Apart from the independent samples T-test, the Pearson Correlation between different variables were tested and it focuses on testing whether there is significant relationship exists between two variables. The survey result supported the hypotheses H1, H3 to H12, but the hypothesis H2 was rejected. H1 and H2 were originated from the Technology Acceptance Model (TAM) whereas hypotheses H3 to H12 were originated in the Unified Theory of Acceptance and Use of Technology Model (UTAUT model). Based on the result of the Pearson Correlation Coefficient (r), the following hypotheses H1, H3, H4, H5, H6, H7, H8, H9, H10, H11, H12 were supported. However, hypothesis H2 was rejected.

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ANALOGIES OF ALGEBRAIC CONCEPTS: EXAMPLES FROM HIGH SCHOOL AND UNIVERSITY MATHEMATICS

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ABSTRACT

Algebraic concepts are the theoretical background of mathematics. Many students have difficulties with basic algebraic concepts at high school and at university mathematics. In this paper, it is mentioned two levels of algebraic structure defined: for high school algebra and for university algebra. Then it is given some models that high school algebraic structure elements are sub-elements of some university algebraic structure elements, and several elements of university algebraic structure are analogies of high school algebraic structure elements. Finally, it is presented some examples to support the theoretical way of the hypotheses. It is recommended emphasizing on the structural elements of algebraic concepts in high school algebra could make easier in university algebraic concepts or its structural elements.

Key words: algebraic concept, structural element, high school, university math

INTRODUCTION

Mathematicians usually accept that a basic knowledge of how algebraic structure explains solving equations, simplifying expressions and unifying solutions as a main and essential knowledge for a high school mathematics teacher. Many high school mathematics teachers do not have a master degree or pedagogical certification of mathematics education in Turkey. Mathematics education research has shown that more mathematics preparation does not improve instruction, and may hinder a person's ability to predict student difficulties with mathematics (Darling-Hammond, 2000; Nathan & Petrosino, 2003; Nathan & Koedinger, 2000). For this reason, mathematicians and mathematics educators regard advanced mathematics knowledge that including an undergraduate major in the subject as potentially important for teachers.

Many high school teachers often feel frustrated and disarmed when faced with the inability of their students to cope with ideas that they consider to be so simple (Dorier, 2000). On the other hand, many students who arrive in high school with high level grades in mathematics from the intimidate school prove to be poor at algebraic manipulations. Specifically, some students give up advanced mathematics due to an inability to apply algebraic techniques in different contexts as in functions and limit (Hoch & Dreyfus, 2006).

Similarly, university mathematics teachers often notice their students' inabilities in conceptual understanding of mathematical notions (Novotná, Stehlíková & Hoch, 2006). Students coming to university having experience with sets theory, linear equations system and polynomial algebra, but they usually have problems with basic abstract algebraic concepts.

BASICS OF HIGH SCHOOL ALGEBRA

The general situation is that students have difficulty with applying previously learned algebraic information in high school as a lack of structural understanding. Dorier (2000) suggested that students' difficulties with abstract algebraic concepts are in part due to their lack of understanding of structural notions.

According to Boero (2001), structure sense is an extension of number sense. He claimed that number sense can be described as an intuition for numbers that includes an understanding perspective for choosing the algebraic operation needed to solve a problem. Different perspective of thought is necessary to transform from an analytical approach to a global one (Kieran, 1991). Pierce and Stacey (2001) determined algebraic expectation, which includes identifying form to solution type.

The definition of high school structure sense is an operational definition that will enable to determine by observation whether a student is using structure sense (Boere, 2001). This definition was formulated according to theoretical considerations and empirical observations. In this study, an intermediate definition of algebraic structure sense used as a guideline to design questionnaires. These questionnaires, administered to students the end of 10th grade, were inadequate to identify some aspects of structure sense. Finally, we used the definition developed by Hoch (2006) as bellow;

- Recognise a familiar structure in its simplest form
- Deal with a compound term as a single entity and through an appropriate substitution recognize a familiar structure in a more complex form
- Choose appropriate manipulations to make best use of a structure

BASICS OF UNIVERSITY ALGEBRA

Structure sense for university algebra was defined by Novotna et al. (2006). According to the definition, structure sense was developed by using observations of mathematics teachers, by analysis and classification of students' mistakes, and by looking for analogies with high school structure sense.

Novotna and Hoch (2008) distinguish two main stages of university algebra structure sense, SE and SP as follows.

Structure Sense as Elements of Sets and the Notion of Binary Operation (SE): Students are said to display SE if they can:

- Recognize a binary operation in familiar structures (SE1)
- Recognize a binary operation in non-familiar structures (SE2)
- See elements of the set as objects to be manipulated, and understand the closure property (SE3)

Structure Sense as Properties of Binary Operations (SP): Students are said to display SP if they can:

- Understand identity element in terms of its definition (SP1)
- See the relationship between identity and inverse elements (SP2)
- Use one property as a supporting tool for easier treatment of another (SP3)
- Keep the quality and order of quantifiers (SP4)

In this study, we analyze the following hypothesis that

H1: A student who does not have a high level of structure sense in high school cannot display a high level of SE2 in university algebra.

H2: SP in university algebra cannot be developed without a high level of structure sense in high school

H3: SE1 in university algebra is a generalization of structure sense of high school; in other words, a student who does not have a high level of structure sense of high school cannot display a high level of SE1 in university algebra.

H4: SP in university algebra is a generalization of structure sense of high school algebra.

ANALYSING OF THE HYPOTHESIS

We present our theatrical perspective and give examples to explain our theatrical approaches to some hypothesis of the study.

H1. Let A be a set, and $*$ a relation between $A \times A$ and A . Usually teacher ask their students to find whether $*$ is an inner binary operation on A the mapping $A \times A \rightarrow A$. To perform the necessary steps requires structure sense of high school.

Example: Let $a * b = \frac{4a^2 - 25b^2}{2a - 5b}$.

Decide whether $*$ is a binary operation on the set of real numbers ($A \leq \mathbb{R}$) and if so, determine its properties. The formula defining $*$ is in non-standard form. $x * y$ is not defined on \mathbb{R} . Examining its properties requires structure sense of high school. Students may solve the task in this example without factoring. it is sufficient for them to remember the existence condition.

H2. SP deals with the properties of structures with binary operations. To find out if structure $(M, *)$ has an identity element and which elements of M have an inverse element, a search of algebraic expressions and solution of equations. So, this cannot be done without developed structure senses of high school.

Example: Let us define $(A, *)$ as follows: $A = \mathbb{Q}^+ \cup \{0\}$, and
 $a * b = a + b + a^2$

It is obvious that $*$ is a binary operation on A . The following are examples of questions that require SP in university algebra:

Identity element: If yes, find it. In order to answer this question, the solver has to decide if there exists $e \in A$ such that for each $a \in A$ the following is satisfied: $a + e + a^2 = a$, (the operation is commutative); the solving of the equation $a + a^2 = 0$ with the unknown a . A student doesn't know structure senses of high school cannot find the answer.

Inverse elements: In order to answer this question, the following equation has to be solved for each $a \in A$:
 $a + a^{-1} + a^2 = e = 0$. So, it is clear that structure senses of high school are needed for the solution.

H3: Structure sense in high school algebra is the operation of the simplest forms of algebraic expressions and equations.

It can be organized to determine the simple equations in standard form, if the students knows the general formulas of the concept. A few step substitution is enough. University algebra needs a typical treatment as that the general definitions are presented in students' understanding level.

H4: Structure sense in high school is about the finding of true formulations. SP in university algebra can be accept as analogies because of the finding true operational properties. Students may know the definition of identity and inverse elements, also many students can apply the general definition for the axiom of the question, but cannot be aware of the pay attention to the existence of identity element in the structure.

Students can know the formal definitions of properties, can be able to apply the definitions in individual steps, but cannot operate the consequences of the properties. For commutativity, if a binary operation is done to be commutative, then it is sufficient to determine the identity element of the operation.

RESULT

In this study, it was presented theoretical approaches of the hypotheses. For this aim, it was used examples from high school mathematics and elementary basic university algebra. We can say that the knowledge and skills of students coming from technical vocational schools are the learning way on examples. On the other hand, the skills of the students attending from basic high schools and science high schools is based on more theoretical and more conceptual nature.

We analyzed high school and university algebra structure sense and showed how they are connected in the high school and university algebra. The transition from high school to university algebra could be analyzed with long-term learning strategy, which is cooperation of conceptual embodiment, perceptual symbolism and axiomatic formalism (Thomas, 1991).

Mathematics teachers need to focus on developing students' structure sense to make lower level their lack of structure sense. We can say that high school symbolic world structure sense could be basics of university algebra

world structure sense. So, high school mathematics teachers should be make more emphasis on algebraic structure.

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ANALYSIS OF SYMBOLIC NUMBER COMPARISON TASKS IN TERMS OF NUMERICAL STROOP AND DISTANCE EFFECT

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ABSTRACT

The purpose of this study is to examine symbolic number comparison tasks in terms of stroop and distance effect. Participants in the study consisted of 313 third grade students, 157 girls and 156 boys, randomly selected from 17 different primary schools from two cities located in different regions of Turkey. The symbolic number comparison test used as data collection tool in the study contains 36 items. The test was designed according to stroop and distance effect and administered on a tablet computer. Data were analysed in terms of 1, 2, 3 distance and congruent, incongruent and neutral cases between the pairs of numbers. The results show that correlation between accuracy of incongruent items and the total correct number response is highest (.929) and there are meaningful differences between all variables in term of accuracy and response time. The Stroop and distance effects were also confirmed by the results.

Keywords: Stroop effect, Distance effect, Number comparison task, Dyscalculia

INTRODUCTION

Symbolic number comparison (SNC) is considered one of the basic number competencies. (Gilmore, McCarthy, & Spelke, 2010). This task was designed to assess the capacity to order numerosities by magnitude and to understand the numerals (Iuculano et al., 2008). In fact, there is a very high correlations between performance in SNC and curriculum based mathematics achievement (Olkun, Altun et al. 2015). Performance in SNC has also been found to be related to other basic number competencies such as dot enumerations and mental number line (MNL) estimations (Olkun, Altun et al. 2015). The results of many studies show that SNC tasks is a predictor of mathematics success (Sasanguie, De Smedt, Defever, & Reynvoet 2012).

The distance and stroop effect paradigms were used in developing SNC test. The distance effect in a comparison task (the comparison distance effect; CDE) entails that it is harder to discriminate between two numbers that are numerically close compared to numbers that are numerically far apart. In other words, the distance effect (Dehaene, Dupoux, & Mehler, 1990) means that as the numerical difference between the compared numbers increases, the correct response rate increases and the response time decreases. Any child can decide on which number is larger but it takes longer for the slow learners. In these tasks latency is more important than accuracy. It is reported that individual differences in the distance effect were related to mathematics achievement and this relationship was found to be specific to symbolic numerical comparison (Holloway & Ansari, 2009).

In the stroop tasks, subjects are asked to pick either the numerically or the physically larger of the two numbers (see Figure 1). In numerical stroop tasks subjects' decisions are interfered with the use of physically incongruent numerals. The size congruity effect in numerical comparison tasks has been found in subjects at different ages from children to adults (i.e., relative to a neutral control, corresponding physical sizes expedited, and different sizes interfered with the numerical comparison). Dyscalculic individuals are distracted by the physical size of the number while comparing numerical magnitudes (size-congruity effect) (Girelli, Lucangeli, & Butterworth, 2000; Rubinsten & Henik, 2006). Therefore SNC test is used for determining math performance of student with mathematics learning difficulties.



Figure 1: Sample numerical stroop effect with distance two (incongruent)

METHOD

Participants in the study consisted of 344 third grade students, 173 girls and 171 boys, randomly selected from 17 different primary schools from two cities located in different regions of Turkey.

Symbolic number comparison (SNC) test was used as data collection tool. This test consists of tasks that are prepared in the light of findings based on numerical Stroop paradigm and distance effects. Number pairs ranging from 2 to 9 are presented randomly on a tablet screen. Students were asked to touch a number (which is numerically larger) on tablet screen and the response times were recorded by the software. No physical comparison task has been added here. Only numeric comparison tasks with 1, 2, and 3 unit distances were asked. The numbers tasks presented in three different ways; congruent (2-3) (numerically larger number is also physically larger), incongruent (2-3) (numerically larger number is physically smaller), and neutral (numbers are the same physical size) (2-3). The 36 items included in the test are equally divided into their congruent, incongruent, neutral states. The distances between the numbers in each field are 1, 2 and 3. Table 1 shows the distributions of the items in the test according to the properties mentioned.

Table 1: SNC test items and their properties

	Distance-1	Distance-2	Distance-3
Congruent	5) 7-6, 19) 2-3, 25) 5-4, 27) 8-9	7) 2-4, 8) 5-3, 3) 8-6, 29) 7- 9	11) 6-9, 32) 2-5, 34) 7-4, 35) 5- 8
Incongruent	10) 4-5, 16) 2-3, 20) 8- 9, 31) 7-6	1) 4-2, 6) 3-5, 15) 9- 7, 28) 6-8	2) 5-8, 9) 7-4, 12) 5-2, 36) 9-6
Neutral	13) 6-7, 14) 9-8, 24) 3- 2, 30) 5-4	3) 9-7, 4) 2-4, 17) 3-5, 33) 6-8	18) 8-5, 21) 7-4, 22) 9-6, 26) 2-5

In the analysis, the number of correct answers and average response times that belong to SNC test items were calculated. Then t test was used to compare the averages of item pairs in term of average correct number and response time. Finally, correlation coefficients between variables were calculated.

FINDINGS

The stroop effect, the distance effect, the number of correct responses and the average response times of each pair of numbers in the number comparison test are given in the Table 2 below. We found that 5-8 (distance: 3, Stroop: Congruent) and 7-4 (distance: 3, Stroop: Congruent) number pairs were correctly answered by all participants on the other hand 8-9 (distance: 1, Stroop: Incongruent) number pair were answered by only 239 participants.

Table 2: SNC test items, their properties, the number of correct answers and average response time

Items	N	The pairs	Distance	Stroop	Correct Answers	Average Response Time
1	313	4-2	2	Incongruent	288	1713
2	313	5-8	3	Incongruent	252	1260
3	313	9-7	2	Neutral	309	1306
4	313	2-4	2	Neutral	312	1077
5	313	7-6	1	Congruent	301	1220
6	313	3-5	2	Incongruent	298	1294
7	313	2-4	2	Congruent	310	1112
8	313	5-3	2	Congruent	312	1036
9	313	7-4	3	Incongruent	213	1193
10	313	4-5	1	Incongruent	286	1357
11	313	6-9	3	Congruent	311	1225
12	313	5-2	3	Incongruent	306	1285
13	313	6-7	1	Neutral	306	1418
14	313	9-8	1	Neutral	293	1336
15	313	9-7	2	Incongruent	287	1471
16	313	2-3	1	Incongruent	298	1397
17	313	3-5	2	Neutral	312	1268
18	313	8-5	3	Neutral	303	1241
19	313	2-3	1	Congruent	311	1142
20	313	8-9	1	Incongruent	239	1277
21	313	7-4	3	Neutral	311	1445
22	313	9-6	3	Neutral	313	1307
23	313	8-6	2	Congruent	311	1270
24	313	3-2	1	Neutral	306	1341
25	313	5-4	1	Congruent	311	1213
26	313	2-5	3	Neutral	310	1037
27	313	8-9	1	Congruent	308	1170
28	313	6-8	2	Incongruent	245	1352
29	313	7-9	1	Congruent	311	1191
30	313	5-4	1	Neutral	310	1317
31	313	7-6	1	Incongruent	217	1317
32	313	2-5	3	Congruent	312	1184
33	313	6-8	2	Neutral	309	1320
34	313	7-4	3	Congruent	313	1152
35	313	5-8	3	Congruent	313	1068
36	313	9-6	3	Incongruent	277	1306

Table 3: Each group's average correct answers and average response time

	Number items	Average Correct Answer	Average Response Time
Distance-1	12	11,14	1236,83
Distance-2	12	11,51	1202,39
Distance-3	12	11,29	1172,51
Neutral	12	11,80	1208,93
Congruent	12	11,89	1116,23
Incongruent	12	10,24	1286,52

Each group's average correct answers and average response times are depicted in Table 3. The average response time of incongruent items is the maximum, while the average correct answer of the test is the minimum.

Table 4: Examination of items' correct number in terms of distance effect

	N	X	S.s.	t	p
SNC_D1*	313	11,14	,846	-6,853	.000
SNC_D2**	313	11,51	,670		
SNC_D1	313	11,14	,846	-2,851	.005
SNC_D3***	313	11,29	,748		
SNC_D2	313	11,51	,670	4,299	.000
SNC_D3	313	11,29	,748		

*Distance between item pairs is 1 ** Distance between item pairs is 2 *** Distance between item pairs is 3

The t values of the distance between the items 1, 2 and 3 in terms of the number of correct answers to item pairs were found to be significant at $p < 0.05$ level ($t_{d1d2} = -6,853$ $p = .000$; $t_{d1d3} = -2,851$ $p = .005$; $t_{d2d3} = 4,299$ $p = .000$). These findings show that there is a significant difference between the pairs of items with distance 1, 2 and 3 in terms of the number of correct answers.

Table 5: Examination of items' response times in terms of distance effect

	N	X	S.s.	t	p
SNC_D1RT*	387	1236,81	204,063	3,827	.000
SNC_D2RT	387	1202,32	189,807		
SNC_D1RT	387	1236,81	204,063	6,786	.000
SNC_D3RT	387	1172,47	217,975		
SNC_D2RT	387	1202,32	189,807	3,279	.001
SNC_D3RT	387	1172,47	217,975		

*RT-Response time

The t values of the distance between the items 1, 2 and 3 in terms of average response time of item pairs were found to be significant at $p < 0.05$ significance level ($t_{d1d2} = 3,827$ $p = .000$; $t_{d1d3} = 6,786$ $p = .000$; $t_{d2d3} = 3,279$ $p = .001$). These findings show that there is a significant difference between the pairs of items with distance 1, 2 and 3 in terms of average response time.

Table 6: Examination of items' correct number in terms of Stroop effect

	N	X	S.s.	t	p
SNC_NCN*	313	11,80	,42	-2,95	.003
SNC_CCN**	313	11,90	,40		
SNC_NCN	313	11,80	,42	,81	.000
SNC_ICCN	313	10,24	1,45		
SNC_CC	313	11,90	,40	19,24	.000
SNC_ICCN	313	10,24	1,45		

*Neutral item pairs correct number ** Congruent item pairs correct number *** Incongruent item pair correct number

The t values of difference between the congruent, incongruent and neutral item pairs were found to be significant at $p < 0.05$ significance level ($t_{d1d2} = -2,95$ $p = .003$; $t_{d1d3} = ,81$ $p = .000$; $t_{d2d3} = 19,24$ $p = .000$). These findings show that there is a significant difference between congruent, incongruent and neutral item pairs in terms of the correct number of responses.

Table 7. Examination of items' response times in terms of Stroop effect

	N	X	S.s.	t	p
SNC_NCAT	313	1208,88	222,849	9,257	.000
SNC_CCAT	313	1116,24	197,418		
SNC_NCAT	313	1208,88	222,849	-6,979	.000
SNC_ICCAT	313	1286,47	213,189		
SNC_CCAT	313	1116,24	197,418	-15,838	.000
SNC_ICCAT	313	1286,47	213,189		

The t values of difference between the congruent, incongruent and neutral item pairs were found to be significant at $p < 0.05$ level ($t_{d1d2} = 9,257$ $p = .000$; $t_{d1d3} = -6,979$ $p = .000$; $t_{d2d3} = -15,838$ $p = .000$). These findings show that there is a significant difference between congruent, incongruent and neutral item pairs in terms of the average response time.

Table 8. Correlation between different variables

	DC-2	DC-3	Neutral	Congruent	Incongruent	SNC_TC
DC-1	,192**	,291**	,361**	,135*	,683**	,758**
DC -2		,161**	,149**	,254**	,546**	,606**
DC -3			,196**	,056	,691**	,701**
Neutral				,013	,091	,351**
Congruent					-,056	,208**
Incongruent						,929**

The correlations among the group are depicted in Table 8 and almost all correlations are significant at $p < .001$ level. Correlation between the correct number response of incongruent items and the total correct number response is highest (.929).

CONCLUSIONS

In this study, we examined symbolic number comparison tasks in terms of stroop and distance effect. The results

show that correlation between the correct number response of incongruent items and the total correct number response is highest (.929) and there is a meaningful difference between all variables in term of correct answer and response time. The Stroop and distance effects were also confirmed by the results. These results show that numerical comparison tasks can effectively be used in screening for learning difficulties in mathematics.

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ANALYSIS OF TECHNOLOGY ACCEPTANCE MODEL (TAM) IN THE IMPLEMENTATION OF SCHOOL-BASED MOBILE APPLICATION SYSTEMS

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Abstract

The fast-paced development of mobile computing technologies together with the increase and popular demands of mobile device application software (“mobile apps” hereafter) make universal mobile learning and business operation and management transaction possible. (Johnson, L. et al 2012). Those general affordances for portable computing devices have incorporate client versatility from device portability, relatively strong computing power in small devices, and available connections were considered (Hsu, Y. -C., et al 2012). Through the past decades, impact of technology in the academic institutions has been enormous. Academic institution have began to adopt the competitive advantage of the technology - particularly the benefits and importance of mobile technology for the student's learning, teacher's teaching tools and even for school operations and management. It is essential that mobile applications (mobile apps) must be integrated with the existing application of any institution such as Library System, Enrollment System, Student Portal, Cashless Payment System etc, that is represented with web functionality through a form of mobile application (Norris et al. 2011). This paper was able to identify that the influence of mobile computing technology has generated a greater opportunity to identified academic institutions and has attracted, engaged and retained its primary customers which are the students, along with the empowerment of its employees and other stakeholders thru the use of mobile computing.

Keywords: Technology Acceptance, Mobile Application Usability, Mobile Application Productivity, Mobile Application Efficiency

Introduction

Smart computing gadgets (e.g., cell phones, tablet PCs, etc.) are progressively a mainstream, effective, and refined. Present day mobile phones, for instance, may download and execute various diverse applications, including specific applications that a user of a mobile phone has bought from an on-line commercial center. In many examples, a mobile phone user(s) can conveniently process transaction online by utilizing a specific device for either personal or business purposes. [2]

Obviously, amid the 1:1 ratio of desktop workstation days, while every student, teacher and employee who accessed a PC, were predominantly utilize a PC as supplemental to meet the needs in the workplace. In fact, the RED Project (Revolutionizing Education), as detailed in electronic School News, has studied "almost a thousand schools with various student population and varying levels of technology innovation and integration." (Devaney, 2010)

According to Jennifer Fleming she states that “Teaching in the Internet age means we must teach tomorrow’s skills today.” Indeed, mobile technologies in education create a massive potential to create innovative development for any institution. The mobile phones such as smart phones of iPod touches have vastly draw recognition to the market. (Johnson, Levine, Smith, & Stone, 2010) There were more than 800,000 mobile applications to iOS devices clinched alongside in the Apple’s AppStore and Android OS devices on Google play over through 20 Classes (Wikipedia, 2013a; Wikipedia, 2013b).

In spite of the advancement of portable devices and mobile applications, there is still a need to brought up diversions among instructors that facilitates teaching and learning (Johnson et al. , 2012). Nonetheless, it is also pertinent that there should be suitable applications provided yet, are not dependably available; educators might just evaluate applications by reviews or anecdotes by the other users to determine the significance of the application in their workplace. These concerns prompt the necessities to make its own mobile applications, thus, empowering instructors to create adaptable innovation for the organization is also a consideration. (Price et al., 2012).

Generally, the focus of this study is to analyze the technology acceptance of mobile application to school system. Specifically, it gears to (1) understand how mobile application system is significantly relevant to the students, employees and teachers towards the accomplishment of assign task effectively, (2) determine if the user’s productivity level have increased in using mobile application system, and (3) know if the use of mobile

application system in the classroom or workplace have improved the IT competency/productivity/skill level of the user.

RELATED WORKS

From the past years, utilization of mobile phones has rapidly improved which was classified as accessory to become supreme need in everyone's day-to-day task. Presently, it penetrate the greater sphere parts of our life, using these technology to enter personal information that can be retrieved anytime and anywhere. As stated by ComScore, the amount of smartphone clients has surpassed the number of desktop clients. People nowadays, are more into use of mobile phones over other gadgets available in the market (source: eMarketer 4/15). Practically notably, whenever smartphones are being utilized, we invest more of our time in utilizing different portable applications (source:ComScore).

The mobile technology acceptance trends not only proves that we have leave behind the tipping point of mobile adoption and usage, but sets a clear precedent that we tend to choose mobile apps than the web since it provide a better user experience. Mobile apps are therefore quickly discontinuation traditional service, support, communication and customer engagement in any method. (Haubrich, K. (2016))

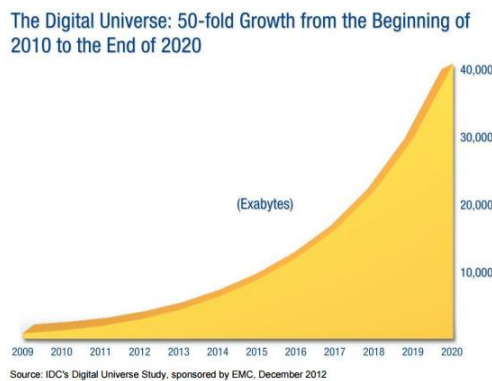


Figure 1. The Digital Universe Growth 2020 Forecast

All things considered, in 2012 there is at least 23% of the data in the digital universe (or 643 exabytes) would be valuable for Big Data in the event that it is properly were labeled and dissected.

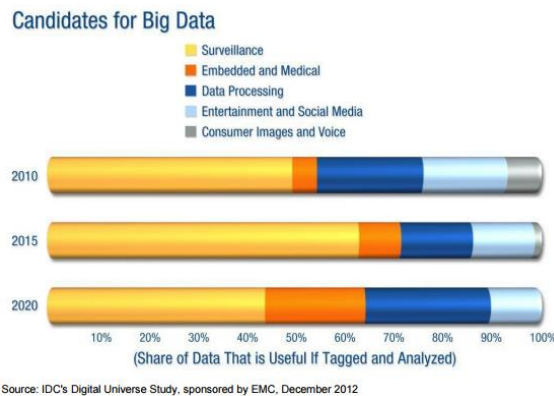


Figure 2. Forecast on Candidates for Big Data

The digital community itself, obviously, involves a wide range of information. In any case, most of the new information being produced is unstructured. This implies as a general rule, unless it is by one means or another labeled — an output in metadata. Metadata is one of the quickest developing subsegments of the digital universe (however metadata itself is a little piece of the overall advanced digital universe). We trust that by 2020, 33% or a third of the information in the advanced digital universe (more than 13,000 exabytes) there will be a Big Data esteem, if the event properly labeled and examined. [4]

The importance of technology trust in e-commerce adoption has been widely recognized in many studies (Kim et al., 2001; Kini and Choobineh, 1998). Similarly TW of a technology with TAM has been a subject of research in many past studies (e.g. Gefen et al., 2003; Pavlou, 2003, etc.).

Most of schools all over the world were obliged to prepare every student to face a new world – to be globally competitive, ready to face the real world with enough knowledge-work in the market. Singapore however is one of the countries that traditionally scored far above on tests of content and the test of “what” – this was enable them to realize that a different set of skills is required to compete with the new world order. (Norris, C., Hossain, A., & Soloway, E, 2011)

RESEARCH METHODOLOGY

In order to analyze and investigate the factors that contribute to the acceptance of the implementation of School-based Mobile Application Systems in the academic institution, an exploratory method will be used in this quantitative research procedure during the survey.

A convenience sampling (also known as availability sampling) will be used in gathering the population sampling. Sampling were collected from sixty (60) students, fifteen (15) teachers and twenty-five (25) non-teaching personnel. The use of convenience sampling technique is intended for case study research, the gathering of sampling population is based on the availability of contacts within the organization.[1]

As discussed by Dhar and Wertenbroch (2000), such utilitarian esteem drawn from the usage of technology is in fact cognitively driven, instrumental, output oriented, and achieves a useful or viable outputs of the clients. The framework below was inspired by the framework of Davis Technology Acceptance Model (1986) which was used in the study.

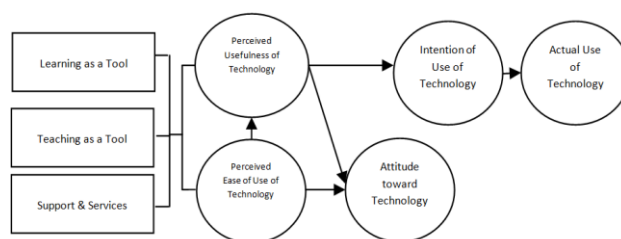


Figure 3. Adjusted Structure of Technology Acceptance Model

Results and Discussion

Using a convenient sampling technique a questionnaire was distributed to 100 respondents. The questionnaires were focused on three (3) areas: productivity, usability and efficiency. Where the following criteria were defined as:

1. **Productivity** seek to verify how mobile application systems improved the performance, increased the skills and how assigned task were effectively accomplished by the user.
2. **Efficiency** aims to determine how mobile application systems can easily help the users to access, retrieve and generate information.
3. **Usability** focus on identifying how mobile application systems enhance the competitiveness of the user to complete the task on time.

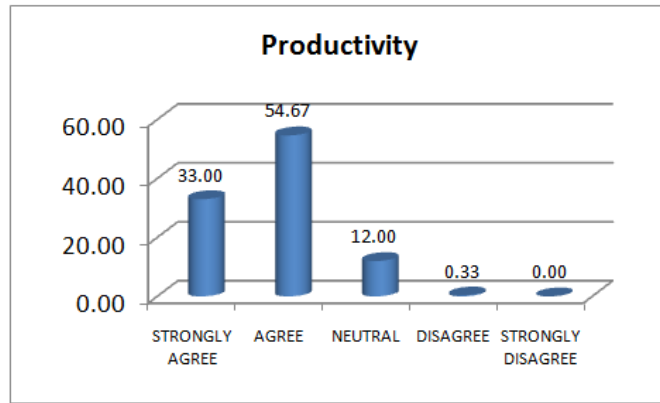


Figure 4. Productivity Acceptance Result

Based on the productivity results, figure 4 reveals that the respondents are generally productive. However, with the numerical mean result of 54.67 among 100 respondents with a verbal description of Agree, the results further shows that not all respondents have fully dependent on the use of mobile application in their field of work.

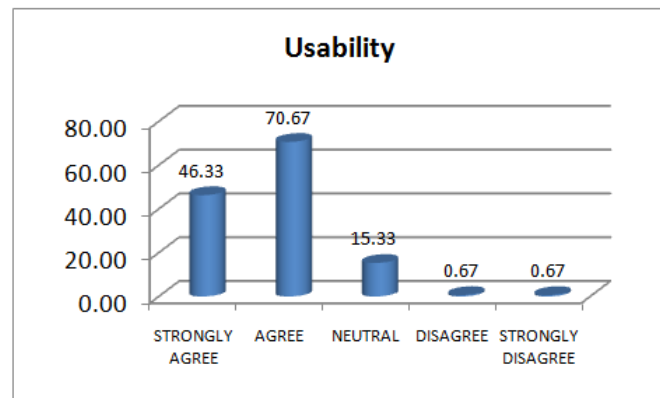


Figure 5. Usability Acceptance Result

Figure 5, reveals that based on the Usability Acceptance Result, the respondents generally considered that the mobile application is useful in their field of work. However, with the numerical mean result of 70.67 among 100 respondents with a verbal description of Agree, the results further shows that a mobile application system usability should be given a primary consideration during conceptualization of any mobile application project to ensure that a target market will be met.

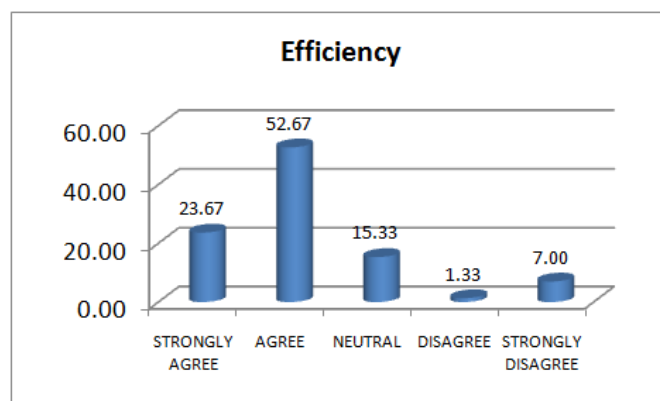


Figure 6. Efficiency Acceptance Result

For Efficiency Acceptance Results, figure 6 reveals that the use of mobile application is by and large efficient when it comes to job performance. This is supported by the numerical mean result of 52.67 among 100 respondents with a verbal description of Agree which concludes that the implementation of a mobile application is very feasible such that the users finds its usefulness in the conduct of their work.

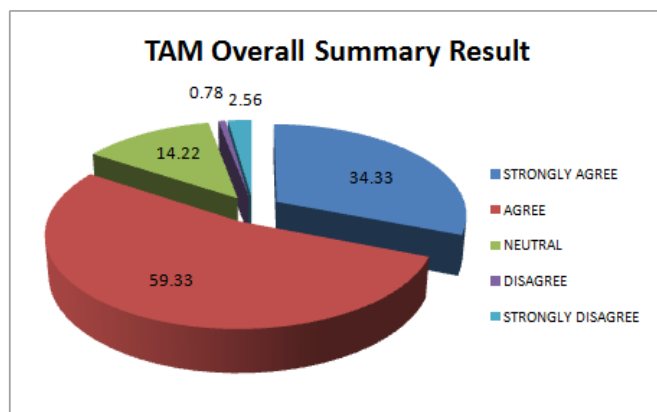


Figure 7. Summary Result

In Figure 7, it reveals that out of 59.33 numerical mean results, among the 100 respondents have generally believed that in the educational setting the use of mobile application system have significant relevance to the productivity, efficiency and usability to the students, teachers and non-teaching staff performance, competitiveness and output generation.

Conclusion

The direction of this study is to analyze the technology acceptance in the implementation of mobile school-based application system. Generally, the study reveals that the mobile application system is now being accepted in the educational field. The respondents have generally accepted the mobile school-based application as significantly relevant in terms of its usability, productivity and efficiency in their field of work.

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ANALYSIS OF THE STATUS OF ICT IN THE MANAGEMENT OF PERSONNEL SERVICES IN COLLEGES OF EDUCATION, IN SOUTH EAST NIGERIA

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ABSTRACT

The electronic transmission of information is required for effective and efficient teaching and learning in institutions in the modern times. Information and Communication Technology (ICT) is the modern electronic techniques of processing, storing, retrieving and circulating information within and outside an organisation with speed and with little or no stress. The major purpose of this study is to determine the problems militating against the integration of ICT in Anambra State College of Education in South East Nigeria. A case study research design was adopted in the study. A stratified random sampling technique was adapted for selecting the Heads of Department, Deans and Directors of programmes. The sample consists of 20 respondents. The instrument is a 50- item Likert-type instrument scored on a 4-point scale. The instrument has two section

Section A is concerned with personal data of the respondents while Section B contains 50 items in three clusters on availability of ICT, task areas of utilization and factors militating against ICT integration. The internal consistency reliability of the instrument using Cronbach Alpha technique is established at 0.93. It is found that ICT is not available and effectively utilized in the College. It is, therefore, recommended that government and management of the institution should make ICT facilities available and provide enabling environment for their utilization.

INTRODUCTION

The challenges of school systems throughout the world are that of providing an effective education for all children and young people which will prepare them for inclusive participation in the workplace, social environment, political sphere and sports arenas (United Nations Education, Scientific and Cultural Organisation, cited in Hooker, 2009). The electronic transmission of information is required for effective and efficient teaching and learning in institutions in the modern times.

Information and Communication technology (ICT) is an umbrella term that covers all advanced technologies in manipulating and communicating information. ICT is the modern electronic techniques of processing, storing, retrieving and circulating information within and outside an organisation with speed and with little or no stress. It refers to technologies that provide access to information through telecommunications (Jim, 2012).

There are indications that some Colleges of Education cannot accurately give the population of their staff, students and physical facilities that are on ground for effective teaching and learning. Staff promotions, retirements and other fringe benefits are unduly delayed because of poor documentation, manipulation of records or even complete loss intransit of vital documents. People who are not bonafide students can pose as students in the guise and commit various academic atrocities. There are result alterations and falsifications, certificate racketing, faking of results to gain admission, computation of the results of already rusticated/expelled students, impersonation and other related challenges. These inadequacies in the management of Colleges of Education arose because of non- integration of ICT in these colleges. To achieve effective and efficient integration of ICT in Colleges of Education in the south East, it is important that the responsibilities of assigning and carrying out jobs with the use of ICT facilities have to be undertaken. These will improve the educational delivery process. The integration of ICT in different tasks areas such as students' personnel services and staff personnel services will greatly enhance teaching and learning in the Colleges of Education in South East. The problems militating against the integration of Information and Communication technology (ICT) have led to speculations as to the extent of utilization of ICT in the management of the College of Education in Anambra state.

Therefore, there is the need to analyze the problem militating against the integration of information and communication technology (ICT) in Anambra State College of Education, South East, Nigeria.

PURPOSE OF THE STUDY

The main purpose of the study is to determine the problems militating against the integration of ICT in Anambra state. Specifically the study seeks

1. To ascertain the ICT facilities available in the College of Education.
2. To determine the adequacy of ICT facilities in the College of Education
3. To ascertain the level of ICT utilization in Staff
4. and students as well as personnel task areas in the college of Education.

RESEARCH QUESTIONS

The following research questions will guide the study:

1. What are the ICT facilities available in the College of Education?
2. To what extent are the available ICT facilities adequate for effective management of staff personnel matters?
3. To what extent are the available ICT facilities adequate for effective management of students' personnel matters in the College of education?
4. What are the factors that militate against the effective use of ICT in the college of education?

HYPOTHESIS

To guide the research study, one null hypothesis was formulated and tested at 0.05 level of significance;

- H0 1. There is no significant difference between the mean rating scores on factors militating against the use of ICT facilities by male and female administrators in the College of Education.

METHODOLOGY

A case study research design was employed in the study. This study sought to determine factors militating against the integration of ICT in the State College of Education in Anambra State, Nigeria.

The study was conducted in Nwafor Orizu College of Education in Anambra State. Anambra State has only one State College of Education. A stratified random sampling technique was adapted for selecting the Heads of Department, Deans and Directors of programmes. The sample consists of 20 respondents.

The instrument used for data collection was questionnaire titled 'Analysis of ICT Integration in Anambra State College of Education' (AIIQ). The instrument was a 50-item Likert-type instrument scored on a 4-point scale of (VA) Very Adequate (A) Adequate (LA) Less Adequate, (NA) Not available; Very Highly Applicable, Highly Applicable, Less Applicable, Not Applicable; (SA) Strongly Agree (A) Agree (D) Disagree (SD) Strongly Disagree. The instrument has two sections namely: Section A is concerned with personal data of the respondents while Section B contains 50 items in three clusters on availability, task areas of utilization and factors militating against ICT integration.

The instrument was face validated by three experts from Educational Administration and Planning and one from Psychometrics all from the University of Nigeria, Nsukka. The internal consistency reliability of the instrument using Cronbach Alpha technique was established at 0.93

The researcher and one trained research assistant administered the instrument directly and retrieved same from the respondents.

Data collected was analysed using mean score and standard deviation for answering the research questions. A score of 2.50 and above was taken to mean that the respondents is in agreement with the item while a mean of 2.49 and below showed disagreement to the items of the instrument. t-Test was used at 0.05 level of significance to test the hypothesis.

RESULTS

The results are presented in line with research questions and null hypothesis that guided the study.

Table 1

Mean response of heads of departments, Deans of Schools and Directors of programmes on availability of ICT facilities in Anambra State college of Education.

Availability of ICT facilities	N	Mean	Std. Deviation	Remarks
AVA1 Internet-connected laptop	26	1.8462	.36795	Rejected
AVA2 Internet – connected desktop Computer	26	1.7308	.45234	Rejected
AVA 3 Scanner	26	1.6154	.49614	Rejected
AVA4 Electronic library	26	1.7308	.45234	Rejected
AVA 5 Institutional Cybercafé	26	1.6538	.48516	“
AVA6 Fax (facsimile)machines	26	1.4615	.50839	
AVA7 CD-ROMs	26	1.7308	.45234	
AVA8 Flash drives	26	1.6923	.47068	
AVA 9 Dept/School website	26	1.6538	.48516	
AVA10 Computer laboratory	26	1.6923	.47068	
AVA11 Multimedia Projector	26	1.6538	.48516	
AVA12 Interactive Board	26	1.5769	.50383	
AVA13 Digital Camera	26	1.5000	.50990	
AVA14 Institution website	26	1.7692	.42967	
AVA15 Management/Administrative software packages	26	1.4231	.50383	
AVA16 Risograph machine (RZ)	26	1.3462	.48516	
AVA 17 Institutionally-produced educational software	26	1.3846	.49614	
AVA18 Computer-Networking(Local area Network)	26	1.5000	.50990	
AVA19 Computer-Networking(Wide Area Network)	26	1.3846	.49614	
AVA20 Examination scoring machine (OMR)	26	1.3462	.48516	
AVA21 Department /School email address	26	1.6923	.47068	
AVA22 College e-mail address	26	1.7308	.45234	
AVA23 CD player	26	1.3462	.48516	
AVA24 Multimedia classrooms(Audio Visual Centre)	26	1.2308	.42967	
Adequacy of ICT facilities				
ADEQ1 Internet-connected laptop	26	2.3462	1.12933	
ADEQ2 Internet – connected desktop Computer	26	2.1154	.86380	
ADEQ 3 Scanner	26	1.8077	.74936	
ADEQ4 Electronic library	26	2.1154	.99305	
ADEQ 5 Institutional Cybercafé	26	2.0769	.97665	
ADEQ6 Fax (facsimile)machines	26	2.1923	1.20064	
ADEQ7 CD-ROMs	26	2.8077	.98058	
ADEQ8 Flash drives	26	2.7308	1.00231	
ADEQ9 Dept/School website	26	2.3846	.98293	
ADEQ10 Computer laboratory	26	2.5769	1.02657	

ADEQ11	Multimedia Projector	26	2.4231	1.06482
ADEQ12	Interactive Board	26	2.1538	.96715
ADEQ13	Digital Camera	26	2.1538	1.08415
ADEQ14	Institution website	26	2.1154	.90893
ADEQ15	Management/Administrative software packages	26	1.6538	.84580
ADEQ16	Risograph machine (RZ)	26	1.7692	1.03180
ADEQ 17	Institutionally-produced educational software	26	1.9615	.99923
ADEQ18	Computer-Networking(Local area Network)	26	1.8462	.88056
ADEQ19	Computer-Networking(Wide Area Network)	26	1.6538	.93562
ADEQ20	Examination scoring machine (OMR)	26	1.7692	.95111
ADEQ21	Department /School email address	26	2.4615	1.06699
ADEQ22	College e-mail address	26	2.4231	.94543
ADEQ23	CD player	26	1.7692	.86291
ADEQ24	Multimedia classrooms(Audio Visual Centre)	26	1.2692	.60383

Source: Field work

From Table 1 a mean of 2.50 was significant; therefore all the ICT facilities listed AVA 1 – 24 are not available. While items ADEQ 7, 8, 9 and 10 which represent level of adequacy of CD-ROMS, Flash drives and computer laboratory met the benchmark of 2.5 and is considered acceptable.

Table 2

Tasks Areas	N	Mean	Std. Deviation	Remarks
Staff personnel services:				
Task1 Staff records	26	1.9615	.91568	Not used
Task2 Staff recruitment	26	1.8462	.78446	Not used
Task3 Staff Promotion matters	26	2.1538	1.00766	Not used
Task4 Disciplining of staff	26	2.0385	.99923	Not used
Task5 Retirement matters of staff	26	2.3462	1.09334	Not used
Task6 Staff salary matters	26	2.7308	1.18516	Not used
Student personnel services:				
Task7 Admission process	26	2.5769	1.10175	Used
Task8 Registration matters	26	2.5385	.94787	Used
Task9 Students records	26	2.5000	.90554	Used
Task10 School fees	26	2.5000	1.06771	Used
Task11 Management of students scores	26	2.1923	1.09615	Not used
Task12 keeping and updating of students' score card	26	2.1154	.99305	Not used
Task13 Determination of graduating and repeating students	26	2.0769	.93480	Not used
Task14 Determination of rusticated/expelled students	26	1.8462	.92487	Not used
Task15 Calculation of students' result	26	2.3462	.97744	Not used
FM1 Lack of ICT skills/manpower	26	3.0385	.91568	Used
FM2 Lack of Seminar/ workshops/conference	26	2.9615	.95836	Used
FM3 Non awareness of the availability of ICT resources in the School/Dept.	26	2.9231	1.09263	Used
FM4 Irregular supply of electricity	26	3.5000	.76158	Used
FM5 Insufficient ICT support staff	26	3.1538	.88056	Used
FM6 High cost of setting up ICT infrastructure	26	3.1538	.73170	Used
FM7 Cost of maintenance of ICT facilities	26	3.0385	.72004	Used
FM8 Lack of training/retraining of academic and non academic administrators in ICT	26	2.8846	.90893	Used
FM9 Lack of encouragement from management.	26	2.3462	1.09334	Not used
FM10 Fatigue and stress associated with ICT use.	26	2.2308	.86291	Not used
FM11 Obsession and distractions through engrossment in leisure entertainment to the detriment of administrative duties.	26	2.8462	1.08415	Used

Source: Fieldwork 2014

From the table 2 , it can be seen that items on task 6,7,8,9 and 10 have mean scores of 2.73, 2.58, 2.53 and 2.50 with a standard deviation of 1.19, 1.10, .95,.91 and 1.07 respectively. The results are indicative of the fact that the respondents are of the opinion that utilization of ICT is only on Salary matters ,students admission process, Registration, student record and school fees administration. It is not utilized in management of students scores; keeping and updating of students' score cards, determination of graduating and repeating students determination of rusticated/expelled students and calculation of students results. This is indicative of the fact that ICT is sparingly used in management of students' personnel services in Anambra State College of Education.

The mean scores on the factors militating against the use of ICT facilities are above 2.50 except for items FM 9 and 10 with the mean of 2.35 and 2.23 respectively. Therefore the factors militating against the use of ICT include:lack of ICT skills/manpower, lack of Seminar/ workshops/conference, non - awareness of the availability of ICT resources in the School/Dept., irregular supply of electricity, insufficient ICT support staff, high cost of setting up ICT infrastructure andcost of maintenance of ICT facilities,

Table 3: t-test analysis of mean response scores of female and male administrators perceived factors militating against ICT integration in Anambra State College of Education.

Sex	N	Mean	Std. Deviation	T	Sign
FEMALE	12	31.8333	6.10266	-.183	.856
MALE	14	32.2857	6.41427		

The calculated t is -.183, P .05, when equal variances are assumed. Therefore,

There is no significant difference between the mean rating scores on factors militating against the use of ICT facilities by male and female administrators in the state College of Education.

DISCUSSION

The results of this study indicated that most of the information and communication technology (ICT) facilities studied were not available and utilized. ICT facilities were only utilized in salary matters, students admission process, registration, student record and school fees administration .It is not utilized in the management of students scores; keeping and updating of students' score cards, determination of graduating and repeating students', determination of rusticated/expelled students and calculation of students results. The low utilization of ICT might be attributed to the non-availability of ICT facilities in the institution and to other problems militating against the integration. The result is in line with that Adesna and Gunsaja as cited in Abraham (2003) that the quality of education that our learners acquire bears direct relevance to the availability or the lac of physical facilities and overall atmosphere where the learning takes place. This fact was confirmed by the opinions of all the respondents.

CONCLUSION

The analysis of the problem militating against the integration of ICT in colleges of education is very important in effective and efficient service delivery in the South East Nigeria. The problem of non-availability ICT facilities if solved by the government will go long way to greatly reducing the incidence of inefficiency and ineffectiveness in this tertiary institution because utilization can only be made possible when ICT facilities are provided and made available.

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ANTHROPOLOGICAL KNOWLEDGE AND TEACHER TRAINING: AN ATTEMPT TO PREVENT TEACHER ATTRITION

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ABSTRACT

The French Guiana Educational District (Académie de Guyane). The first is related to its history, the second to demography. Indeed, it was born in 1996. Twenty years after its creation, the academy produces a population with little diploma and we note the slow drop in the rate of leavers without a diploma in secondary education. The status of French department in America, attracts populations - originating mainly from neighboring countries - in search of political and economic stability. As a result, in 2010, 62.3% of the population of the department aged 18 to 79 were not born in Guyana. Under the influence of this population growth, enrollment increases by 3.7% per year. Thus, the academy of Guyana is in permanent demand for labor, which requires the use of a large number of contract workers. Moreover, the academy is weakened by the important turn-over that affects the teaching force. On this point, studies have shown the effects of school climate on student stability, which in turn has an impact on academic performance. The problem of "vocational drop-out" of teachers is considered very seriously in several countries. In order to remedy this, the research proposed here concerns the training in anthropology of teachers which aims to deconstruct negative prejudices related to the cultural diversity encountered in the classes. The problem that emerged tries to understand how anthropology can answer the questions of the future teachers of Guyana about the cultural diversity that they will encounter in their class in order to prevent the professional dropout? Courses in intercultural anthropology have become objects of research. The methodology consisted in projecting images in order to analyze the representations of future teachers so that they could subsequently propose the same activity to their pupils in order to deconstruct the stereotypes.

INTRODUCTION

The French Guiana Educational District (Académie de Guyane) can be qualified as young for two reasons. The first is linked to its history, the second to its demography. It was created in 1996 following a strike by high school students, who initially demanded more personnel and facilities. Then, during negotiations with the Minister of National Education, the idea emerged to create a separate educational district for French Guiana in place of the French West Indies and French Guiana Educational District, whose headquarters were in Martinique, its chancellery in Guadeloupe. Eighteen years after its creation, despite positive signs (a 68.8% success rate for the "baccalauréat" in 2006, 82% in 2013, but declining in 2014 (79.4%)), the educational district produces few graduates. Moreover, this positive trend is dampened by the slow decrease in the rate of students leaving secondary education without a diploma (53% of young people aged 18 to 24 years in 1990, 43% in 2007). These young people rapidly find themselves unemployed. In parallel, the status of French Department in the Americas granted to French Guiana in 1946, attracts populations – mainly from neighboring countries – in search of political and economic stability. Thus French Guiana remains, "[...] more than the other French overseas departments, a land of immigration: It has more "immigrants" (63%), persons born outside the department who have come to settle there, than "natives" (37%)" (Marie *et al.*, 2012, p.1). Consequently, in 2010, these "immigrants" constitute 62.3% of the population of the department aged 18 to 79, including 42.8% born in a foreign country, 13.2% in continental France and 6.2% in another overseas department or collectivity. Due to its migration history, French Guianese society is made up of numerous sociocultural groups, where distinctions are often made between nationalities and cultural origins. For example, "Métropolitains" (the name given to whites from continental France) will be distinguished from French West Indians (Martinicans and Guadeloupians). Thus, sub-groups appear, increasing the number of categorizations. Today, within the French Guianese population, the following sociocultural groups are distinguished without regard to their nationality: Africans, Amerindians (most of whom are French citizens), Brazilians (most of whom are of Amerindian

descent), Chinese (most of whom are French citizens), West Indian, French Guianese, and Réunionese Creoles (French citizens), Haitians and Saint Lucians, Guyanese (Guyana), Dominicans, Hmong (French citizens), Lebanese (French citizens), Métropolitains, Maroons (descendants of runaway slaves, most of whom have Surinamese citizenship), Peruvians, Surinamese (Surinamese citizens who may be of Chinese, Indonesian, or Maroon descent), Venezuelans, etc.

Under the influence of this demographic growth, the number of pupils enrolled in schools grows by 3.7% per year, since the obligation to admit pupils falls under common law and compulsory school attendance. No residence permit is required for children. For that reason, demand regularly exceeds the number of available places. The French Guiana Educational District is constantly seeking personnel. For example, between 2002 and 2009, the number of teachers rose by 21% throughout the educational district. This strong demand leads to hiring a large number of contractual teachers (who represented 27% of teachers in 2009) (Irig-Défis, 2011, p.3). Moreover, the educational district is weakened by the high turnover rate affecting teaching staff. “Thus, 15% of teachers occupying a position in the Crétail Educational District wish to leave the department they have been assigned to (24% in Seine-Saint-Denis and 10% in Val-de-Marne) [...]. The percentage of applications to leave is also high in French Guiana (15%)” (La mobilité géographique et interdépartementale des personnels d’éducation et d’orientation, MEN, 2007, p. 97). On this point, numerous studies have highlighted the effects of school climate on the stability of teaching staff, which in turn has an impact on academic performance (Gottfredson & Gottfredson, 1985 ; Gottfredson, 2001 ; Auduc, 2001).

The problem of teacher attrition is considered very seriously in several countries, including Canada (Quebec) (cf. Royer, 2005) and the United States. Thus, a positive school climate constitutes a strength for the stability of the educational team; a major problem in the United States is the instability of teaching staff, or their quitting (between 40 and 60% in the first 5 years (Boyd, and al., 2006 ; Debarbieux and al., 2012, p.6).

Similarly, Auduc (2001) points out that “the stability of personnel makes it possible to build long-lasting projects and to receive pupils in an establishment where those who work there have a sense of ownership”.

In a context where, with 3.8%, the French Guiana Educational District has the highest proportion of non-French-speaking pupils enrolled (18,500 in primary schools; 16,200 in middle schools, and 3,400 in high schools – DEPP, 2011), studies conducted in schools necessarily look at the teaching approach taken by teachers. The obvious question in view of the situation on the ground is: How can a person, who has just recently passed their competitive exam to become a primary school teacher, with no knowledge of French Guiana’s school population, nor of the context in which schools are established, nor any notion of any of the languages spoken in French Guiana, do their job under proper conditions? The approach taken to answer that question consisted in analyzing the course in intercultural anthropology given at the university. The details of this research will be developed below, but first, we present an overview of the history of the educational district.

HISTORY OF THE EDUCATIONAL DISTRICT

The history of the establishment of the French school system in French Guiana shows that it was carried out gradually from the beginning of colonization and in a differentiated manner according to the populations involved. Schooling initially only concerned the children of white colonists. When the colonial administration took over in the late 19th century, after the abolition of slavery in 1848 and the establishment of secularization in French Guiana in 1888, schools gradually integrated the children of freed slaves. However, on the coast, the steady growth in the number of pupils was accompanied by an imbalance between rural Creole populations, who remained poorly educated, and an educated urban Creole elite, which affirmed its assimilation into Christian French culture. In 2007, the researcher Laurent Puren highlighted the fact that School as it was conceived in the post-slavery context of the 19th and in the first part of the 20th century had no other ambitions besides creating, through a process of assimilation, a bourgeoisie of color that identified with the values of Frenchness. Accordingly, almost nothing was done to adapt education to the local environment: Schools in the colony were no different from their counterparts in continental France, either through their programs, school hours, or the language of instruction.

In 1852, there were approximately 1,200 pupils enrolled in French Guiana’s schools, 2,500 at the start of the 20th century, and over 3,000 during the interwar period. Almost nothing was done to adapt education to the local environment:

On this point, Yvette Farraudière (1989) points out that from the outset of schooling, there was total silence regarding the linguistic particularities of the Creoles. No document issued by public instruction departments

so much as hinted at the vitality of Creole, the vernacular language of villages and the countryside as well as of the working class neighborhoods of Cayenne. As for the Amerindian and Maroon populations, they were totally excluded from the process of assimilation. That exclusion was reinforced by the creation of the Inini Territory in 1930. Puren (2007) traces the history of school in French Guiana and points out that in 1930, the Inini Territory was created to control gold production located in the Amazon, reducing the colony of French Guiana to its coastal strip. The territory was administered directly by the governor of the Colony, represented locally by gendarmes. This administrative regime granted the Amerindian populations of the interior a unique status of “independent nations under protectorate” (Hurault, 1972, p.257). The administration did not interfere in the internal affairs of villages, which remained under the exclusive authority of customary chiefs. Those chiefs received a small monetary compensation, which was not a mark of dependence but simply a mark of distinction. Amerindians were not subject to French civil law (declaration of civil status, marriages, adoptions) and were governed exclusively by customary law. They paid no taxes, were not subject to compulsory school attendance, and besides, French Guiana’s interior had no schools whatsoever.

In 1969, 40 years after its creation, the Inini Territory, which granted particular rights to Amerindians, was abolished, as the socioeconomic gap between the coast and the interior of the country was growing considerably deeper.

After the children of colonists during the era of slavery, the children of freed slaves living on the coast, schools began reaching the villages of the interior in 1949.

With French Guiana’s transformation into a department in 1946 and the policy of « francization » (according to Jean-Marcel Hurault’s expression), whose aim was to assimilate the populations in the interior of the country (whereas that of the Creoles on the coast was already well advanced), the schooling of Amerindians and Maroons began between 1949 and 1970 in the “Homes Indiens” (Catholic boarding schools based on the model of Quebec’s “Pensionnats Autochtones”). Then, following the abolishment of the Inini Territory (1969), it was continued in the public schools that were progressively being opened. Having become French citizens, the Amerindians and Maroons were now subject to compulsory school attendance.

The access to school of the populations referred to at that time as the “Natives of French Guiana” is thus recent history. But, as was the case for the Creoles before them, the contents of programs were not adapted and mother tongues were ignored. The French Republic being one and indivisible, the different sociocultural groups present on French Guianese territory do not exist in legal terms. Non-recognition of the languages of minorities was the rule in the name of the unity of the French nation. By virtue of Article 2 of the constitution, French remains the official language of the department: “The language of the Republic is French.” Despite the large number of languages in use, only French enjoys legal recognition. Still, French Guiana exercises certain competencies under Law no. 84-747 of August 2, 1984 on the competencies of the regions of Guadeloupe, French Guiana, Martinique and Réunion with regard to complementary educational and cultural activities relating to the knowledge of regional languages and cultures. On this point, Puren (2007, p. 282) concludes that

According to Laurent Puren, the period from 1946 to 1970, during which French Guiana became a department, was marked by the policy of francization and the first experiments with schooling Amerindians in Catholic boarding schools. It was Robert Vignon, the first prefect of the department of French Guiana (from 1947 to 1955), general counselor, senator of the department, and mayor of the municipality of Maripasoula, who instigated the reform on departmentalization. Prefect Vignon set up an assimilation policy that consisted in teaching pupils to speak, read, and write in French: “I tend to think,” he wrote in his memoirs, “that artificially keeping the Indians in medieval conditions, cut off from any evolution, is criminal.”

As was mentioned above, the Creoles were already subject to the assimilationist policy established in schools starting in the 19th century.

Starting in the 1960s, Vignon put in place the first elements of his francization policy for the Amerindians. Its aim was to “foster the grouping and sedentarization of the populations in the interior”. With the francization policy, the populations of the interior were granted French nationality. 65% of French Guiana’s Amerindians thus became French citizens between 1965 and 1970. Pupils received a Christian education in French. For that purpose, several boarding schools were created on the western coast.

With the francization policy instigated by French Guiana’s first prefect, Robert Vignon, pupils along the Maroni et Oiapoque rivers were introduced to religious boarding schools in the 1960s. This policy turned out to be a total disaster: Families were torn apart and several denunciations were made by parents. However, the time they spent in these establishments had the unexpected consequence of raising political

awareness among former pupils once they reached adulthood. Many of the leaders of the Amerindian movement in French Guiana, which emerged during the 1980s, had been educated in those establishments. Far from achieving the goal of assimilating, through francization and Christianization, the pupils under their responsibility, the religious heads of the Indian boarding schools appear on the contrary to have inadvertently instigated a counter-movement, a quest for identity and a return to their roots.

After the Catholic boarding schools were abolished, public schools emerged where the program common to all the schools of the Republic was taught. It was out of the question at the time to consider dispensing an education adapted to French Guiana's regional languages and cultures. Confronted with this monolingual and monocultural education, pupils ultimately developed an inferiority complex. When they left home to study in the city, these young people were ashamed of their heritage, failed to return to their villages, and ended up living on the fringes of the rest of the urban population, due to their "ethnic" origin.

Nowadays, it can be observed that the situation has not radically evolved towards a greater taking into account of the cultural diversity and multilingualism of pupils, due to two factors: strong population growth and the conservatism of the educational institution. On this point, Pourchez (2002, p. 5) has made the same observation by describing the following issue relating to the island of Réunion: "Why do the institutions run by National Education know so little about and practically reject the local culture that fashions Réunionese children?" Similarly, Gérin-Lajoie (2006), in Canada, highlights the lack of emphasis placed on their role as « agents of linguistic and cultural reproduction » in the views expressed by teachers, since they "are not initially trained to fulfill that role, nor do [they] receive the necessary support to carry it out [once] they find themselves in the classroom" (2006, p.173).

Strong population growth, the inability to speak French of native-born as well as migrant pupils, the fact that schools are located in villages that can only be reached by river or by air, exacerbate the negative image of schooling in French Guiana (Hidair, 2014). In order to solve this issue, the research proposed here addresses the training in anthropology given to future teachers at the University of French Guiana's School of Teacher Education. We examine the following issue: How can anthropology provide answers to the questions asked by French Guiana's future teachers regarding the cultural diversity they will encounter in their classrooms, in order to prevent them from quitting the profession? To address this question, the courses given at the School of Teacher Education, which are based on research, became the subject of research themselves. The methodology used consisted in filming intercultural anthropology classes in order to analyze trainee teachers' representations based on images of diversity shown during a tutorial session. The idea was that these future teachers should themselves be research subjects, so that afterwards, they could propose the same activity to their pupils in order to deconstruct prejudices. Today, an anthropologist needs to be able to respond to numerous requests as well as to the expectations of training institutes and the objections of different groups. This is a perilous enterprise, since the anthropologist is at the heart of interactions and plays the often difficult role of interpreter of society, and must then train the group of teaching students whom they are at the same time studying. The frustrations, anxieties, preconceived notions, and enthusiasm of their students must be channeled, but that is a long-term undertaking for which researchers have not necessarily been trained. An anthropologist learns on the job, which means that they are not immune to mistakes such as impatience, when concepts are not understood, or intolerance, when prejudice takes the place of scientific discourse. Teaching anthropology may thus require the researcher to analyze their own practice.

THE TEACHING OF ANTHROPOLOGY IN FRANCE

For a long time, anthropology was a poorly understood, even confidential, field of study in France. Jamin (1991, p. 290) points out that «the hesitations concerning the very term to use to designate, in France, anthropological research – *ethnography*, *ethnology*, or *anthropology* (...) – clearly convey this wavering theoretical identity.» He adds that "France was one of the last great Western – and colonial – powers to establish specialized teaching of ethnology and to build up a corps of professional ethnologists."

Lefebvre (2001, pp.6-10), by studying the professional curricula of certain ethnologists through the history of cultural policies and that of the Mission du Patrimoine Ethnologique, observed that during the 1960s and 1970s, ethnological activities on French subjects took place within a network of non-profit organizations which, for the most part, served as relays for institutions such as Arts et Traditions Populaires, the ethnology laboratories of the National Center for Scientific Research (CNRS), and university teams. Then, "the emergence of a new policy at the Ministry of Culture in the late 1970s, and especially in the early 1980s, modified this configuration somewhat." A certain ambiguity emerged between the "Mission du Patrimoine, which was originally supposed to draw support both from the non-profit network of the 1960s, academics, CNRS laboratories, while at the same time claiming a certain autonomy that had yet to be

constructed. For some people, the composition of the different Heritage Councils [Conseils du Patrimoine], from 1979 to the present, accurately reflects the ambiguities of this policy. In parallel, the dwindling of subsidies over time, which was unanimously highlighted, crystallized tensions, challenges, and the conflict between non-profit organizations, territorial institutions, universities, and research laboratories.” In the mid-1980s, ethnologists had to “create” their position in conjunction with regional councils and “ (...) afterwards, in recent years, these prospects of professionalization have dried up, as have the possibilities for carrying out so-called ‘personal’ research’ (...). Young ethnologists lost their illusions with regard to the line willingly peddled by ‘established’ tenured researchers, and no longer undertook long-term research such as that required for a doctorate. An entire current of professionalization thus was lost to ethnology during this period (...).” In other words, we can consider that different policies combined with the narrow labor market did not promote the visibility of the profession.

Over a few years, the situation has evolved from one of complete anonymity to that of widespread recognition : Anthropologists are consulted in the media, in businesses, in ministries. Their expertise (or at least their point of view) is sought just like that of sociologists or psychologists, as soon as the subject addressed is the “Human Being”. It is true that often, anthropologists specialized in a particular field of anthropology are consulted, and they are often expected to provide an “exotic” touch: ethnopsychiatrists, ethnophotographers, anthropologists specialized in religion, in a precise group or society, media anthropologists, etc. In any event, anthropology has emerged from anonymity and anthropologists, when they speak about their profession, increasingly meet with a positive response: Their interlocutor has already heard that word, even though it is still often necessary to specify what this science consists in and in particular, what differentiates it (or not) from sociology.

Despite this recent visibility, professors of anthropology are still confronted by numerous obstacles. Based on observations made in French Guiana, we found that the most unexpected obstacles relate to the audiences on the receiving end of this teaching. Most often, anthropology is not considered a science and can even generate rejection, in particular when the theories discussed challenge the preconceived ideas of the students being trained. In fact, the latter often have only a very vague, even inexistent, idea of what this science is all about. For example, every year during the Fête de la Science science festival, the pupils met in primary and secondary classes are very surprised to learn that human sciences exist. Once they reach adulthood, it is clear that that lack of knowledge remains unchanged. Confusions appear with archeology, ethology, or even entomology.

Once the discipline has been presented, students’ feelings oscillate between lack of interest and failure to understand why such a course is being offered as part of their curriculum. Hence the recurrent questions – which also reflect numerous prejudices – regarding the usefulness for their professional practice, or even their daily life, of acquiring this type of knowledge. Many students imagine that anthropology is only concerned with “primitive peoples”. One only has to consult the different anthropological and ethnological journals published over the past 50 years to observe the change that has taken place in terms of the topics and research areas covered by the discipline: From so-called exotic societies, the focus shifted to rural France and finally to urban anthropology and contemporary phenomena such as sports or the Internet. One can notice the changes when browsing through the tables of contents of these journals. The journal *L’Homme*, in particular, is quite representative of this trend, with an entire issue devoted to anthropologists and the contemporary world (No. 185-186, January/June 2008), but also a marked refocusing during the years 1990-2009 on Europe and contemporary phenomena in the West and/or in urban settings throughout the world. This focus, widespread throughout French society, was strengthened in French Guiana, where many researchers – who began their work in the early 1970s – were initially interested in rural populations before focusing their research on the urban environment (the research of the geographer Jean-Marcel Hurault on the descendents of the Aluku Maroons (1961) and on the Wayana Amerindians (1968); Richard and Sally Price on the descendents of Saramaka Maroons (1972); Pierre and Françoise Grenand, who worked at length on the Wayampi Amerindians (1979)).

Furthermore, students who have been sensitized to anthropology generally have expectations that do not meet the reality of the subject matter, hence the resulting feeling of disappointment. Thus, certain students hope to be able to fill out “data sheets” – providing information on the cultural practices of groups – that could be used as instructions they could consult to know how the “ethnic groups” around them feed themselves, sleep, dress, think, or raise their children. It should be emphasized that the notion of “ethnic group” is often automatically assigned to non-Western populations and is often used as a euphemism (or “politically correct” synonym) for “tribe”.

Other students, convinced of the legitimacy of their anti-globalization ideologies, hope that anthropology conveys a political message of support to oppressed peoples. But many of them do not expect to call into question their own representations. Thus, discovering that anthropology involves first and foremost

questioning one's own ways of functioning, of being and seeing, can be shocking, even destabilizing for most of them, who cannot for a moment imagine that anthropology isn't limited to the study of peoples "of rural, traditional, non-Western culture," but that it also studies the West and urban culture, including contemporary French society. In this regard, it is interesting to note that "rural, traditional, non-Western culture" is frequently referred to by Westerners using the term "ethnic group". "Ethnic" furniture, fabrics, jewelry, music, and ways of life denote the practices and beliefs of rural non-Western populations. In other words, these "ethnic" artifacts are simply the figments of the Western imagination projected onto the stereotyped Other.

These varied expectations with which the anthropologist is confronted raise numerous questions, such as the relevance of these lectures, the credibility accorded to this science by program directors while they do not define it clearly for themselves, the impact on students/pupils, since the needs of the training program in terms of anthropology have not been clearly identified, and the need to very rapidly present a discipline, to demonstrate its scientificity, and finally, its value in general and in relation to the training program.

Consequently, responses to anthropology lectures vary widely. In the best of cases, students who take an interest are able to see the relevance to their training and their future profession (provided that these inputs do not radically upset their egocentrism). At worst (and this is the case observed to a large extent), anthropological content is rejected, perceived as being non-scientific, thus unfounded, and also considered on the same level as value judgments. For this reason, course content is systematically called into question, particularly when it contradicts conventional wisdom considered to be scientific and evidence conveyed by "mass" knowledge. Thus, when the anthropologist discusses certain very sensitive topics, such as the relativity of the notion of instinct in humans or homogamy in Western societies, the reaction of certain students is invariably "I don't agree", revealing clearly through this expression that the content is interpreted as opinion and not as scientific fact.

In this regard, below we present the observations carried out between 2002 to 2010 among trainee primary school teachers at the French Guiana School of Teacher Education (ESPE).

ANALYSIS OF THE ANTHROPOLOGY COURSE

First of all, it should be noted that the course in anthropology was entitled « Intercultural Teaching ». During the first two years, only one 2-hour tutorial was devoted to this course over the entire academic year. Then, in 2004, class time was increased to six hours, then was switched back to two hours until 2009. The amount of class time was decided according to student availability, since the course was programmed to take place at the end of the academic year. At the beginning of the 2010 academic year, due to the opening of a master's program entitled "Teaching and Training Professions", anthropology took the form of a course entitled "Teaching in a Multilingual and Multicultural Context. Knowledge on Populations".

It is regrettable that so few hours are devoted to intercultural instruction, but one advantage should be highlighted. The contents of the course have always been left to the judgment of the professor. Hence, the choice was made to focus on the study of ethnocentrism (Lévi-Strauss, 1950), the definition of interculturality (Abdallah-Preteille, 1992 & 1996), and the analysis of representations, prejudices, and racist attitudes (Adorno, and al., 1950 ; Pierre-André Taguieff, 1991 & 1993).

Since between 150 and 200 people were enrolled in classes, students were separated into five or six groups depending on the year. During the first course given in 2002, the classic lecture format was chosen in order to have enough time to cover all the topics planned. From the start, it became clear that this method was totally inappropriate for the target audience. Forced to attend tutorials due to their status as trainee teachers, students seemed surprised that such a course had been scheduled. Surprise gave way to impatience, then rejection of the content considered "obsolete". The arguments advanced highlighted the French Guianese "melting pot", that singlehandedly proved the future of "métissage" and therefore the obvious end to ethnocentrism and racism. Yet these declarations were accompanied by attitudes that revealed contradictions. For example, comments made about pupils of foreign nationality or belonging to a non-Western culture (Hidair-Eliville, 2010) demonstrated that racial prejudice clearly existed.

Analysis of these initial reactions made it necessary to rethink both the content and the format of the course. It was clear that these research topics could not be presented in the form of a classic lecture succinctly addressing such sensitive subjects. Moreover, this audience showed a strong desire to participate and give their opinion, thus involuntarily preventing all of the course content from being covered, due to a lack of time. It was therefore with a feeling of real frustration on all sides that the course ended, with no possibility of adding extra sessions to finish the material.

As a result of these obstacles, the following year, the strategy consisted in devoting more time to definitions of the concepts discussed and then initiating a debate based on case studies. The course in "intercultural

teaching” was now made up of two sequences, with the first presenting scientific definitions of many concepts used in everyday language such as “melting pot”, culture, identity, immigration, intercultural, racism. Then, new concepts were addressed, such as ethnocentrism and cultural relativity. Finally, the lecture ended with case studies presented using representations of interculturality in French Guianese society (photos, postcards, works of literature, games, etc.). On this point, it should be underlined that the image of French Guianese cultural diversity is that of a hierarchical and categorized mosaic. Each sociocultural group is considered to possess natural physical and cultural characteristics inherited from their ancestors, and the characters represented in comic albums or on postcards are associated with a sociocultural group according to their phenotype. Similarly, the languages spoken are represented in a compartmentalized fashion.

To highlight the connections between the characters – in order to then, by extension, show the connections between the individuals present in the room – the sequence continued by asking eight questions about all the photos presented, for which a choice between three answers was proposed: “completely possible”, “maybe possible”, and “impossible”. The eight questions were: Do they have the same mother? Do they have the same nationality? Do they have the same blood type? Were they born in the same city? Are they the same age? Do they have the same mother tongue? Do they share distant ancestors? Can they donate organs to one another ?

The second part, which lasted an hour, was devoted to discussion, the students having been instructed not to comment during the theoretical lecture and to begin the discussion based on the material used for the case studies. These rules were immediately accepted. The students were amazed by this teaching approach and participated enthusiastically in the debate. The aims were to speak about oneself rather than about others, to broaden the perception of the notion of culture instead of limiting it to “folkloric” aspects (dances, costumes, food), to highlight how prejudice functions, to provide targeted information on the history of immigration, insisting on the fact that even indigenous populations resulted from migratory movements, and lastly, to accept others as people and not as representatives of an ethnic group.

After these successful sessions, it became clear that the debates should be filmed. The richness of the opinions and comments expressed, the strong feelings that emerged, and the freedom of tone taken by the students confirmed that it was necessary to preserve a record of these exchanges in order to transcribe and then analyze the contents. Therefore, in 2008, all the sessions were filmed.

The analysis that followed was based on the works of Elisabeth Kübler-Ross, psychiatrist and psychologist, pioneer of the palliative care approach for persons at the end of life. It is interesting to observe that the Five Stages of Grief (Gilliland & James, 2005, p. 365) – which Elisabeth Kübler-Ross initially applied to any form of catastrophic loss (job, income, freedom) – can also be applied to the loss of power. To better understand the analysis approach, this collection of comments should be taken in its context. These were trainee primary school teachers, both beginners and some with experience, who for the most part had very little knowledge on the sociological situation in which they were exercising their profession. There are two main reasons for this: First, for those who went to school in French Guiana, it must be noted that the regional context is rarely taught, with attention focused on the national context. Secondly, due to a shortage of qualified teachers in the educational district and to population growth, the non-local background of teaching staff, who come mainly from continental France and the French West Indies, must be underlined. These teachers quickly find themselves helpless when dealing with pupils, whose maternal culture as well as their school culture is different from their own. Therefore, to preserve the teacher’s power and position of authority, they adopt the attitude, at times inflexible, of the educator, whose job is to uphold the principles of the French State: “School should not differentiate between pupils, all must have access to French education”, but omit the fact that that education is transmitted to the detriment of the pupils’ own culture.

When analyzing the contents of the debates on the « melting pot », culture, identity, immigration, interculturality, racism, ethnocentrism, and cultural relativism, we observed that the « five stages of grief » could be discerned. According to Elisabeth Kübler-Ross, these stages do not necessarily occur in the order indicated. Moreover, all the stages are not necessarily experienced by all patients, but each victim will experience at least two of them.

First, we observed Denial. Many students denied the reality of the facts. The following comment was recurrent: “You’re exaggerating, racism is not that widespread”. With regard to the stereotypes in the works of children’s literature, we heard: “That’s not racial prejudice, it’s just to help the children understand”, “All of that creates a humorous effect”, “Where I’ll be teaching, classes are homogenous”, or “The people who are ethnocentric are the Bidochons [comic book characters that represent a caricature of the French] with their flip flops and socks, I don’t feel that that relates to me”. But clearly, discovering that ethnocentrism affects all human beings made quite a few people ill at ease. Some students tried at all cost to stand out from the group, pointing out their open-minded attitude since “they wear backpacks and hiking boots and are interested in exploring different cultures”.

Then, we observed Anger, which manifested itself in the form of people leaving right in the middle of the discussion, under the pretext that they « felt shut in », that they « couldn't speak », that “people systematically contradicted them”. These reactions generally occurred after a series of answers was provided by the anthropologist that contradicted the statements of the students, such as “Racism is for stupid people, there are idiots everywhere”, “I'm a teacher with a continental French background and I'm going to be teaching Amerindians, so I'm learning about their culture: Which of the two should come out on top?” Most often, answers relating to the universality of racism and to identifying the power relationships that exist between sociocultural groups bothered students. Some left the room, claiming that their questions had not been answered.

The Bargaining stage was often characterized by the idea that they « would like to do things differently, but the system prevented them”, or that they “had to follow the National Education program”, that “The inspector would penalize them if they didn't do it”, that “They weren't trained for that” and that “There aren't any books showing children with no skin color”. All these arguments aimed at laying the blame on the French State, on publishers, and on the mysterious “system” which seemed to resemble a sort of invisible power that dictated their acts and of which they refused to admit they were an integral part.

The Depression phase usually took place after the course. Certain students came to talk in private, so as not to be seen by the others, in order to acknowledge their helplessness and their lack of understanding of the interactions they found themselves at the heart of. In such cases, they admitted that they were powerless, that they “denied the differences or accepted the stereotypes because they wouldn't know how to talk about the diversity around them”, that “they didn't understand a thing about migratory history”.

The Acceptance phase took the form of requests for bibliographic references that could help them continue this reflection. Students also expected to receive advice on how to organize similar discussions in their own classrooms.

FROM MOSAIC TO IMPRESSIONISM ...

The research presented here took as its starting point the observation that it is common to read or hear French Guiana officially defined as resulting from a “mosaic of peoples”. The suppositions on which that definition is based deserve to be closely examined: What is meant by mosaic? Under what conditions can one speak of a mosaic? What form does it take in French Guianese society? In order to answer those questions, inspiration can be drawn from the work done in French Guiana by Chalifoux, which consisted in identifying the three main study models used in French Guiana: Mosaic, binary, and vertical mosaic (1997, p. 96).

The mosaic model most commonly used, and which is found in administrative, academic, and informative publications as well as scientific research is: « French Guiana: mosaic of peoples and languages », Grenand et Bergounioux, <http://www.dglf.culture.gouv.fr/Seminaire200202/palikur2.htm> ; « Thus, French Guiana became an exceptional mosaic » (Bechet, 2012, p.35). In this model, the ethnocultural groups that make up French Guiana's population are listed, and this classification is accompanied by brief summaries of the major cultural traits of the broadly stereotyped “ethnic groups”. This vision helps strengthen cultural gaps and presents intercultural relations as relations of exclusion (Chalifoux, 1996, p. 96).

This ossified description is found in the text below, which is widely quoted in doctoral theses, on websites, and in school textbooks :

We could sum up the situation ironically by saying that Whites are first of all the representatives of order (prefect, high-level civil servants, gendarmes, doctors, anthropologists, etc.), then top-level business leaders, expert technicians, and scientists; as for the Creole-speaking people of French Guianese origin (rarely drawn to industrial jobs), they control the administrative positions and local services; the Amerindians are still terrific hunters and boatmen; but the Chinese reign over retail shops, the Hmong grow the vegetables, the Surinamese and Brazilians toil on construction sites, the Haitians cut the grass and pick up the garbage, etc., not to mention Haitian and Brazilian women who clean house (off the books). We could add that the Americans fish for shrimp, the Venezuelans, for Caribbean red snapper, whereas the Canadians (Guyanor, Cambior, Asarco) run the big mining companies. With real unemployment that affects 40% of the population, it is easy to understand why immigrants have become “undesirable”, all the more so because they are responsible for around 60% of births. The French Guianese also believe that Surinamese and Brazilian immigrants bring violence with them (Excerpted from : <http://www.axl.cefanelaval.ca/amsudant/guyanefr2.htm>).

This categorization masks the dynamics of intercultural relations, whereas culture is structured by means of the interplay of reciprocal representations and is fashioned by interaction: what we think of others, but also what they think of us (Abdallah-Preteuille, 1996). This mosaic model juxtaposes identities, in much the same way as the decorative art that assembles fragments of colored materials to form a design. Yet society

is far from being a work of art frozen in time. A useful analogy could be drawn to impressionist painters, who thought of themselves above all as painters of the living world. A comparison might also be made with life and earth sciences, which describe the chameleon's changing of color as the reflection of an emotion adapting itself to the environment or the climate.

With regard to the binary model, it positions intercultural relations on the vertical axis of relations of domination. The studies of Hurault (1972) and Jolivet (1982) deal with relations between Creoles and continental French or between Amerindians and continental French. "These analyses generally use frameworks inspired by third world or neo-Marxist approaches, which highlight socio-political contexts of intercultural relations" (Chalifoux, 1997, p.97). Emphasis is placed on the social, economic, and political asymmetry between local authorities and the mother country, and intercultural relations are addressed from the angle of assimilation, acculturation, and resistance. Horizontal relations with the other cultural groups in French Guiana is only marginally considered.

Finally, the vertical mosaic model combines the two preceding models and places intercultural relations in French Guiana in the context of socio-economic stratification. In this regard, Chérubini showed, in 1986, that certain sociocultural groups integrated through the economy, such as the Chinese and the Lebanese, whereas other integrated into French Guianese society by means of social mobility (the Javanese, for example). The integration of other groups depends on their economic and social position, as is the case for Haitians and Brazilians. The Saint Lucians and French West Indians, on the other hand, experienced another form of integration, as they had more time to participate in intercultural exchanges (Chalifoux, 1997).

We conclude with a discussion of the different theories that guided this research. First, we take into account the fact that relations between these different theories are neither linear nor impermeable. As is the case for identities, the categories of each of these theories appear to be multiple. Thus, it is acknowledged, since the work of Barth (1969), that "ethnic" phenomena are constructed and not natural. This leads to new perceptions: Certain authors address the question of the phenomena of identity construction as classifications carried out by members of the group (Oriol, 1984; Meintel, 1993), while others contribute, with their vision, the idea of interventions such as those of colonial administrators or ethnologists "and of those who combine both qualifications" (Amselle, [1990] 1999, p. 22 but also Williams, 1989, p. 420).

The relational rather than the essential character of identity is fundamental. "We" is built in relation to "Them" and emerges through a process of construction of the forms of interaction that introduce a separation and presuppose a common social context. Identity does not possess an inexplicable character, involuntary and natural, it is constructed and not defined by objective, immutable criteria. Barth's analysis made it possible to show that it is determined by the strategies, both individual and collective, of agents, and can go as far as rejection or modification of identity, which is above all a means used to classify (Devereux, 1972).

To construct their identity, an individual accumulates distinctive characters that enable them to recognize those around them who resemble them (Devereux, 1972). They must choose between an infinite number of possible and integrable identities. According to Abou (1981), identity in general appears where difference arises. Affirming identity is first of all a defense, difference is perceived as a threat (p. 31). Identity is a factor of social unification, "it is also the result of the processes of identification, assimilation, and differentiation by which the group seeks to found its cohesion and mark its position in relation to other groups" (Lipiansky, 1995, p. 39).

Bonniol underlines that « identity plunges its roots in the fundamental processes corresponding to an activity of categorization that presides over the recognition of self and Other" (1992, p. 20). In this same vein, the approach taken by C. Taylor emphasizes the idea that all identity is constructed in interaction with "significant others". He refers to both the collective as well as the individual identity. « We define our identity always in dialogue with, sometimes in struggle against, the things our significant others want to see in us » (1992, p. 33).

Research carried out by Abdallah-Preteille (1992 & 1996) points out that in order to understand others in their difference, one needs to know who one is and how acquiring knowledge about others can promote self-knowledge. The author's theory gravitates around a central axis, the aim of which is to fight prejudice by engaging in introspection and self-analysis, with resulting explanations being projected back on oneself and not on someone else. The author proceeds from the assumption that "the adoption of attitudes towards others depends mainly on the perception the individual has of themselves or the group to which they belong" (1996, p.182). In other words, knowledge of others entails "a deepening of one's own personality, of one's own way of functioning, reacting, being, and seeing" (1996, p.181).

CONCLUSION

Teaching intercultural anthropology is a perilous undertaking, since the anthropologist, in the role of teacher, is at the heart of interactions and occupies the often difficult place of interpreter of society. The frustrations, anxieties, fanaticism, or enthusiasm of students must be channeled, but developing that art is a long-term undertaking for which anthropologists are not trained. An anthropologist learns on the job, which means that they are not immune to mistakes such as impatience, when concepts are not understood, or intolerance, when prejudice takes the place of scientific discourse.

This educational approach aims above all to foster respect in a multicultural society, develop understanding of others, promote the experience of life in a democracy, and sharpen the critical thinking of future teachers so that they, in turn, can “teach their pupils to learn” in order to overcome preconceptions.

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APPLICATION OF VIRTUAL REALITY LEARNING ENVIRONMENT TO ENHANCE GRADUATE STUDENT'S SELF-DIRECTED LEARNING SKILL

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ABSTRACT

Higher Education learning is the top of Professional Learning Community Development, in particular graduate education learning. This research focus to study the application of Virtual Reality Learning Environment to enhanced graduate student's self-directed learning skill that divided into 2 stages: first stage is to develop the appropriate virtual reality learning environment; second stage is to study graduated student's self-directed learning skill. The participants were master degree students that study in Department of Educational Technology, Faculty of Education, Kasetsart University in 2016 academic year. Research tools were: matrix analysis data form, satisfaction questionnaire, and self-directed learning skill test. Data were analyzed by arithmetic mean and Standard Deviation. Research findings revealed that: 1) the virtual reality learning environment: case study on Second Life (virtual world) showed media quality evaluation by 3 experts at "appropriated level", and 2) the 37 graduated students' self-directed learning skill showed at high level that mean the "virtual reality learning environment- prototype" can be use and apply into the learning activity, and finally guide for the policy maker to promote the professionals for design and evaluate educationally informed and empirically grounded learning environments, products, and programs that effectively employ emergent technologies in a variety of settings in the next future.

INTRODUCTION

Educational and communication technology shaped the facilities and services of teacher and learner. Especially in, the way of teaching and learning, the way of sharing experiences has been changed. ICT becomes integral of our lives and it promises opportunity for learners to gain equality in education within diverse contexts and services. The needs for ICT skills professional development that can meet today's educators' demanding schedules, that uses quality content and resources that are available to teachers from any place and any time, and that can deliver relevant, accessible, and ongoing support has stimulated the development of online teacher professional development programs. Online teacher professional development programs make it possible for educators to communicate, share knowledge and resources, and reflect via asynchronous interactions. Moreover, Rabah (2015) suggests that the benefits and challenges of ICT integration is a powerful and flexible tool for learning, it is needed and desired to meet globalization challenges in particular knowledge and communication breakthroughs that the world can achieve using information communication technologies (ICT) are so numerous that educational institutions are striving to invest in ICT tools in an attempt to help raise citizens who are ready to face the challenges of the 21st century where media, manufacturing industries as well as commerce have become increasingly technology-oriented. In addition, Srifra (2016) supports that the teachers must have a good attitude towards the use of new technologies and the ability to use VR technology as well. Technological advancements today have passed beyond cables and wires where the means of communication now can be done from just about anywhere. Office works can be done from home, meetings can be conducted virtually and educational classes can be handled from thousands of miles away without having to have the students to sit in front of their teachers in the same classrooms. However, there is a concern recently that such technological advancements would not be possible to be continued without the sufficient supplies of human capitals. Most of educators can seamlessly enhance learning materials with digital content and students can participate interactively with smart devices and applications to tracking textbooks or digital materials that come to life (Srifra, 2016). Along with the lack of pedagogy skills that is not match in the actual practical needs for higher education. Moreover Sompong, N. et al. (2016) have suggests that the teacher readiness on project-based blended learning including face to face and online learning were mostly possible in their office and home. In addition, the concept of social media that based on the appropriate tool and the medium to deliver knowledge, and helps learners can communicated with each other (Catherall, 2008) especially in teaching and learning using the potential of internet network to access with various sources of learning (Belleghem, 2011).

The main purpose of this study is this research aims to study the application of virtual reality learning environment to enhanced graduate student's self-directed learning skill. The question then becomes, "How to design and develop the Virtual Reality Learning Environment to enhanced graduate student's self-directed learning skill". The expected benefits are the appropriate practices that is the systematic approach to enhance graduated students in 21st century skills. More over the results of quality assessment can be apply the body of knowledge to develop the learning skill of graduated students. In addition, the results can be the information to support the higher education systems policy maker and promote the professionals for design and evaluate

educationally informed and empirically grounded learning environments, products, and programs that effectively employ emergent technologies in a variety of settings.

THE STUDY

This research aims to study the application of virtual reality learning environment to enhanced graduate student's self-directed learning skill that divided into 2 stages: first stage is to develop the appropriate virtual reality learning environment; second stage is to study graduated student's self-directed learning skill. The methodology provide into 2 phases, the details are as following:

Firstly phase, focusing to develop the appropriate virtual reality learning environment.

1. Analyzing the elements of Online Learning Environments: OLEs and Virtual Learning Environments: VLEs and Self-Directed Learning.
2. Integrating the elements of Virtual Reality Learning Environment.
3. Developing the Virtual Reality Learning Environment: Second Life and quality evaluated by the 3 experts (Educational technology and Knowledge Management field).
4. Studying the appropriate quality of Virtual Reality Learning Environment by the 3 experts (Educational technology field)
5. Try-out the Virtual Reality Learning Environment by the 30 graduate students who study in semester, 2016 for study the research tools quality (try-out stage).
6. Preparing the all of research tools that using in the next step.

Finally, second phase, evaluating graduated student's self-directed learning skill.

1. Research design by following the One-Group Posttest Design.
2. Population and samples:
 - 2.1 Population are the graduate students who study in semester, 2016 academic year at Faculty of Education, Kasetsart University.
 - 2.2 Samples are 37 graduate students that collected by random sampling technique and learn by the virtual reality learning environment.
3. Research tools:
 - 3.1 The Virtual Reality Learning Environment: Second Life.
 - 3.2 The graduate student's self-directed learning skill test.
4. Data analysis:
 - 4.1 Descriptive statistics were Arithmetic Mean and Standard Deviation (S.D.) are used to describe the basic features of the quantitative data.
 - 4.2 Qualitative data were analyzed by category group and issuing data technique.

FINDINGS

1. The Virtual Reality Learning Environment was appropriated with the criterion of media development, details are follows;

- 1.1 Immersive Teaching: Engage students in fun, interactive 3D environments



Fig 1: The Virtual Reality Learning Environment: In front of site gate.

Relationships in virtual worlds have an added dimension compared to other social media, because avatars

give a feeling of proximity making the voyeur experience more intense than simply a textual encounter. The complexities of those encounters depend on the engagement levels of the people behind the avatars, whether they are engaging Disassociatively (entertainment only), Immersively (as if the avatar was them), or Augmentatively (meaning they engage for a real-life purpose) (Clift, Pamala, 2012).

1.2 Help desk: Find helpful information on how to get started in Second Life including FAQs, pricing, security, and more.



Fig 2: The Virtual Reality Learning Environment: Information desk.

1.3 Real-Time Collaboration: Collaborate, teach, and create together using voice and text.



Fig 3: The Virtual Reality Learning Environment: Lecturer room I.

Second Life can be a real-time, immersive social space for people including those with physical or mental disabilities that impair their first lives, who often find comfort and security interacting through anonymous avatars. (Indeed, some academics believe using Second Life might even help improve motor ability for people with

1.4 Forums: Join the conversation in the official Second Life forums.



Fig 4: The Virtual Reality Learning Environment: The auditorium.

The Second Life consists of two interrelated phenomena: (i) telepresence: the sense of being there, and (ii) social presence: the sense of being together with others. In the context of virtual worlds, telepresence or the degree of immersion and engagement in the computer-mediated space is achieved through communicators' interaction with their avatar, and social presence through their interaction with others as an avatar.

1.5 Ask the Community: Get answers to the questions from others in the community.

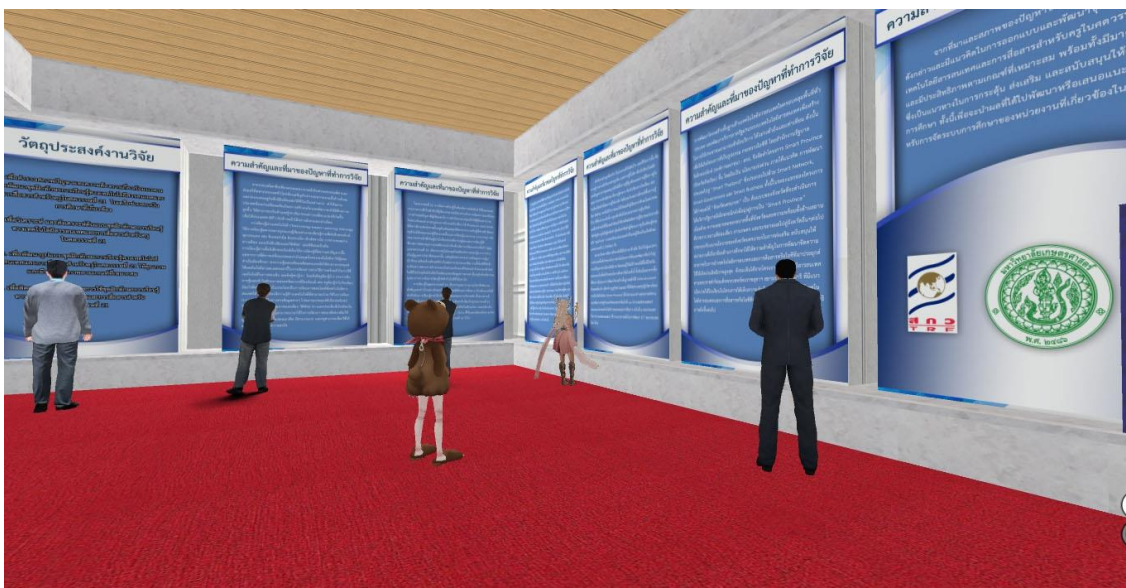


Fig 5: The Virtual Reality Learning Environment: Hall of fame room.

Avatars are technological artifacts that provide communicators a body in virtual spaces. It is through this affordance of embodiment that people, places and things are made concrete, tangible, and present.

1.6 A powerful platform for creativity: Everything in Second Life – interactive 3D objects, unique experiences, global communities, and more



Fig 6: The Virtual Reality Learning Environment: Hall of fame room.

The Virtual Reality Learning Environment: Second Life avatar-self relationship was also studied via resident interviews, and various enactments of the avatar-self relationship were identified. The study concluded that *SL* residents enacted multiple avatar-self relationships and cycled through them in quick succession, suggesting that these avatar-self relationships might be shaped and activated strategically to achieve the desired educational, commercial, or therapeutic outcomes (Schultze, U.; Leahy, M.N. (2009).

2. The quality of the Virtual Reality Learning Environment by the 3 experts opinion was appropriated with instructional media that showed overall results quality at highest level (mean=4.50, S.D.= 0.45), details are following: the highest level showed at the learning environments (mean=4.54, S.D.= 0.35), the learning and teaching components (mean= 4.50, S.D.= 0.43), the learning and teaching promotion (mean= 4.49, S.D.= 0.51), and the structure and architecture design (mean=4.47, S.D.= 0.50). Totally, the Virtual Reality Learning Environment can support the student to learn and enhance their self-directed learning skill on the next steps, details see on table 1

Table 1: the quality of the model

Quality issue	Arithmetic Mean (5.00)	Standard Deviation (S.D.)	Level
the learning and teaching components	4.50	0.43	highest
the structure and architecture design	4.47	0.50	high
the learning environments	4.54	0.35	highest
the learning and teaching promotion	4.49	0.51	high
the overall results quality	4.50	0.45	highest

3. The evaluation of graduate student’s self-directed learning skill.

3.1 The graduate student’s self-directed learning skill showed overall results at highest level (arithmetic mean=3.51/4.00), details are following: 1) the quality of product especially in appropriately design step (arithmetic mean=3.56/4.00), the quality of product especially in continue design step (arithmetic mean= 3.52), and the quality of creatively product especially in new technique/methods application (arithmetic mean= 3.44). (See in table 2)

Table 2: The graduate student's self-directed learning skill

ICT skills issue	Arithmetic Mean (4.00)	Level
the quality of product especially in appropriately design step	3.56	highest
the quality of product especially in continue design step	3.52	highest
the quality of creatively product especially in new technique/methods application	3.44	high
the overall results	3.51	highest

3.2 The learner's score of self-directed learning skills showed overall results at highest level (arithmetic mean=4.38, S.D. = 0.11). Totally, the Virtual Reality Learning Environment can support the student to learn and enhance their self-directed learning skill on the next steps.

CONCLUSIONS

Research results exhibited that the Virtual Reality Learning Environment: Second Life was appropriated and fit to the quality of instructional media system design and development principal. Online learning skills development is an emerging trend it is still a "new frontier". Educators around the world experience many demands on their knowledge, time, and professional development. Developing and sustaining an effective online learning community can be challenging even during an era of much technological advancement.

Moreover, developing and sustaining an effective large-scale online community is even more challenging. In addition, professional development has mainly centered on learning processes that involve updating knowledge, yet it has made little headway as a construct that includes both the professional and personal characteristics and working conditions. It has also focused more on developing. Finally, the virtual online learning technologies have the potential to transform the professional development of students; penetrate cultural, discipline, and other barriers; bring educators together to learn, share successes and challenges; and co-construct and transfer learning.

RECOMMENDATIONS

1. Applications to design and development that using web-based instruction for graduate students appropriately which guide the application of the next future to teaching in higher education institutions.
2. Online Learning Environments: OLEs and Virtual Learning Environments: VLEs are important tool to teaching and learning for graduated study.
3. Guidelines to online teaching & learning especially in "Seek & Sense" and "Show & Share" process among learners in the "Community of Interest" and "Community of Practices" for virtual learning Environments design.

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APPLYING SPEECH ANALYSIS SOFTWARE TO LINGUISTIC RESEARCH: A CASE STUDY ON PAUSE PATTERNS

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ABSTRACT

Studies on linguistics have traditionally focused on written records of grammar. This gives only a partial account for the research in a limited context isolated from the producer. Apart from written output, it would significantly contribute to observe the research from speech records. Thanks to advances in speech analysis technology, it is now possible to carry out linguistic research on speakers' actual speech performance as well. Since speech is a dynamic process involving various contextual factors, integration of speech analysis software enables us to get a visual reflection of vocal action time and silence time in a continuous speech stream. In this study, therefore, we describe how this type of technology has been used in pause determination process in linguistic studies.

Keywords: Pauses, prosody, speech analysis software, linguistics

INTRODUCTION

Rapid developments in technology have been continuously evolving and restructuring our daily life. We live in a world where real and virtual have integrated so well that it is impossible to separate one from the other. Advances in technology can be applied in almost every phase of life from medicine to communication by enabling fast and quick access to information thanks to applications developed for specific areas of research. These applications bring forth renovations that make it possible to analyze large-scale data, which would be impossible to carry out just a few decades ago (Mason, 2006).

Use of technology for educational purposes has a well-established background in academia by researchers from various disciplines of educational institutions all over the world. Most of these studies state positive outcomes when technological tools are integrated into traditional educational contexts (Greenhow, Robelia, & Hughes, 2009; Altay, & Tilfarlioglu, 2012; Eren, 2015; Cinkara, & Arslan, 2017). Especially in language teaching and learning, we can track the evolution of state of the art technologies even back to 1960's. Since then, this transformation has founded a solid base to continue further studies. Web 2.0 tools provide us interactive

platforms on which we can create, edit and combine various textual and visual elements conveniently (O'Reilly, 2005).

On the other hand, advances in technology have contributed a lot to linguistic studies as well. Traditionally, researchers have examined one aspect of grammar and focused on outcome or students' errors to figure out generalizations. Linguists can investigate large corpora of written texts by comparing and contrasting cross-linguistic data. For example, British National Corpus (BNC) has more than 100 million samples of written and spoken English in a wide range of contexts (Aston & Burnad, 1998). Frequencies of the use of some words in relation to other words and contexts might explain a great deal about the nature of actual language use. However, this gives only a partial explanation and isolates actual speech performance from written output. Current developments in speech analysis software help researchers interact with large corpora of audio record easily as well. It is possible to visualize and edit actual speech performance, which allows researchers to pinpoint and measure prosodic features such as stress, pause and intonation.

Speech is a dynamic process and it is not produced in isolation. The flow of speech might not be continuous and gaps might appear during this process. These gaps are called pauses and they regulate understanding for a successful communication. Pauses are like punctuations of speech and they define the location of boundaries in a stream (Richards and Gipe, 1992; Oliveira, 2002; Derman, Bardakçı & Öztürk, 2017). Appropriate utterances of pauses assist speakers in various ways. They help listeners for comprehension and signal syntactic complexity. They might even indicate gender, educational and socio-economic information (Esposito, Marinaro & Palombo, 2004). Since pauses play a significant role in speech production, technological development might contribute significantly to research on pauses. Considering this importance, our study has examined following research questions:

- 1- Does the length of a pause preceding coordinating conjunctions differ from a pause following these conjunctions in read speech?
- 2- Does the length of a pause preceding coordinating conjunctions differ from a pause following these conjunctions in spontaneous speech?

LITERATUREREVIEW

There are many studies about the duration of pauses in speech by native speakers of English and these studies show that the duration of pauses differ between native speakers and non-native speakers of English. The experimental studies in spontaneous speech by Goldman-Eisler (1968) have built up a blueprint for the upcoming research since then. His studies have encouraged researchers to enrich the literature. In his series of experimental studies, Goldman-Eisler determined the minimal cut-off point of 250 milliseconds to consider the silence as a pause. Pauses can be classified as silent pauses and filled pauses. Whereas the former corresponds to the cognitive difficulty of the task involved, the latter reflects affective states such as anxiety. Some pauses are considered as cognitive and others as syntactic. Cognitive pauses are observed in spontaneous speech and syntactic ones are observed in read speech (Goldman-Eisler, 1968; Kılıç, 2013).

Bada (2006) carried out a study by investigating the pausing difference before and after *that* in the use of *that clauses* by both English native speakers and Turkish non-native speakers of English. Findings of this study

suggest that while pausing before *that* was measured to be much longer than in the following position in the production of the native speaker group, it was observed to be the opposite with the Turkish group.

While this study examined read speech, another research by Bada and Genç (2008) focused on the differences between pausing preceding and following *to* in both spontaneous and read speech by native English speakers. Results of this research display a significant difference between read and spontaneous speech; while pausing before *to* was observed to be significantly longer than the following position in read speech, it was found to be just the opposite in spontaneous speech.

On the other hand, Genç, Özkan and Bada (2010) carried out an interesting study by examining Obama's G-20 summit speech in terms of the difference between read and spontaneous speech. They examined the pause before and after the *to* particle and the results showed that the pause in read speech was longer than the one in spontaneous speech. Findings of this research correlates with a following study in which Genç, Mavaşoğlu and Bada (2011) examined the differences between pausing preceding and following the *que* particle both in spontaneous and read speech of native speakers of French. Analysis of the data showed that pausing preceding *que* was significantly longer than the following position in read speech.

METHODOLOGY

Participants

Participants of this research included eight undergraduate students studying at a university in Gaziantep province. For each language group, two English speakers who are native in Turkish, Swahili, Hausa and Arabic participated. Table 1 shows demographic information about participants:

Table 1: Demographic information about participants

Students	Mother Tongue	English Level	Other Languages	Background
Turkish 1	Turkish	B1	German A1	City
Turkish 2	Turkish	A2		City
Arabic 1	Arabic	B1	Turkish A2	City
Arabic 2	Arabic	B1	Turkish A1	City
Swahili 1	Swahili, Ivo	B2	Luhya B1	City
Swahili 2	Swahili, Agikuyu	B2	French B1	City
Hausa 1	Hausa, Nupi	B2	Turkish A2	City
Hausa 2	Hausa, Ngizim	B2	Turkish A2	Small town

Speakers of Turkish and Arabic have one mother tongue. However, speakers of Swahili and Hausa have one more tribal language as a mother tongue as well.

Data Collection

For this research, data was collected in two phases. The first phase consisted of data collection for read speech. The researchers prepared texts from three different genres; literary, scientific and newspaper. The inclusion of different text genres is to minimize the effect of the reading pattern which might be specific to a single genre, like story. All these texts included coordinating conjunctions. Students read out these texts and their speech was recorded. For the second phase of this study, the researchers carried out semi-structured interviews. The interview questions were about similarities and differences between students’ lives in their home countries and Turkey. This topic was chosen in order to elicit coordinating conjunctions and the interview was recorded.

Data Analysis

In order to pinpoint and measure the length of a pause preceding and following coordinating conjunctions, Praat speech analysis software was used. Findings were analysed by t-tests to see whether there is a statistically significant difference between pauses preceding and following these conjunctions in both read and spontaneous speech. Figure 1 illustrates a screen shot from speech analysis:

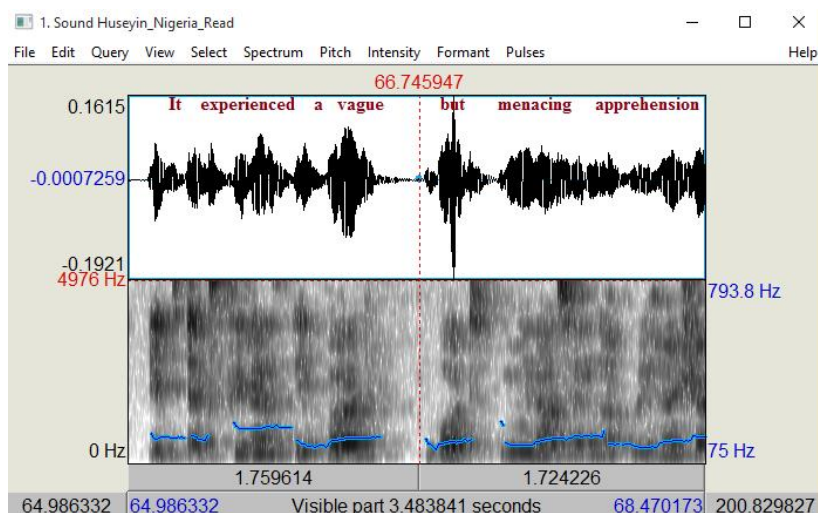


Figure 1: Screen shot from Praat, speech analysis software

FINDINGS

Read Speech Results

Findings from Table 2 state that except from Arabic 2 speaker, all students pause longer preceding ‘and’ and ‘but’ conjunctions. However, we can see that in most cases, these pauses are not statistically significant. Only pauses in Arabic 2, Swahili 1, and Hausa 1 speaker records are statistically significant. They have longer pauses following ‘and’ conjunction, compared to other students.

Table 2: Pauses preceding and following ‘and’ and ‘but’

	AND			BUT		
	PP	PF	P	PP	PF	P

Turkish 1	8	8	1.00	19.79	15.61	.675
Turkish 2	21.86	9.33	.118	9.28	6.28	.510
Arabic 1	17.76	4.67	.081	35.30	25.95	.620
Arabic 2	2	13.60	.042	25.28	24.42	.957
Swahili 1	27.20	2.53	.007	22.00	3.85	.113
Swahili 2	13.26	7.93	.428	18.36	8.91	.335
Hausa 1	33.93	3.80	.002	60.42	21.14	.112
Hausa 2	20	14.46	.503	39.83	20.02	.098

($p \leq .05$)

We can infer from Table 3 that only Arabic 1 speaker paused longer in following 'or' conjunction, but apart from this instance, in all other cases we can see that speakers pause longer preceding 'or' and 'so' conjunctions. Except Swahili 2 and Hausa 2 speakers, pauses in other speakers are not statistically significant.

Table 3: Pauses preceding and following 'or' and 'so'

	OR			SO		
	PP	PF	P	PP	PF	P
Turkish 1	12.16	4.66	.318	21.33	3.66	.287
Turkish 2	14.83	4.00	.147	21.66	.33	.340
Arabic 1	13.50	14.66	.945	25.66	13.00	.402
Arabic 2	30.00	5.50	.057	9.33	6.00	.745
Swahili 1	13.66	.1667	.162	8.33	.00	.374
Swahili 2	43.00	.1167	.006	20.33	.00	.092
Hausa 1	36.00	7.00	.090	41.66	.66	.089
Hausa 2	44.50	9.83	.127	69.66	20.33	.032

($p \leq .05$)

1. Spontaneous Speech Results

Interviews were conducted to elicit the coordinating conjunctions in spontaneous speech. The use of these conjunctions differed in each student. Table 4 shows the number of utterances.

Table 4: Number of utterances in spontaneous speech

	AND	BUT	OR	SO
Turkish 1	10	23	5	3
Turkish 2	13	6	N/A	N/A
Arabic 1	16	8	7	N/A
Arabic 2	8	10	N/A	8
Swahili 1	14	7	2	2
Swahili 2	18	8	5	6
Hausa 1	8	6	N/A	15
Hausa 2	21	8	N/A	9

Analysis of the t-test results shows us the duration of these pauses and whether these pauses are statistically significant. In Table 5, we can see a comparison of this significance level for the coordinating conjunctions in spontaneous speech.

Table 5: Pauses preceding and following coordinating conjunctions

	AND			BUT			OR			SO		
	PP	PF	P	PP	PF	P	PP	PF	P	PP	PF	P
Turkish 1	.03	.19	.052	.15	.07	.030	.00	.00	.016	9.44	.00	.366
Turkish 2	.32	.37	.790	.40	.20	.448	N/A	N/A		N/A	N/A	
Arabic 1	.23	.21	.808	.29	.22	.520	.23	.26	.850	N/A	N/A	
Arabic 2	.50	.10	.001	.42	.23	.245	N/A	N/A		.56	.24	.092
Swahili 1	.65	.00	.000	.33	.06	.006	.19	.00	.423	.14	.07	.405
Swahili 2	.24	.09	.048	.13	.03	.19	.15	.06	.373	.28	.03	.020
Hausa 1	.23	.06	.150	.38	.00	.001	N/A	N/A		.29	.03	.000
Hausa 2	.29	.25	.705	.41	.22	.188	N/A	N/A		.38	.19	.194

($p \leq .05$)

We can see from the findings that in almost all cases, speakers utter a longer pause preceding coordinating conjunctions regardless of their mother tongues. Analysis of t-test results also reflects that Turkish 1, Arabic 2, Swahili 1, Swahili 2 and Hausa 1 utter much longer pauses and these pauses are statistically significant. Pauses in both Swahili speakers are mostly statistically significant.

DISCUSSION

In read speech, we can see that speakers tend to pause longer preceding conjunctions but this duration is not statistically significant in most cases. This might be a result of having a prepared text and not spending time about what to say next in read speech context. Findings from related research also coincide with our findings. In Bada's (2006) study with native speakers of English, we can see that these speakers pause longer in preceding 'that' conjunction. Similarly, in his experimental research with Turkish speakers of English, Kılıç (2013) found that students produced longer pauses in preceding adverbial clause conjunctions. Studies from Bada and Genç (2008) about duration of read speech pauses in to-infinitives and Genç et al. (2011) about the use of *que* clause by native speakers of French also showed a similar pattern.

In spontaneous speech, it can also be observed that speakers pause longer preceding coordinating conjunctions and this duration is statistically significant in most cases. Unlike read speech, this difference might result from the fact that speakers spend more time about planning what they are going to say before producing conjunctions. However, findings regarding spontaneous speech in this study show a different pattern from other studies. In Bada and Genç's (2008) study, native English speakers pause longer following to-infinitives in spontaneous speech and this difference is statistically significant. Another statistically significant difference also occurred following *que* clause in spontaneous speech of native French speakers (Genç et al, 2011).

CONCLUSION

Prosodic features in our speech; such as stress, intonation and pauses are important constituents of effective speech both in reading and speaking. Patterns of pausing preceding and following conjunctions are fixed by innate principles and parameters while speakers acquire their mother tongues. Interlanguage, which is different from speakers L1, but also different from their L2 (or L3 in some cases) affects the rules that apply to the production of speech. Studies on pausing can help us find underlying patterns that result from the influence of native language. Our speech cannot be isolated from interactions in our environment. Being aware of these patterns, we can detect and if needed, correct these differences to improve speaking skills in diverse classroom contexts (Jarvis & Pavlenko, 2008).

This research is limited with students studying at a university in Gaziantep province and findings cannot be generalised and equated with the patterns resulting from their mother tongues. Therefore, it is advised to conduct this research with more participants in order to get a clearer insight regarding the influence of mother tongue in speakers of English. On the other hand, carrying out this study with native speakers of English would provide an important asset to compare and contrast the pauses from native speaker and non-native speaker perspective.

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APPRECIATIVE CRITICAL REFLECTION IN TRANSFORMATIVE LEARNING PROCESS FOR ENHANCING SELF-ESTEEM OF UNDERGRADUATE PUBLIC HEALTH STUDENTS: A QUALITATIVE STUDY

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ABSTRACT

The undergraduate public health students must work with other professionals, so the high secure self-esteem is important. The main aim is to develop a high secure self-esteem. One effective way to enhance high secure self-esteem is transformative learning process. The purpose of this study was to synthesis a transformative learning process for enhancing self-esteem of undergraduate public health students. The design was a qualitative research that triangulated by systemic reviewing, observing and interviewing in rural field training. The finding was a cycle of disoriented dilemma, proposed premise, inspiration and practice with appreciative inquiry and critical reflection in each step (D-P-I-P with AC).

INTRODUCTION

Children and juveniles are considerable of cooperated human resources development. For development, the youths should be involved at all levels of society. The social, economic and technological changing effected in the lifestyles of children and youths, especially the lack of proper socialization process and the warmth of families. The more context transformations, the more complexities of social problems. Some studies found that the current juveniles have low self-efficacy and self-respect due to intervened society by self-image focusing. Empirical studies have shown that juveniles were more likely to do things that showed their self-images and disregard for the rights of others to inflate self-esteem or self-esteem blown to narcissistic proportions (Ang, 2005). The equated feeling good, arrogance, narcissism and traits could lead to violence are misconceptions of truly authentic self-esteem. He describes authentic or healthy self-esteem as a person's overall judgment of himself or herself dealing with self-competence and self-worth based on reality can fluctuate from time to time (Mruk, 2006). The experience of self-efficacy and self-respect, and has six pillars namely, living consciously, self-acceptance, self-responsibility, self-assertiveness, living purposefully and personal integrity (Branden, 2001). It was a dual informed construct based on worthiness (affective dimension), what calls the qualities of lovability, likability, moral self-approval, and body appearance are more value oriented, and competence (behavioral dimension), what the test calls competence, personal power (or influence), self-control, and body functioning are behaviorally based or action-oriented qualities, and the interaction thereof in a meaning-making process. The main purpose would be to develop a secure high self-esteem which involves a two-factor meaning making matrix of high worthiness and high competence. However, it is crucial to remember that people with high self-defensiveness usually indicate that there is likely to be a problem with self-esteem, the individual is anxious about his or her self-esteem, often in ways that are difficult to detect upon first glance, as in the case of the successful overachiever. Therefore, it is important to treat people by interpreting self-defensiveness. That is useful in detecting various forms of unstable or fragile self-esteem, such as being too moralistic, rigid, or self-deceptive (O'brien & Epsten, 1988). One effective way to strengthen self-esteem of youths is design and implement transformative learning by explaining the process of formulating more dependable beliefs about experience, assessing their contexts, seeking informed agreement on their meaning and justification, and making real decision on the resulting insights. Transformative learning has not only generated "autonomous thinking", as it would, but also autonomous action stimulated by an emotional sense of empowerment and the experience has improved individual's secure self-esteem as a practitioner. Transformative learning "is the process of effecting change in a frame of reference". Frames of reference are defined as the structures of assumptions and expectations through which we understand our experiences (Mezirow, 1997). In each curriculum, Mahidol university, Faculty of Public Health has always participatory learning by reflection in all classes and stretch the importance of developing public health students to be personnel for the public health service for able to work in a multidisciplinary interactive team environment. To this end, for over 5 decades, the faculty has introduced a field training program in rural health development to be directed students from all disciplines. The objective of the program was and continues to be to develop rural health development skills using a multidisciplinary approach to the problem solving process to assess the rural health problems and subsequently develop solutions. The field training component was based on a concept of using a role community as a center for learning of the public health students. Upon completion of the field training, the students will have integrated and applied the theories first learn in the classroom, they will also see the

importance of working as a part of a team of public health workers and community people. With knowledge and experience gain in the classroom and through the field training experience, the faculty of public health feels that our students are prepared to become partners and leaders in the communities in which they will work (Silawan, 2015). The under graduated public health students' unstable confidence will lead to the problems of integrated work in the future. Thus, the transformative learning process in real situation of field training can improve the public health students' high secure self-esteems for competences and worthiness of health professionals.

OBJECTIVE

To synthesize a transformative learning process for enhancing high secure self-esteems of undergraduate public health students

THE STUDY

The design of this research was a qualitative study triangulated by systematic reviewing, observing and interviewing of undergraduate public health students in rural comprehensive field training. Thus, there were 2 steps in our research. Step 1) the systematic reviewing considered research from over the world. We only included literature published in well-known journal and research. We chose to be as broad as possible in our sweep of the literature, and included research using a variety of methodological designs, including qualitative work, case studies, as well as surveyed-based research. Research reported in book chapters, scholarly books and organization reports was excluded, and remains an area that future research may wish to examine. Four databases were searched: PubMed, Sage, Ebsco and Eric. Strict search terms were used to search these databases. We developed these terms through a series of scoping search searches to assess each term's sensitivity and inclusivity before agree on final set. The target terms were authentic self-esteem, transformative learning, and associated terms. Truncations were used in order to search multiple iterations of particular word stem. Systematic searches involved pairing each word in target term and associated term in the title, abstract, and keyword fields. Step 2) the observing and interviewing of senior undergraduate public health students in comprehensive rural field training in Wang Mouang district, Saraburi province, and Bangphae district, Ratchburi province, Thailand for six weeks. The students stayed in the villages to learn and get experiences from authentic situations for higher respect, self-competence and self-worthiness.

FINDINGS

In total 72 searches were completed, which returned 1,514 pieces of literature. These record were then imported into reference management database for further analysis, duplicate removal and application of screening criteria to exclude items not relevant to the review as showed in Figure 1.

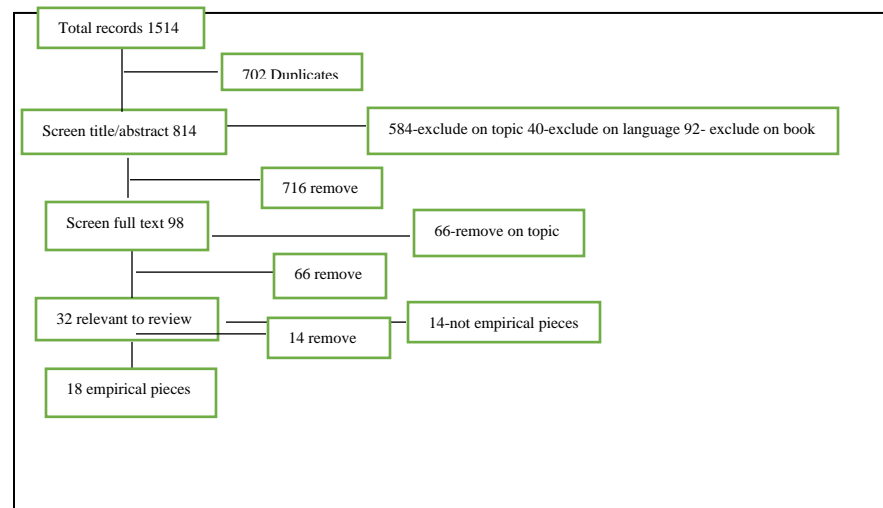
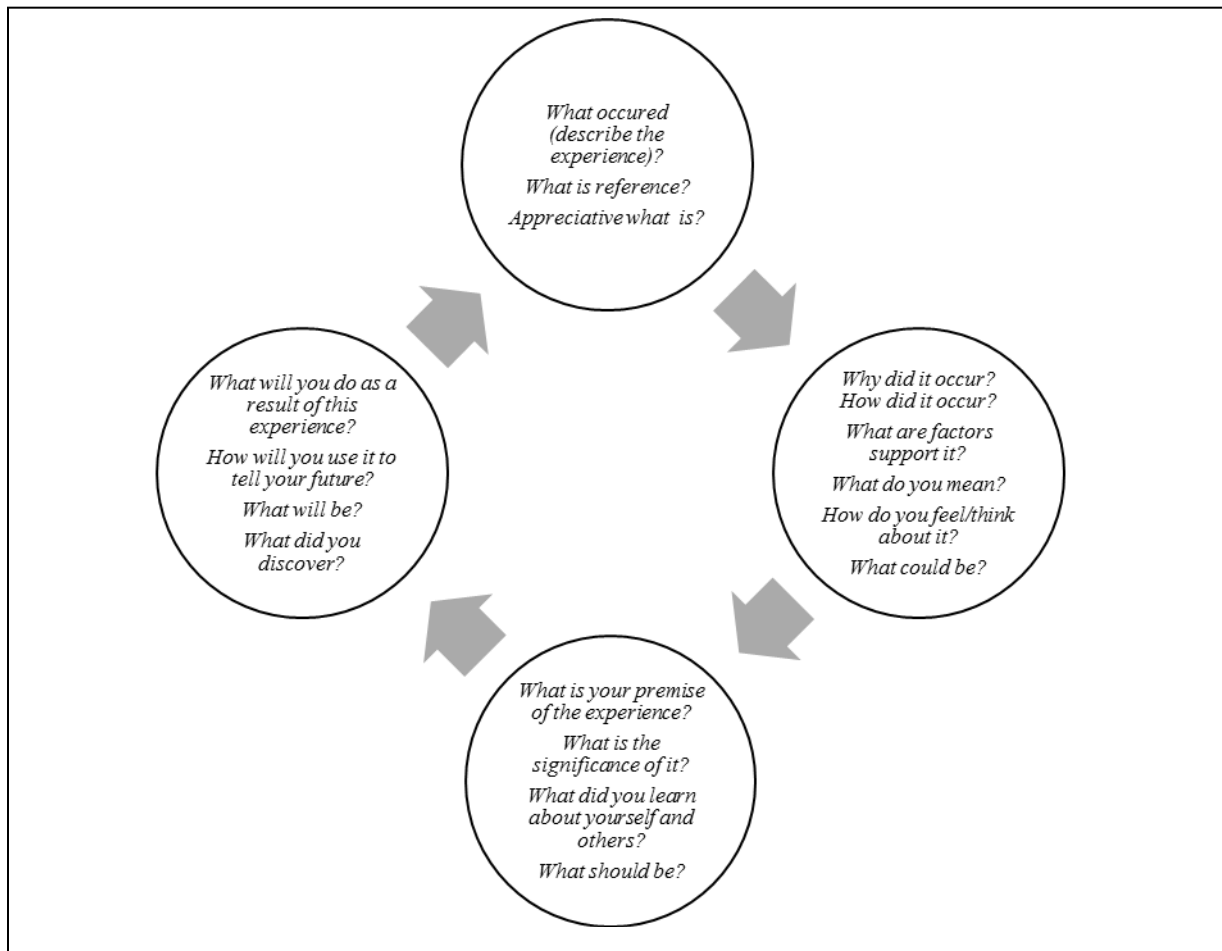


Figure 1. diagram of systemic reviewing of this research

The theory of transformative learning has evolved from three common themes in Mezirow's theory are centrality of experience, critical reflection, and rational discourse, which is based on critical social theory and psychoanalytic theory (Scott, 2004). So, critical reflection is the main component of transformative learning. Critical reflection occurs when we analyze and challenge the validity of our presuppositions and assess the appropriateness of our knowledge, understanding and beliefs given our present contexts. Critical reflection involves three phases: 1) Identifying the assumptions ("those taken-for-granted ideas, commonsense beliefs, and self-evident rules of thumb" that underlie our thoughts and actions; 2) Assessing and scrutinizing the validity of these assumptions in terms of how they relate to our 'real-life' experiences and our present context(s); 3) Transforming these assumptions to become more inclusive and integrative, and using this newly-formed knowledge to more appropriately inform our future actions and practices (Brookfield, 1995). Perspective transformation explains how the meaning the meaning structures that adults have acquired over a lifetime become transformed. These meaning structures are frames of reference that based on the totality of individuals 'cultural and contextual experienced and that influence how they behave and interpret events. An individual's meaning structure will influence how she chooses to vote or how she react to women who suffer physical abuse. The transformative learning occurs when individual change their frames of reference by critically reflecting on their assumptions and beliefs and consciously making and implementing plans that bring about new ways of defining their worlds. The theory describes a learning process that is primarily" rational, analytical, and cognitive with inherent logic. Thus, transformative learning refers to transforming a problematic frame of reference to make it more dependable in our adult life by generating opinions and interpretations that are more justified. It is a structure of assumptions of new experiences defining our attitudes, establishing our view of world, and guiding our actions (Mezirow, 1991). To lead the process, there was the following seven-stage sequence (1. A disorientating dilemma 2. Self-examination of affect (guilt, shame, etc.) 3. Critical assessment of assumptions 4. Exploration of new roles 5. Planning a course of action 6. Acquiring knowledge and skills for implementation 7. Trying out new roles). Use this sequence directly, or with its framework in mind, to help create the best outcomes for a period of fundamental re-visioning (Mezirow, 1997).

Critical reflective dialogue is the process by which the individual tests the validity of or justification for these assumptions and becomes a negotiation with others to develop a consensual validation of the assumptions that make up the frame of reference (Mezirow, 1990). Critical reflective action is action based on the critical self-reflection of the previously held assumptions and is intended to integrate the resulting new set of assumptions. The perspective transformation explains how the meaning structures that adults have acquired over a lifetime become transformed. These meaning structures are frames of reference that based on the totality of individual's cultural and contextual experienced and that influence how they behave and interpret events (Cranton, 2006). Transformative learning occurs when individual change their frames of reference by critically reflecting on their assumptions and beliefs and consciously making and implementing plans that bring about new ways of defining their worlds. The theory describes a learning process that is primarily " rational, analytical, and cognitive with inherent logic" . Transformation is a " fundamental change in one's personality involving (together) the resolution of a personal dilemma and the expansion of consciousness resulting in greater personality integration (Brookfield, 1990). The process of discernment is education. Discernment calls upon such extra rational sources as symbols, images, archetypes to assist in creating a personal vision as meaning of what it means to be human. The process of discernment is composed of the three activities of receptivity, recognition, and grieving. First, an individual must be receptive or open to receiving " alternative expressions of meaning," and then recognize that the message is authentic. Grieving, considered to be the most critical phase of discernment process, takes place when an individual realizes that old patterns or ways of perceiving are no longer relevant, moves to adopt or establish new ways, and finally, integrates old and new patterns (Boyd & Myers, 1988). The relational or connected transformative learning suggest that individuals learn through relationships with others. Autonomy therefore seems to take a back seat. However, if we look at this carefully, we see that relational learning is a process by which individuals suspend judgment and struggle to understand other's frame of reference. The goal is to see holistically, not analytically. But we are still moving to the same place-individuals moving toward a better understanding of the self by engaging with others. It is interesting to note that one of the assumptions of humanism is that reality is defined by each person-a constructivist assumption (Taylor, 2009). From point of view to develop critical reflective dialogue, the suitable process is appreciative inquiry.

Appreciative inquiry is the cooperative search for the best in people, their organizations, and the world around them. It involves systematic discovery of what gives a system “life” when it is most effective and capable in economic, ecological, and human terms that strengthen a system’s capacity to heighten positive potential. In appreciative inquiry, intervention gives way to imagination and innovation; instead of negative, criticism, and spiraling diagnosis there is discovery, dream, and design. Link this “positive change core” directly to any change agenda, and changes never thought possible are suddenly and democratically mobilized. The most important insight we have learned with appreciative inquiry to date is that human systems grow towards what they persistently ask questions about. The appreciative inquiry cycle can be as rapid and informal as a conversation with a friend or colleague, or as formal as an organization-wide process involving every stakeholder. While there is no formula for appreciative inquiry, most organization-change efforts flow through the 4-D Cycle consists of 1) discovery or appreciating 2) dream or envisioning impact 3) design or co-constructing 4) destiny or sustaining. Each appreciative inquiry process is homegrown—designed to meet the unique challenges of the organization and industry involved (Cooperrider & Whitney, 2001). The cycle begins with discovery (appreciating what is), then goes on to dream (imagining what could be), which is followed by design (determining what should be), and then destiny (creating what will be). We



examined the cases to look for the extent to which they followed this sequence of activities. The process of inquiry that perhaps most defines appreciative inquiry practice is the collection of “stories” from system members and other stakeholders about their best experiences. (Cooperrider & Srivastva, 1987; Cooperrider & Whitney, 2001; Cooperrider & Whitney, 2005). So, this study proposes appreciative critical reflection which blends appreciative inquiry and critical reflection together.

Figure 2. appreciative critical reflection process

Appreciative critical reflection process may be conceptualized from Brookfield (1990), Mezirow (1991), Cranton (2006), Cooperrider & Whitney (2001) and through the descriptions and questions contained the followings: descriptive, analytic and critical with the questions of what?, what if?, now what?, why? and how? to describe situation and general reaction with little attempt to uncover personal assumptions or beliefs about situation, to integrate meaningful reaction to situation based on assumptions or beliefs, feelings, and alternative perspectives or points of view, to uncover the root causes of knowledge, assumptions and beliefs, to discover new meaning and to suggest how this experience can impact and inform the future, to analyze the metaphor, to compare premise. The 4-D cycle begins with discovery (appreciating what is), then goes on to dream (imagining what could be), which is followed by design (determining what should be), and then destiny (creating what will be). We examined the cases to look for the extent to which they followed this sequence of activities. The process of inquiry that perhaps most defines appreciative inquiry practice is the collection of “stories” from system members and other stakeholders about their best experiences. The evolution of the 4-D model the final phase was called deliver. This was changed to destiny as the developers of AI experienced much more transformational change the less they tried to guide it. “What we discovered, quite honestly, was that momentum for change and long-term sustainability increase the more we abandoned “delivery” ideas of action planning, monitoring progress, and building implementation strategies”. Appreciative critical reflection process is showed as figure 2.

The transformation takes place as a result of structural changes in the psyches of the individual and in the social structures of society. The personal and social transformations co-emerge and in their dyadic relationship transform simultaneously (Elias, 1997). The transformation involves a change in the interrelationship among the higher mental functions, particularly in form of perceptions that include a conceptual mind, as well as sensations that create a world through ideas, concepts, images, and more bodily ancient archetypes constellated as emotions. The social and the personal transformation (change in structures) co-emerge at the same time (Dirkx, Mezirow & Cranton, 2006). The transformation takes place on at least two levels, for the individual participants and for the social unit it takes place in, whether that relationship is with whom or things. One cannot transform without the other (Mezirow, 1997). This means that transformation in transformative learning occur in symbolic interaction with other. Critical reflection, a distinguishing characteristic of adult learning, refers to questioning the integrity of deeply held assumptions and beliefs based on prior experience. It is often prompted in multiple interpretations (King & Kathleen, 2005). A defining condition of being human is that we have to understand the meaning of our experience. For some, any uncritically assimilated explanation by authority figure will suffice. But in contemporary societies we must learn to make own interpretations rather than act on the purposes, judgments beliefs, and feelings of others (Swanson, 2010). Critical reflection as a tool in transformative learning develops autonomous thinking (Branden, 2001). So, appreciative critical reflection in transformative learning process is suitable for enhancing high secure self-esteem (respective, competence and self-worth) of undergraduate public health students.

Step 2, the observing in class and field training of public health students, faculty of public health, Mahidol university during 2015-2016 A.D. as showed in figure 3.



Figure 3. comprehensive field training of Public Health faculty, Mahidol university during 2015-2016 A.D.

For case studies, appreciative critical reflection in transformative learning process for enhancing high secure self-esteem, which involves respective, self-worthiness and competency as followed.

First case was a thalassemia woman, senior and 21 years old. The workload in comprehensive and care about grade made her work hard. She got sick due to unrest and the heat. She was admitted in the district hospital. The doctor wanted to refer to provincial hospital, because of her symptom need to see a specialist. She worried about the report got a bad rating. She did not trust the delegates with high self-confidence. Thus, she refused to admit at provincial hospital and said *"It was not so serious. I have experienced of these symptoms. It was better to admit at district hospital than provincial hospital. I can talk to my group to finish the report. At provincial hospital, it is difficult to visit my friends"*. The dialog was conducted. At last, the student agreed to admit at the provincial hospital for 2 days. After that the student came to the field training and said *"Thank you very much, teacher. I think sometimes I have too much self-confidence and fear for bad rating, not relax leads to have a bad health. It waist the time more than trust the colleague to do the report instead of me"*.

Second case was a woman, senior and 21 years old. In the comprehensive field training, there were many tasks to do with team. She was assigned as a chief but she was reluctant and stress on her role. When the teachers came to audit her team, she thought that a bad rating occurred due to her leading role. She determined to go out of the field training. When the teacher knew about that, the dialog was conducted. She said *"I can't do anything. I am not able to be a leader. I want to drop this semester. I shall come back to study next year."* The teacher reflected *"Calm down, you just rest and don't think about anything. You don't blame yourself. Nobody blame you. Your friends in your team accept that it is difficult work in comprehensive field training but they want to go along with you to pass this training. If you drop this semester, you will not catch up and graduate with your friends. When you walk*



through the storm, hold your head up high. At the end of the storm is the golden sky". So, she designed to continue the comprehensive field training and graduated. This is the quote that she posted on her face book *"I've been through a crisis in my life many times. When I am in discourage stressful time, I had run out of the dark to find a solution to the problem in the wrong way. But, thanks to a good friend in my life gave way at any time to cope the problem. I gradually learn to live a happy, sober and conscious"*.

On consecutive year, the tool for appreciative critical reflection was an opened mind journal. The consecutive public students wrote their feelings, thoughts and references. How/why did it occurred. What should be done in the future? For instances, during the mourning time when the king passed away, the students wrote their feelings:

"What's happen? Why does it occur? This event makes me burn out. Everything is empty and desperate, but life goes on. No one is above the nature. I will pass it although it is difficult." *"I see the teacher looks at smart phone and the tear comes to the eyes. Oh no! I regret, all of Thai people regret. My whole body is creepy and numb. We will pass this time together."*

Figure 4. students' journals

As mentioned above, we analyzed that the transformative learning process for enhancing authentic self-esteem of under graduate public health students comprised of a cycle of disoriented dilemma, proposed premise, inspiration, practice and appreciative critical reflection in each step (D-P-I-P with AC).as showed in figure 5.

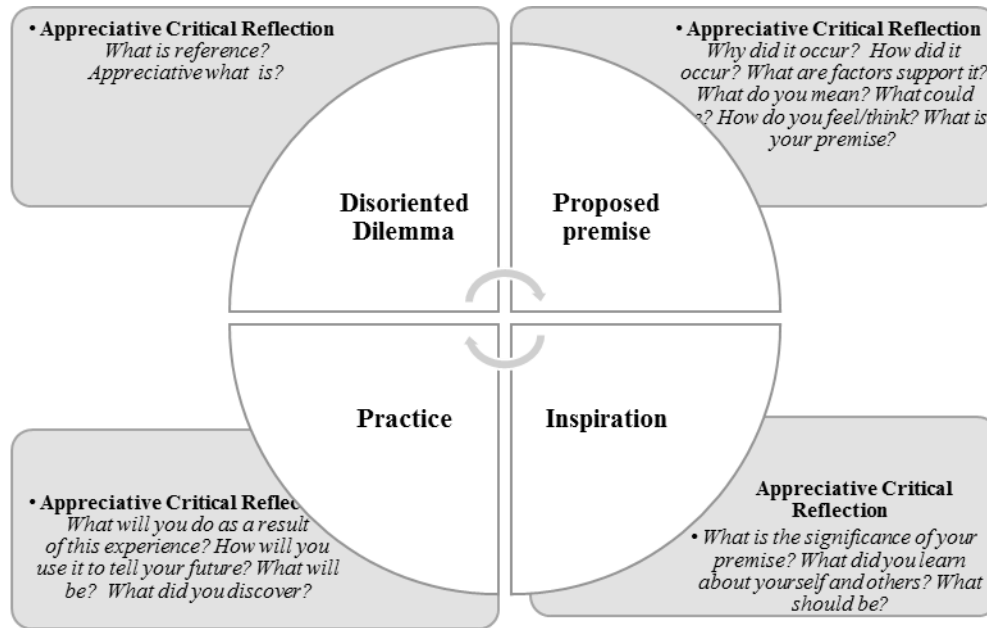


Figure 5. appreciative critical reflection in transformative learning process of undergraduate public health students for enhancing high secure self-esteem

CONCLUSION

A transformative learning process for enhancing high secure self-esteem of undergraduate public health students from this study consists of disoriented dilemma, proposed premise, inspiration, practice and appreciative critical reflection in each step (D-P-I-P with AC). The appreciative critical reflection is blended from appreciative inquiry and critical reflection (critical reflective dialogue in positive way on critical situation) such as Appreciative what is?, Imagining what could be?, Why did it occur?, How did it occur?, What is the premise?, Determining what should be?, What is the significance of your premise?, What did you learn about yourself and others?, Creating what will be?, What will you do as a result of this experience?, How will you use it to tell your future?. The more critical reflection relevant to daily life actions, the more effectiveness. The high secure self-esteem involves the factors of respective, self-worthiness and competency. The transformative learning process changes the attitude of undergraduate public health students to be more respective, self-worthiness and competency. Thus, transformative learning process is effective for high self-esteem to prepare undergraduate public health students before going to the real world. However, the transformative learning process of our public health students is limited to context of Thai culture and society. In conclusion, enhancing self-esteem of public health students is important for social integration and participation after graduation. The process of transformative learning should emphasize on appreciative critical reflection and daily life acting on revision.

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ARE WE READY FOR E-BOOKS? OMANI UNIVERSITY STUDENTS' USES AND PERCEPTIONS OF E-BOOKS

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As the presence of e-books on university campuses proliferate, it is crucial that we understand their role in students' lives. This research reports on a survey distributed to Sultan Qaboos University students and shares their perceptions of the use of e-books. The study used the quantitative approach to investigate the issues related to the uses and perceptions of e-books by asking students to weigh in on this important issue. The findings indicate that students at SQU have multiple and diverse experiences with e-books, but do not necessarily prefer the electronic format over print for their academic experiences. Despite e-books growing presence, students may need more preparation and encouragement to change their use and preferences to e-books so exclusively.

ARTIFICIAL INTELLIGENCE AND ROBOTS IN EDUCATION

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ABSTRACT

The question of the role of robotics in education has been widely debated in both teaching and technology fields, with some schools already utilizing robots in the classroom for individual requirements. Furthermore, the issue recently caught fire when Bill Gates, billionaire, and entrepreneur, showed a determination to invest in specialized education programs based on machine learning. Amongst the hype, however, a real significance of such endeavor nor a security of deep learning's systematic nature seldom rises. This paper addresses the issue of the future role of artificial intelligence with a particular focus on whether artificial intelligence will change the traditional classroom scene. Also, this article will be looking at interactive artificial intelligence to show benefits and limitations of these systems, with certainty the field of education is one of the many spheres of human life that will face the biggest changes via the machine learning technology.

INTRODUCTION

On April 2017, Google launched a prestigious tool called AutoDraw. The name is pretty much self-explanatory. Using a broad database of drawn images, AutoDraw scans the scribble on screen and provides a list of images that the user supposedly meant to illustrate. Of course, artificial intelligence and deep learning technology are not new; in fact, it has never been new at least in the 21st century since it has been decades since artificial neural networks and their prototypes were introduced to the world- in the era of the digital revolution we reside in. A short search on the internet informs you that much of technologies and gadgets that had once been fantasy are becoming a reality. Self-driving cars, navigating drones, and smart phone gadgets that lead a conversation are no longer fiction. However, Google's AutoDraw brings us to a somewhat unsettling chapter of technological progression: that artificial intelligence has now the ability to 'correct' humans. If provided a bigger, more substantial database, computers would have the capacity to suggest to, inform, and guide. In other words, artificial intelligence would now be able to educate human beings.

It is not surprising that deep learning and artificial intelligence, among other technologies, would replace people in a majority of jobs. After all, the fundamentals of deep learning resemble that of a functioning brain: data and algorithms layered like neural tissues to learn, suffice, and think independently. The similarity between deep learning and the human brain is what allows Siri to manage our calendars and computers to trade our stocks. What's different is that computers are much less prone to mistakes: with the right data, the chances that computers will fail to answer a question correctly is very slim. Over the past decade of rapid progression, scientists and the public alike had to admit that computers are now more intelligent than humans: they make fewer mistakes, are more informative, and even learn considerably faster than any human being. Therefore, who could assert that artificial intelligence is not qualified to take the mantle of a teacher?

While the utility of artificial intelligence in some fields are under harsh skepticism, AI is already animatedly partaking in the sphere of education. In 2014, Google already launched Classroom, a program in which computers help teachers post class announcements, assign work, and grade assignments. ETS has successfully utilized artificial intelligence as a replacement of SAT and GRE essay graders. While these achievements are astonishing as they are, the more recent developments that strive to graft education and artificial intelligence aim much higher than mere grading systems or teacher's assistants. In 2016, Microsoft's co-founder and chairman Bill Gates has announced that the Bill and Melinda Gates Foundation has invested a sum of \$240 million into what is called "personalized learning." Unlike an orthodox -but astonishingly inefficient- model of a classroom, a personalized learning

programmed powered by artificial intelligence would have the ability to cater to each pupil's individual needs and circumstances. The AI pioneer Marvin Minsky's description of the technology vividly illustrates how wholly a computer program would partake in educating a human being: "...we could try to build a personalized teaching machine that would adapt itself to someone's particular circumstances, difficulties, and needs. The system would carry out a conversation with you, to help you understand a problem or achieve some goal...It would assist you by telling you what to read, stepping you through solutions, and teaching you about the subject in other ways it found to be effective for you" (Lane, C., Grover, S., & Roschelle, J. 2014). Bill Gates explains that personalized learning is based on the core fact that people progress at a different rate. If a substantial database of data and algorithms were to be constructed, artificial intelligence would indeed garner the ability to be on the same page as each student: a feat that, human-led education systems have very seldom accomplished.

The function of an AI program as a teacher is not omniscient, of course. Primarily, deep learning only allows the deduction of answers, and mostly is incapable of specifically illustrating the process of the deduction, nor the correlation between questions and answers: just put, AI critically lacks in insightful cognition. The same cause makes it seem impossible for an AI too, despite its intelligence, show wisdom in fields such as philosophy and art. The economic gap between pupils that hinder some from getting access to learned computers is another factor. Bill Gates himself had admitted that the progress of personalized learning is "in early stages" and the satisfactory outcome will emerge "in five years, ten years from now, will it be highly penetrated? That's not clear" (Newton, C. 2016). However, the rewards from overcoming the obstacles are colossal. While the development of AI in education will not make humans irrelevant, a strong artificial intelligence is anticipated to eradicate a form of education in which individual needs are overridden by a totalitarian progress of learning. Perhaps the prestige personalized learning by artificial intelligence is receiving itself is in itself a backlash against the orthodox "assembly line" form of education that has dominated classrooms for far too long.

TECHNOLOGY: DEEP LEARNING MODEL

Deep learning, or stacked neural networks, is a substantial part of artificial intelligence, is the technology of creating a computational human brain. To achieve this, multiple algorithms are intertwined and designed into neural combinations, with a prime goal of pattern conception, as seen in Figure 1. The network attempts to simulate the construction of a human neural network found in the human brain. A well-structured neural network is capable of 'clustering and classifying' data. Furthermore, through enough data circulation, or 'training,' the neural network may develop abstract concepts that allow it to adapt to a wide variety of circumstances.

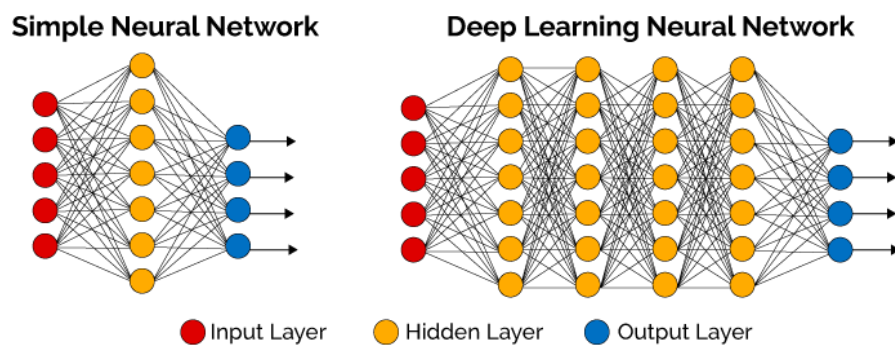


Figure 1.

Retrieved from: <https://hackernoon.com/log-analytics-with-deep-learning-and-machine-learning-20a1891ff70e>

As mentioned, deep learning is another term for 'stacked neural networks,' or systems that consist of several layers. The layers are formed from nodes, a computation tool that does what the neuron does in the human brain: recognize and transmit stimuli. Furthermore, a node is responsible for weighing the stimuli's value, assigning significance to the input data.

In a deep learning model, multiple layers – including the input, the hidden, and the output layers – formed with nodes coexist and work together to achieve the convoluted process of pattern recognition. In a network, each layer trains on different features based on the function. This setting is called a feature hierarchy, or a hierarchy of increasing intricacy and abstraction. A more complete the hierarchy is, the ‘deeper’ the neural network may understand data. After it is programmed, a neural network undergoes multiple training and tests, in which the layers process various data and develop not only intelligence but also intuition and comprehensive classification of information. Therefore, a substantial database and training may shape a neural network that indeed parallels the human brain in intellect.

IMPLICATIONS FOR EDUCATION

The core scientific goal of Artificial Intelligence in education is to “make computationally precise and explicit forms of educational, psychological and social knowledge which are often left implicit.” (Self, J. 1999) The use of deep learning models combined with adaptive learning environments will help educators and learners better understand the implicit nature of learning. For example, artificial intelligence can assist educators and learners illustrate the incremental steps that takes place in the learning of any subject or the misconceptions that may hinder learning. (Vanlehn, et.al. 2005)

An example of a system illustrating the blending of AI and education is the AIEd system in Figure 2. (Luckin, R.et.al. 2016)

ADAPTIVE LEARNING ENVIRONMENTS

A digital learning environment that adapts teaching and learning approaches and materials to the capabilities and needs of individual learners. (Luckin, R.et.al. 2016)

MODELS

These represent something from the real world in a computer system or process, to assist calculations and predictions.

(Luckin, R.et.al. 2016)

According to its creators, the AIEd system that is designed to provide appropriate individualized feedback to a student. This is achieved by starting with three models, the pedagogical model which represents effective approaches to teaching, the domain model which represents the subject being learned, and the learner model which represents the student. Data and information from these models are processed by algorithms and fed into an interface. The interface may be computer screen, robot, or any instrument that interacts with the student. The content is adaptive which means that the content is individually tailored to the learner. The data and results from the adaptive content is first captured and then inputted into a deep learning model (Data Analysis in figure 2). Given enough data, the Deep learning model will be able to determine what adjustments should be made in the learning process. (Luckin, R.et.al. 2016)

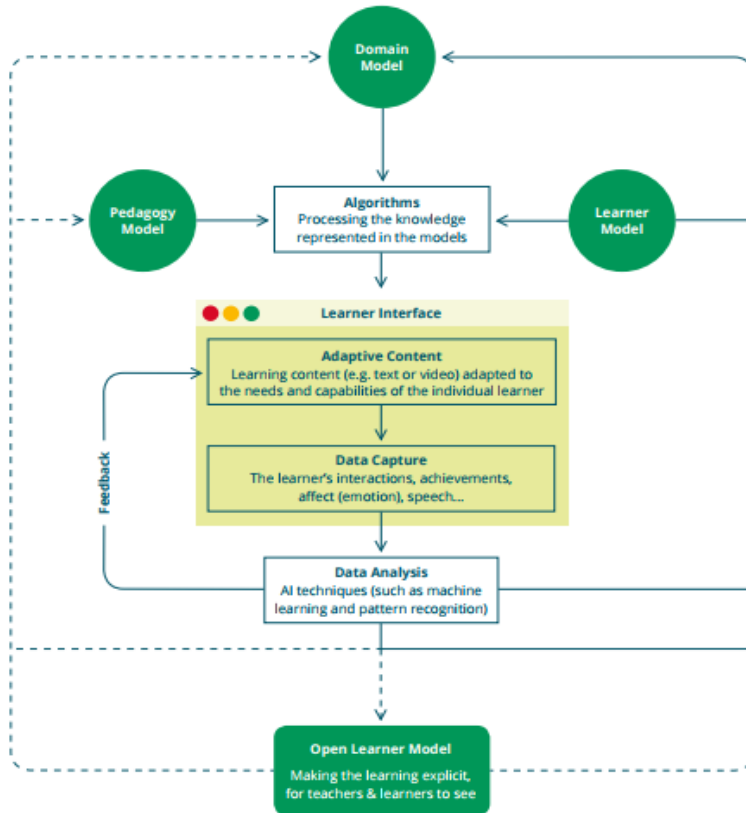


Figure 2.

Retrieved from: <https://www.pearson.com/content/dam/corporate/global/pearson-dot-com/files/innovation/Intelligence-Unleashed-Publication.pdf>

LEARNER INTERFACE

Whether the interaction between the learner be in the form of a computer screen, mobile phone or a robot, the interface between the learner and the adaptive content must be focused on improving the learning process and not focused on just the technical aspects. Concentrating just on these technical aspects does not automatically promote better and faster learning. Having the incorrect type of interface could actually be detrimental to the learning process. (Koper, R. 2014) Therefore, the design of any interface, for example that of a robot, would be a factor in how effective the overall process should be. In addition to the design, the process by which humans learn as shown in Figure 3 below is another factor to be considered in the system. (Koper, R. 2014)

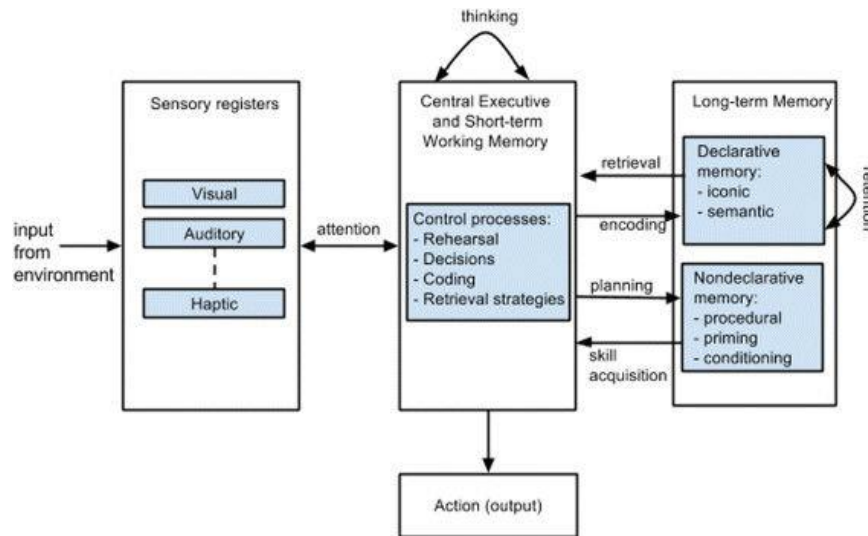


Figure 3.

The modal model of the architecture of human information processing (adapted from Ashcraft and Radvansk [2010] p.38)

ADVANTAGES AND DISADVANTAGES

It takes several years to train an effective human teacher or tutor. In addition, it costs financial resources to train such instructors. However, once a AI system is programed with significant efficiency in teaching a subject, that program can be digitally reproduced within a matter of seconds without any more cost than the memory space on a hard drive. The expertise and skill will be ingrained in the AI system and can be updated with new data and information almost instantly and simultaneously. The AI system will not be subject to the vicissitudes of human existence nor the inevitable individual emotional states that affect teaching. The AI system will, furthermore, be available anytime and at anyplace.

The AI industry and AI programming are still in its infancy, and still its cottage industry stage of development. There are individuals working on programs and systems and conduct experiments with prototypes. However, this state is usually the furthest point of development as large commercial interests have not taken up the mantel and invested into the necessary steps for development of a truly efficient application. Therefore, there is currently no central or overarching control mechanism to coordinate or collaborate different stakeholders and participants. (Luckin, R.et.al. 2016)

ROLE OF TEACHERS

As the role of AI systems increases in education, teachers will need to develop new skills

According to the creators of the AIEd system teachers will specifically need:

1. An ability to make value judgments on AI products which would enable them to evaluate AI products based on their knowledge and understanding of AI technology.
2. To develop research skills regarding AI and be able to interpret data and use that data to help learners obtain information more efficiently.
3. An ability to utilize AI assistants and incorporate them into to work with human assistants.
4. An ability to manage AI resources effectively. (Luckin, R.et.al. 2016)

CONCLUSION

Based on the research that the development of the deep learning technology and artificial intelligence in the past decade has been astonishing, scholars assert that a complete satisfactory amalgam of artificial intelligence and the field of education will take place in a matter of years. The adaptation of artificial intelligence in the school system holds great prestige, for it would grant the possibility of an education system in which nobody is left behind. Scientists hope that the natural flexibility of the deep learning technology that allows omnipresence will be able to cater to students worldwide, with the substantial supervision of large data. On the other hand, further development in the future will have to take place under sturdy values and morals, for the power that education holds in the shaping of young minds are incredibly substantial.

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Figure 1. Retrieved from:

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ARTIRILMIŞ GERÇEKLİK TEKNOLOJİLERİ İLE ZENGİNLEŞTİRİLMİŞ ÖĞRETİM ORTAMLARINA YÖNELİK ÖĞRENEN GÖRÜŞLERİ

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Artırılmış Gerçeklik (AG) teknolojisi, gerçek ve sanal nesnelerin eş zamanlı olarak etkileşim içerisinde olmasını sağlayan bir teknolojidir. Mobil teknolojilerde geliştirilen uygulamaların da katkısı ile AG teknolojisinin ileriye dönük eğitimde kullanımının artacağı öngörülmektedir. Bu çalışma ile öğrenenlerin geliştirdikleri eğitsel AG uygulama süreçlerine ve bunların öğrenme durumlarına etkisine yönelik görüşleri ortaya çıkarılması amaçlanmıştır. Araştırma, mobil teknoloji tabanlı uygulama desteği olan Aurasma platformu kullanılarak yürütülmüştür. Çalışma grubunu lisansüstü seviyede Araştırma Yöntemleri dersini alan 8 öğrenci oluşturmaktadır. 14 haftalık ders sürecinin ilk 7 haftasında çalışma grubundan belirlenen konularla ilgili çokluortam öğeleri ile desteklenmiş metinsel materyaller hazırlamaları istenmiştir. Dersin son 7 haftasında ise benzer konularla ilgili eğitsel AG hazırlanmıştır. Uygulama sonunda 8 öğrenci ile yarı yapılandırılmış görüşme gerçekleştirilmiştir. Transkript edilen veriler içerik analizine tabi tutularak kod ve temalar belirlenmiştir. Öğrenenlerin büyük bir bölümü AG ortamlarını tercih edeceklerini belirtirken, AG ile zenginleştirilmiş öğrenme ortamlarının daha etkili ve kalıcı öğrenmeler gerçekleşmesine yardımcı olduğunu belirtmişlerdir. Bu çalışmada lisansüstü eğitiminde eğitsel AG uygulamalarının öğrenme ortamlarını zenginleştiren ve bireylerin öğrenmeleri üzerinde önemli etkilerinin olduğu görülmüştür.

AS AN EDUCATOR FROM THE UNITED STATES TO THE BOSPHERUS, MARY MILLS PATRICK (1850-1940) AND HER BOOKLET: HIGHER EDUCATION FOR WOMEN IN THE UNITED STATES

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Education is described as a way to give necessary knowledge, skills and behaviors especially to children and young people of the community to take their place in life and a way to help them, directly or indirectly, acquire skills and understanding within or outside of school to develop their personality. Education encompassing all aspects of individual's life starts in family and then individuals are shaped in the hands of educators in schools.

Some periods of life are of great importance in societies. During these periods, major changes may happen in a short time and innovations may take place. In terms of Turkish education history, after the Reformation (called Tanzimat) new educational institutions, such as School-i Sultani, the Dar al-Fünun, and Dârülmua'llimât (Girls) Schools, were opened and these schools provided Western type training. These educational institutions either provided the training in a Western language or tried to teach a language or languages of the West. Meanwhile, teachers were brought from the West, especially for foreign language classes; among them were those coming to Turkey and working voluntarily in the schools. One of them was Mary Mills Patrick (1850-1940), extending the life story of the Bosphorus from the United States.

Originally from Ireland, the daughter of a family that had immigrated to the United States, Patrick did her higher education in the United States. Getting her doctoral studies education on ancient Greek philosophy in Bern, Switzerland, she learned French, German, Armenian, Greek and Turkish languages. After completing her doctoral training, she came to Turkey and started working as a teacher in Erzurum in Eastern Turkey. Later, in 1876, at the age of 26, as an idealistic young woman educator, she started teaching philosophy at the College for Girls in Üsküdar, Istanbul. In 1890, Patrick became college headmistress of the College and remained in this post for nearly 34 years. In 1924, after delegating the position, she returned to the United States.

Mary Mills Patrick (1850-1940), who was especially known as the first person to lead the feminist movement in Turkey, made great efforts for the education of girls. Later, Novelist Halide Edip Adıvar (1884-1964), Journalist Leyla Umar (1928-2015), and Safiye Ali (1891-1952) - the first Turkish woman to become a medical doctor - were the first female students who had been graduated from American Academy for Girls (later called Uskudar American Academy) under the supervision of Mary Mills Patrick. She published two books titled "A Bosphorus Adventure, London, 1934 (history of Robert College)," and "Under Five Sultans, 1929 (autobiography)", already translated from English to Turkish. She wrote also a booklet which was originally written in Ottoman Turkish in 1928, entitled "*Amerika'da Kadınlara Mahsus Yüksek Tahsil*" (*Higher Education for Women in the United States*) that has never been studied academically so far.

In this study, we will examine the life of Mary Mills Patrick and her contributions to Turkish educational system and especially the education of female students in Turkey. We will also focus on her role for the active participation of Turkish girls into educational life within the framework of her booklet mentioned above.

Keyword: Mary Mills Patrick, education history, literature.

Amerika'dan Boğaziçine Uzanan Bir Eğitimci Mary Mills Patrick'in “Amerika'da Kadınlara Mahsus Yüksek Tahsil” Risalesi

Eğitim, sözlüklerde özellikle çocukların ve gençlerin toplum yaşayışında yerlerini almaları için gerekli bilgi, beceri ve anlayışları elde etmelerine, kişiliklerini geliştirmelerine okul içinde veya dışında, doğrudan veya dolaylı yardım etme şeklinde tanımlanmaktadır. Birey hayatının her yönünü kuşatan eğitim, önce ailede başlar; daha sonra okullarda eğitimcilerin ellerinde şekillenir.

Toplumların hayatlarında bazı dönemlerin büyük önemi vardır. Bu dönemlerde kısa zamanda büyük değişimler, yenilikler gerçekleşir. Türk eğitim tarihi açısından Tanzimat'tan sonra Mekteb-i Sultani, Dâru'l-Fünun, Dârümuallimât, (Kız) okulları gibi yeni kurumlar açılmış, Batılı eğitim verilmeye başlanmıştır. Bu eğitim kurumlarında ya Batı diliyle eğitim yapılmaya başlanmış ya da bir Batı dili öğretilmeye çalışılmıştır. Bu arada özellikle yabancı dil dersleri için Batı'dan öğretmenler getirtilmiştir. Bunlar arasında gönüllü olarak Türkiye'ye gelen, okullarda eğitimci olarak görev yapan isimler de olmuştur. Bunlardan birisi de Amerika'dan Boğaziçi'ne uzanan hayat hikayesiyle Mary Mills Patrick (1850-1940)'tir.

Aslen İrlanda'dan Amerika'ya göç etmiş bir ailenin kızı olan Patrick yüksek öğrenimini Amerika'da yapmıştır. Eski Yunan Felsefesi üzerine İsviçre'nin Bern şehrinde doktora öğrenimi gören Patrick, Fransızca, Almanca, Ermenice, Yunanca ve Türkçe gibi dilleri de öğrenmiştir.

Doktora eğitiminden sonra Türkiye'ye gelerek Erzurum'da öğretmen olarak göreve başlar. Daha sonra 1876 yılında henüz 26 yaşında genç ve idealist bir kadın eğitimci olarak Üsküdar'daki İstanbul Kız Koleji'nde felsefe hocalığına başlar. Kolejde 1890'da müdürelğe başlayan Patrick, 1924 yılına kadar bu görevde kalır ve aynı yıl görevini devrederek Amerika'ya döner.

Türkiye'de feminizm hareketini başlatan ilk isim olarak da anılan Patrick'in Türkiye'de özellikle kızların eğitimi noktasında büyük gayretleri olmuştur. Daha sonra modern Türkiye'nin önemli isimleri arasında yer alacak olan, edebiyatçı yazar Halide Edip Adıvar, gazeteci yazar Nilgün Cerrahoğlu, gazeteci Leyla Umar, ilk kadın doktor Safiye Ali gibi isimler onun Üsküdar Amerikan Kız Koleji'nden mezun ettiği ilk öğrenciler arasındadır. Patrick'in Türkçeye *İstanbul Kız Koleji/Bir Boğaziçi Macerası (1871-1924)* ve *Son Sultanların İstanbulu'nda Siyaset Modernleşme Yabancı Okullar* adlı eserleri vardır. Onun 1928 yılında Osmanlıca kaleme aldığı *Amerika'da Kadınlara Mahsus Yüksek Tahsil* adlı risalesi bugüne kadar üzerinde hiç çalışılmamış bir metindir.

Bu makalede Mary Mills Patrick'in kısa hayat hikayesiyle beraber Türk eğitim sistemine ve onun özellikle kızların eğitimine yaptığı önemli katkılara işaret edilecek. Ayrıca yukarıda adı geçen eseri çerçevesinde Türk kızlarının eğitim hayatına dahil olmalarında oynadığı rol üzerinde durulacaktır.

Anahtar kelimeler: Mary Mills Patrick, education history, literature.

GİRİŞ

Osmanlı Türk toplumunun modernleşme çabaları 1839 yılında Tanzimat'la resmîyet kazanmıştır. Bu tarihten sonra devlete yön verenler, yüzünü tamamen Batı'ya çevirmiş (Batı kavramı genel anlamda Amerika'yı da içine alacak şekilde) siyasî ve sosyal kurumları da ona göre şekillendirmeye başlamışlardır. Bu alanlardan birisi de eğitimidir. Bu anlamda on dokuzuncu yüzyılın hemen başlarından itibaren, başta askerî saha olmak üzere, önemli adımlar atılmış, bu gayretler Tanzimat'tan sonra hız kazanmış Mekteb-i Sultani, Darümuallimat gibi kurumların yanında, Sanayi-i Nefise gibi kızlara yönelik yeni kurumlar açılmış, Batılı eğitim verilmeye başlanmıştır. Bu eğitim kurumlarında ya Batı diliyle eğitim yapılmaya başlanmış ya da bir Batı dili öğretilmeye çalışılmıştır. (Antel 1940: 441-462 ; Akyüz, 1994: 428) Bu arada özellikle yabancı dil dersleri için varlıklı aileler Batı'dan ya mürebbiyeler getirtmiş ya da yine oradan gelen özel öğretmenlerle çocuklarına yabancı dil öğretme yoluna gitmişlerdir. (Koçak, 2016: 59-71) Bu teşebbüslerin dışında ve ötesinde Türk eğitim sisteminde yeni bir çığır açacak faaliyetlerden birisi ise, 1868 yılında Sultan Abdülaziz'in Paris seyahatinden sonra III. Napolyon'un talebiyle İstanbul'da 1869 yılında Fransızca eğitim vermek üzere açılan Galatasaray Lisesi'nden hemen sonra ya da o yıllarda Osmanlı devletinin içerisinde farklı illerde açılan Amerikan kolejleridir. Başta İstanbul olmak üzere Beyrut, Tarsus, Amasya, Erzurum, Kayseri, İzmir gibi vilayetlerde açılan bu okullar, Osmanlı modernleşmesi kadar, kızların eğitimi, yabancı dil öğretimi ve en önemlisi çağdaş bir eğitim metoduna geçişte örnek teşkil etmiş, ayrı bir misyon yüklenmiş

okullardır. Bu okullar kadar dikkat çekici bir başka yönde buralarda öğretmen olarak görev yapan insanların hayat hikayeleri ve eğitime yaptıkları katkılardır. Bunlardan birisi de gönüllü olarak Türkiye'ye gelen, Amerika'dan Boğaziçi'ne uzanan hayat hikayesiyle Mary Mills Patrick (1850-1940)'tir.

Eğitime Adanmış Hayaton Hikâyesi

Mary Mills Patrick, İrlanda'dan Amerika'ya göç etmiş bir ailenin kızıdır. Sultan Abdülaziz dönemi sona ermeden beş yıl önce Amerika'dan yola çıkarak önce İngiltere'ye aradan Fransa ve Almanya üzerinden Avusturya'ya intikal eden. Oradan Budapeşte ve vapurla Köstence üzerinden İstanbul'a ulaşan ve burada fazla kalmadan Erzurum gitmek için Karadeniz yolcuğuna çıkan Mills, önce Trabzon'a ulaşır. Hem Budapeşte'den Karadeniz'e gelirken hem de İstanbul'dan Trabzon'a giderken Mills'in seyahat ettiği Avusturya Llyot hattına ait buharlı vapurlardır (Koçak, 2013: 372). Mills'in İstanbul'a geldiği 1871 yıllarında şehrin nüfusu, 1. 1175.000 olarak kaydedilir. (Patrick 2009: 30)

Karadeniz'de üç ya da dört gün seyahatten sonra Trabzon'a varılır. Şehirde Türklerin dışında Rumlarla beraber başka milletlerden insanlar da yaşamaktadır. Ancak ekseriyeti Rum'dur. Erzurum'dan gelen misafirlerin karşıladığı arkadaşları vasıtasıyla o geceyi Trabzon'da geçiren Mills, ertesi gün at sırtında Erzurum'a doğru yola koyulur. Trabzon'dan Erzurum'a yolculuk bir haftasını almıştır yazarın. Geceleri ise hanlarda kalınmıştır. O dönem için altmış bin nüfuslu nüfuslu yoğun ve kalabalık bir şehir olan Erzurum'un etrafı bir hisarla çevrilidir. Erzurum'da Araplar, Türkler, Kürtler, Ruslar, Rumlar da vardır. Yazar Erzurum'la ilgili "okul teşkilatlanmasına ve yabancı dillerin kullanımına dair ilk tecrübemi Erzurum'da yaşadım." der. (Patrick 2009: 37-43)

Mary Mills, Türkiye'ye geldikten bir buçuk yıl sonra, altı ay önce annesinin vefat ettiği haberini alır. O bu haberden sonra babası, erkek kardeşi ve kız kardeşinin yanına dönmeyi düşünse de, yolculuk ve diğer adımlar için uzun yazışmalara ihtiyaç duyulduğu için bunu göze alamaz. Daha doğrusu eğitim sevdası ağır basar.

Yazar bu olaydan sonra halkla daha çok beraber olmaya, iyi dostluklar kurmaya, Erzurum ve çevresini gezmeye başlar. Ağrı Dağı'nın gölgesinde geçirdiği dört yıl boyunca at sırtında yaklaşık üç bin mil [yaklaşım 5000 km] yol yapmıştır.

Amerikan Board adlı misyonerlik teşkilatına bağlı olarak Türkiye'ye gelen ve bu kuruluşun okullarında çalışan Mills, özellikle Ermeni köylerini gezmeye önem vermiştir. Buradaki insanların okuma yazma durumuyla beraber, oralardan okullara öğrenci taşımışlardır.

Mills, Erzurum'da kaldığı dört yılda Ermeniceyi iyi derecede öğrenmiş hatta İstanbul Kapalıçarşı'da yaptığı bir alışverişte çırağıyla Ermenice konuşan bir esnafın ne dediğini: "Anlayabileceğimi tahmin etmediği bir dilde" ifadesiyle anladığını açıklamıştır.

Mills, Ağrı, Kars, Iğdır, Erzincan gibi bugün şehir sayılan ve o günlerde de pek küçük olmayan yerleşim yerlerini at sırtında gezer. Bu seyahatlerdeki yolculuk hatıralarıyla beraber yörenin barınma, ev ortamı, kadın erkek ilişkileri, yemek kültürü gibi çok farklı alanlarla ilgili bilgiler verir. (Patrick 2009: 57-59)

İstanbul'da Amerikan Kız Koleji ve Mary Mills

İstanbul'da kurulması düşünülen kolej fikri Amerika'da da yeni kurulan Vassar Kolej fikrinden doğmuştur. İstanbul Amerikan okulu Vassar Kolej'in ilk mezun sınıfından dört yıl sonra açılmıştır. 1871 yılında Gedik Paşa'da Amerikan Board misyoner örgütü mensubu Pond Williams'ın öncülüğünde açılan okul, 1876'da Üsküdar'a taşınır. Bu semtte ağırlıklı Ermeniler oturur ve ilk eğitim dili Ermenicedir. Mills de, İstanbul'da ileride bir kız koleji haline gelecek okulun kurulması için 1875 yılında Erzurum'dan İstanbul'a gelir. 1875 yıllı sonlarında açılan okulun en genç öğretmeni Mills'tir. (Patrick 2009: 71-72)

Mary Mills'in en önemli vasıflarından birisi yaşadığı şehirde etrafı iyi diyalog kurması, araştırmaya olan merakıdır. O aynı zamanda Osmanlı'da kütüphanede araştırma yapan ilk kadın ziyaretçi olarak da kayıtlara geçmiştir.¹ Hatıralarında Osmanlı'da camilerin yanında kütüphanelerin

¹ <http://www.star.com.tr/pazar/alti-asirda-bir-tek-mary-girebildi-haber-1041495/>

kurulu olduğunu, ayakkabıların kapıda çıkarılması gerektiğini, kadınların kütüphanede çalışma yapmalarına izin verilmediğinden bahseder. Kendisinin kütüphane ziyaretini de “Benim halk kütüphanelerini ilk ziyaretlerim, hem orada araştırma yapanların hem de görevlilerin müthiş ilgisine ve telaşlanmasına sebebiyet vermişti.” şeklinde açıklar. (Patrick 2009: 109-110)

1876 yılında Sultan Abdülaziz tahtan indirilip V. Murat’ın tahta çıkarıldığı karışık dönemi anlatırken yazar, o yıl Üsküdar’daki okulun ilk diploma töreninin yapıldığını, sene sonu sözlü imtihanlarında kendi payına bazı derslerin düştüğünden dem vurur:

“Diploma töreninde benim payıma düşen, memlekette konuşulan dillerden biriyle geometri derslerinden imtihan etmekte. Programın geri kalan kısmı İngilizce idi.” (Patrick 2009: 139) Yazar, Ermenice dilini bildiğini ve sınavı Ermenice yaptığını gizlemek ister. Çünkü başka bir hatıratında “Mills Patrick fizik, cebir ve geometrinin yanı sıra Antik Ermenice gramer derslerine girdiğinden, ziyadesiyle meşgul bir öğretmendi.” (Jenkins 2008: 44)

Kolejin ilk Türk talebesi Binbaşı Bağdatlı Mehmet Bey’in kızı Gülistan İsmet’tir. Ondan sonra iki Türk ailesi daha kızlarını gönderirler. Bunlardan birisi sarayda görevli, sultanın sadık hizmetkârlarından Edip Bey’in kızı Halide Edip’tir. (Patrick 2009: 173, 198) Gülistan İsmet ve Halide Edip’in² dışında Zeynep Necef Uğurlu (Akra), Nilgün Cerrahoğlu, Leyla Umar, Prof. Dr. Nur Aytakin Serter (İstanbul Üniversitesi Eski Rektör Yardımcısı), Dr. Nevma Atay Madanoğlu, Nazlı Halit, Hatice Zakir, Safiye Ali gibi isimler de vardır. (Patrick 1934: 229-233)

1876’dan 1924’e kadar tam elli yıl kolejde çalışan Mary Mills, 1890 yılından itibaren 35 yıl da müdür olarak görev yapmıştır. (Patrick 2001: 155) Patrick, 1924 yılında görevini Kathryn Nevell Adams’a devrederek Amerika’ya gider. Kolejin mezunları arasında Ermeni, Arnavut, Yunan, Makedon, Bulgar gibi farklı milletlerden talebeler de vardır.

Mary Mills Almanya’da

Kolejin ilk birkaç yılında üst makamlarca gelen engellemeleri, Mills fırsata çevirerek Almanya’ya üniversite hayatına devam etmeye gider. Alman üniversitelerine İstanbul’dan kolayca ulaşma imkanı vardır. Leipzig’de modern psikolojinin öncüsü Wilhelm Wund’un verdiği derslerin yanı sıra, Berlin Üniversitesindeki pek çok derse de dinleyici olarak katılır. Mills’in Avrupa’da geçirdiği üniversite hayatının bir kısmı İsviçre Bern Üniversitesindedir. Sonradan Berlin’deki “Felsefe Arşivi”nin editörü Dr. Ludwig Sein’in nezaretinde yüksek lisansını tamamlar. Uluslararası Felsefe kongresinin ilk üçüne de katılmıştır Mills. İlki Münih’te, ikincisi Paris’te, üçüncüsü İtalya’ Bologna’dadır. “Yunan Şüpheliği Tarihinde belli Aşamalar” başlıklı bildiri sunmuştur. Bu katılımlarda elde ettiği birikimle ilgili olarak daha sonra yazar şöyle diyecektir: “İlk uluslararası Felsefe kongrelerindeki bu tecrübem, Eylül 1926’da Harvard’da yapılan bu serinin altıncı kongresiyle özel olarak ilgilenmemi sağladı.” (Patrick 2009: 189-190)

Amerika’da Kadınlara Mahsus Yüksek Tahsil Risalesi

Cumhuriyetin ilanıyla beraber her alanda olduğu gibi eğitim alanında da silbaştan yeni bir yapılandırılmaya gidilir. Bu yeni şekillenmenin de temelini Batı eğitim modeli oluşturur. Patrick Mary Mills tarafından *Amerika’da Kadınlara Mahsus Yüksek Tahsil* adlı eser de bu anlayıştan hareketle hazırlanmıştır. 1927 yılında Amerika talim ve terbiyesinin muhtelif safhaları hakkında yazılan on kitaplık bir serinin dördüncü eseri olarak yayımlanan çalışmada esas hedef, Amerika’da yaklaşık bir asırdır uygulanan ve başarılı olmuş bir eğitim modelini tanıtmak ve ondan istifade etmektir. Latin alfabesine geçilmeden bir yıl önce basılan eser, Osmanlı Türkçesiyle basılmıştır. Amerika’da eğitim veren çeşitli kurumların fotoğraflarına da eserde yer verilmiştir. Nitekim kitabın ilk sayfasında “(Wellesley) Kolejin son sınıf talebeleri” alt notuyla bir fotoğraf da yer almıştır.

(erişim: 05.03.2017)

² Mary Mills Patrick’in Üsküdar kolejinden öğrencisi olan Halide Edip, 1920’li yıllarda Amerika’da konferansa davet edilmiş, Boston şehrinde hocası Patrick’le de uzun uzun sohbet etme imkânı bulmuştur. Bk. Halide Edip, “Kadın Tahsilinin Bir Büyük Bayraktarı”, *Akşam*, 9 Mart 1950, s.5.

“Karilere Birkaç Söz” başlığıyla yapılan açıklamada, esas amacın “Amerika’da Nazari ve Ameli Terbiye” hakkında neşredilen bir dizi broşürden maksadın terbiye sahasında ilgi ve alaka uyandırmak olduğuna işaret edilir. Dolayısıyla bir seri olarak düşünülen bu eserlerde Amerika’daki eğitim sistemleri ve metotlarıyla beraber, muhtelif konular hakkında açıklamalara yer verileceği ifade edilmektedir. Bu seride yeralan eğitimciler de alanında uzun tecrübe ve birikimi olan isimlerden seçilmiştir. Yazarlar aynı zamanda hem Türkiye’nin hem de Amerika’nın “terbiyeciliğine” yani eğitimine vakıf olanlar arasından seçildiği için, okuyucunun kolayca ilgisini çekecek konuları kaleme almışlardır. Bu seride yayımlanan/cak on kadar eserin adı zikredilmektedir. Bunlar arasında *Amerika Müttehit Hükümetleri Maarif Tarihçesi*, *Erkekler İçin Ali Tahsil, Tali ve Âli Mekteplerde Kulüp Teşkilatı*, *Amerika Maarifinde Spor Programı*, *Mesleki Terbiye*, *Kurslar ve Halk Dershaneleri*, *Maarif Sistemi ve Cemiyet* gibi eserlerin adı yer almaktadır.³

Amerika’nın bütün eyaletlerinde kadınların yüksek tahsilden istifade etmelerinin ancak “son asrın ortasından az sonra başlamıştır.” O tarihten itibaren de tedrici olarak kızlara yönelik yüksek tahsil kurumları açılmaya devam etmiş ve kızların Darülfünunlara Kabul edilmesi için geniş tetbirler alınmıştır. Amerika, aslında bir devlet olarak teşekkülünden itibaren kadınların eğitimine önem vermiş, bu yüzden memleketin her tarafında daima ilmi araştırmaları her şeyin üstünde tutan ve kendisini ona adayan kadınlar bulmuştur. Kolej fikrinin olmadığı bir dönemde eğitim görüp meşhur olan Margaret Fuller, şair ve filantrop Julia Ordhov ve kitapları her millet tarafından okunan ve takdir edilen Heryet Bucharest bunlar arasında sayılabilir.

Bundan sonra Patrick Mills, Türkiye’de model olarak alınacak Amerika’daki başarılı kolejleri tanıtmaya başlar. Özellikle kızların eğitimi için açılan özel kız kolejleri çok başarılı olmuşlar ve kadınların toplum hayatında belli yer edinmelerinde önemli rol almışlardır. Bunlardan ilki Poughkeepsie (Newyork) da Vassar Koleji’dir. 1861 yılında kurulan ve 1865’te öğrenci almaya başlayan koleji başka okullar takip etmiştir. Bu kolejler İstanbul’daki Amerikan Kız Koleji gibi kadının ilerlemesini isteyen kişilerin temin ettiği hususi sermayelerle kurulmuşlardır. Bu mektepler idare ve eğitim konusunda tamamen serbesttirler. Hükümet ancak onları kanunlara uyup uymadıkları noktasında teftiş etmek durumundadır. Okulaların mastafları özel bir heyet tarafından karşılandığı gibi, eğitim kadrosu da bu heyet tarafından belirlenir. “Hükümet mektebin varidat ve tedrisatına hiçbir suretle müdahale etmez.” Hükümet kolejin gelir ve gider durumuna göre, ona destek olabildiği gibi, nadir olarak da olsa kanuni tedbirlerle onu gelişmesine engel de olabilmektedir. Bazı cumhuriyetlerde böyle serbestlikleri sınırlandırılan kurumlar olmakla beraber, diğerlerinde eğitimi tamamen serbest olanları da vardır.

Kız, erkek ya da karma kolej olsun, bütün özel kolejlerin eğitim programı, iç kontrolleri, idare heyetinin seçilmesi ve para sarfiyatı konusu tamamen serbesttir. Özel kolejlerin gelir ve giderlerinde kullanılan paralar hayır ve hasenat işleri yapan varlıklı kişiler tarafından karşılanmaktadır.

³ Eserin ön sözünde yer alan ve sırayla yayımlananması düşünülen eserlerle ilgili verilen bilgiler şu şekildedir:

Şikago Darülfünunu mezunlarından Ms. (Maryon Nuser) tarafından Amerika Müttehit Hükümetleri Maarif Tarihçesi ; Amerika’da Tali Tahsil (Kolombiya) Darülfünunu ve Newyork Teachers Kolejden mezun profesör (Pol Monro) , Profesör Paul Monroe (ö.1947) ; Erkekler İçin Ali Tahsil, İstanbul Kız Koleji Sabık Müdürü Doktor (Mari Mils Patrik- Mary Mills Patrick) (ö.1940) ; Tali ve Ali Mekteplerde Kulüp Teşkilatı- Mıstır (Ernest Heden). Ernest Heden (ö.1962) ; Amerika Maarifinde Spor Programı –Mıstır (Çıstır Tobin). Mrs. Chester Tobin

7- Mesleki Terbiye – Robert Kolej Muallimlerinden Profesör (Spiyo) ; Kurslar ve Halk Dershaneleri – Doktor (Fred Gudsell). Dr Fred Goodsell (ö.1976) ; Maarife Ait İdare, Maliye ve Kanunlar –Beyrut Amerika’dan Darülfünunu Profesörlerinden (Bayard Duc) *Bayard Dodge* (1888–1972) ; Maarif Sistemi ve Cemiyet – Mis (Margaret Vayt). Ms Margaret White (ö.1971). (Patrick 1927: 5)

11- Amerikan Terbiye Prensipleri Hülasası

Amerika'da özel kız ve erkek kolejlerinden başka, hükümet kurumları da vardır. Her cumhuriyette umumi tahsil için resmi bir Darülfünun mevcuttur. Bunların bütçeleri hükümet temin eder ve bunların hepsi eşit olarak erkek ve kız öğrenci kabul ederler. Devlet kolejlerinde kız ve erkek öğrenciler aynı sınıfta eğitim görürken, bazı özel Darülfünunlarda kız ve erkek için ayrı kolejler vardır, hatta bazen bunların isimleri bile başkadır. Mesela New York şehrinin Kolombiya Darülfünun'unda kız kolejinin ismi Bernard Kolej ve Harvard Darülfünun'unda Radcliffe Kolej'dir. Bu ayrılık sadece kolej kısmı içindir. Asıl Darülfünun'un muhtelif şubelerinde kız ve erkek talebe aynı dersanelerde tahsile devam ederler.

Yalnız kadınlara mahsus olan en büyük ve en müterakki Darülfünun Pennsylvania cumhuriyetinin Filedefiya-Philadelphia şehri civarında Berayınmor Darülfunu'dur. Güzel binaları ve geniş bahçelere sahip olan bu kolej, son yarım asırda kuurlmasına rağmen büyük başarı göstermiştir. Nitekim burada eğitimini tamamlayanlar, bütün Amerika'daki eğitim kurumlarında tercih edilirler.

Amerika'nın batı tarafında da klasik, mesleki, içtimai, mali, iktisadi ve siyasi yani her çeşit tahsil veren eğitim kurumları vardır. Buralarda konferans salonları, laboratuvarlar, kütüphaneler ve hususi kurlar mevcuttur. Bir ülkenin iç kısmından ziyade, sahil kısımlarında yaşayan halkın fikri inkişafında daha çabuk gelişme gösterdiği tarihi bir hakikattir. Dolayısıyla Amerika'da da hem doğuda hem batıda deniz kıyısındaki şehirlerde eğitim seviyesi ve kalitesi yüksektir. Okyanus kıyısında yer alan Kaliforniya ve Los Angeles şehirlerindeki kolejlerin eğitim çok ileri olması da bunu doğrular niteliktedir. Aynı şekilde doğuda New York şehrinde bulunan Kolombiya Darülfünun'u da önde gelen kurumlardan birisidir. Kızların ve erkeklerin ayrı olarak eğitim gördüğü bu kurumlarda, binalar ayrı olduğu gibi, işleyiş ve mali bakımdan da birbirinden bağımsızdırlar. Kolombiya Darülfünun'un kadın talebeleri çeşitli şubelerinde doktorlarını takip edebilirler. Lisan, ilm-i ruh ve felsefede yüksek tahsil görürler. Bu yüzden talim ve terbiye birçoklarına çok cazip görünür. Ayrıca meşhur yazarların ders verdiği sınıflar da vardır. Burada talebe yazarlığı öğrenir.

Bu kolejde yabancı öğrenciler de eğitim görebilmektedir. Okulun öğrencilere özel ilgisi ve eğitim kalitesi dolayısıyla çeşitli ülkelerden büyük bir rağbet vardır. Yabancı öğrencilerin İngilizce öğrenmesi için bir şube ayrılmış durumdadır.

Büyük mevkilerde olan yabancı öğrenciler arasında işlerine başlamadan İngilizcesini ilerletmek isteyenler vardır. Bunlar arasında siyasi temsilciler, ecnebi muallimler, ticaret ve hatta sadece sosyete adamları bile mevcuttur. Bu gibi kimselerin ancak geceleri müsait vakitleri olacağından bunlara İngilizce mükâleme (konuşma) lisanı öğretmek üzere günlük gece dersleri açılmıştır. Bu gece derslerinden yalnız biri üç yüz kadın ve erkek tarafından devam edilmektedir.

Örneğin bir gece dersinde hoca derse yeni gelen bir öğrenci ile konuşur ve onun bir gün önce New York'a geldiğini fark eder. "Böyle bir sınıfın bulunduğunu nereden biliyordunuz?" diye sorar. "Berlin'de işittim" cevabını alır. Bu sınıflarda gündüz farklı işlerde çalışan gece sadece eğitim alan kadınlar da vardır.

Kadınların Amerika'da oy hakkı kullanabilmeleri üzerinden çok zaman geçmemiştir. Fakat tahsil üzerine kadınların tesirini artırmıştır. Şimdi bütün yüksek tahsilde siyaset öğretimi yaygınlaşmış, dolayısıyla da birçok kızve erkek öğrenci siyasetle alakadar olmaktadır. Kadın ve erkek iş adamlarının siyasi hayata iştirak etmeleri, Amerika'da hüküm süren ticaret havası içinde hemen hemen mümkün değildir. Amerika'da kadınlar siyasi rey hakkına sahip olduklarından beri siyasete daha çok karışmaya başlamışlardır ve etrafta etkilerini daha çok hissettirmeye başlamışlardır.

Amerika çok defa uluslararası ilişkilerde hodbin olmakla ve diğer milletlerin menfaatlerini dikkate almamakla suçlanır. Bunun sebebi ticaridir. Bu konular eğitim müesseselerinde tamamen farklıdır. Kadınlara yüksek eğitim veren kolejlerdeki liberal siyaset görüşlerine ve uluslararası ilişkilerle ilgili konularda rol aldıkça, Amerika'nın başka ülkelerle ilişkilerinin gelişmesine de katkı sunacaktır.

Amerika'da son dönemlere kadar eksik olan durumlardan birisi de yabancı dillere verilen önemin az olamasıdır. Bunu aşmak için ülkedeki kolej ve darülfünunlarda yabancı lisan öğretimine büyük önem verilmeye başlanmıştır. Örneğin, Kolombiya Darülfünununda türkçe, Arapça, farsça gibi önemli diller öğretilmektedir. Bunlarda yalnız ait olduğu milletin lisanı değil, tarihi, edebiyatı ve adeti dahi öğretilmektedir. Bazı eyaletlerde kütüphaneler ve darülfünunu ziyarete gelen ecnebi profesörlere mahsus daireler bulunan hususi binaları vardır. Mezun Fransızca (Fransız evi), Kaza

İtalyan (İtalyan Evi), İspanyol Enstitüsü ve Roma medeniyeti enstitüsü bunlar arasındadır.

Ecnebi diline rağbette her ne kadar bir başka kültürü tanımak olsa da esası ekonomiye dayanmaktadır. Bundan dolayıdır ki birçok kadın ve erkek mali sebepleri göz önüne alarak ticaret mekteplerine yönelir. Burada öğretilen programlarda bankacılık işlemleri, kambiyo, ihracat, ithalat, borç alıp verme, madencilik, ticaret filoları vs öğretilir. Bundan elli yıl önce iyi bir tahsil deyince Eski Yunan ve Latin klasiklerini okumak, edebiyata vukuf olmak, Fransızca ve Almanca tahsili anlamına gelirdi. Şimdi ise bütün bunlar değişti, temelde ticari hayatın değişmesi eğitime de yansımış orada da hedefler ve programlar değişmiştir. Çünkü değişen hayatla beraber ticareti bilen başka vasıfları olan kız ve erkeklere ihtiyaç olmuştur.

Kolejde okuyan kızlar da ticari konuları okurlar ve bu yönlerini de tamamlayarak mezun olurlar. Örneğin birçok kolejde satıcılığın psikolojisi gibi dersler bile okutulmaktadır. Pek çok talebe konuyu tam öğrenmek için uygulama yerlerinde bile çalışmaktadır. Bundan dolayıdır ki bugün pek çok iktisadi teşekküllerde kadınlar başarıyla çalışmaktadırlar.

Kadınların ticaret hayatına atılışı kademe kademe olmuştur. Bunu farketmenin yollarından birisi, büyük bir şehirde bir iş kadınlar kulübünün toplantılarında bulunmakla anlaşılır. Nitekim New York'ta beş bin üyesi olan bir sanat ve iş kadın kulübü vardır. Kulüp evsiz kadınları kaydetmekle işe başlamış, zamanla büyümüş ve herkesin kılayca ulaşabileceği bir merkez edinmenin dışında, on bir milyon dolara inşa etmek üzere olduğu bir de otele sahip olmuştur. Bu otel içerisinde konferans salonları, konser, tiyatro yerleri, kütüphaneleri, yüzme havuzları, jimnastik ve üyelerinin maddi ve manevi hayatının gelişimini sağlayacak bütün imkanlar mevcut olacaktır.

SONUÇTanzimat sonrası Osmanlı Türk modernleşmesinde pekçok sahada olduğu gibi, büyük atılımların yapıldığı alanlardan birisi de eğitim kurumlarıdır. Özellikle 1870'li yıllardan sonra çeşitli saiklerle Osmanlı devletinin sınırları içerisinde kurulan misyoner okulları yeni bir aydın kesminin oluşmasında önemli rol oynamışlardır. İstanbul, Hatay, Antep, Maraş, Sivas, Erzurum, Amasya, Bağdat gibi şehirlerde kurulan bu okullardan mezun olanlar yurt dışında da eğitimlerine devam etme imkanı bulmuşlardır. Bu isimler daha sonra devletin üst ve kamunun çeşitli kademelerinde önemli görev üstlenmişlerdir.

Başta Amerikan Kız Koleji olmak üzere Osmanlı coğrafyasının farklı bölgelerinde kurulan bu okulların eğitim alanında büyük başarısının arkasında yatan sebeplerin en önemlilerinden birisi fedakar bir eğitimci grubuna sahip olmalarıdır. Yirmili yaşlarda Amerika'dan İstanbul'a, oradan da Erzurum'a öğretmen olarak giden Mary Mills Patrick bunlardan birisidir. İlk defa 1871 yılında İstanbul'a gelen Patrick, dört yılı Erzurum'da olmak üzere, 1924 yılında Ameerika'ya dönüncüye kadar toplam da tam elli yıl İstanbul'da öğretmenlik ve idarecilik yapmıştır. Onun elli yıllık tecrübelerine dayanarak kaleme aldığı *Amerika'da Kadınlara Mahsus Yükses Tahsil* risalesi modern Türkiye Cumhuriyetinde özellikle kızların eğitimine ışık tutmuş, rol model olmuştur. Amerika'da özellikle New York ve Boston şehirlerinde kurulan kolejler olmak üzere, farklı eyelet ve şehirlerdeki kolejlerin işleyiş ve eğitim sistemi geniş olarak yansıtılmıştır. Binaların dış görünüşleri, çalışma odaları, kütüphaneleri gibi eğitim kurumlarının farklı mekanları resimlerle desteklenmiş ve model olması tasavvur edilmiştir. Modern okullarla beraber, yeni bir eğitim anlayışının oluşmasında bu ve benzeri hazırlanan eserler kılavuz olma niteliği taşımışlardır.

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AUTONOMY FOR DIGITAL NATIVES: A PEDAGOGICAL CONSIDERATION OF A BLENDED LEARNING MODEL IN EFL CLASSROOMS FOR FOSTERING LEARNER AUTONOMY

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ABSTRACT

This study aims to investigate the impact and learner perspectives of a blended learning model for fostering learner autonomy in EFL university conversation classrooms. Based on a previous existing blended learning model for teaching and learning English speaking, blended learning model for fostering learner autonomy was developed and implemented. This teaching and learning model for blended learning included learner training for learning strategies, setting goals and objectives, self-evaluation, etc. Using various multimedia and mobile-enhanced resources, it allowed freedom in choosing CMC and multimedia tools based on the learner preferences based on their needs and goals. 130 students participated in the experimental study and pre-, post-test, and a questionnaire was used to investigate the effectiveness of the model and participants' perspectives. Based on the results, suggestions for further study are provided.

INTRODUCTION

The term learner autonomy, also referred to as self-directed learning, self-planning learning, independent learning, etc., is used to refer to the ability for learners to become responsible for their own learning through making independent choices (Asuman, 2010; Azer, 2008; Kim, 2013; Little, 1991). While the role and significance of learner autonomy itself and the roles of teachers and learners in fostering learner autonomy have been a few of the hotly debated issues in FLT/L, it is generally accepted that learner autonomy needs to be promoted in L2 (Second Language) learners in EFL (English as a Foreign Language) classrooms. There has been a rising concern regarding the lack of sense of autonomy in learners that currently reside in EFL classrooms, and learners must take place in learning as active participants who can manage their learning, and number of research have explored the significant of learner autonomy (Cotterall, 2000; Garrison, 1997; Thanasoulas, 2000). Learner autonomy, however, is not a simple concept as it is composed of assorted features including learners' cognitive strategies, metacognitive strategies, attitude, motivation, and beliefs to name a few (Thanasoulas, 2000), and must be examined thoroughly in various learning environments.

While there is a general consensus on that fostering learner autonomy is beneficial to L2 learners, what needs to be considered next is how go about fostering it. It seems that learner autonomy is fostered in learning environment where learners can use both cognitive and metacognitive learning strategies, develop sense of independence, and interact with others where they can gain exposure to peer's ideas and gain approval for their own (Candy, 1991; Thanasoulas, 2000). It has come to attention that blended learning, with its capacity to provide both online and offline learning environment with diverse CMC (Computer Mediated Communication) and multimedia tools and learning styles may serve to suit the varying needs and conditions of L2 learners in fostering learner autonomy. Blended learning teaching and learning models specifically developed for EFL purposes have proven to be effective and learners have received them positively (Yoon, 2016). Therefore, in this study, effectiveness and learner perspectives on blended learning model for fostering learner autonomy are investigated to suggest ways to fortify and better implement blended learning model in L2 classrooms and promote learner autonomy.

THE STUDY

This study aims to investigate the learner perspectives on learner autonomy and preference in multimedia tools and contents to suggest ways to strengthen promotion of learner autonomy through blended learning model in EFL university conversation classes. The research questions for the study are specified as follows:

- 1) What is the effectiveness of blended learning model for learner autonomy on EFL learners?
- 2) Are there significant differences between blended learning model and blended learning model that fosters learner autonomy?

The subject for the study consists of 130 university students in a university in South Korea, taking a course on English conversation. This 2-credit hour course was as a graduation requirement and 2 sessions were offered for

15 weeks for the study. The participants were placed in the course based on the university-wide placement test using TOEIC, and the average score for the participants at the time of placement were 310 out of 999, indicating that they were beginners. The course was offered as a graduation requirement for the first-year student so they were freshmen, but the participants' majors varied. 64 participants majored in liberal arts (49.2%), 53 were in social welfare (40.8%) and 13 were science majors (13%). There were 45 male participants (34.6%) and 85 female participants (65%) in the whole. Both sessions were taught in English by the researcher and the control group consisted of 67 participants, and the experiment group consisted of 63, totaling in 130 participants.

For the experiment, two models of blended learning were implemented. For the control group, blended learning model (Yoon, 2011) was used. In this model, online and offline learning and student-student interaction, teacher-student interaction, collaborative learning, cooperative learning, and group reflection using specified multimedia learning tools (bulletin board system, email, messenger, etc.) for the types of interaction and contents are used. For fostering autonomy in blended learning environment, Blended Learning for Learner autonomy (BL-LAS) model in Figure 1. Both blended learning models employed in the study consisted of 7 features and components of blended learning identified by Yoon (2011), 1) Pedagogical instruction and learning experience, 2) individual work, 3) interaction with peer, 4) interaction with teacher, 5) feedback, 6) discussion and reflection, and 7) multimedia component, and both models were found to be effective regarding speaking accuracy and fluency. The difference in the two model is that in BL-LAS, elements of learner autonomy are maximized through the addition of learner autonomy training in the beginning of the course, allowance for learner choices in choosing multimedia learning tools and contents for self-regulated learning, cooperative learning, and self-assessment and short-term goal setting (Yoon, 2016).

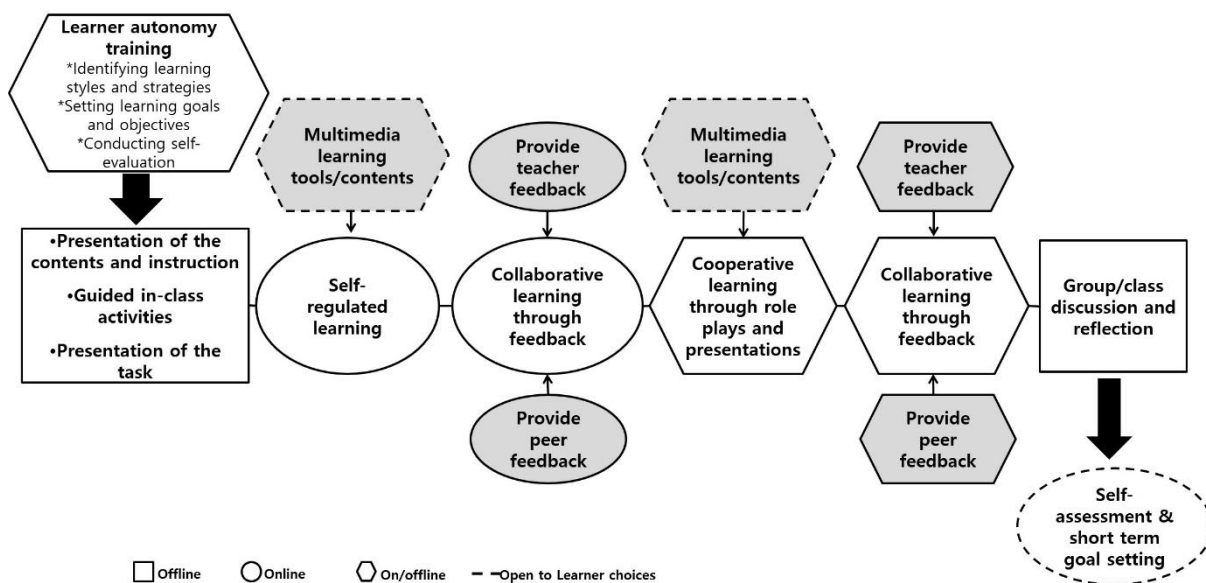


FIGURE 1
Blended Learning for Learner Autonomy in L2 Speaking (BL-LAS) Model (Yoon, 2016)

Data sources for the study includes the pre-and post-test scores and questionnaire. The tests were conducted in forms of voice recording tasks based on the content taught during the study which students submitted via email on week 2 and week 14. The topics for the voice recording were describing a person, giving directions, and talking about past experience. The scoring rubric was developed using Brown's (2004) oral proficiency scoring categories and Test of Spoken English scoring guidelines (Educational Testing Service, 1995). The rubric consisted of items on regarding accuracy and fluency. Accuracy was analyzed based on grammar and segmental features of pronunciation, and fluency was on content, flow, and suprasegmental features of pronunciation. The tests were scored by the researcher and a native speaker professor in English department. The interrater reliability shows the Cronbach's alpha value was .93 showing very high reliability.

The questionnaire on learner autonomy was designed based on previous researches by Hwang's (2011), Sharle and Szabó (2000), and Tassinari (2012). It consisted of four scale Likert-type scale for questions on learner perspectives on learner autonomy in blended learning. The questionnaire was conducted on week 15, and all 130 participants completed and turned in the questionnaire.

The data gathered from the questionnaire were analyzed using SPSS for frequency, ANOVA, and the significance level was set at 0.05 ($p < 0.05$) to test the null hypotheses of no association and difference between groups in terms of their responses. Reliability analysis for the questionnaire was conducted, and Cronbach's alpha values for the items in the questionnaire were over .777, showing that the items in the questionnaire were reliable.

FINDINGS

The scores of pretest and posttest are presented in Table 1. The scores were analyzed for accuracy and fluency where accuracy was scored out of 20 and fluency was out of 30, totaling in 50. The total mean for the pretest was 33.85 out of 50 and the post test was 40.24, showing an increase of 6.392 points. The students' score on accuracy was 14.38 for the pretest and 16.76 for the posttest, and the score for fluency was 19.77 for the pretest and 23.72 for the posttest, showing 2.337 points and 3.946 points of increase, respectively. There were significant increases found in the scores from pretest to posttest in all, showing that appropriate blending of online and offline resources and learning activities had positive effects in L2 speaking ability of the Korean university students who participated in this study.

Table 1. Scores from Pretest and Posttest

Items		Mean	N	SD	<i>t</i>	<i>df</i>	<i>p</i>
Total	Pre-test	33.85	130	5.323	-19.704	129	.000
	Post-test	40.24	130	3.797			
Accuracy	Pre-test	14.38	130	2.287	-14.312	129	.000
	Post-test	16.76	130	1.751			
Fluency	Pre-test	19.77	130	2.966	-17.668	129	.000
	Post-test	23.72	130	2.293			

In Table 2, scores from control and experiment groups are presented. There is a significant difference in the scores of the post-test in all three items, total, accuracy, and fluency between control and experiment groups. Data shows that there is no significant difference in the scores of the pre-test between the groups for all three items, showing that there no difference at the onset of the study. However, for the post-test, the experiment groups did significantly better than the control groups in all three items investigated. The total score for the control group was 38.94 and the experiment group was 41.62, showing a difference of 2.68 points. For accuracy, the experiment group's mean score was 17.63, which was 1.69 point higher than the control group with 15.94. And the significant different was found for fluency as well where the experiment group had 24.48 points which was 1.48 points higher than the control group with 23.00 points. In the whole, the experiment group's post-test score significantly higher than the control group's scores, showing that BL-LAS was more effective in increasing Korean EFL learners' speaking skills.

Table 2. Scores of Experiment and Control Groups

Items		C/E	N	Mean	SD	<i>t</i>	<i>df</i>	<i>p</i>
Total	Pre-test	Control	67	33.21	5.938	-1.413	128	.282
		Experiment	63	34.52	4.529			
	Post-test	Control	67	38.94	3.958	-4.282	128	.046
		Experiment	63	41.62	3.091			
Accuracy	Pre-test	Control	67	14.37	2.341	-.059	128	.689
		Experiment	63	14.40	2.274			
	Post-test	Control	67	15.94	1.757	-6.283	128	.008
		Experiment	63	17.63	1.261			
Fluency	Pre-test	Control	67	19.43	3.134	-1.338	128	.131
		Experiment	63	20.13	2.756			
	Post-test	Control	67	23.00	2.418	-3.860	128	.047
		Experiment	63	24.48	1.891			

The participants' learner independence in blended learning environment was investigated using a questionnaire, and the results are provided in Table 3. According to the results, it can be seen that item 1 shows that the participants for the control group responded negatively, meaning that they do not consider teachers as a factor of how they are doing in English. On the other hand, the experimental group showed positively responded. Considering that the participants in the study are adult beginners, it can be inferred that they are aware that they did not invest in English studies regardless of teacher factor. But considering there is no significant difference between the groups, it can be considered that their overall perspective on item 1 not high. Negative response to item 1 corresponds to the negative response for item 4. The participants of the study said if they are not doing well in a subject, they are likely to not pay attention to it instead of investing more time and effort into that subject. For those participants, teacher factor would not have made much difference in subjects they have no interest in. Other than control group in items 1 and item 4, all items were found to show positive results. Among the items in the questionnaire, items 3, 7, 9, and 11 showed significant differences between groups. Items 3 and 7 were both on active learning activities conducted by the participants. As far as seeking out learning activities and learning materials on their own, experiment group with BL-LAS model were significantly more conscientious of making learning choices on their own. In item 9, the participants for experiment group responded more positively, showing that getting grades is not their only motivation for studying English. For item 11, significant differences were found between groups, however, both groups responded positively regarding self-awareness on their strengths and weaknesses in learning English. It can be referred from the significant differences in those items that while both may be aware for their learning weaknesses and strengths, students that are more autonomous are likely to find their own purpose in pursuing learning and look for their own ways and resources to do so. In addition, it should be noted that the participants in the experiment group with BL-LAS model responded more positively than the control group across the board.

Table 3. The Results of ANOVA on Learner Autonomy

Items	Mean (Control/Experiment/Total)	STD	F	Sig.
1. The reason I am good (or bad) at using English is because I learned from good (or bad) teachers.	1.96/2.10/2.02	1	.944	.333
2. I know what I need to do in learning English.	2.58/2.78/2.68	1	2.175	.143
3. I often do learning activities that were not assigned by the teacher.	2.40/2.72/2.56	1	4.681	.032
4. I pay closer attention to classes that I am not good at.	1.79/1.86/1.82	1	.264	.608
5. I get nervous if teachers don't provide studying guide for exams.	2.52/2.67/2.59	1	.998	.320
6. Studying English is important to me regardless of what my teachers or parents think.	2.90/3.02/2.95	1	.741	.391
7. When choosing English materials, I look over available sources and make a conscious choice.	2.34/2.68/2.51	1	4.944	.028
8. I know how close to I am to reaching my learning goals.	2.81/2.86/2.83	1	.181	.671
9. If not for grades, I don't need to study English.	2.15/2.60/2.37	1	10.245	.002
10. I prefer learning materials (workbooks, reading materials, web contents, etc.) that I chose to the materials provided by the teacher.	2.52/2.97/2.74	1	11.694	.001
11. I know my strengths and weaknesses in learning English.	2.63/2.87/2.75	1	4.293	.040
12. I wish there were more chances to make more learning choices in English classes.	3.18/2.92/3.05	1	3.288	.072

CONCLUSIONS

Based on the findings, it was found that blended learning is effective in teaching and learning L2 speaking in EFL environment for Korean university students in this study. However, blended learning that fosters learner autonomy is more effective in enhancing spoken skills in EFL learners than blended learning that does not. BL-LAS model, which was a modified blended learning model for fostering learner autonomy was found to be significantly more effective in improving EFL learner's accuracy and fluency in speaking. It seems that although blended learning itself is effective and received positively in general, learner autonomy plays an important role in furthering EFL students' achievements.

In addition, the learner perspectives on blended learning and learner autonomy shows that the EFL learners are

likely to be more aware and take charge of their own learning when BL-LAS model was used to foster learner autonomy. It seems that providing appropriate guide and ample opportunities to make their own learning choices in both online and offline can foster learner autonomy. Based on the results of the study, it was found that blended learning, with its positive attributes, can be developed further to that foster learner autonomy. It seems that successfully fostering learner autonomy can bring about significantly more positive impact on EFL students in blended environment where students are able to take charge of learning both online and offline. Further study in learner behavior and perspectives on the features of BL-LAS is recommended to investigate how learners perceive the elements of learner autonomy, especially on how BL-LAS has impacted learners specifically regarding fostering learner autonomy in EFL based on case study. In addition, studies of using the model in other language skills such as listening, reading, and writing in different age groups and levels are recommended for further development of the model.

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AWARENESS INTEGRATION: A NON-INVASIVE RECOVERY METHODOLOGY IN REDUCING COLLEGE STUDENTS' ANXIETY, DEPRESSION, AND STRESS

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ABSTRACT

The purpose of this study is to further understand and mitigate stress and anxiety among college students in addition to finding new evidence based approach to address the source of these stressors. College students, predominantly freshmen are subject to stress and stressors (D'Zurilla & Sheedy, 1991), which is due to the transitional college life (Towbes & Cohen, 1996). Students feel the pressure of acquiring a job, establishing a career, and finding a potential life partner. The interaction between all these stressors results in anxiety and tension (Romano, 1992). Awareness Integration (AI) Model (Zeine, 2014) is an effective psychological methodology that utilizes non-invasive and effective techniques to help individuals suffering from multiple stressors overcome anxiety and depression. To test the AI Model, a study was set up at California State University using convenient sampling of subjects recruited on a voluntary basis to participate over the course of 16 weeks during 2015 Fall Semester. A majority of those involved were working on their undergraduate degree and the rest were in a graduate program. More than half of the participants were females between the age ranges of 18 – 24 living on the west coast. Lastly, ethnicity had a strong turnout amongst Caucasian (n = 25), Hispanic (n = 51), and Asians (n = 22); nearly half of the subjects appeared to live below the poverty line making less than \$25,000 annually. The researchers' hypothesis is that students' mindfulness of sources of stress, and utilization of emotional releasing techniques will reduce anxiety and depression, increase their coping mechanism, improve their academic performance, and the quality of their relationships both in and the outside of the campus life. The final results showed significant reduction in the areas of anxiety, depression, and stress among the participants, who completed the modules within the period of the semester.

INTRODUCTION

Emerging adults of 18-25 years, such as college students go through developmental stages unique to their abilities, new found autonomy, and social expectations. This period of development differs from adolescence and young adulthood as it tackles cultural identity as well as experiencing independence and role exploration (Arnett, 2000).

College life is one of transition and great deal of change, which leads to students, particularly freshmen to experience stress and negative pressures from external factors (D'Zurilla & Sheedy, 1991). Among the scholars, the interest in how people cope with stress has grown dramatically over the past decade (Moos & Moss, 1986). The starting point for much of this research is the conceptual analysis of stress and coping offered by Lazarus in 1966, who argued that stress consists of three processes. Primary appraisal is the process of perceiving a threat to oneself. Secondary appraisal is the process of bringing to mind a potential

response to the threat. Coping is the process of executing that response. Although the interest in such analysis has gained popularity, there is still a need for an efficient psychometric measurement.

Other studies have shown that individual's negative self-efficacy beliefs could impact choice and task engagement leading to stress and consequently creating anxiety and depression. These beliefs could also limit the degree of determination in task accomplishment (Schunk, 1981; Schunk & Hanson, 1985; Schunk, Hanson, & Cox, 1987). Efficacy beliefs also influence the amount of stress and anxiety individuals experience as they engage in an activity (Pajares & Miller, 1994). As a consequence, self-efficacy beliefs exercise a powerful influence on the level of accomplishment that individuals experience due to the transitional college life. Feeling competent and able to choose the right tasks and successfully completing them is correlated to self efficacy (Towbes & Cohen, 1996).

Awareness Integration (AI) is a new model in the field of psychotherapy, which synthesizes numerous concepts from cognitive, behavioral, emotional, and body-mind theories. AI Model aims to enhance self-awareness, increase self-esteem, release past traumas and psychological blocks, reduce symptoms of anxiety and depression, and promote a clear, realistic, and positive attitude in order to learn and implement new skills for an effective, productive, and functional life. The Awareness Integration Model also uses multiple psychological models to integrates them into an effective method of therapy for all sorts of behaviors, such as addiction, depression, and substance This model allows for release and then integration through flexibly structured questions and expansive interventions that connect core beliefs, emotions, locations in the body where emotions are stored and relevant/original memories.

Due to previous studies confirming college students' level of anxiety and stress, and to test the viability of AI on college students, a research study was conducted at California State University, Long Beach (CSULB). This study was made possible by a CSULB research grant to develop evidence based data on the applicability and effectiveness of the AI Model on college students and correlation to reducing depression and anxiety. An Institutional Review Board application was also generated and approved by CSULB IRB committee to safeguard the participants' well being and rights throughout the procedure.

The AI study offered a multi-factorial research exploration; (1) Understand anxiety, depression and stress among college students, (2) Test a new evidence based approach to address the source of these stressors, and (3) To examine a multi-modality, non-invasive self helps psychological model on enhancing self-awareness, releasing past traumas and/or psychological blocks, promoting clarity and positive attitude to learn, and implementing new skills for an effective, productive, and successful Life.

THE MECHANISM OF AWARENESS INTEGRATION PROCESS

Awareness Integration Model is a Multi-Modality Psychological Model that enhances Self-Awareness, releases past traumas and/or psychological blocks, promotes clarity and positive attitude to learn, implements new skills for an effective, productive, and successful Life. This model synthesizes components of already established psychological theories and approaches such as Cognitive Behavioral therapy, Emotion Focused Therapy, Existential Psychotherapy, Person-centered approaches, Attachment theories, Eye Movement Desensitization and Reprocessing (EMDR), Hypnosis, and Mind- Body theories.

The Awareness Integration model operates based on 9 principles that have been researched for many years through different theories. 1) Reality of the observer is subjective based on the state of being beliefs, meanings, emotions, and behaviors. 2) The potential to learn skills to have a functional and successful life is available for human being. 3) Skills are learned through physical and psychological development in combination with the mirroring of parents and environment. 4) Perception of the information and experience allows meaning to be assigned and categorization and generalization of the assigned meanings about the self and the world allows a personal identify to be realized. 5) Experiences are stored in memory cognitively, emotionally and somatically. A traumatic experience is compartmentalizing and waits integration to be healed and reintegrated. 6) When the unintegrated belief-emotion-body state is healed and released and integrated, neutral and positive attitude are surfaced. 7) Through the completion of this process, the creation of an intended and conscious choice regarding values, thoughts, feelings, actions and results. 8) Skills can be learned and sustained in a neutral environment toward a desired and intentional result. 9) Conscious and clear vision of a desired result with tangible goal setting, effective planning and efficient action raises the probability of achieving one's desired results (Zeine, 2014).

The goal of this model is to foster awareness and to integrate all split parts of the self from the past into the present, create a vision for the future, create solid goals and action plans with an external feedback loop to ensure a sustainable successful and fulfilled life. The primary method of AI involves identifying one's negative and/or irrational core beliefs, the formulas one has created to operate within one's life, and the identities they have created, sustained and operated. AI will allow for the release of emotional and somatic charges that remain from unintegrated experiences and memories and the dismantling of negative core beliefs. This process assures the integration of the self which will allow skill building and creation of a chosen and intended future to be attainable without the past sabotaging the future. In this research students were directed through the use of a structured set of questions for awareness, and mind-body technique for integration, laid out through six phases. Each phase has its own set of questions and an intent specific to that phase. Clients will be directed through all six phases and explore their relation with different areas of their lives including their school, careers, finances, relationships, families, childhood, themselves, death, God and spirituality, and other significant areas especially related to the student.

Phase I - Phase One is designed to induce awareness of the student's perceptions, emotion, and behaviors in relation to their external environment and how those constructs impact their lives. Every one's identity gets created within relationships. As a child one is born into a marriage, a family, and a culture which immediately feeds the child what is right or wrong. A human being forms the questions in this phase include: What do you think of (people or concepts in an area of life)? How do you feel about (people or concepts in an area of life)? How do you behave towards (people or concepts in an area of life)? How does the way you think, feel, and behave towards (people or concepts in an area of life) affect your and other's life?

Phase II - This phase encompasses three functions: A) To create awareness of the student's projections of others' opinions and feelings about them; B) To enhance the student's ability to observe others' behavior towards them and to observe the meanings the student attributes to that behavior; C) To identify ways in which these constructs impact the student's life. Questions in this phase include: How do you assume people think about you? How do you assume people feel about you? How do you assume or observe people behave toward you? How do your assumptions affect your and other's life?

Phase III - Phase Three aims to foster awareness of student's beliefs, emotions, and behavior about the self in relation to each area of life and considering the identity that interacts towards and responds to various areas of life. Questions in this phase include: As you see yourself among people, looking at them while they're looking at you, what do you think about yourself? How do you feel about yourself? How do you behave towards yourself?

Phase IV - In Phase Four, the student is guided when necessary, in simultaneously experiencing the connection between thoughts, formulas, and schemas with emotions and the body areas that maintain and reflect intense emotions. This process becomes necessary when the student finds a negative core belief about the self or the world which holds a heavy emotional charge. In this phase the core belief is linked to the emotion which is stored in the body and the associated memory that initiated the belief and then allow the release of negative core beliefs, hidden intentions, shadows, and emotions locked in the body. This process also allows one to gain awareness of the ability to be with, tolerate, and manage emotions effectively. Questions in this phase include: When you say [negative core belief] how do you feel about yourself? How do you feel when you say this to yourself? Where is the feeling in your body? What is the intensity on a scale from 1 to 10? Then the student is guided to focus on their body in the location that the emotion is residing and then to allow the emotion to take the student to the first time he/she experienced this kind of emotion and decided the negative belief system. The student then allows an integration between the adult side of the self which is present now and the past/ young part of the self which is still compartmentalized.

Phase V - In Phase Five the student explores the client's chosen values. A commitment to think, feel, and behave via the intention to actualize a chosen value system brings forth a chosen attitude and a chosen identity to live by. From this new commitment, short and long term goals are identified and scheduled, and tangible action plans are set toward a desired outcome. In this phase the therapist will identify which skills the client has already acquired and which skills need improvement.

Phase VI - In Phase Six the student creates a collage of the goals and values as a feedback loop to remind and put in place the context of the values and mission statement that the student has chosen until then goals have been created. Audio feedback loop and or choosing a symbol to use is also helpful if the student does not like to use a collage.

The process of AI is to foster self-awareness from past to present and to integrate the various parts of the 'Self' that have been shattered and separated as a result of psychological trauma. AI offers step by step guidance on how to recognize the broken pieces of one's self, but also to find a way to reunite and reattach all the parts, so that it can once again function effectively and productively. Through this intricate process, the participant recognizes and identifies all the unconstructive thoughts and destructive mental strategies that reside at the core value system of the individual, all the while, help find a way to replace the undesirable thoughts with a positive and more productive principles (Zeine, 2014).

PURPOSE OF THE STUDY

The study is based on a descriptive, micro-genetic model to measure the applicability and effectivity of AI Model on college students aiming to reduce the level of anxiety, stress, and depression. The AI model had been previously studied on two separate occasions with positive results: (a) individuals suffering from depression, and (b) subjects who had gone through divorce or had recently been separated. The first study on individuals was successfully concluded and published in 2014 in the "International Journal of Emergency Mental Health and Human Resilience" indicated a 27.5% decrease in depression, 37% decrease in anxiety, 15% increased self-esteem, and 13% increase in self-efficacy after taking part in AI therapy workshop. A second study on the AI Module published in 2017, in the *Mental Health in Family Medicine* (2017) yielded 76% decrease in depression, a 60% decrease in anxiety, a 43% increase in self-esteem, and 20% increase in self-efficacy, would be a worthwhile tool to utilize for this population, which as mentioned above, depression, anxiety, and low self-esteem have been a by-product of their divorce. Previous studies having shown successful outcome for AI Model in reducing depression and anxiety, prompted the researchers to test this technique on college students, who suffer from stress due to continually being exposed to deadlines and hectic study schedule leading to depression and anxiety.

METHODOLOGY

This is a descriptive study and the subjects were recruited from the Health Science and the Human Development Departments. As planned, participants were asked to volunteer and sign a consent form if participating. The study also involved recruitment, two hours of training, personal online support, a pretest and posttest survey. Recruitment was the first phase of this project including collection of consent forms. Prior to the study, the university IRB application was submitted for approval. A training session was given, where students were asked to complete a set of psychometric standardized questionnaire on anxiety, stress, and self-efficacy.

The process was followed by each individual filling out a demographics survey and the pretest. The pretest was based on a modification of three different psychometric inventory assessment measuring levels of anxiety, depression, and stress. The Rosenberg self-esteem scale (RSES; Rosenberg, 1965; Blascovich & Tomaka, 1993), The Beck Depression Inventory BDI-II (Beck, Ward, Mendelson, Mock & Erbaugh, 1961) and The Beck Anxiety Inventory (Beck, 1988; Beck & Steer, 1993) were used to create the pre- test and post-test for this study.

Sample Population and Demographic

Subjects were recruited at California State University of Long Beach, from two Health Science and two Human Development upper division classes. The study, a micro-genetic research methodology technique, of a short term data collection duration, took over the course of 16 weeks during 2015 Fall Semester. A majority of those involved were working on their undergraduate degree ($n = 117$) and the rest were in a graduate program ($n = 4$). The average age ranged between 18 – 24 years (82.2%) with a large sum living on the west coast (92.2%). Lastly, ethnicity had a strong turnout amongst Hispanics with 51 participants (39.5%), 25 Caucasian (19.4%), and 22 Asians (17.1%); nearly half of the subjects appeared to live below the poverty line making less than \$25,000 annually ($M = 2.39$, $SD = 2.025$).

DATA ANALYSIS

The pretest and posttest were based on The Rosenberg self-esteem scale (RSES; Rosenberg, 1965; Blascovich & Tomaka, 1993), The Beck Depression Inventory BDI-II (Beck, Ward, Mendelson, Mock & Erbaugh, 1961) and The Beck Anxiety Inventory (Beck, 1988; Beck & Steer, 1993) assessing specific and measurable criteria in the following categories:

- * Questions 1-4 to measure Depression
- * Questions 5-7 to measure Anxiety
- * Questions 8-10 to measure Self-esteem

Once the data were collected, using SPSS software, the research assistants computed the overall results based on participants' response given to each of the fifteen AI Modules selected for this study. The outcome of SPSS analysis yielded in both empirical and descriptive results, which were used in further analysis. Using an excel worksheet, the empirical data was then used to compute the decrease in depression and anxiety. Using the statistical standard mean formula; $(X1+X2+X3+...+ Xn/n) \times 100$ to reflect overall percentages. Accordingly, the standard deviation for each question in each category was calculated to show proof of concept and to ensure a strong confidence level. Based on these calculations, the results showed that there was 68% Overall decrease in Depression and 21.72% Overall decrease in Anxiety as a result of AI psychological model.

EXTRANEOUS VARIABLES

In the course of this research study, the variables of AI Psychological Model and impact on students' degree of depression and stress were measured. However, it is noteworthy to mention other outlier variables may be instrumental in the degree of AI efficiency. It may be possible that each student's temperament, personality, characteristics, and response to adversity should be taken into consideration in the next research study. Also, as the descriptive results showed, gender was shown to be different in response to distress; therefore, the degree of AI success may be dependent on gender orientation. Another element to consider is the timing of pretest and posttest as the time of taking the psychometric may result in different outcome. Other multifactorial elements to be considered as extraneous variables are:

- Demographic
- Ethnicity
- Socio-Economic Status
- Academic performance

It is imperative that extraneous variables to be analyzed and studied to rule out other factors influencing the results.

UNANTICIPATED RESULTS

Participants were mostly from Liberal Arts college, who are predominately females.

Based on Ptacek, Smith, and Dodge (1994) study, there is gender differences in coping mechanism of stress even if the stressors and or appraisals of the stress factors are the same. In the AI study, females significantly chose being less able to relax when compared to males. Also, females were significantly more likely to feel that they were having difficulty breathing when compared to males. Males were also significantly more likely to feel capable of doing things when compared to females and felt more capable of handling unforeseen issues when compared to females.

LITERATURE REVIEW

Due to the transitional college life (Towbes & Cohen, 1996) students particularly freshmen are subject to stress and stressors (D'Zurilla & Sheedy, 1991), Students feel the pressure of acquiring a job, establishing a career, and finding a potential life partner. The interaction between all these stressors results in anxiety and tension (Romano, 1992). Previous research has yielded over 600 articles discussing the importance of addressing the stress of education in medical field, only 24 studies reported intervention programs, and only six of those used rigorous scientific method. Results revealed that medical trainees participating in stress-management programs demonstrated improved immunologic functioning, decreases in depression and anxiety, increased spirituality and empathy, enhanced knowledge of alternative therapies for future referrals, improved knowledge of the effects of stress, greater use of positive coping skills, and the ability to resolve role conflicts. Despite these promising results, the studies had many limitations.

DISCUSSION

Depression affects approximately 14.8 million American adults, or about 6.7 percent of the U.S. population age 18 and older in a given year. Over 80% of the people that have symptoms of clinical depression are not receiving any specific treatment for their depression. The number of patients diagnosed with depression has increased by approximately 20% per year. In the last 12 months, about one-third of U.S. college students have shown difficulty functioning due to depression, and almost half said they felt overwhelming anxiety in the last year, according to the 2013 National College Health Assessment, which examined data from 125,000 students from more than 150 colleges and universities. The anticipated outcome is to better understand and to alleviate stress and anxiety among college students. This is a very important issue among college students across US campuses.

More than 30 percent of students who seek services for mental health issues report that they have seriously considered attempting suicide at some point in their lives, up from about 24 percent in 2010, says Pennsylvania State University psychologist Ben Locke, PhD, who directs the Center for Collegiate Mental Health (CCMH), an organization that gathers college mental health data from more than 263 college and university counseling or mental health centers. The anticipated outcome and goals of this research proposal is to investigate an effective and accelerated method of treating depression, stress related and emotional problems.

A study by Misra, McKean, West & Russo (2000) examined the perceptions of academic stress among male and female college students, and compared the perception of 249 students and 67 faculty members from a mid-western University. Results indicated the existence of stress among college students; however, it also showed a skewed perception of the level of stress among students and the undermining perception by faculty of their stressors.

In another study investigating the sources and levels of stress in relations control and self- esteem in university students showed that 77.6% and 10.4% of the students fall into the moderate and serious stress categories, respectively, and that there were significant differences between females and males' students in both academic and life stress, with female students more stressed than males. This result also encompassed the correlation between control and academic stress meaning students with high self esteem are less stressed than are those with low (Abouserie, 1994).

A separate study consisting of 157 females and 86 males indicated that life satisfaction is positively correlated to less stress both male and female college students with high life satisfaction had more demanding life styles than individuals with low life satisfaction, but they did not suffer greater personal stress. The significant role of fulfilling inter-personal relationships in overall life satisfaction was also evident (Bailey & Miller 1998).

Other studies such as structural equation analysis by (Struthers, Perry, & Menec, 2000) showed that the relationship between college students' academic stress and course grade was influenced by problem-focused coping and motivation but not emotion-focused coping.

Factor analyses of data obtained from 965 graduate and undergraduate students yielded a well-differentiated 11-factor solution of internally consistent and stable scores. The 57-item instrument distinguished between students with high and low stress and was unrelated to students' perceptions of their physical health (Blankstein, Flett, & Koledin, 1991).

Burleson and Goldsmith's (1998) study of 258 participants 258 suggested that verbalizations of positive emotion words in conjunction with reappraisals partially mediated the influence of person-centered comfort on emotional improvement Burleson, B. R., & Goldsmith, D. J. (1998). Furthermore, realizing that a coping mechanism is available when needed will cause the individual to reappraise a threat as less threatening. As another example, if a coping response is less effective than expected, you may reappraise the level of threat or reappraise what coping response is appropriate (Carver, Scheier, & Weintraub, 1989). In similar fashion, contemporary motivation theories focus on the cognitive and affective processes that instigate, direct, and sustain human action. Researchers investigate the operation of such processes as goals, expectations, attributions, values, and emotions (Pintrich & Schunk, 1996).

Educational research has yielded inconsistent results on the relation of self-efficacy to persistence. A positive relation may be found in the early stages of learning when greater persistence leads to better performance. As skills develop students should require less time to complete a task, which means that self-efficacy will relate negatively to persistence. With development, children are better able to determine how much persistence may be necessary to succeed. Thus, self-efficacy may predict persistence better at the higher grades. This issue needs to be explored during academic learning. (Schunk, 1995)

Studies have shown that positive attitude is correlated with effective strategies and problem solving and reinterpretation of problems. At the same time, the avoidance technique has been correlated to feelings of hopelessness and negative self worth. Furthermore, maintaining a positive attitude has been correlated with psychological well being. An overall feeling of well being is instrumental in strategizing a problem solving technique that in achieving healthy psychological state in all dimensions (Lazarus & Folkman, 1984).

All research points at the high level of stress among college students and the shortage of quality programs and or psychological models to address these stressors. It has been shown that stress could negatively impact academic performance and quality of life. Therefore, it is imperative that students are given the tools needed to have a positive college experience and gain access to good quality programs to help ease their stressors and teach them self defense mechanism combating stress.

STUDY LIMITATIONS AND RECOMMENDATIONS

AI psychological model was tested on students in the College of Liberal arts, which is predominately female yielding an imbalance in participants' gender and consequently impacting the results. Therefore, AI Model should be tested on college students in other colleges such as science and computer or film. In addition, the following considerations should be incorporated into future research: Rigorous study design, including randomization and control (comparison) groups, measurement of moderator variables to determine which intervention works best for whom, Specificity of outcome measures, and Follow-up assessment, including effectiveness of future patient care.

UNANTICIPATED RESULTS

Study revealed significant differences on how male and females responded to self appraisal questions. Participants in the AI study were mostly from Liberal Arts college, who are predominately females, whom significantly chose moderately less able to relax when compared to males' participants' response on the same relation. Also, females were significantly more likely to feel that they were having difficulty breathing when compared to males. Males were significantly more likely to feel capable of doing things when compared to females, who felt more capable of handling unforeseen issues when compared to females. These differences raise questions such as what are the gender differences in coping mechanism in stressful situation? How does each gender perceive self esteem, self worth, and self perception?

CONCLUSION

The AI experimentation teaches self analysis techniques and self help method for an individual to realize, recognize, address, and take on stressors in life. It also teaches participants how to develop emotional and cognitive mindfulness to better help label and combat such stressors. The overall results in this study show that students develop mindfulness of sources of stress, and learn utilization of emotional releasing techniques to reduce anxiety and depression. The AI treatment also increased their coping mechanism, improved their academic performance, and the quality of their relationships both in and the outside of the campus life. The final results showed significant reduction in the areas of anxiety, depression, and stress among the participants, who completed the modules within the period of the semester. As discussed, studies predominately show the correlation between positive attitude, effective strategies, and problem solving. An overall feeling of well being is instrumental in strategizing a problem solving technique that in achieving healthy psychological state in all dimensions. Self efficacy

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BARRIERS TO SOCIAL AND LANGUAGE DEVELOPMENT IN YOUNG CHILDREN: WHAT THE TEACHER SHOULD KNOW

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Our sensory channels are the means by which we communicate with and acquire knowledge about the world. In order for a specific type of learning to occur, the individual must receive adequate and sustained levels of sensory stimulation. Disruption of sensory channels (especially hearing) due to disease or lack of exposure leads to a variety of cognitive, social, and language impairments that could have a devastating impact on academic performance. These impairments can be prevented with early identification and intervention. This session discusses the nature of sensory development, with a focus on hearing; factors that put children at risk for social and language impairments; and practical ways for prevention and intervention.

This session consists of three parts. The first part discusses the formative years of sensory development and the critical role sensory stimulation plays in helping the brain build well-connected and efficient networks. The second part focusses on barriers to social and language development; and explains the specific risk factors that lead to sensory deprivation and subsequent academic difficulties. These risk factors include conductive and sensorineural hearing impairments; adenoid enlargement; exposure to second-hand smoking; mood and behavior of important adults (i.e., parents, teachers); and the nature and frequency of communication interactions with the child. The third part of the session provides evidence-based methods for providing rich sensory experiences that enhance children's social, language, and cognitive development both in the classroom and at home.

BASIC EDUCATIONAL TEACHER-ADMINISTRATOR INTERPERSONAL BEHAVIOURS UNDER THE OFFICE EDUCATIONAL COMMISSION IN THAILAND

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ABSTRACT

Comparatively speaking, the performance of Thai administrators in international studies of Thailand's relatively weak human resource base has been pinpointed as one of the underlying factors in the cause of the economic and financial crisis that has hit the country over recent years very poor. This research reports on a study that investigated the role that Thai administrators' interpersonal relationships with their teachers play in enhancing the teachers' teaching plan and students' achievement in the subject and in forming or changing the teachers' attitudes to teaching arrangement. The questionnaires were administered to a sample of 716 teachers in 80 schools under the Office of Basic Education Commission (OBEC) throughout of Thailand. Administrator-teacher interactions were assessed with the 48-item *Questionnaire on Administrator Interaction* (QAI) which was adapted version from the *Questionnaire on Teacher Interaction* (QTI) (Wubbles & Levy, 1993). This questionnaire has an Actual and Preferred Forms. Teachers' attitudes were assessed with the *Test of Administrator-Related Attitudes* (TOARA) which was based on the Test of Science-Related Attitudes (TOSRA) (Fraser, 1981). Statistically significant differences were found between the teachers' perceptions of actual and preferred administrator interpersonal behaviours. It was found that administrator interpersonal behaviour was high on factors such as *Leadership, Helping/Friendly, Understanding* and *Teacher Responsibility/Freedom* behaviour, while factors such as *Uncertain, Dissatisfied, Admonishing*, and *Strict* behaviours were far less prominent. Significant differences were found between teachers' perceptions of actual and preferred administrator interpersonal behaviours, and a typology comparison of teachers' perceptions of Thai administrators could be classified as *Authoritative* in both the actual and preferred administrators' interpersonal behaviours. Associations between teachers' perceptions of their administrators' interpersonal behaviour with their attitudes to their school administration were found. The multiple correlations were significant for the Actual Form of the QAI and the TOARA, 39% of the variance in teacher's attitude to their schools was attributable to their perceptions. Based on the findings, suggestions for determining and effecting the school administrations by school's administrator interpersonal behaviour for improving sustainable educational development in school's administration in Thailand with teachers' perceptions are provided.

BACKGROUND

Thailand's relatively weak human resource base has been pinpointed as one of the underlying factors in the cause of the economic and financial crisis that has hit the country over recent years. Many have highlighted the lack of Thai graduates capable of independent analytical thought as one factor responsible for the country's economic downfall. The fact of the crisis has brought home the need for a thorough re-examination of the country's human resource development system and set the stage for across-the-board reform of Thai education. Recognizing the urgent need for education reform, the government, acting through the Office of the National Education Commission (ONEC) under the Prime Minister's Office, has formulated policies and plans to bring about necessary changes within the Thai system. The National Education Act is the country's master legislation on education which will provide the framework for education reforms: learning reform, administrative reform, reform in learning and teaching, learners as the Center of Learning, and teachers as agents of learning reform. Regarding the **Ministry of Education**, the 1999 National Education Act and its 2002 Amendment as well as the 2003 Act for Streamlining of Ministries and Governmental Agencies mandate the amalgamation of the 3 ministries and agency responsible for education, namely, Ministry of Education, Ministry of University Affairs, and Office of the National Education Commission into a single Ministry of Education with a new administrative structure. The need for school reform can be explained in both international and national contexts. Internationally, societies are changing from industrial to information-based societies in which the creation and dissemination of knowledge play critical roles in industrial to information-based societies in which the creation

and dissemination of knowledge play critical roles in both individual and social development. However, that school reform does not simply happen within a classroom, but the whole system, within which education takes places, needs to change. Subsequently, the key elements for successful reform at the state, school and classroom levels are introduced. Inefficient management and administration of the education system, inequity of access to quality education, inadequately qualified teachers, and a rigid learning environment are identified as prime causes for the failure to address the private sector's human resource needs.

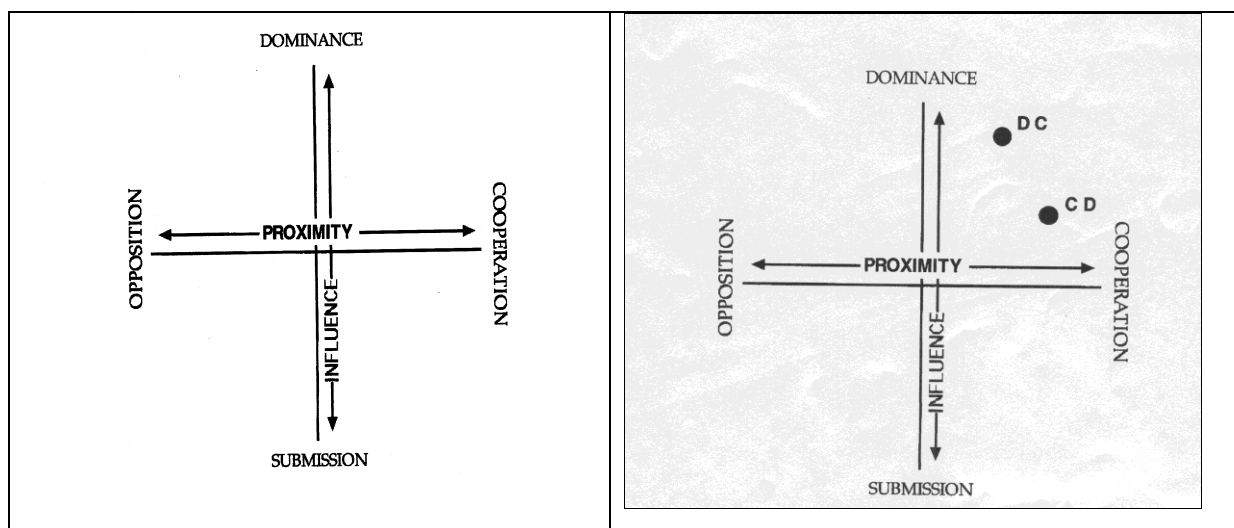
To successful implement school reform in Thailand, a number of key areas must be addressed including the approaches to learning and curriculum reforms, professionalization of teachers, appropriate assessment, use of technology, and considering unique Thai cultural aspects, especially, professionalization of Administrators. The professionalization of administrators requires the establishment of systematic support mechanisms including administrators licensing and administrator incentive schemes. Quality assurance of educational institutions is also an important tool for changing the way administrating is conducted by focusing on educational outputs consistent with schooling reform administrations.

Administrators in school district central offices oversee public schools under their jurisdiction. This group includes those who direct subject-area programs, supervise instructional coordinators and curriculum specialists, and work with them to evaluate curriculums and teaching techniques and improve them. Administrators also may oversee career counseling programs and testing that measures students' abilities and helps to place them in appropriate classes. With site-based management, administrators have transferred primary responsibility for many of these programs to the principals, assistant principals, teachers, instructional coordinators, and other staff in the schools.

Focusing on administrators, unlike teachers, work a twelve-month year and are fairly busy most of that time. Whether running a small, private day-care center or an overcrowded public high school, an administrator's tasks are many and various, ranging from curriculum development to student discipline. The most familiar school administrator is the principal. Any one of these administrators may be responsible for infrastructure maintenance, the hiring and training of teachers, and student affairs.

International research efforts over the last 30 years have firmly established classroom environment as a thriving field of study (Fraser, 1994). Recent classroom environment research has the teacher-student interactions that occur in the classroom (Wubbels & Levy, 1993). This study was to improve, adapt, and describe the determinants and effects of the actual and preferred of teachers' perceptions to extend this notion in order to obtain more comprehensive picture of administrator interpersonal behaviour within educational service area in school educational base environments in Thailand.

This study discusses the school environment instrument selected for use in this research. The rationale for the selection of the *Questionnaire on Administrator Interaction* (QAI) is followed by a discussion of the climate of school environments including how administrating is one of unique features of educational reform with in school environment and therefore, the selection of the *Test Of Administration-Related Attitude* (TOARA). Because teachers' perceptions of school environment have been favourably associated with teacher's attitude to school's administration, it was decided to select an appropriate measure of teachers' attitudes.



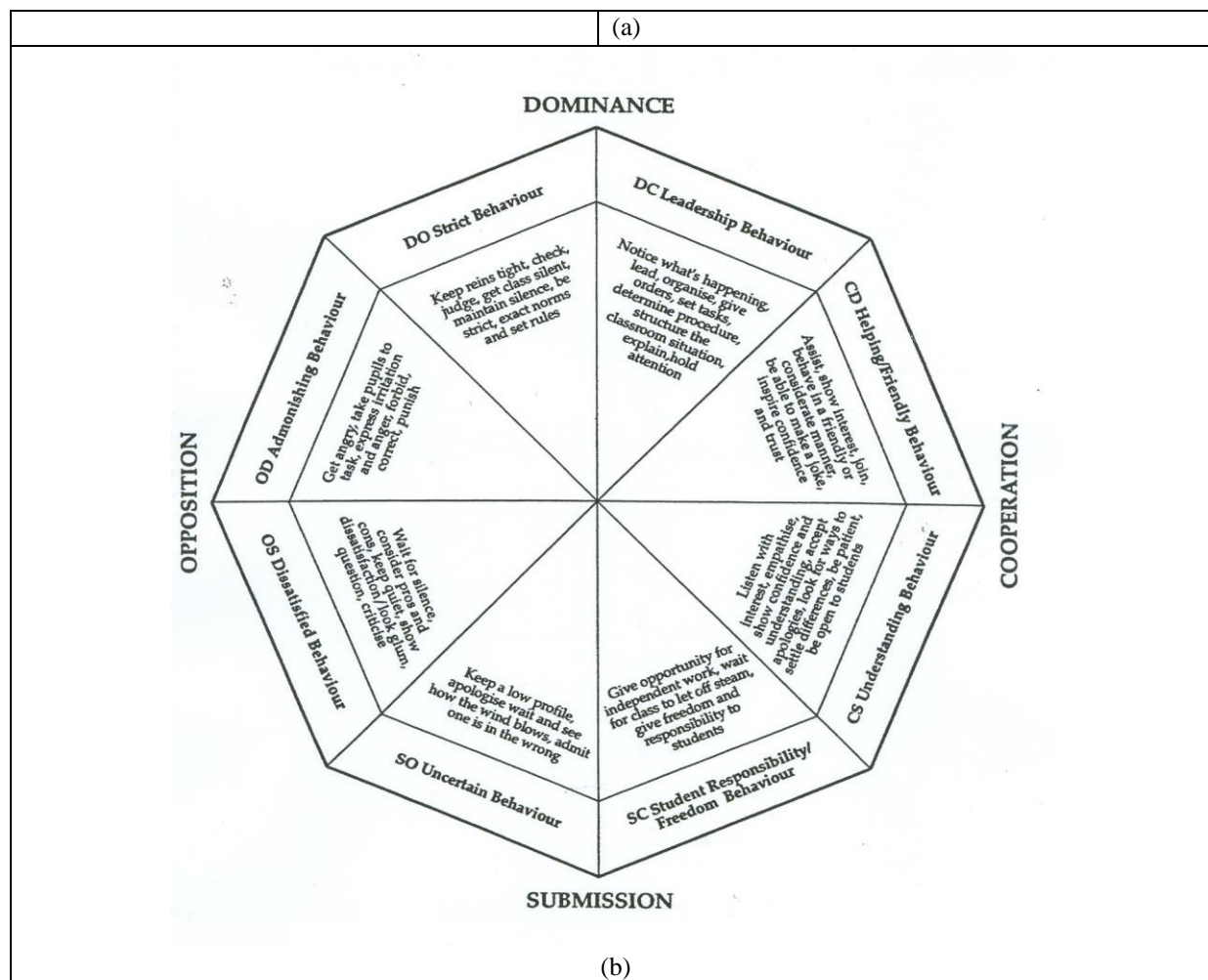


Figure.1. Leary model of interpersonal behaviour (Wubbels, Creton, Levy & Hooymayers, 1993, p.15) and Model for administrator interpersonal behaviour characteristics (Wubbels, 1993).

USING THE SCHOOL ENVIRONMENT INSTRUMENTS

In the last decade, many countries have used learning environment instruments in conducting research studies. In addition to a form, which measures perceptions of actual environment, the instruments have an additional form, which measures preferred environment. The preferred form is concerned with goals and value orientations as it measures perceptions of the environment ideally liked or preferred. Although item wording is almost identical for actual and preferred forms, the directions for answering the two forms instruct student clearly as to whether they are rating what their class is actually like or what they would preferred it to be like.

The Questionnaire on Administrator Interaction (QAI)

The Questionnaire on Administrator Interaction (QAI) was adapted version from the Questionnaire on Teacher Interaction (QTI). Historically, the QTI, classroom environment research grew out of the studies of Moos and Walberg in the late 1960s and early 1970s. Since then, a number of instruments have been developed with which it is possible to conduct research focusing on the classroom environment. Wubbels, Creton and Hoomayers (1985) focused on the teacher variable for improving the learning environment, and developed a model to map administrator interpersonal behaviour. It was based on the model for interpersonal behaviour of Leary (1957). Wubbels et al. (1985) adapted the Leary model and developed a model for interpersonal teacher behaviours. They mapped the behaviours of teacher with a proximity dimension (Cooperation, C - Opposition, O) and an influence dimension (Dominance, D - Submission, S). These dimensions can be represented in a coordinate system divided into eight equal sections as shown in Figure 1. Each sector of the diagram represented the following typical interpersonal behaviours of the teacher: *Leadership, Helping/Friendly, Understanding, Student Responsibility/ Freedom, Uncertain, Dissatisfied, Admonishing, and Strict* behaviours. The Leary model of the

two original dimensions of *dominance-submission* and *hostility-affection* was used in clinical psychology and psychology settings to describe interpersonal behavior. Leary used the model for developing a checklist of directly observable interaction to be called the *Interpersonal Adjective Checklist* (ICL) that had 128 items.

The QTI, which measures students' perceptions of teacher interpersonal behaviour, is based on this model (Wubbels & Levy, 1993). The Australia version of the QTI containing 48 items was used in studies involving science classes in Western Australia and Tasmania. The Thai version was translated of the QAI containing 48 items that it was intended this shorter Australian version would be used and adapted measures teachers' perceptions of administrator interpersonal behaviour of the typical interpersonal behaviours of administrator into *Leadership, Helping/Friendly, Understanding, Teacher Responsibility/Freedom, Certain, Satisfied, Monishing,* and *Strict* behaviours in this study.

The 16 categories of interpersonal behaviour developed by Leary were later reduced to eight categories (Wubbels, Creton, Levy, & Hooymayers, 1993). These eight can be presented in a two-dimensional system as represented in Figure 1(b).

Wubbels (1993) further divided each of the four quadrants of the Leary model into two sections, making a total of eight (Figure 1-b). The sections in the model for interpersonal administrator behaviours are labeled DC, CD, CS, SC, SO, OS, OD and DO according to their position in the coordinate x-y system. These behavioural aspects were labeled respectively *Leadership, Helping/Friendly, Understanding, Student Responsibility and Freedom, Uncertain, Dissatisfied, Admonishing* and *Strict* Behaviours. Characteristics of these behaviours appear in the sections of Figure 1.

RESEARCH AIMS

1. To assess comparisons between the teachers' perceptions of their actual and preferred administrator interpersonal behaviours to their administrations under the Office of Basic Education Commission in school's administration environments in Thailand?
2. To assess associations between teachers' perceptions of their administrators' interpersonal behaviours under the Office of Basic Education Commission in school's administration environments in Thailand?

RESERCH PROCEDUES

Research Instruments

In addition to the main questionnaires QAI, and the Test of Administration-Related Attitudes (TOARA), this adapted version from the Test of Science-Related Attitudes (TOSRA) (Fraser, 1981a). The TOARA questionnaire was selected to use with the aim of investigating any possible relationships with teachers' perceptions about their administrator's interpersonal behaviour in administrations in the basic education of school's administration environments. The TOARA consists of eight scales.

Sample

The main study involved the teachers who are teaching at the schooling educational base of the office of The Basic Education Schools under the Office of Basic Education Commission (OBEC) of Thailand. The study was conducted at 40 school environments. Overall, data were collected using the Thai versions of the QAI, and TOARA from a sample of 716 teachers in The Basic Education Schools under the Office of Basic Education Commission (OBEC) throughout in Thailand.

RESULTS

Validation and Reliability of the QAI and the TOARA

The results given in Table 1 shows that on average item means for each of the eight QAI scales, that they contain six items, score from 0 to 4, so that the minimum and maximum score possible on each of these scales is 0 and 24, respectively. Because of this difference in the number of items in the eight scales, the average item mean for each scale was calculated so that there is a fair basis for comparison between different scales. These means were used as a basis for constructing the simplified plots of significant differences between forms of the QAI shown in Figure 1. For the remaining eight scales, *Leadership, Helping/Friendly, Understanding, Teacher Responsibility/Freedom, Certainty, Satisfied, Monishing* and *Strict* behaviours, there were significant differences between students' perceptions of their actual and preferred teachers' interpersonal behaviour.

Table 1.

Scale Internal Consistency (Cronbach Alpha Reliability) and Ability to Differentiate Between Classrooms (ANOVA) for the QAI.

Scale	Form	Scale Mean	Scale Std. Dev.	Alpha Reliability	Discrim. Validity	Mean Differ.	t-test	ANOVA (<i>Eta</i> ²)
Leadership	Actual	18.86	3.45	0.80	0.41	2.37*	16.43*	0.15*
	Preferred	21.59	2.54	0.74	0.59			
Helping/Friendly	Actual	18.16	3.99	0.77	0.48	2.94*	29.29*	0.90*
	Preferred	21.10	2.70	0.73	0.56			
Understanding	Actual	18.67	3.50	0.81	0.40	2.64*	15.90*	0.13*
	Preferred	21.31	2.72	0.76	0.52			
Teacher Responsibility/ Freedom	Actual	17.62	3.59	0.71	0.43	3.00*	28.15*	0.84*
	Preferred	20.62	2.76	0.78	0.60			
Certainty	Actual	16.31	4.14	0.82	0.41	4.68*	25.31*	0.18*
	Preferred	20.99	3.58	0.74	0.59			
Satisfied	Actual	16.04	4.40	0.72	0.33	3.97*	65.86*	0.79*
	Preferred	20.01	3.15	0.77	0.52			
Monishing	Actual	15.71	3.99	0.76	0.42	5.17*	28.55*	0.18*
	Preferred	20.88	2.95	0.73	0.61			
Strict	Actual	16.41	3.68	0.71	0.49	3.43*	35.39*	0.89*
	Preferred	19.84	2.85	0.79	0.46			

* Correlation is significant at the 0.001 level (2-tailed)

The internal consistency reliability of the version QAI used in this study was determined by calculating Cronbach alpha coefficient for the 48 items of the QTI using both actual and preferred teachers' perceptions scores. Table 1 reports the internal consistency of the QAI, which ranged from 0.71 to 0.82 when using the teachers' actual scores and from 0.73 to 0.79 when using the teachers' preferred scores.

This characteristic was explored using a series of one-way analyses of variance on the scales of the QAI, which suggests that each scale of the QAI was able to differentiate significantly ($p < 0.001$) between teachers' perceptions in actual and preferred school administration environments by the administrator in the same school; environments. The *eta*² statistic which is the ratio of "between" to "total" sums of squares and represents the proportion of variance in scale scores accounted for class by membership, ranged from 0.13 to 0.90 for different scales.

In term of the TOARA, internal consistency (Cronbach alpha coefficient) was obtained for the sample in this present study as indices of scale reliability is 0.74.

Comparison of teachers' perceptions of their actual and preferred administrator interpersonal behaviours in the basic school administration environments in Thailand

On comparing differences between the teachers' perceptions of their actual and preferred administrator interpersonal behaviour in basic school administration environments in Figure 1, it was found that teachers' preferred perceptions an environment with upper levels of *Leadership*, *Helping/Friendly Understanding*, *Teacher Responsibility/ Freedom Certainty*, *Satisfied*, *Monishing*, and *Strict* behaviours than teachers' actual perceptions.

It is clear from a comparison of the preferred people for Thai administrators with the actual that Thai administrators would preferred their teachers to be friendlier, more understanding, more teacher responsibility and freedom, and demonstrate leadership behaviours. They would also prefer their administrators to be more admonishing, satisfied, certain, and strict behaviours.

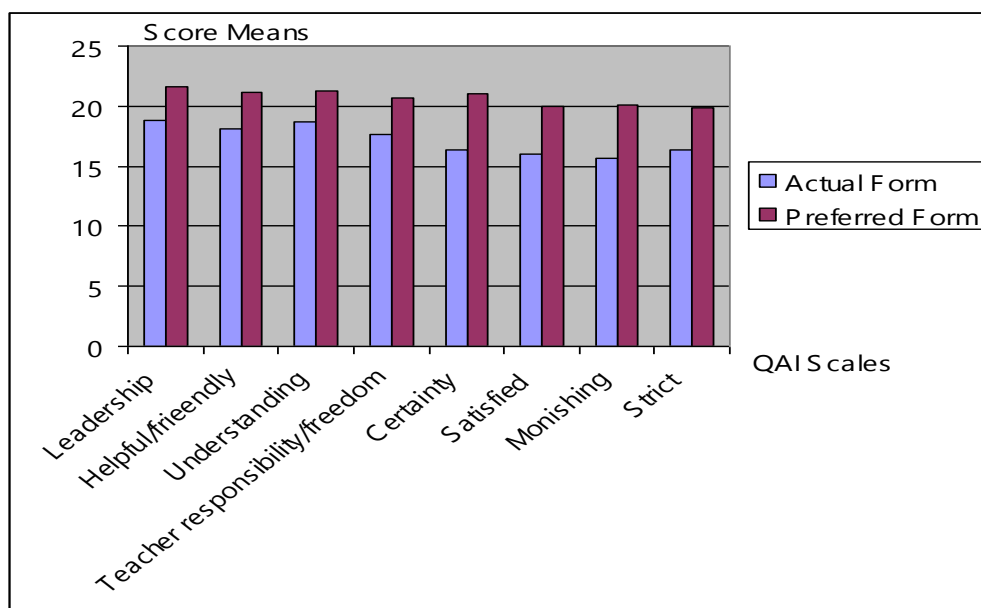


Figure 3. Simplified plot of significant differences between teachers' perceptions of their actual and preferred scores of the QAI.

Associations between teachers' perceptions of their administrators' interpersonal behaviour in school administration environments and their attitudes toward school administration:

The simple correlation values (r) are reported in Table 2 which show significant correlations ($p < 0.01$) between teachers' attitudinal outcomes and administrators' interpersonal behaviour on all of eight scales. These associations are positive for the scales of *Leadership*, *Helping/Friendly*, *Understanding*, *Certain*, *Monishing*, *Satisfied* and *Strict*. That is, in school administration environment where the administrators perceived greater leadership, helping/friendly and understanding behaviours in their teachers, there was a more favourable attitude towards their school administration environment.

The second type of analysis consisted of the more conservative standardized regression coefficient (β) which measures the association between teachers' perceptions on each scale of the QAI and their attitudes towards school administration when the effect of relationships between the scales is controlled.

The multiple correlation R is significant for Actual Forms of the QAI and shows that when the scales are considered together there is a significant ($p < 0.001$) association with the TOARA. The R^2 value indicates that 39% of the variance in teacher's attitude to their school administration environment was attributable to their perceptions of their administrators' interpersonal behaviour. The beta weights (β) show that in school administration environments where the administrators perceived greater leadership, helping/friendly, understanding, teacher responsibility/freedom, certain, monishing, satisfied and strict behaviours in their administrators, there was a more favorable attitude towards their school administration environments.

Table 2

Associations between QTI Scales and Attitudes to Physics Classes in Terms of Simple and Multiple Correlations (R) and Standardized Regression Coefficient (β)

Scale	Simple Correlation Attitude (r)	Standardized Regression Weight Attitude (β)
Leadership	0.25*	0.21*
Helping/Friendly	0.27*	0.20*
Understanding	0.26*	0.21*
Teacher Responsibility/Freedom	0.22*	0.30*
Uncertain	0.25*	0.31*
Dissatisfied	0.33*	0.32*
Admonishing	0.26*	0.21*
Strict	0.21*	0.26*
Multiple Correlation (R)		0.63*
R^2		0.39*

$n = 716$, * $p < 0.05$, ** $p < 0.01$

CONCLUSIONS

In this study, appropriate statistical procedures were used in order to follow the two research aims, regarding the validation of the questionnaires. The procedures included Cronbach alpha coefficient, discriminant validity; compare means (t -test) and one-way ANOVA. The two instruments, namely, the Questionnaire on Teacher Interaction (QAI), and the Test Of Administration-Related Attitude (TOARA), are valid and reliable for use in schools of the office of the base educational service in Thailand.

Overall, Thai base educational service area of schools' administrators show relatively favourable perceptions of their school administration environments. However, the actual and preferred perceptions of 716 teachers of their administrators' interpersonal behaviour in school administration environments were measured with the QAI. The comparisons of the Actual Form with the Preferred Form indicated that administrators' roles would prefer more leadership, helping/friendly and understanding, certain, satisfied, monishing and strict behaviours in their administrators in school administration environments tended to be greater than what they actually perceive to be provided.

This study is very important because it is one of only a handful of studies in the field of school administration environments in Thailand, and it represents one of only a few studies worldwide that has focused on the school administration environment at the office of educational service area in Thailand.. This study is significant in that, by translating, field-testing, refining, validating, and using the two modified versions of the QAI and the TOARA. Overall, the findings of the present study have made several distinctive contributions to the field of school administration environments that were studies to be carried out in Thailand.

IMPLICATIONS FOR IMPROVING SCHOOL ADMINISTRATION ENVIRONMENTS FOR SUSTAINABLE EDUCATIONAL DEVELOPMENT

This study still has several tentative implications for school's administrators, and educational researchers in Thailand. Two generally applicable instruments were used: the Questionnaire on Administrator Interaction (QAI), and the Test Of Administration-Related Attitude (TOARA), and were found valid and reliable for use in Thailand's schools. The availability of these instruments provides a means by which teachers' perceptions can be monitored for administrators to attempt to improve their administration roles; To successfully implement school reform in Thailand, a number of key areas must be addressed including the approaches to learning and curriculum reforms, appropriate assessment, use of technology, and considering unique Thai cultural aspects, especially, professionalization of Administrators.

Based on the findings, suggestions for improving the school environment are needed. Administrators have to give administrators' roles which promote school cohesion, give teachers practical activities related to what students learn in school classes, give ideas related to teachers' prior knowledge, previews to connect to future school environments, make a clearly organizational plan for advising, and vary the rate of delivery where appropriate. Administrators should change and use more effective body movements and gestures, introduce a stated organization of school administration environments, give sufficient variety in supporting information, promote higher order thinking, and should give feedback that is informative and incorporates teachers' and students' responses, or provider of outlines and handout of the reader roles of school's administrator.

Although Thailand's administrator interpersonal behaviours were perceived by teachers as favourable, evidence from research on administrator-teacher relationships indicated widely differing teachers' perceptions of their actual and preferred administrator interpersonal behaviors in school administration environments. Teachers preferred their administrators to exhibit more positive leadership, helping/friendly, and understanding, and student responsibility/freedom, certainty, satisfied, monishing and strict behaviours. However, the administrators' interpersonal behaviours showed a gap between the actual and preferred administrators' interpersonal behaviour in all of the behaviours measured. Therefore, it is important for school's administrators to improve their interpersonal behaviour towards teachers so that this gap between teachers' actual and preferred administrator interpersonal behaviour will decrease. Thus, school's administrators should develop the reader roles of administrating activities in school environments that will enable them to exhibit more cooperatives to achieve behaviours and less oppositional ones.

SUGGESTIONS FOR TOMORROW RESEARCH IN THAILAND

School environment research in Thailand is one of the reforms the Thai government has been providing in accordance with the Ninth National Education Development Plan (2002-2006). Most of the administrators who are administrating in primary and secondary education, must improve their administrating by using the findings of school administration environment research. This present study is one of the first school administration environment studies in Thailand involving two separate measures, the Questionnaire on Administrator Interaction (QAI), as well as the Test Of Administration-Related Attitude (TOARA). These instruments have been shown to be reliable and valid for use in future studies in Thailand. By using these instruments, a number of school administration environment research directions can be pursued in Thailand.

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BEHAVIORAL USAGE PATTERN ANALYSIS OF FIREWALL LOG DATA IN THE**Raymund BAESA***raymund.baesa@angelicum.edu.ph***Jasmin NIGUIDULA***jasniguidula@yahoo.com***Sophia MANTUANO-BAESA***semantuano@yahoo*

This study aims to contribute to the literature on accurate examination of ‘cyberslacking’ or personal internet usage at work. It explores the records and information derived from firewall log data of the twenty-two (22) computer units assigned to Angelicum College HSP facilitators for the three (3) randomly selected days in the month of February 2017. While all recorded logs can be generated using Untangle, this research tested the use of Waikato Environment for Knowledge Analysis (Weka), specifically its J48 classifier, to explicitly characterize the participants’ internet usage during office hours. This was considered since Untangle only records the logs but cannot classify or cluster them. Thus, it bridges the limitation of self-reported data on internet usage by using firewall log data to describe the internet usage of teachers in school. Based on the findings, this research offers some points for consideration in revising the existing policies on Information Technology Use and other related facilities in school. Based on the analysis of data, the study proposes a system that could easily get insight from an open source firewall data by creating clusters of similar-patterned usage behavior of users using accessible classifiers such as Weka’s J48. The J48 classifier differentiates the logs of the twenty two (22) computer units in the HSP, according to their frequency of usage and the ranking of blocked users. Five clusters were determined based on these classifications.

Close

BEST PRACTICES IN TEACHING VALUES EDUCATION TO GIFTED HIGH SCHOOL STUDENTS

Flories ANDA

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ABSTRACT

This paper aims at identifying the teaching strategies and methods that are considered as best practices in teaching values to gifted high school students. Using the theory of teaching modes, the study intends to classify which of these teaching modes apply in teaching the gifted. Based on the student-respondents' answers to a school-year ender evaluation in Values Education class and on the character formation program report of various campuses in a high school for the gifted, results show that there are several teaching strategies and methods such as games, interactive class presentations and projects, community service, and film showings that refer to learning through action and experience mode. Some students also identified direct teaching and teaching through dialogue and discussion modes as effective ways of teaching since values, being abstract concepts, need to be explicitly taught. There are few teaching methods that are characteristic of learning by enquiry and thus may point to a need for more teacher training on this. Other teaching strategies do not necessarily fall into any of the categories but are remarkable to this study, i.e., the importance of stimulating the intellectual operations characteristic of the gifted and the ethical environment that has to be cultivated in the classroom itself.

INTRODUCTION

Teaching gifted students can be a challenging task for teachers since their learning ability far surpasses those of the average students. One of the definitions of giftedness was offered by Renzulli in his three-ring concept of giftedness that consists of above-average ability, task commitment, and creativity (Colangelo & Davis, 1997). Gifted individuals then have higher intellectual capacity, more persistent in doing tasks, and are more creative in their thinking. Delisle and Lewis (2003) described gifted learners as those who can memorize facts and concepts quickly and thus can get bored, daydream, or disturb others; can communicate ideas well which can be a show off, or monopolize discussions that may provoke resentment among their classmates; are curious about practically everything; and, can be assertive and stubborn in their opinions.

Teaching gifted students Values Education, i.e., education in virtues and character, is even more a daunting job, since their moral reasoning is also more advanced than other students (Davis & Rimm, 2011). In a study of Karnes and Brown in 1981, gifted students can already reach the post conventional level in Kohlberg's model of moral development- comprises the recognition of universal moral principles as valid and can be basis of right action- in their high school years, which is reached by only a small percentage of adults. Gifted students have a strong sense of justice, moral principles, and individual rights. Because of their advanced cognition and sense of justice, they tend to have more advanced capacities for moral reasoning (Berkowitz & Hoppe, 2009). At the same time, gifted students tend to aspire to make a positive impact on society (Davis & Rimm, 2011).

For many schools, the Values Education, Moral Education, or Character Education is part of the curriculum that addresses the moral development of the students. In the study of Lakshmi (2014), values education is referred to as a process of teaching and learning about the ideals of a society that aims not only for understanding the values, but also reflecting them in students' attitudes and behaviors, promoting good citizenship and ethical practice, thus contributing to the society. Moral education, at least for Plato, has as its goal to bring the seats of human motivation, i.e. the desire to know and understand by the reason, the ambition for achievement and honor by the spirit, and the longing for satisfaction by the appetite, into an intelligent harmony (Ryan & Bolin, 1999). Character education programs, meanwhile, seek to uphold moral and ethical growth (Davis & Rimm, 2011) or are concerned about acquiring integrity (Ryan & Bolin, 1999). Elkind and Sweet (2004) adapted Dr. Thomas Lickona's description of character education as the well-intended effort of making persons understand, have concern for, and behave according to the core ethical values. In summary, all of these types of values curricula point to the character development and human flourishing of the students.

At the same time, Renzulli posited that "the strategies that are used to develop giftedness in young people

should give as much attention to the co-cognitive conditions of development...” (Davis & Rimm, 2011, p. 269). It is the aim of this paper, therefore, to explore and present best practices- “techniques and methods that seem to be more effective at helping to deliver a desired outcome” (Callard-Szulgit, 2010, p. 22)- in this case, inculcating values, those which can be considered co-cognitive conditions of development, among this type of students. As such, these practices can aid the gifted students in achieving their aspiration of making a potent difference to the society at present and in the future.

THE STUDY

“...The teaching profession at the present time needs a simple and flexible classification of teaching that is both theoretically powerful and practically useful.” (Skinner, 2010, p. 23). Hence, Skinner presented the theory of teaching modes and identified four modes of teaching and learning as direct teaching, teaching through dialogue and discussion, learning through action and experience, and learning through enquiry. Firstly, the direct teaching mode has the basic feature of directly presenting the ideas and skills to the students. The students learn by “attending to and absorbing critically the direct presentation of ideas, skills, and information” (p. 35). Secondly, the teaching through dialogue and discussion mode highlights classroom interaction in the form of conversations, question and answer sessions, and various forms of open discussion. Given the clarity of educational aims for this mode, students learn through interaction of ideas among each other. Thirdly, the learning through action and experience or active learning mode is characterized by engaging and challenging children’s thinking skills using real-life instances, or is plainly learning by doing. Lastly, the learning through enquiry with its different types such as problem solving, experiments, etc. and learning outcomes, emphasizes the questioning process for the students to arrive at or discover concepts by themselves. Effective teaching, then, is having mastery of each mode.

Does this theory of teaching modes apply to teaching the gifted? For teaching Values Education to gifted high school students, which of these modes of teaching are employed and considered to be effective to produce the desired outcome of understanding and applying values? What are examples of strategies, activities, and projects that serve as best practices for better teaching and effective learning?

This study focused on the case of the Philippine Science High School (PSHS), the premier science high school of the country, that is mandated to provide an education that is “humanistic in spirit, global in perspective and patriotic in orientation” (www.pshs.edu.ph) to its scholars who passed the national competitive exam and bested around 24,000 applicants every year. These scholars have high aptitude in math and the sciences and thus considered to be gifted in the country. The vision of the Philippine Science High School for its scholars is to have a scientific mind and a passion for excellence, dedicated to the service of country and committed to the pursuit of truth. A number of scholars have given recognition to the Philippines through their remarkable achievements in different international contests and research competitions. Furthermore, many graduates are dedicated to public service, emphasizing their generous contribution to the country. To date, the Philippine Science High School System is comprised of 14 campuses nationwide.

The PSHS has started the 6-year high school curriculum to respond to the K-12 educational program promulgated by the Philippine government recently. While Values Education may be treated in three levels: classroom, school, and community that interact with one another (DeNobile & Hogan, 2014), the Values Education (VE) of PSHS is being offered as a course or subject in the foundational years (Grades 7 and 8) in the current 3-tier or 6-year high school curriculum and thus, is limited to or focused on the classroom level. In its course syllabi, VE I for Grade 7 students has the course title “Foundation of Values” which emphasizes on human nature as an integral component to attaining virtues for good character. On the other hand, VE II for Grade 8 students have the course title “Foundation of Human Action” which offers a set of ethical standards governing the universal moral values that serve as framework in analyzing issues confronting adolescents today. It emphasizes on the impact of personal choices and the consequences of one’s actions to self, others, and society. The content or curriculum of VE, however, is outside of the scope of the study, since the focus is on teaching or instruction of the course.

In identifying the best practices in teaching VE, 2 main sources of information were utilized: 1) the open-ended survey among 48 respondents of Grade 8 students and 2) some documents of the PSHS System i.e., of the different campuses as regards best practices in character formation entitled as “Best Practices in Encouraging Good Manners and Inculcating Good Values in the Students”. The survey was conducted among Grade 8

students of the researcher as part of an optional class evaluation upon finishing the academic year of 2016-17 in the PSHS Main Campus, situated in Manila, the first campus to be built. These 48 students comprised most of the 2 classes who responded to the survey. The questions were direct in asking what best practices, i.e. strategies and methods were applied in Value Education classes that helped them learn the subject matter, and the reasons for their answers. Meanwhile, the data that were submitted by the representative of each PSHS campus to a technical working committee that studied the character formation efforts done in the PSHS System, were culled according to the objective of this study, i.e. the practices being done in the Value Education classes. More information about the practices was added by the researcher who teaches the same course in order to concretize and enrich the findings of the study.

FINDINGS

The answers of the students on the survey or evaluation questions were varied. Each respondent identified 1-3 teaching strategies, methods, or activities. But among the best practices enumerated individually by these 48 student-respondents, playing games was one of the top 2 answers. For those who learn better with games, 9 of the total respondents, they claimed that they get energized and light-hearted, especially if the games are done as an introduction to a discussion. Students realized that values become memorable and can be applied to games and in real life. Thus, games provide an indirect chance to practise the values. One respondent claimed that since values are a serious matter, he was encouraged to practise them and not just to learn about them because of these fun games. Also, with the implementation of games, teaching becomes more interactive and stimulates creative thinking. Some of the games played in the VE classes involved solving puzzles, playing game boards such as Taboo, Pictionary, and even 4 Pics 1 Word. These claims can well support the play-based learning as discussed by Farber (2015) in his book “Gamify Your Classroom.” Games and playing are considered to be supplement to learning that at times can be serious. Adapting Piaget’s thoughts, games symbolize a method to integrate information and to acquire cultural norms. For Vygotsky, games naturally prepare children to life as adults, especially if they point to regulate behavior. The rules applied to the games in the classroom indeed serve to educate the students in the rules of life. With mainly the interactive component of games, one can deduce the aspect of learning through action and experience as the mode of teaching gifted high school students can benefit from. As one of the respondents claimed, it is ultimately learning by doing.

Other answers of the students in the survey also reflected a mode of learning through action and experience. These answers were, among others, hands-on activities (4 answers), interactive presentations or class projects (4 answers), learning from experience and applying them/learning then doing it (2 answers), and real-life examples (2 answers). The main reasons for these methods or activities were supportive of the adage: the more senses are engaged, the better learning there will be. A remarkable reason also given was that these activities stimulate creative thinking, a characteristic of the gifted. In real-life examples, on the other hand, students get to identify with role models. With these methods and activities, teachers then are recommended to teach interactively, to make students work together, teach one another and be more involved in their own education and their classmates’ as well (Bauer, Benkstein, Pittel, & Koury, n.d.).

Various strategies among the regional campuses of the PSHS System pointed to the mode of learning through action and experience. For instance, the VE classes in the West Visayas Campus highlighted its “Love Jam” which is a concert that aims to promote the principle of real love that waits, commits, and endures (Ocampo, 2016). Meanwhile, the CALABARZON Campus has its “Television Project” that engages the students to create a story that features specific human values shown in 12 colorful and creative television slides (Laurena, 2016). It also has its “ISAGAWA” (To Apply in One’s Thoughts, Words, and Deeds), a 3-minute infomercial done by students that teaches the value of human dignity by fostering social grace and community building. Moreover, the report of the Main Campus listed the Alternative Classroom Learning Experiences-ACLE, an annually-organized activity of the VE classes, as a way to inculcate values among the students (Briones, 2016). ACLE is a set of activities that offers various learning workshops on different interests such as calligraphy, cooking, photography, theatre, dancing, etc. that students can attend and participate in as they discover the various virtues that can be deduced from these workshops. All these methods reflect the idea that since values are comprehended in an abstract way, they have to be understood and practised through experience. As Ryan and Bolin (1999) put it, character involves thinking, feeling, and doing.

Very much part of the mode of learning through action and experience is the outreach project/community service that was deemed as best practice by at least one of the respondents and by teachers who prepared the character formation activities done in various campuses of PSHS. In the West Visayas Campus, service learning is done to a select public elementary school whereby scholars are divided into teams of 5 and each team is assigned to take care of a group of public school children for 3 to 4 hours. In this activity, the gifted high school students are provided the opportunity to share stories, lessons in different fields of interests, conduct games, songs and team building sessions. The Television Project of the CALABARZON Campus also has its outreach component as the students present these “slides” of values to the children of a nearby Day Care Center. In the Main Campus, each of the VE classes goes out of the campus to visit orphanages and hospitals in order to play and read stories with the children in these institutions. These outreach projects put a strong emphasis on opportunities to serve others. Service learning is very much at the heart of character education. Community service is a form of altruism that helps communities and aids in building self-concept among students. More importantly, students learn about the desirability of values that relate to caring for others. (Davis & Rimm, 2011). In relating with others in these outreach projects, students are helped to empathize with others, to get out of their own world, and to practise to behave in an ethical and altruistic manner (Ryan & Bolin, 1999). Moreover, for gifted children who are characterized to be altruistic and assertive, service learning is precisely providing them the opportunity to learn by serving others and to exercise their leadership and be empowered, which are features of effective character education (Berkowitz & Hoppe, 2009).

Another best practice that topped the answers of the student-respondents, together with games, was film showing. For those who preferred film showings in class (9 out of the 48 respondents), the main reason was that those students considered themselves as visual learners, i.e., they can easily remember the scenes and the values these portray as they picture them in their mind. Aside from catching their attention, movies provide fun, enjoyment and entertainment while learning. Some examples of movie shown in the classes were *The Emperors' Club*, *Gifted Hands*, *Fireproof*, *Pelle*, *Children of Heaven*, *Akeelah and the Bee*, and *Sully*. Apart from the reason that the students gave, Wright (2013), commenting on the book “*Reel Character Education: A Cinematic Approach to Character Development*” by Russell and Waters, indicated in her article that films indeed have an important role of inciting meaningful discussions on social matters, personal beliefs, and moral questions. Films can be a potent teaching method, particularly for the young people, to help them develop character and make positive decisions. Film showing as a teaching method, however, may not be a mode of learning through action and experience per se. But, it may be considered as learning through vicarious experience; i.e., learning through the experiences of others.

On the other hand, a number of respondents referred to examples of direct teaching and teaching through dialogue and discussion as effective modes of learning. Specific answers were “full dictation”, “discussions”, “thorough analysis of morality”, “teaching the consequences of not having the value”, and “giving importance to happiness to improve ourselves”. The reasons given were mainly to learn the concepts and understand them fully. In teaching values then, explanations about them are needed in order to enhance the students’ understanding (Ryan & Bolin, 1999). There is a need to explicitly teach values so students know what the values mean and how the values are lived (Broadbent & Boyle, 2013). Explanations include among others, the definition and importance of that value. And, in discussing universal values, it is a good practice to base them on the impact of one’s behavior upon others (Davis & Rimm, 2011). These explanations spur on to dialogue and discourse between teachers and students, and among students as well.

Based on the answers of the student-respondents, there seemed to be no element of learning through enquiry that is considered remarkable as a mode of teaching. One campus, however, reported an assessment tool being used in the VE classes which may have the feature of this mode. Such assessment tool aims to elicit relevant concepts and ideas students learn from the lessons (Laurena, 2016). The students are challenged to explore the lessons in values by formulating essential questions and try to respond to the same questions that are relevant to their lives. Meanwhile, the report of the Main Campus highlighted journal writing in VE as a best practice in the character formation of the students (Briones, 2016). It can be a mode of learning through enquiry since the students are usually asked questions to answer and write in their journal: “What positive thing did I do today? What negative thing did I do today? What can I do tomorrow to be a better person?” Such questions may also aid in enhancing the reflective thinking of the students. As Lovat (2005) claimed, students have to be engaged in other skills such as self-reflection which is basically the knowledge that comes from knowing one’s self and that provides the

basis for one's moral principles. Since among the teaching modes, learning through enquiry requires the teacher's recognition of range of types of enquiry, and varying structures and processes (Skinner, 2010), its application in teaching VE may need more training on the part of the teachers.

Some of the answers of the student-respondents which they considered best practices in teaching values may not fall in any of the teaching modes and yet they are remarkable to this study since they can point to the intellectual operations of the gifted. Strategies such as storytelling (2 answers) and making acronyms, puns or concept associations (3 answers) can be an application of Guilford's system of intellectual operations in the gifted. He enumerated them: cognitive memory, convergent thinking, divergent thinking, and evaluation as the dimensions of his thinking skills model (Gallagher & Gallagher, 1994). Gifted students appreciated storytelling since it allows them to exercise their cognitive memory as regards the what, where, and how of a story and at the same time practise the evaluation dimension as they try to extract the values from that story and apply them in other situations. Biographical stories, fictional and non-fictional anecdotes comprise most of the storytelling sessions in the VE classes. As claimed by Hopkinson (2008), in addition to the qualities of heroes, other elements in myths and fairytales relate lessons on values. These stories help students find meaning in their life, learn about various values, and aid in one's decision-making and personal development. Making acronyms, puns and word associations in the classroom, on the other hand, are aids to learning and can be manifestation of analogous thinking, that capacity to draw analogies, to identify associations between ideas or even to link two different concepts or events together (Gallagher & Gallagher, 1994). For instance, a class activity was done where students were asked to make a traffic sign- a concept, and incorporate the value of patience -another concept- to it. One output of students made use of the traffic sign STOP and continued with the tagline for patience: "Learn how to wait."

Another interesting finding of this study among a considerable number of the student-respondents (10 out of 48 of them) referred not exactly to the way of teaching but in the ethos or the environment in the classroom. A number of respondents pointed to patience, compassion, and respect for others as rather important in teaching VE. Others answered: "being morally good and clean" (as also monitored outside the classroom), "humility", "expressing good qualities to one another", "open-minded", "following the unspoken rule"-as supposed to refer to the basic rules of good manners and right conduct. These may be reflective of the values in action or values experienced in the classroom itself that make it conducive to learning values. Students can learn and adopt the values more if there is already an atmosphere of values in the classroom, a certain ethical environment (Ryan & Bolin, 1999). The students claimed that learning and experiencing these values help one to improve one's personality and character, to succeed in life, to live a joyful and satisfying life and that benefit practically everyone. This result is supportive of the study on the impact of values education on student health and well-being and that positive education leads to the intellectual, social, emotional, and moral growth of the person (Broadbent & Boyle, 2013). To further analyze this result, one can say that it falls on the responsibility of the teacher to create this ethical environment in the classroom (Ryan & Bolin, 1999). Teachers have this key role in cultivating and maintaining, among others: respect and compassion, and that the "unspoken rule" should always be followed.

The above findings can be reinforced by more researches on this topic and with participation of more students, including Values Education teachers, in gathering relevant data. Also, best practices in teaching values that are yet to be implemented in the VE classes of the PSHS campuses can be explored. Furthermore, a separate research can study Values Education not just as a subject in class but more so, as a form of a school-wide campaign for character development. Lastly, other modes of teaching or theories of learning specific for the gifted can be used as a conceptual framework of future studies.

CONCLUSION

Among the modes of teaching for effective learning, strategies and activities that refer to learning through action and experience are considered as best practices in teaching values to gifted high school students. Examples of which are games, hands-on and interactive class presentations, and even film showings. Remarkable among these activities are the outreach projects or community service that develops the caring values among the gifted students and empowers them to help others and thus exhibit altruism which is very characteristic of the gifted. Moreover, a number of the students pointed to the modes of direct teaching and teaching through dialogue and discussion which provide them opportunity to understand and analyze the abstract ideas presented to them.

Besides, researches show that there is a need to explicitly teach the values, what they are and how they are lived. With regard to learning through enquiry, few manifestations of these in the VE classes demand that this mode be made more familiar with the teachers through trainings and workshops. In summary, the class discussions in the article of Elkind and Sweet (2004) featured in www.goodcharacter.com has put it indeed succinctly: “The best forms of character education [or values education] also involve students in honest, thoughtful discussion and reflection regarding the moral implications of what they see around them, what they are told, and what they personally do and experience.”

There are strategies and activities, moreover, that may not fall into the four modes of teaching and yet considered to be best practices or aids to effective learning because they addressed the thinking operations described of the gifted such as the operations of creative thinking and evaluation.

Another remarkable result of this study is having an ethical environment in the classroom, i.e. students realized the presence of the values in the classroom as the proper occasion and opportunity for understanding and application of the values themselves thus promoting student moral well-being. In the end, as Berkowitz and Hoppe (2009) explained it well: “Good character [or values] education is good education... and that good character [values] education is also good gifted education” (p. 140).

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BİLGİSAYARCA DÜŞÜNME BECERİLERİ İLE PROGRAMLAMAYA GİRİŞ VE ALGORİTMA DERSİ BAŞARISI ARASINDAKİ İLİŞKİNİN İNCELENMESİ: YAZILIM MÜHENDİSLİĞİ ÖRNEĞİ

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ÖZET

Bilgisayarca düşünme becerisi günümüz bireylerinde aranan temel düşünme becerileri arasında kabul görmeye başlamıştır. Bilgisayarca düşünme becerileri hemen her bireyde istenen bir beceri olmakla birlikte bilgisayar bilimleri alanındaki bireyler için ayrıca önem taşımaktadır. Bu bağlamda çalışmada yazılım mühendisliği birinci sınıf öğrencilerinin bilgisayarca düşünme becerileri ile programlama dersi başarıları arasındaki ilişkinin incelenmesi amaçlanmıştır. Çalışma 2016-2017 güz yarıyılında Türkiye'deki bir üniversitenin yazılım mühendisliği bölümü, programlamaya giriş ve algoritma dersini ilk kez alan toplam 52 öğrenci ile yürütülmüştür. Araştırmada veri toplama aracı olarak bilgisayarca düşünme becerileri ölçeği ve programlama başarı testi kullanılmıştır. Çalışmadan elde edilen veriler betimsel istatistik sürecinden geçirilmiştir. Çalışmanın sonuçlarına göre öğrencilerin bilgisayarca düşünme becerileri ile programlama dersi başarıları arasında düşük düzeyde bir ilişki olduğu sonucuna varılmıştır.

Anahtar kelimeler: Bilgisayarca düşünme becerisi, programlama başarıları, mühendislik eğitimi

ABSTRACT

The computational thinking skill has begun to be accepted among the basic thinking skills of today's individuals. This skill is a desirable skill in almost every individual, and it is also important for individuals in the field of computer science. In this context, the aim of the study is to examine the relationship between computational thinking skills and the success of programming course of the software engineering first grade students. The study was carried out in the fall semester of 2016-2017 with a total of 52 students taking a course in software engineering department of a university in Turkey, introduction to programming and algorithm course for the first time. In the research, computational thinking skills scale and programming success test were used as data collection tools. The data obtained from the study were passed through the descriptive statistics process. According to the results of the study, it was concluded that there was a low level of relationship between the students' computational thinking skills and the achievement of the programming course.

Keywords: Computational thinking skills, programming achievement, engineering education

GİRİŞ

Günümüz eğitim sistemlerinin odak noktalarından birisi de düşünme becerileridir. Farklı düşünme becerilerinin önem kazanmaya başlaması ile birlikte dilimize bilgisayarca düşünme veya hesaplamalı düşünme olarak çevrilen “computational thinking” kavramının da günümüz bireylerinin taşıması gereken düşünme becerileri arasında öne çıktığı söylenebilir (Wing, 2006). Bilgisayarca düşünme farklı araştırmacılar tarafından farklı şekillerde tanımlanmıştır. Nitekim bilgisayarca düşünmeyi Korkmaz, Çakır ve Özden (2017) bir tür problem çözme, sistem tasarımı ve bilgisayar biliminin temelleri doğrultusunda bireylerin davranışlarını anlama yaklaşımı olarak, Wing (2008) analitik düşünme olarak, Özden (2015) ise günlük hayatta karşılaşılan problemlerin çözümünde bilgisayarı üretim aracı olarak kullanmak için gerekli bilgi, beceri ve tutuma sahip olma olarak tanımlamaktadır.

Bilgisayarca düşünme becerisinin farklı düşünme becerilerinin bir araya gelmesinden oluştuğu yönünde düşünceler mevcuttur. Nitekim Barr, Harrison, ve Conery, (2011) bilgisayarca düşünme becerisinin yaratıcı

düşünme, algoritmik düşünme, eleştirel düşünme, problem çözme, işbirlikli öğrenme ve iletişim becerileri olmadan tanımlanamayacağına vurgu yapmaktadır. Bu açıdan bakıldığında bilgisayarca düşünme becerisinin bireylerin düşünme sistemlerinde önemli bir yer tuttuğu söylenebilir. Günümüz bireylerinin taşıması gereken özelliklerin başında yenilikçilik, araştırmacılık, problem çözme, eleştirel düşünme, sosyal ve iletişim becerilerinin geldiği düşünüldüğünde (Günüç, Odabaşı, ve Kuzu 2013), bilgisayarca düşünme becerisinin sadece bilgisayar bilimlerinde öğrenim görenler için değil, tüm bireylerin taşıması gereken temel beceriler arasında sayılmasının gerekçesi daha net ortaya çıkmaktadır.

Bilgisayarca düşünme sadece bilgisayar bilimleri ile ilgilenen öğrencilere özgü olarak düşünülmemekle birlikte, bilgisayar bilimleri ve programlama alanlarında öğrenim gören öğrenciler için ayrı bir öneme sahip olduğunu söylemek mümkündür. Nitekim Korkmaz, Çakır, ve Özden'e (2015) göre öğrenciler bilgisayarca düşünmeyi, bir problemin çözümü için algoritma geliştirirken veya hesaplamayla problem çözerken sıklıkla kullanmaktadır. Programlama öğreniminde de algoritmik düşünme ve problem çözmenin önemli bir yere sahip olduğu bilinmektedir. Bu açıdan bakıldığında programlama öğrenimi ile bilgisayarca düşünme becerisi arasında bir ilişkinin olup olmadığının araştırılması önem arz etmektedir. Bu bağlamda çalışmada Yazılım mühendisliği bölümü birinci sınıfta öğrenim gören öğrencilerin bilgisayarca düşünme becerisi düzeylerinin yanı sıra bu düzey ile programlamaya giriş ve algoritma dersi başarıları arasında bir ilişki olup olmadığı araştırılması amaçlanmıştır. Bu amaç doğrultusunda aşağıdaki araştırma sorularına cevap aranmıştır:

1. Öğrencilerin bilgisayarca düşünme becerileri ve programlama başarı düzeyleri ne seviyededir?
- a) Öğrencilerin bilgisayarca düşünme becerileri ve programlama başarıları, cinsiyete ve programlama bilgisinin olup olmamasına göre istatistiksel olarak farklılaşmakta mıdır?
2. Öğrencilerin bilgisayarca düşünme becerileri ve programlama başarıları arasında bir ilişki var mıdır?
- a) Bu ilişki cinsiyete ve programlama bilgisinin olup olmamasına göre nasıldır?

YÖNTEM

Çalışmada betimsel tarama modeli esas alınmıştır. Çalışma 2016-2017 eğitim-öğretim yılı güz döneminde, Karadeniz Teknik Üniversitesi, Of Teknoloji Fakültesi, Yazılım Mühendisliği bölümü birinci sınıfta öğrenim gören ve programlamaya giriş ve algoritma dersini alan toplam 52 öğrenci ile yürütülmüştür. Çalışmada veri toplama aracı olarak Korkmaz ve arkadaşları (2017) tarafından geliştirilen ve geçerlik/güvenirlik çalışması aynı araştırmacılar tarafından yapılan “Bilgisayarca Düşünme Becerileri Ölçeği” ve “Programlama başarı testi” kullanılmıştır. Bu ölçek beşli likert tipinde olup 29 madde ve beş faktörden (yaratıcılık, algoritmik düşünme, işbirliklilik, eleştirel düşünme ve problem çözme) oluşmaktadır. Programlama başarı testi ise araştırmacılar tarafından geliştirilmiş ve alan uzmanları tarafından kontrol edilmiş beş adet programlama/algoritma görevini içeren açık uçlu sorulardan oluşmaktadır. Verilerin analizinde en düşük, en yüksek, ortalama ve standart sapmanın yanında Mann Whitney U ve Spearman rho korelasyon katsayıları testi kullanılmıştır. Tablo 1’de çalışmanın katılımcılarının ayrıntısı verilmiştir.

Tablo 1: Çalışmaya katılan bayan ve erkek öğrenci sayıları

		Programlama bilgisi		Toplam
		Yok	Var	
Cinsiyet	Bayan	15	3	18
	Erkek	17	17	34
Toplam		32	20	52

Tablo 1’den görüldüğü üzere, çalışmaya katılan öğrencilerin 18’i (f=%34,6) bayan, 34’ü (f=%65,4) erkektir. Öğrencilerin 32 tanesinin (f=%61,5) dersi almadan önce programlama bilgisi yokken 20 tanesi ise (f=%38,5) bölümü kazanmadan önce programlama bilgisine sahiptir.

BULGULAR

Çalışmadan elde bulgular ilk olarak ölçekten alınan toplam ve alt faktörlerin her birine ilişkin puanlarla başarı testi puanlarının cinsiyete göre ve ders öncesi programlama bilgisine sahip olup olmamasına göre betimsel olarak sunulmuştur. Ölçekten alınabilecek en düşük puan 29 iken en yüksek puan ise 145’tir. Başarı puanı ise 0-

100 arasında değişmektedir. Tablo 2’de betimsel analiz sonuçları verilmiştir. Tablo 2’den de görüldüğü gibi erkek ve bayan öğrenciler için programlama bilgisi olanların olmayanlara göre başarı testi ve toplam ölçek puanlarının ortalamasının daha yüksek olduğu anlaşılmaktadır. Erkek ve bayan öğrencilerin genel ortalamalarına bakıldığında başarı testinde erkek öğrencilerin bayan öğrencilere göre oldukça yüksek ortalamaya sahip olduğu görünmekte iken ($ortalama_{erkek}=44,29$; $ortalama_{bayan}=21,9$) ölçek toplam puan ortalamalarının birbirine yakın olduğu söylenebilir.

Tablo 2: Cinsiyete ve programlama bilgisine göre ölçek, alt ölçek ve başarı testi puanları

Cinsiyet	Programlama Bilgisi		Başarı puanı	Toplam ölçek puanı	Yaratıcılık	Algoritmik düşünme	İş birliği	Eleştirel düşünme	Problem çözme
Bayan	Yok	Ortalama	20,3333	108,2	31,93	21,93	15,26	17,26	21,8
		Standart Sapma	16,51695	11,37	3,12	3,65	2,65	2,91	3,64
		Minimum	11,00	80,00	26,00	12,00	10,00	11,00	13,00
		Maximum	68,00	125,00	38,00	29,00	19,00	22,00	28,00
	Var	Ortalama	61,66	110,66	31	21	15,33	20,66	22,66
		Standart Sapma	5,77	9,29	4,35	2,64	1,15	0,57	1,52
		Minimum	55,00	100,00	26,00	18,00	14,00	20,00	21,00
		Maximum	65,00	117,00	34,00	23,00	16,00	21,00	24,00
	Tümü	Ortalama	27,22	108,61	31,77	21,77	15,27	17,83	21,94
		Standart Sapma	21,9	10,84	3,22	3,45	2,44	2,95	3,36
		Minimum	11,00	80,00	26,00	12,00	10,00	11,00	13,00
		Maximum	68,00	125,00	38,00	29,00	19,00	22,00	28,00
Erkek	Yok	Ortalama	31,29	99,58	28,94	19,52	15	16,23	19,88
		Standart Sapma	18,77	10,13	3,81	3,41	2,93	2,90537	4,52
		Minimum	11,00	81,00	23,00	12,00	10,00	11,00	12,00
		Maximum	73,00	112,00	35,00	24,00	20,00	19,00	27,00
	Var	Ortalama	57,29	117,94	34,41	23,29	16,05	19,94	24,23
		Standart Sapma	26,27	13,15	3,39	4,89	3,09	3,21	3,78
		Minimum	11,00	94,00	26,00	13,00	10,00	14,00	16,00
		Maximum	98,00	141,00	40,00	30,00	20,00	25,00	30,00
	Tümü	Ortalama	44,29	108,76	31,67	21,41	15,52	18,08	22,05
		Standart Sapma	26,07	14,84	4,510	4,57	3,01	3,55	4,66
		Minimum	11,00	81,00	23,00	12,00	10,00	11,00	12,00
		Maximum	98,00	141,00	40,00	30,00	20,00	25,00	30,00

Cinsiyete göre öğrencilerin başarı testi ve ölçek puanların (toplam ve alt faktör bazında) istatistiksel olarak farklılık taşıyıp taşımadığı Mann Whitney U testi ile kontrol edilmiştir. Tablo 3’te bu analiz sonuçları verilmiştir. Tablo 3 incelendiğinde yalnızca başarı puanında bayan ve erkek öğrencilerin arasında istatistiksel olarak anlamlı fark olduğu görülmektedir. Sıra ortalamalarına bakıldığında erkek öğrencilerin başarı puanlarının daha yüksek olduğu anlaşılmaktadır. Ölçek puanı ve alt ölçek puanlarının ise cinsiyete göre istatistiksel olarak farklılık göstermediği yine tablo 3’ten görülmektedir.

Tablo 3: Cinsiyete göre öğrencilerin başarı puanları ile bilgisayarca düşünme beceri düzeylerinin karşılaştırılması

	Cinsiyet	N	Sıra Ortalaması	Sıra Toplamı	Mann Whitney U	Z	p
Başarı Puanı	Bayan	18	19,67	354,00	183	-2,384	,017
	Erkek	34	30,12	1024,00			

Ölçek Puanı	Bayan	18	27,36	492,50	290,5	-0,298	,765
	Erkek	34	26,04	885,50			
Yaratıcılık	Bayan	18	26,11	470,00	299	-0,135	,892
	Erkek	34	26,71	908,00			
Algoritmik düşünme	Bayan	18	27,81	500,50	282,5	-0,455	,649
	Erkek	34	25,81	877,50			
İş birliği	Bayan	18	25,53	459,50	288,5	-0,339	,734
	Erkek	34	27,01	918,50			
Eleştirel düşünme	Bayan	18	25,97	467,50	296,5	-0,184	,854
	Erkek	34	26,78	910,50			
Problem çözme	Bayan	18	25,28	455,00	284	-0,426	,670
	Erkek	34	27,15	923,00			

Öğrencilerin ders öncesi programlama bilgisinin olup olmamasına göre başarı puanları ile ölçek puanlarının (toplam ve alt faktör bazında) istatistiksel olarak farklılık taşıyıp taşımadığı Mann Whitney U testi ile kontrol edilmiştir. Tablo 4'te bu analiz sonuçları verilmiştir.

Tablo 4: Programlama tecrübesine göre öğrencilerin başarı puanları ile bilgisayarca düşünme beceri düzeylerinin karşılaştırılması

	Programlama Tecrübesi	N	Sıra Ortalaması	Sıra Toplamı	Mann Whitney U	Z	p
Başarı Puanı	Yok	32	19,55	625,5	97,5	-4,218	0
	Var	20	37,63	752,5			
Ölçek Puanı	Yok	32	20,97	671	143	-3,332	0,001
	Var	20	35,35	707			
Yaratıcılık	Yok	32	21,33	682,5	154,5	-3,125	0,002
	Var	20	34,78	695,5			
Algoritmik düşünme	Yok	32	22,97	735	207	-2,137	0,033
	Var	20	32,15	643			
İş birliği	Yok	32	24,92	797,5	269,5	-0,957	0,338
	Var	20	29,03	580,5			
Eleştirel düşünme	Yok	32	20,72	663	135	-3,506	0
	Var	20	35,75	715			
Problem çözme	Yok	32	22,19	710	182	-2,614	0,009
	Var	20	33,4	668			

Tablo 4 incelendiğinde programlama tecrübesi olan ve olmayan öğrencilerin başarı puanı, toplam ölçek puanı, yaratıcılık, algoritmik düşünme, eleştirel düşünme, problem çözme alt ölçek puanlarının istatistiksel olarak birbirinden farklı olduğu görülmektedir. İş birliği alt ölçek puanı iki grup için birbirinden farklı bulunmamıştır. Sıra ortalamalarına bakıldığında ise programlama tecrübesi olanların puanlarının daha yüksek olduğu anlaşılmaktadır.

Öğrencilerin farklı değişkenlere göre programlama başarısı ve ölçek puanları arasında istatistiksel olarak bir ilişkinin olup olmadığı Spearman rho korelasyon katsayıları ile araştırılmıştır. Bu katsayı değerleri tablo 5'te verilmiştir. Tablo 5 incelendiğinde, öğrencilerin programlama başarısı ile bilgisayarca düşünme becerileri arasında düşük düzeyde anlamlı bir ilişki olduğu görülmektedir. Diğer taraftan, cinsiyet ile başarı puanı arasında düşük düzey anlamlı bir ilişki olduğu görülmektedir. Bunun yanında, programlama tecrübesi ile başarı puanı arasında düşük düzey ilişki bulunmaktadır. Cinsiyet ile toplam ölçek puanı arasında anlamlı bir ilişki bulunmamaktadır. Cinsiyetle alt ölçek puanları arasındaki ilişkiye bakıldığında da cinsiyet ile alt faktörlerin hiç biriyle anlamlı bir ilişkisi olmadığı görülmektedir. Programlama bilgisi ile toplam ölçek puanı arasında düşük düzey ilişki bulunmaktadır. Programlama tecrübesiyle alt faktörler bazında bir ilişki olup olmadığına bakıldığında ise yaratıcılık, algoritmik düşünme, eleştirel düşünme ve problem çözme alt faktör puanları arasında düşük düzey ilişki bulunmaktadır. Programlama tecrübesiyle işbirliği alt faktör puanı arasında anlamlı bir ilişki bulunmamaktadır.

Tablo 5: Spearman rho korelasyon katsayıları

		Cinsiyet	Başarı puanı	Toplam ölçek puanı	Yaratıcılık	Algoritmik düşünme	İş birliği	Eleştirel düşünme	Problem çözme	Programlama tecrübesi
Cinsiyet	Correlation Coefficient	1,000	,334*	-,042	,019	-,064	,048	,026	,060	
	Sig. (2-tailed)	.	,016	,769	,894	,654	,738	,856	,674	
Başarı puanı	Correlation Coefficient		1,000	,309*	,165	,151	,121	,416**	,320*	,591**
	Sig. (2-tailed)		.	,026	,242	,285	,394	,002	,021	,000
Toplam ölçek puanı	Correlation Coefficient			1,000	,781**	,750**	,470**	,786**	,669**	,467**
	Sig. (2-tailed)			.	,000	,000	,000	,000	,000	,000
Yaratıcılık	Correlation Coefficient				1,000	,524**	,217	,617**	,317*	,438**
	Sig. (2-tailed)				.	,000	,122	,000	,022	,001
Algoritmik düşünme	Correlation Coefficient					1,000	,257	,574**	,347*	,299*
	Sig. (2-tailed)					.	,066	,000	,012	,031
İş birliği	Correlation Coefficient						1,000	,264	,255	,134
	Sig. (2-tailed)						.	,059	,068	,343
Eleştirel düşünme	Correlation Coefficient							1,000	,422**	,491**
	Sig. (2-tailed)							.	,002	,000
Problem çözme	Correlation Coefficient								1,000	,366**
	Sig. (2-tailed)								.	,008
Programlama tecrübesi	Correlation Coefficient									1,000
	Sig. (2-tailed)									.

SONUÇ, TARTIŞMA VE ÖNERİLER

Bu çalışmada Yazılım Mühendisliği bölümü Programlamaya Giriş ve Algoritma dersini alan öğrencilerin programlama başarısı ve bilgisayarca düşünme becerisi düzeyleri ile bunlar arasındaki ilişki incelenmiştir. Çalışmadan elde edilen sonuçlara göre erkek öğrencilerin programlama başarısının bayan öğrencileri göre daha yüksek olduğu sonucuna ulaşılmıştır. Öğrencilerin bilgisayarca düşünme becerilerinin ise birbirine oldukça yakın olduğu görülmüştür. İstatistiksel olarak bakıldığında erkek öğrencilerin lehine programlama başarısının

anamlı fark taşıdığı görülmüşken, bilgisayarca düşünme becerisi seviyelerinin istatistiksel olarak farklılık taşımadığı sonucuna ulaşılmıştır. Korkmaz ve ark. (2015) çalışmalarında bilgisayarca düşünme becerilerinin ölçeğin tamamı için cinsiyete göre istatistiksel olarak farklılık yokken alt faktörlerde sadece eleştirel düşünme faktöründe erkekler lehine bir fark olduğu sonucuna ulaşmıştır. Bizim çalışmamız ana ölçek bağlamında bu sonuçla paralellik taşımakla birlikte tüm faktörlerde de farklılık çıkmaması ise dikkat çekmektedir.

Programlama bilgisinin olup olmamasına göre öğrencilerin başarı puanı, toplam ölçek puanı, yaratıcılık, algoritmik düşünme, eleştirel düşünme, problem çözme alt ölçek puanlarının istatistiksel olarak birbirinden farklı olduğu görülmektedir. Programlama tecrübesi olan öğrencilerin lehine istatistiksel olarak anlamlı bir farklılık olduğu görülmüştür. Bu iki grup için sadece iş birliği alt ölçek puanı arasında bir farklılık olmadığı görülmüştür. Programlama başarısı sonucu beklenen bir sonuç olmakla birlikte, ölçek puanının yüksek çıkmış olması programlama bilgisinin bilgisayarca düşünme becerisi ile ilişkili olduğuna yönelik önemli ipuçları sunmaktadır. Nitekim programlama başarısı ile bilgisayarca düşünme becerisi arasındaki incelemeye yönelik sonuca bakıldığında bu iki değişken arasında düşük te olsa bir ilişki olduğu sonucuna ulaşılmıştır. Bu ilişkinin cinsiyet ve programlama tecrübesine göre farklılaşıp farklılaşmadığına bakıldığında cinsiyet ile ölçek puanı ve alt ölçek puanlarının tamamı arasında bir ilişki olmadığı sonucuna ulaşılmıştır. Programlama tecrübesine göre ise bu değişken ile toplam ölçek puanı ve işbirliği dışındaki tüm alt ölçek puanları arasında düşük düzeyde ilişki olduğu sonucuna ulaşılmıştır.

Çalışma bir ders kapsamında ve sadece başarı puanları ile ölçek puanları ve bunlar arasındaki ilişkinin incelenmesi ile sınırlıdır. Bununla birlikte, programlama başarısı ile bilgisayarca düşünme becerisi arasında düşük te olsa bir ilişkinin ortaya çıkmış olması bu çalışmanın önemini ve bu alanda farklı çalışmaların yapılmasının önemini artırmıştır. Farklı deneysel çalışmalar yapılarak bilgisayarca düşünme becerisi ile programlama arasında ne tür ilişkiler olabileceği, programlama derslerinin bu beceriler üzerinde etkili olup olmadığı gibi çeşitli araştırma sorularına cevaplar aranabilir.

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BLENDED E-LEARNING ACCEPTANCE AS SMART PEDAGOGICAL TOOLS: AN INITIAL STUDY IN MALAYSIA

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ABSTRACT

The use of technology in classrooms has been considered as the solution to social, economic and educational problems since its introduction to education in mid-1970. There have been many studies conducted on the different aspects of the use of technology in teaching and learning. However, study on teaching with Blended Learning in teaching and learning has not been highlighted especially in Malaysian context. It examines the effects of the exogenous variables towards with use of Blended Learning in teaching and learning among secondary teachers. The proposed research variables are based on previous models of technology acceptance. A total of 98 secondary teachers completed the questionnaire measuring their responses to computer attitudes (CA), computer teaching efficacy (CTE) and school environment (SE) and Blended Learning (BL). Structural Equation Modelling (SEM) was used as the main technique for data analysis. All hypotheses were supported by the data and have direct effects towards Blended Learning use. To sum up, the study provided larger implications for development in theory, practices and policymaking that could be related to the BL use among teachers.

Keywords: Educational technology, structural equation modelling, technology integration

INTRODUCTION

The integration of technologies in classrooms to enhance learning have been highlighted in numerous studies (Wong, Teo & Russo, 2013; Katsamani, Retalis, & Boloudakis, 2012; Lu & Law, 2012). In this regards, Malaysian teachers are expected to integrate technologies in their daily teaching and learning activities. Having that, many Malaysian schools, with the support from related government departments, have devoted considerable resource to technology. Malaysian schools and colleges have included computer technology as an integral part of learning experiences and as a way to equip them with the skills and knowledge necessary to succeed in the 21st century. As the consequence, electronic based teaching tools are becoming increasingly more prevalent in Malaysian classrooms. The Malaysian Ministry of Education (MOE) has highlighted the significance of computer-based technology in schools.

THE STUDY

With the innovation and web-based commercialisation of educational technology, blended e-learning environment has been widely deployed in the teacher institutions throughout Malaysia. Blended e-learning (BL) is the combination of e-learning (synchronous and asynchronous) and traditional way of teaching where it takes the benefits of both practices to create a distinguished instructional. Combination of various methods of practices, teaching tools and media formats is the main criteria in forming the blended e-learning approaches. Hence, BL is the new way of pedagogical practices that mixes various types of activities to create constructive and interesting learning environments.

There are a number of blended e-learning applications that have become easier to integrate with traditional classroom paradigm. Moodle, Blackboard and WebCT are some of the applications that seem to be bringing beneficial to students who prefer an individualised or less structured environment and optimise the learning effects.

Most of the BL applications could support e-learning activities such as revealing information, notes, quizzes, forum, assignment submission, group chat and assessments. Having such features, BL is not only able to help teachers to deliver learning materials but also at the same time track students' performance and participation.

However, despite the impetus to build blended learning realisations among teachers in higher institutions, integrating and understanding on blended e-learning environment among teachers are in the very beginning level. Many teachers revealed that the opportunity to integrate blended e-learning environment is often severely constrained by the limited information, skills and knowledge that they have gained from teacher education professional development training. Given that, undoubtedly, teachers are dealing with challenges of incorporating traditional and technology as a balance to cater holistic development of students in the newly introduced Standards-based Secondary School Curriculum (KSSM). It is pertinent to point out that in the School Based Assessment (PBS), blended e-learning platform provides room for students to improve their results (band) accordingly based on their own initiative. Teachers could furnish differentiated instructional for diverse students where demonstrated varying degrees of learning style and intelligences. Teacher can design curriculum for those in need as well as those who are ready for new challenges. Furthermore, the integration of technology in teaching and learning has been focused in the new syllabus in teaching under Ministry of Education, Malaysia.

Besides that, many studies in educational technologies have indicated the advantages of integrating blended learning in teaching and learning in developed countries (Escobar-rodriguez & Monge-lozano, 2012; Katsamani, Retalis, & Boloudakis, 2012; Lu & Law, 2012). Escobar-rodriguez & Monge-lozano (2012) and Wong, Goh and Osman (2013) revealed that learners able to achieve higher grades when teachers using technologies in teaching and learning. Indeed, students can learn more skills throughout the integration of BL.

Advocates also noted that, BL teaching and learning tools have become very suitable to encourage collaborative and constructive learning which highly emphasized in today learning styles. Furthermore, based on Malaysian curriculum, many subjects in which educational technologies are frequently employed to achieve the above learning practices.

Given the vital role of BL teaching and learning for in our current Malaysian educational system, and growing concern the vital responsibility of practicing teachers the process of integrating blended learning in schools, time has come to review and examine factors that influence BL acceptance among these teachers.

The findings from this study enable policymakers and educators have a better view and more informed knowledge on the factors that have significant impacts on the use and acceptance of BL. They are more inclined to design programmes that enhance the use of BL among teachers. Thus, the purpose of the study is to explore and understand how far factors such as School Environment, Computer Attitudes and Computer Teaching Efficacy could have significant relationship with BL acceptance in teaching among Malaysian teachers.

RESEARCH MODEL AND HYPOTHESES DEVELOPMENT

Computer Attitudes

Based on literature studies, many establish technology acceptance models have revealed that computer attitude is the significant contribution to the use of technologies in teaching and learning. Theory of Planned Behavior (TPB) (Ajzen, 1985), Technology Acceptance Model (TAM) (Davis, 1989). Theory of Reasoned Action (TRA) (Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1975) are the noted technology acceptance models. TAM, TPB and TRA were based on the relationship of attitude-intention-behavior (actual) constructs. Based on those models and theories, attitudes construct has been the main focus. Ajzen (1975) argued that by understanding an individual's attitude toward an object, one can predict his or her overall pattern of response to the object. An individual's attitude represents an individual's personal convictions and feelings towards a specific object or behavior. Generally, a person who believes that performing a given behavior will lead to positive outcomes will hold a favourable attitude toward performing the behavior. On the other hand, a person who believed that performing a given behavior will lead to negative outcomes will hold an unfavourable attitude toward performing the behavior.

Arising from the technology acceptance models, many studies have been carried out in developing countries and also reveal that computer attitudes have significant correlation with the actual acceptance and use of technology (Liu, Chen, Sun, Wible, & Kuo, 2010; Luan & Teo, 2009; Wong, Osman, Pauline & Khairezan, 2013; Wong, Russo, & McDowall, 2013; Wong, Teo, & Goh, 2014; Wong, Teo, & Russo, 2012). Based the above statement, the following hypothesis was developed.

H1. CA will have a significant influence on BL.

Computer Teaching Efficacy

According to Bandura's social cognitive theory (Bandura, 1977), individual with high self-efficacy will have better ability to cope with roadblocks and endure stress related to change. Conversely, an individual with low self-efficacy will be less likely to attempt innovation or follow through as barriers arise. Many previous researchers, such as Marcinkiewicz (1994), Torkzadeh, Pfulghoef and Hall (1999), Gibson (2001), Tracey *et al.* (2001), Riggs and Enochs (1990), Bandura (2001), Cassidy and Eachus (2002) and Sugar (2002) have suggested that self-efficacy, by itself, will influence actual performance and practices.

According to the Bandura's theory, there are two dimensions of expectancies of behavior; efficacy beliefs and outcome expectation. Efficacy belief is the feelings of confidence in performing certain task. Outcome expectation was defined as the belief about the consequences that action will produce. Furthermore, other researchers such as Gibson and Dembo (1984) also supported the concept. Given those two dimensions, this study hypothesized that CTE which includes teacher's personal evaluation on their own capability to use computer for teaching (efficacy beliefs) and learning and personal beliefs in using computer as an effective teaching method to improve student's motivation and performance in learning (outcome expectation) have impact on BL use.

H2. CTE will have a significant influence on BL.

School Environment

In this study, school environment refers to the support from administrators, such as non-academic staff, principal and senior assistants and technical support like facility availabilities when adopting computer in teaching and learning process. The study has hypothesized that the higher the support from school environment, the higher the use of computer in teaching and learning. In Goldstein and Ford's (2002) model, the working environment acted as important variable towards actual outcomes. ChanLin, et al. (2006) and ChanLin (2007) noted that the school environment play important role in the use of computer in teaching and learning. Based the above statement, the following hypothesis was developed.

H3. SE will have a significant influence on BL.

METHOD

Research Design

This study intends to understanding BL acceptance among teaching in teaching and learning. Data were collected through using a survey questionnaire comprising questions on demographics and multiple items for each variable in the research model. The survey question composed of 4 constructs. (BL use, school environment, computer attitudes and computer teaching efficacy).

All the participated teachers need to respond to the four point Likert scale questionnaire which consists from strongly agree (4), slightly agree, (3), slightly disagree (2) and strongly disagree (1).

Methodologically, analyses were conducted using AMOS 17 and the usual steps for conducting structural equation modelling (SEM) approach were employed to test the research model with latent variables against the observed data which has the ability to explain relationships among four variables in this study: computer attitudes (CA), computer teaching efficacy (CTE), school environment (SE) and BL use (BL). From the literature, SEM is used widely to predict and explain the determinants of users' acceptance regarding the acceptance of technology in educational settings (Luan & Teo, 2009; Wong et al., 2013).

ANALYSIS AND RESULTS

In this study, two phases analysis have been carried out. A total of 98 teachers in Malaysia involved in this study. The first phase revealed the preliminary analysis which examined the descriptive statistics of the measurement items, and assessed the reliability and validity of the measure used in this study. This was to ensure the data adequate for structural equation modelling testing. For second phase, assessments

on the contributions and significance of the latent variables against the observed data and explain its variance with regard to the dependent variable.

Preliminary Analysis

A descriptive analysis was preliminarily carried out on variables involved. Computer attitudes, computer teaching efficacy, school environment and BL use have been identified for their mean and standard deviation (Table 1). From the results, the lowest mean is 2.46 and it is higher than the midpoint score of the data (2.5). Moreover, skew and kurtosis indexed have shown that the data is normal for the analysis of structural equation modelling (Kline, 2005).

Table 1. Descriptive statistics of the study constructs

Construct	Mean	Standard deviation	Skewness	Kurtosis
Computer attitudes	3.63	.48	-1.20	1.12
Computer teaching efficacy	2.12	.66	.02	-.58
School environment	2.37	.94	-.12	-.01
BL use	2.46	.72	-1.09	-1.17

Analysis of Cronbach's alpha was carried out to assess the composite reliability (CR). From the analysis, it proven that all variables loaded accordingly and the index measurement within the acceptable range (0.53 to 0.79) (Table 2).

Table 2. Results for the measurement model

Latent Variable	Item	Factor (>.60)*	Loading	Average Variance Extracted (= or >.50)*	Composite Reliability (= or >.70)*
Computer Teaching Efficacy	CTE1	.821		.59	.532
	CTE2	.798			
	CTE3	.672			
Computer Attitudes	CA1	.811		.62	.571
	CA2	.781			
	CA3	.772			
School Environment	SE1	.691		.56	.793
	SE2	.835			
	SE3	.722			
BL Use	BL1	.618		.57	.743
	BL2	.818			
	BL3	.811			

^a AVE: Average Variance Extracted is computed by adding the squared factor loadings divided by number of factors.

^b Composite Reliability = $(\sum \lambda^2) / (\sum \lambda^2) + (\sum (1 - \lambda^2))$.

^c This value was fixed at 1.00 in the model for identification purposes.

*Indicates an acceptance level or validity.

** $p < .01$.

Based on above table, the results of AVE indexes are suitable for testing structural equation modelling as it is around 0.50.

HYPOTHESIS TESTING

Table 3 shows parameter estimates for the significant hypothesized paths. All hypotheses were significant according to the collected data on the relationship between computer attitudes, computer teaching efficacy and school environment toward BL use among practising teachers in Malaysia. Computer teaching efficacy was a significant influence on BL use ($\beta=.19$, $p<.01$) and computer attitudes has a significant influence on BL use ($\beta=.22$ $p<.01$). Finally, BL use was found to be influenced by school environment ($\beta=.63$, $p<.01$).

Table 3. Results of Hypothesis testing

Hypothesis	Relationship	P. C	Finding
H1	CA→BL	0.11**	Supported
H2	CTE→BL	0.18**	Supported
H3	SE→BL	0.60**	Supported

* $p < .05$; ** $p < .01$.

Computer attitudes variable has been indicated as the important factor which influence the use of BL among teachers. Based on the above results, R^2 of the computer attitudes is 0.11. Having that, it proven that computer attitudes variable contributed and explained 11 percent of the variance in the BL use among practicing teachers in Malaysia.

BL use was also significantly determined by computer teaching efficacy and school environment with 18 percent ($R^2 = 0.18$) and 60 ($R^2 = 0.60$) percent respectively. Thus, it has contended that school environment is the most important factor influencing the use of BL in Malaysian schools.

Overall, the combined effects of computer attitudes, computer teaching efficacy and school environment explained 55.9% of the variance of BL use.

DISCUSSION AND IMPLICATIONS

The findings of the study have offered some vital implications in the context of educational technologies especially related to the use of technologies in teaching and learning among practicing teachers.

As anticipated, computer attitudes, computer teaching efficacy and school environment have direct effects towards the levels of integration of BL use in teaching and learning. Together, the variables in the research model in this study explained 55.9% of the variance in BL use among teachers towards BL use in teaching and learning. Overall, the findings have supported existing theories and assumptions that those selected exogenous and endogenous variables affected the BL use among them. Using structural equation modelling, data also indicated that the resulting model was an adequate fit to the observed relationships among the factors that influenced teachers in BL use in teaching and learning.

From the results, it has been corroborated that computer attitudes have positively influenced the use of computer among teachers. Therefore, it goes to show that computer attitude has an important role to play in influencing teachers' use of computers. The finding is in line with previous findings in Western settings. Indeed, from the literature, it appears that many technology studies, conducted in Malaysia setting, have highlighted the importance of computer attitudes in the use of technology (Teo, 2009; Wong, et al., 2013; Wong, et al., 2014; Wong, et al., 2015). Henceforth, in this regard, the Ministry of Education and the related government departments should do more in terms of encouraging positive computer attitudes among practising educators. Furthermore, based on previous findings and the results of this study have indicated that computer attitudes have significant impact on teachers' use of computer in teaching and learning, schools should provide training, funding and support required for this process. By strengthening staff training in technologies, schools can help encourage more positive attitudes toward computers, especially to reduce teachers' anxiety towards computers in general. The school boards of management should ensure that teacher education technology training program to be a part of their yearly activities.

It was also conclusively reported that school environment has very strong impacts on BL use. This is consistent with previous research by ChanLin, et al. (2006) and ChanLin (2007). The significance of school environment in enhancing the use of computer in teaching and learning could be due to the fact that teachers need administrative and technical support to encourage them to use the computer. Teachers need strong and enthusiastic leadership from principal in order to achieve higher confidence and belief in the use of computers. Technical support is vital when teachers are having difficulties in operating the computer based technologies equipment. Having knowledgeable people and willingness to answer questions are critical in overcoming the obstacles of using computer. In the Malaysian schools, especially in the rural areas, lack of availability of computers and software, and incompatibility between

the software and hardware are very common situations. The government should inject more financial support and attention to rural schools which with intention to minimize the digital divide between the urban and rural schools. Training for principals is vital in ensuring that they are conscious of the importance of computer in teaching and learning. Through training, they would be able to know how to encourage (giving coaching, feedbacks and leading) teachers to use computers. School districts should look for different funding resources to make computer technologies available for each teacher and in each classroom. Principals or headmasters should give motivation and support to their staff and encourage them to use computers although at the initial level it could be very difficult.

LIMITATIONS OF THE STUDY

Although care has been taken to ensure that the methodology in this study is sound, there are limitations. It is important to state the limitations of the study to frame the above discussions, recommendations and conclusion within its proper context and perspective.

The total numbers of participated teachers in the study were 98. Hence, the findings might not adequately reflect the perceptions of the whole population of Malaysian teachers. Secondly, the questionnaire used in this study may not be able to measure all aspects for the variables concerned. Finally, this study is the timeliness of the data and finding process. At the time of this writing, the data was collected more than a year old. Thus, during this period of time, there may have been some changes in syllabi and curricula in teacher educational training program. However, the main findings of this study will remain true regardless of the aforementioned changes. In the area of inquiries on technology integration among teachers, there is always ample room for additional research. Indeed, more studies should be carried out based on larger sample, so that the results can be more generalized as a whole. Since technology will continue to grow and develop rapidly, a replication of this study might be conducted periodically in order to examine education technology trends. Thus, teacher educational programs would be able to update courses and provide appropriate knowledge and skills for teachers.

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BLENDED LEARNING COMPONENTS IMPORTANT TO STUDENT LEARNING: A STUDY ON THE PERCEPTIONS OF INSTRUCTORS

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ABSTRACT

Blended learning implementation has been extensively examined in literature. Most research questions center around how blended learning results in greater learning achievement, which HAS been measured from a student's perspective. Whilst being recognized as existing in varied models, how blended learning design may be different in hard and soft disciplines is scarcely researched. In addition, the nature of the blends between face-to-face instructions and online learning is not adequately taken into account when discussing blended learning designs. The present study investigated the instructors' perceptions regarding the importance of different components that make up of the blended learning from a multidisciplinary perspective. We also examined if the instructors who implemented different levels blended learning differed in their perceptions. Data ($n=28$) were collected by means of semi-structured interviews accompanied with a questionnaire, which asked for the instructors' rating of each blended learning component. The results showed no significant differences in the rating of the importance of different blended learning components in hard and soft-disciplined instructors. However, two components, namely collaborative facilitation and general communication received significantly higher rating as blended learning was implemented more intensively. Thus, implications for pedagogical practices and research were discussed.

Keywords: blended learning, disciplines, higher education, student learning

INTRODUCTION

Since its introduction and presence in different levels of education, blended learning has been recognized in different models (Zhang & Zhu, 2017). The word blended refers to a mix of face-to-face and online learning aimed at enhanced teaching and learning experiences (Graham, 2006). Consequently, existing models of blended learning place different emphasis. In terms of the organization of the face-to-face and online components, and pedagogy, Graham (2006) proposes three levels of blended learning: enabling blend, enhancing blend, and transforming blend. While the first level manipulates the online component as an enabler of more access, flexibilities, the highest level, i.e. transforming blend requires significant modifications of learning and teaching activities. Later, Adam, Hanesiak, Owston, Lupshenyuk, and Mills (2009) suggest four levels of blended learning organization. The first level makes use of the online platform as an information and one-way communication channel. The second level shows some extent of connection between the face-to-face and online activities. The third level emphasizes the importance of online interaction activities in which the learning management system (LMS) plays a more important role in enhancing the learning experience. The

fourth level of blended learning is aligned with Graham's transforming blend in which the face-to-face and online components are inseparable.

In a different perspective, Kerres and De Witt (2003) develop the didactical mode for blended learning, which realizes three components: content, construction (individual and cooperative), and communication. The content component is related to how information about the course objectives and materials are presented to the students. Next, the construction component attends to how the instructors help individual students to build up knowledge and facilitate the collaborative works; and finally, the communication component refers to different aspects of instructor-student (one-to-one or one-to-many). While distinguishing three components, it is likely that the three are more related in the sense that they have a common goal of fostering knowledge construction on the part of individual students and students as a group. Based on the blended learning framework proposed by Kerres and De Witt's (2003), in this study, we further elaborate the constituting components to capture more nuances in the process of blended learning design. Accordingly, the content component refers to how the learning content is organized or updated (content organization), how content is presented in classroom and online platform (content presentation) and how learning objectives are clearly presented (Ginns & Ellis, 2009). The construction component reflects how instructors facilitate individual students' learning (personal facilitation) (Ausburn, 2004), how the instructors facilitate the collaboration among the students (collaborative facilitation), and how the instructors provide multiple assessment methods to help students identify and evaluate their learning progress (assessment diversity) (Bangert, 2004). Finally, based on different types of instructors-students communication suggested by Moore (1998) and the Community of Inquiry Framework (Garrison, Anderson, & Archer, 2000), we deconstruct the communication component into general communication from instructors to the students (general communication), instructors-student interaction (one-to-one), instructors' feedback to groups of students (feedback to group), and instructors' facilitation of online discussion (instructor facilitation). It is recognized that the three components of blended learning design reflect the breadth of the different pedagogical strategies used. However, in terms of the intensiveness or the depth of blended learning implementation, the different levels as proposed by Adams et al., (2009) and Graham (2006) are still helpful to examine a particular blended learning mode that is being implemented. Thus, when the intensiveness is low, it is expected that less sub-components are relevant in the pedagogy. Put it in another way, at lower levels of blended learning, the importance of fostering online knowledge construction is less recognized.

The implementation of blended learning can also be different in hard and soft discipline given differences in the accompanied epistemological beliefs and methods of knowledge advancement (Neumann, Parry, & Becher, 2002). A meta-analysis conducted by Vo, Zhu, and Diep (2017) shows that the effect of blended learning in hard disciplines is higher than that in soft disciplines. The explanation can be contingent on the blended learning design that has been tailored to meet these disciplinary requirements. Thus, it is hypothesized that the instructors in hard and soft disciplines may place different degrees of importance to the sub-components of blended learning design.

To better understand how blended learning design can be different in hard and soft disciplines and when certain levels of blending is applied, the following research questions are addressed:

RQ1. How do instructors in different disciplines perceive the importance of different components of blended learning design?

RQ2. To what extent do the perceptions of the importance of different components of blended learning design differ when different levels of blended learning are implemented?

METHODOLOGY

Participants

The participants in this study are instructors from different faculty at a major university in Southern Vietnam. The instructors who were invited to participate in this study were implementing blended learning in their courses. Upon receiving the approval from the rector of the institution, a snowballing approach has been used to recruit the participants.

In total, 28 instructors (14: hard disciplines; 14 soft disciplines) have constituted the sample. The mean age of the participants is 35.62 ($SD = 5.95$). Interestingly the number of male and female instructors was equal, i.e. $n = 14$ for each group. The instructors have an average of 11.11 years of teaching experience, $SD = 5.74$.

Instrument

The present study employed semi-structure interview as the principal method of data collection. First, the researcher and the instructors brainstormed about how the face-to-face and online components were integrated in their courses. Subsequently the researcher and the instructor referred to the different levels of blended learning as suggested by Adams et al. (2009). The instructors were asked to select the appropriate level of blended learning that they thought was being implemented. In total, there was one instructor indicating Level 1, 11 instructors specifying Level 2, 13 instructors specifying Level 3, and three instructors with Level 4. As there was only one instructor at Level 1, we have collapsed Level 1 and 2 into one category, resulting in three levels of blended learning implementation. Accordingly, the newly established Level 1 indicated that the online learning platform functioned as an online learning resource that facilitates the face-to-face activities. Level 2 illustrated that the online collaboration and support were available to facilitate student learning. Level 3 emphasized the indispensable role of online learning activities such that these should result in specific assessable collaborative works and personal learning (Adams et al., 2009)

Subsequently the instructor was given a sheet which contained the ten components on blended learning design grouped into three categories as suggested by Kerres and de Witt (2003) as discussed in the previous section. The instructors gave a rating from 1 to 10 to each component with 1 being not important at all to 10 being the most important.

Data analysis method

First a descriptive analysis was carried to provide a general description of the data. Subsequently, multivariate analyses were conducted to examine the effect of disciplines and levels of blended learning on the instructors' perceptions of the importance of the ten components of blended learning design. Prior to the analyses, the effect of socio-demographics, including age, gender, and years of teaching experiences were also analyzed. Once a significant correlation was found, the variable was included as co-variates in the multivariate model.

RESULTS

Descriptive statistics

After the instructors had specified the level of blended learning they were implementing in their current courses, they rated the importance of different components of blended learning design from 1 to 10. As shown in Table 1, most of the components received rather high rating with the minimum value being 4 and the maximum being 10. Among these, feedback to groups of students received the highest score whereas collaborative facilitation obtained the lowest score.

Table 1: Mean, standard deviations (*SDs*), and range of the ten components of blended learning design

Variables	Range	Mean	<i>SD</i>
Content organization	6-10	8.71	1.12
Course objective presentation	7-10	9.11	0.92
Content presentation	7-10	8.89	0.99
Individual facilitation	6-10	8.64	1.10
Collaborative facilitation	6-10	8.61	1.07
Assessment diversity	4-10	9.07	1.36
General communication	6-10	8.75	1.08
Instructor-student interaction	6-10	9.11	1.03
Feedback to group	6-10	8.82	1.09
Instructors' facilitation	7-10	9.21	0.83

Correlation analysis

A Spearman correlation analysis was conducted to examine the relationship between instructors' age and years of teaching experience with the ten components of blended learning rating. The results showed that the age of the instructors had a positive correlation with course objective presentation ($r_s=.50, p<.01$) and instructors' facilitation ($r_s=.53, p<.01$) respectively. In addition, the instructors' years of teaching experience is positively correlated with course objective presentation ($r_s =.41, p<.05$). The result shows that the instructors' age is highly

corrected with their years of teaching experience, $r_s = .83, p < .01$. This is not striking as instructors in the studied institution are normally affiliated with the university since their bachelor graduation. Thus, the higher the age, the higher the years of working experience. To avoid issues of collinearity given the high correlation between age and years of teaching experience, we only select age as the covariate in the multivariable analysis.

Using Wilks' Lambda, there is a significant effect of gender ($\lambda = 0.36, F(10, 17) = 3.01, p < .05$) on the instructors' perceptions across the ten components of blended learning design. Therefore, gender was added in the multivariate analysis subsequently as a covariate.

Findings

RQ1. How do instructors in different disciplines perceive the importance of different components of blended learning design

To answer the research questions, the age and gender of the instructors were entered in the model as the covariates and the disciplines from which the blended courses were categorized as independent variable. Using Wilks' Lambda, there is only significant effect of gender ($\lambda = 0.36, F(10, 15) = 2.68, p < .05$) on the perception of the instructors regarding the importance of different blended learning components. Further univariate analysis of variance shows that male and female instructors differ in their perceptions concerning the importance of instructor-student interaction and feedback to group (work) with $F(1,23) = 6.72, p < .05$ and $F(1,23) = 6.88, p < .05$ as shown in Table 2.

Table 2: Univariate analysis result with gender and disciplines as the independent variables

Independent variable: Gender	<i>F</i>	Hypothesis <i>df</i>	Error <i>df</i>	Partial Eta squared (η^2)
Content organization	0.41	1	24	0.02
Course objective presentation	0.25	1	24	0.01
Content presentation	0.84	1	24	0.03
Personal facilitation	0.95	1	24	0.04
Collaborative facilitation	0.00	1	24	0.00
Assessment diversity	0.44	1	24	0.02
General communication	0.03	1	24	0.00
Instructor-student interaction	6.72*	1	24	0.22
Feedback to group	6.88*	1	24	0.22
Instructors' facilitation	0.58	1	24	0.02
Independent variable: Disciplines	<i>F</i>	Hypothesis <i>df</i>	Error <i>df</i>	Partial Eta squared (η^2)
Content organization	0.00	1	24	0.00
Course objective presentation	0.08	1	24	0.00
Content presentation	0.03	1	24	0.00
Personal facilitation	0.87	1	24	0.04
Collaborative facilitation	0.25	1	24	0.01

Assessment diversity	3.44	1	24	0.13
General communication	0.22	1	24	0.01
Instructor-student interaction	0.09	1	24	0.00
Feedback to group	1.21	1	24	0.05
Instructors' facilitation	0.00	1	24	0.00

Note: * $p < .05$

Descriptive statistics showed that male instructors place more importance than female teachers regarding the two components and that there was an equal number of male and female instructors ($n=7$) in each discipline as revealed in Table 3.

Table 3: Differences regarding the perceptions of male and female instructors regarding instructor-student facilitation and feedback to group

Variables	Male ($n=14$)		Female ($n=14$)	
	Mean	SD	Mean	SD
Instructor-student interaction	9.57	.65	8.64	1.15
Feedback to group	9.29	.91	8.36	1.09

Nevertheless, age and disciplines displayed a non-significant effect with $\lambda = 0.56$, $F(10, 14) = 1.76$, $p > .05$ and $\lambda = 0.73$, $F(10, 14) = 0.52$, $p > .05$, respectively.

RQ2. To what extent do the perceptions of the importance of different components of blended learning design differ when different levels of blended learning are implemented?

As age has been found non-significant in the previous analysis, in answering *RQ2*, only gender and three levels of blended learning were entered in the MANOVA.

The result shows that gender still plays a significant role, $\lambda = 0.36$, $F(10, 15) = 2.70$, $p < .05$. Further also univariate analysis of variance shows that male instructors perceived higher importance of instructor-student interaction and feedback to group (work) than their female counterpart. Yet, the number of male instructors implementing higher level of blended learning (Level 2 and 3, $n=9$) is higher than that of females ($n=7$) and the number of female instructors implementing lower level of blended learning (level 1) is higher than that of males.

Using Wilks' Lambda, there is a non-significant effect of blended learning levels on the instructors' perceptions $\lambda = 0.23$, $F(20, 30) = 1.64$, $p = .10$. However, the result from Roy's statistic shows that the effect is significant $\Theta = 1.67$, $F(10, 16) = 2.68$, $p < .05$. Thus, it is acceptable to conclude a significant effect of blended learning level at the multivariate level. Table 4 shows the univariate analysis regarding the effect of gender and blended learning levels on instructors' perceptions of the importance of different BL components.

Table 4: Univariate analysis results regarding the effects of gender and blended learning levels on instructors' perceptions of the importance of blended learning components

Independent variable: Gender	F	Hypothesis df	Error df	Partial Eta squared (η^2)
Content organization	0.20	1	22	0.01
Course objective presentation	0.10	1	22	0.00
Content presentation	0.80	1	22	0.03
Personal facilitation	0.88	1	22	0.04
Collaborative facilitation	0.32	1	22	0.01

Assessment diversity	0.47	1	22	0.02
General communication	0.08	1	22	0.00
Instructor-student interaction	5.62*	1	22	0.19
Feedback to group	4.88*	1	22	0.17
Instructors' facilitation	0.12	1	22	0.01
Independent variable: Blended learning levels	<i>F</i>	Hypothesis <i>df</i>	Error <i>df</i>	Partial Eta squared (η^2)
Content organization	0.82	1	22	0.06
Course objective presentation	1.41	1	22	0.11
Content presentation	0.37	1	22	0.03
Personal facilitation	0.12	1	22	0.01
Collaborative facilitation	4.66*	1	22	0.28
Assessment diversity	2.78	1	22	0.19
General communication	4.16*	1	22	0.26
Instructor-student interaction	1.06	1	22	0.08
Feedback to group	2.57	1	22	0.18
Instructors' facilitation	1.00	1	22	0.08

Note: * $p < .05$

Post-hoc tests further reveal that the significant difference in the perception of the importance of collaborative collaboration was found between Level 1 and Level 2 of blended learning as illustrated in Figure 1.

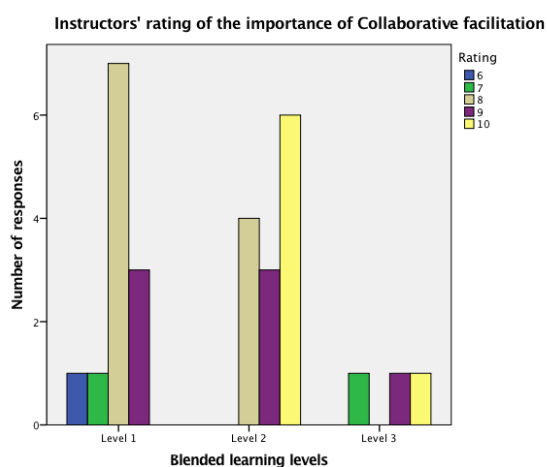


Figure 1: Instructors' rating of the importance of collaborative facilitation regarding student learning

As for general communication, significant differences occurred between Level 1 and Level 2, and between Level 1 and Level 3 of blended learning. Figure 2 graphically displays the differences of rating regarding the

importance of general communication between the instructors and the learners in different blended learning levels.

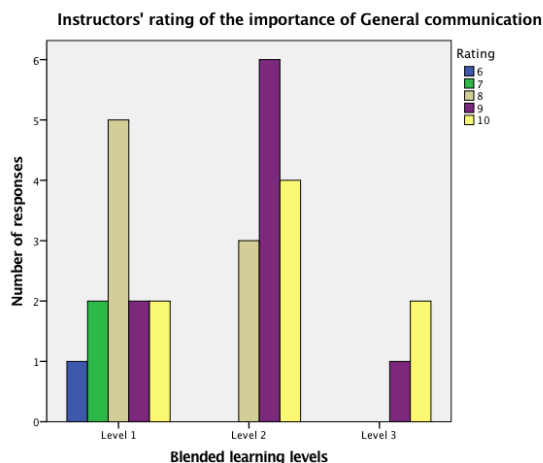


Figure 2: Instructors' rating of the importance of general communication regarding student learning

DISCUSSION AND CONCLUSION

The present study aims to discern the perceptions of the instructors regarding the importance of different components of blended learning design regarding student learning by means of semi-structured interviews accompanied by a quantitative questionnaire. Relevant literature reveals that differences in epistemological beliefs and knowledge development in hard and soft disciplines and the different levels of blended learning implementation may entail differences in the importance of particular blended learning components. We have tested these effects and found that when blended learning was more intensively implemented, i.e. Level 2 and Level 3, the collaborative facilitation and general communication became significantly more important. Nevertheless, instructors in hard and soft disciplines placed the importance of each blended learning component equally, i.e. no significant differences were uncovered. In addition, male and female instructors also rated the importance of instructor-student interaction and feedback to group differently with male instructors having a higher rating.

As for the non-significant effect of disciplines regarding the importance of different blended learning components to student learning, a possible explanation can be that instructors from the two disciplines base their instructional approach towards a more collaborative approach while still paying attention to fostering individual students' knowledge and skill development. This pedagogical objective has been institutionalized in the studied university. Thus, the different components of blended learning design, underpinned by social constructivism (Huang, 2002) while emphasizing personalization manifest in flexibility, conveniences, and prompt feedback harnessed by interactive technologies, have enabled the instructors to better achieve this goal. Therefore, it may be difficult for the instructors to provide a strong opinion regarding the importance of each component due to the overall educational outcomes that drive the pedagogical approaches in each discipline.

When blended learning is implemented at a more intensive level, i.e. the coupling between the face-to-face and online learning becomes more and more inseparable, the role of the instructor facilitation and general communication to students differ among the levels. The findings are in line with the proposition that quality online interaction among the students does not naturally occur without structured guidelines and adequate facilitation (Gašević, Adesope, Joksimović, & Kovanović, 2015; Pelz, 2010). Additionally, when more online interactions and collaborative works are designed, the lack of face-to-face explanation necessitates that a better communication channel between the instructors and the students should be available.

One interesting finding from the study is that male instructors placed more importance to instructor-student interaction and feedback to groups than female instructors. While this can be biased by the fact that the number of male instructors employing higher levels of blended learning is higher as mentioned in the previous section, this should receive attention in future studies or when professional development program in blended learning implementation is designed.

It is acknowledged that the sample size is not adequate to make generalization or to guarantee that a small effect of disciplines and blended learning levels was detected. Thus, replication studies are worthwhile to confirm the findings. In addition, examining the role of these blended learning components from a student perspective and

analyzing the results in relation to students' learning achievement are highly recommended to triangulate the results and gain more insights into any discrepancy that is likely to exist between the two main actors, namely the instructors and the students, of the teaching and learning processes.

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BLOCKCHAIN TECHNOLOGY AND THE FINTECH REVOLUTION

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ABSTRACT

The question of the role of Blockchain Technology, a decentralized and distributed digital ledger, in the Financial Services Market is only now being addressed with the technology in its infancy. Subsequent work primarily focused on the cryptocurrency, bitcoin, because its creator, programmer Satoshi Nakamoto first published a white paper and coded what is now known as blockchain technology to solve the double spending problem. More recently, Blockchain Technology has made significant advances in the fields of insurance, medical records, and the internet of things (IoT). However, the power of Blockchain Technology to solve problems in and serve as a replacement ledger of transactions in Financial Services will fundamentally transform the finance industry. This paper attempts to address the challenges that Blockchain Technology will encounter by focusing on the methodology of using Blockchain Technology to solve problems in the Financial Services Market with special attention to the use of Decentralization and Peer-to-Peer Transactions. Specifically, this project will be examining the use of Blockchain Technology to drive the changes in the field of Financial Services. This paper will also discuss the future role of Blockchain Technology in teaching the various fields of Finance, and juxtapose them against traditional teaching methods in Finance, in order to reveal the increasing role that Blockchain Technology will play in the 21st-century Financial Services curriculum. This paper argues that indeed, Blockchain Technology will be able to increasingly affect how we solve various Financial Services problems and that this development will profoundly change the way the Finance curriculum is taught in the classroom. In conclusion, this project, by closely examining the role of Blockchain Technology, sheds new light on the rapidly developing changes in the Financial Services field.

INTRODUCTION

Since the sub-prime crash in the financial market in 2008, the stability of the orthodox financial system had been consistently questioned. Upon research, numerous limitations of the current system structure, from the addition of cost and fees to the vulnerability to fraud and crime, has arisen to the attention of financial stakeholders. The Harvard Business Review had reported that “45% of financial intermediaries, such as payment networks, stock exchanges, and money transfer services, suffer from economic crime every year; the number is 37% for the entire economy, and only 20% and 27% for the professional services and technology sectors, respectively” (Tapscott et. al. 2017). The Review asserts that the cause of such inefficiency is mainly due to the financial system’s antique and vulnerable nature, that makes it resistant to both change and attacks that may lead to hacking or system failure. The assertion that the system is too exclusionary, denying usage to a sizable population of billions, has also been raised. Due to the many flaws, a revolution in the sphere of national and global finance has been long sought for. Many believe that the innovative combination between the modern technology and finance – thus the fintech revolution - signaled by none other than the rise of blockchain technology, will become the milestone key to solving the issue of the unstable financial model.

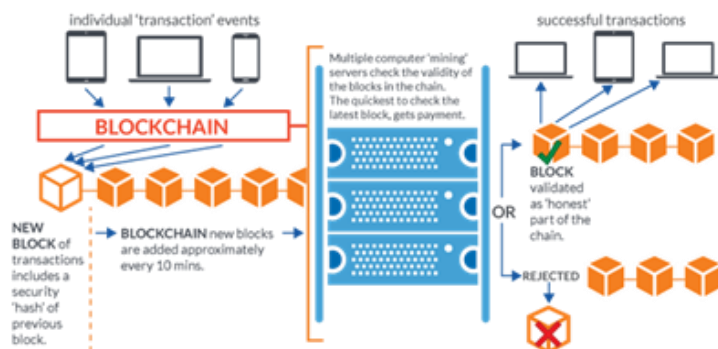


Figure 1. (Retrieved from: <http://blockchain.open.ac.uk/>)

According to the Wharton School of the University of Pennsylvania, blockchain is “a distributed database of computers that maintains records and manages transactions” (Knowledge @ Wharton, 2016). Unlike the orthodox financial system that is based upon a central authority -most commonly a bank- blockchain utilizes “blocks” to record transactions in the permanent database. The blocks, that may contain and record anything that may be of value, from money to equities, bonds, titles, deeds, and contracts, are then linked to each other in the form of a chain in linear, chronological order. A graphic illustration of this concept may be seen in Figure 1 above.

Furthermore, instead of storing all the information in one central database, blockchain is distributed across all computers around the world that are connected to its network clients: an advantage over any other financial model that make it nearly impossible to be hacked, for an attack would have to include accessing every copy of the database simultaneously to succeed. Wharton School eagerly reports that “The ability of the (blockchain) technology to provide an unforgeable record of identity, including the history of an individual’s transactions, is one are being eagerly explored.” The graphic in Figure 2 below illustrates the difference between the traditional methods of recording a transaction on a ledger and the blockchain method of recording a transaction. In the traditional method (illustrated on the right) the transaction record is kept by the clearing house in one location. This makes it vulnerable to attack and hacking because any attack must only breach the security of the clearing house. In a blockchain, however, the ledger is kept by multiple parties to the blockchain. Therefore, any attack must breach the security of multiple keepers of the ledger, an almost impossible task. The blockchain, then, provides a much more secure method of keeping a ledger.

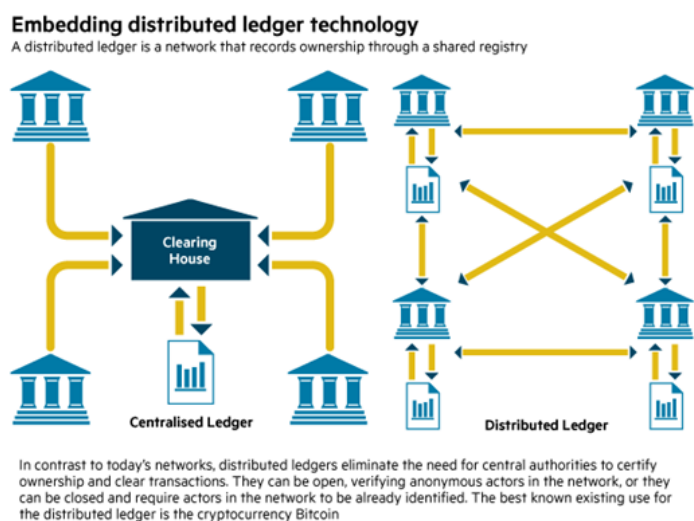


Figure 2.

While the rise of blockchain technology is to some, extremely new and even unheard of, the first adaptations of it in financial sectors have made almost a decade ago. The evolution of blockchain technology has been gradually spotted since the design of bitcoin and the bitcoin database by an unknown programmer -or programmers- Satoshi Nakamoto. Through the development of bitcoin using blockchain technology, Satoshi Nakamoto found a way to eradicate the double-spending problem, or an error in digital money trade in which the same token -currency of value- is spent more than one time as a result to the duplication and defiling of digital files. The development of a secure digital currency therefore became possible, but the technology itself had to undergo a growing infancy. The number of centers that exchanged bitcoins to cash were sufficiently limited, and the technology itself had been quite for a long time shunned for its unconventional nature and some concerns about its future prospect. Bitcoin had also many times been tangled up with criminal activities in the black market and the deep web, for the discreet transaction of money it allowed spurred many of users with criminal intent to implement the technology for purchase and trade of drugs, firearms, and pornography. Consequently, the bubbles and bursts of bitcoin's value has continued since the genesis of its utility in 2008, as the arrows have both skyrocketed and plummeted down.

However, the growing need in the global financial market over the past decade has indeed been good to the technology in the long run. According to the Wall Street Journal, bitcoin is now "starting to look slightly more stable than gold" (Yang, 2016). The value of blockchain technology itself has also substantially grown. The Harvard Business Review reports that "in 2016 blockchain companies raised \$400 million from traditional venture investors and nearly \$200 million through what we call initial coin offerings". Blockchain is already stretching out its influence into fields other than financial service, for tech companies, software behemoths, and financial giants such as Microsoft and IBM are also eager to invest in its future. A report by the Wharton School quotes the senior vice president of IBM Research: "I want to extend banking to the 3.2 billion people who are going to come into the middle class over the next 15 years...So I need a much lower cost of keeping a ledger. Blockchain offers some intriguing possibilities there". Upon debating its possible applications in the future, the Forbes reported that "One group of big tech and finance companies has combined forces in the Open Ledger Project to create a wide range of different blockchain-style projects for different specialized needs, ranging from conventional supply chain management to basic administrative tasks like exchange of car titles. Some schools are even using blockchain to record students' grades and share academic certificates. And of course, there is always talk of tax being collected via blockchain at some point in the future" (Harpaz, J. 2016). Like so, much light being shone over the blockchain technology and its applications in the future is because of the enhanced speed of transaction and more efficient services it provides, along with its abilities to be applied into almost any sphere of life. It seems that perhaps the information driven era has finally met its financial companion.

FINDINGS

It would be very easy to examine the definition of blockchain without truly understanding the ramifications of this new technology because the definition is after all, benign. The blockchain technically is a just digital ledger. One would be forgiven if one were to contemplate on such a question as: "how can a digital ledger bring about a "Revolution" in the financial industry?" To answer this question, one must examine the ramifications of this ledger and how it will change not only the financial sector but also every other industry that involves transactions.

The simple answer is Trust. For the first time in modern history, blockchain ensures "trust" among the parties to a transaction. For example, when a buyer purchases a product on Amazon, it is Amazon who ensures that the buyer will pay and who ensures that the seller will deliver the product under the traditional definition of online transaction. People purchase products on Amazon because they can reasonably assume their transaction will be completed. It is trust that allows the transaction to take place. However, with the blockchain, Amazon will be cut out of the transaction. Indeed, any 3rd party agent that plays the role of ensuring trust between the parties to the transaction will no longer be needed. The blockchain is a peer to peer application. In other words, the buyer and the seller deal with each other directly. There is no third party to the transaction. The Harvard Business Review describes this transaction as following: "Instead a series of intermediaries act as guarantors of assets as the record of the transaction traverses organizations and the ledgers are individually updated. In a blockchain system, the ledger is replicated in a large number of identical databases, each hosted and maintained by an interested party. When changes are entered in one copy, all the other copies are simultaneously updated. So as transactions occur, records of the value and assets exchanged are permanently entered in all ledgers." (Iansiti, M. 2017) The

ensuring or “trust” in the transaction is provided by the blockchain ledger. The transaction will be digitally recorded in the ledger and this record will be permanent. Anyone who wants to exam the transaction may do so. The ramification of Trust is enormous because there will be no need for 3rd party agents. Bitcoin fans have been enthralled by this idea, dubbing it “the libertarian ideal of a pure, digital currency beyond the reach of any central bank.” The economist commented that “The real innovation is not the digital coins themselves, but the trust machine that mints them—and which promises much more besides.” (The Economist, 2015) The business sector themselves are aware that this ramification might engender a disruption to the existing economy. Accordingly, many financial institutes are conducting research on how this will impact their business practices. After all the biggest 3rd party agents in society are financial institutions.

Ramification number 2 is Chain of Custody. Chain of Custody ensures that whatever product that is registered on the blockchain is the genuine product and not a replica or reproduction. For example, imagine that an artist creates a sculpture. There is a digital passport that can be embedded into the work. This digital passport number is then registered onto the blockchain. Once registered, the artist will have a permanent and irrevocable chain of custody record. Anyone who wants to purchase that sculpture will now be able to track the chain of custody of that work from the time it leaves the artist hands until the time it arrives in the hands of the purchaser. The ramification is that the blockchain can ensure that any product is the genuine item. The blockchain may be able to eliminate fraudulent and knockoff products. This is not limited to just works of art. Any product’s genuineness can be ensured, whether it be coffee, hand bags, clothes, or diamonds.

In real life, online P2P lodging services like AirBnB incorporates the blockchain for the very reason- the Chain of Custody. Companies like AirBnB provide a platform that enables individual home owners rent their rooms to other individuals. For systems like this, safety and credibility is easily the biggest concern. In order to ensure a level of security and credibility, the lodgings and the hosts are each given unique ID numbers, used similarly as the aforementioned digital passport. Because this ID represents the specific person or the specific lodging, it cannot be tampered with or duplicated even if the users delete their accounts and make a new one. The Goldman Sachs analyze such implementation of blockchain saying “By enabling a secure, tamper-proof system for managing digital credentials and reputation, we believe blockchain could help accelerate the adoption of P2P lodging.” (Williams-Grut, O. 2016)

In sum, Blockchain does have the potential to “revolutionize” not only the financial industry but also many other industries because of these ramifications. Imagine a world where there is no need for bankers, real estate brokers, insurance agents, attorneys, or for an Amazon. Large corporations all over the world are acknowledging the potential of the Blockchain, and the extent to which the industry is growing is rather eye-opening. According to the Reuters, “American International Group Inc. (AIG.N) announced a blockchain-based insurance product. Bank of America, Citigroup, Goldman Sachs, Wells Fargo and other banks have invested in blockchain startups, and many will roll out commercial blockchain products [in 2017]. In the first quarter [of 2017], blockchain startups raised a total of \$141 million from investors, a 57 percent increase over the fourth quarter [...] according to data provider CB Insights.” (Somerville, H. 2017) These trends are only beginning of blockchain disrupting the traditional financial systems.

It would be difficult to talk about blockchain without talking about “Bitcoin,” because many people confuse the two and think that they are the same. They are not. Perhaps one should be forgiven to confuse the two since they are part of the parlance, and because the “inventor” of Bitcoin also created the idea of the blockchain. The blockchain technology has its beginnings with an unknown programmer -or programmers- using the nickname: Satoshi Nakamoto. Takemoto didn’t invent crypto-currency. Crypto-currency had been around before. What Nakamoto did was he solved the double-spend problem.

Satoshi Nakamoto found a way to eradicate the double-spending problem or an error in digital money trade in which the same token -currency of value- is spent more than once. In other words, how can we prevent people from using the same crypto-currency twice? Nakamoto’s solution to the double spending problem is illustrated in Figure 3. Nakamoto came up with the blockchain, a digital ledger that ensures trust and a chain of custody for the bitcoin. As a result, the bitcoin does not rely on a 3rd party and also has a chain of custody to ensure legitimacy.

The Double Spending Problem

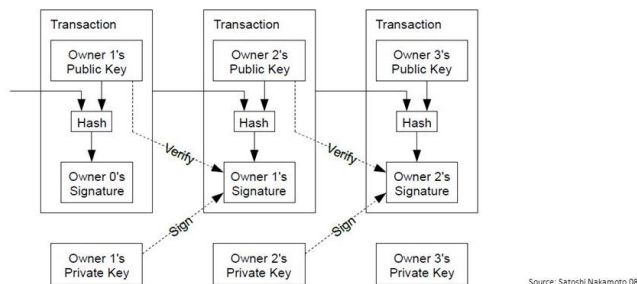


Figure 3

Due to this feature, bitcoin became renowned for its security and reliability as a token of exchange. All of the transactions made via bitcoin are marked into a new “block” every ten minutes. Also, according to Dr. Saifedean Ammous’s research, “For somebody to ‘hack’ into the Bitcoin network and change the issuance schedule, they would be required to marshal processing power larger than 17,000 times the power of the world’s top 500 supercomputers. Alternatively, more than half of the processing power behind the distributed Bitcoin network needs to vote to change the issuance protocol. Such a change is highly impractical, for several reasons.”

But, one must ask: Couldn’t we apply the concept of the blockchain ledger to other valuables? Like coffee, handbags, or anything sold on Amazon? What naturally should have been a “yes,” was hampered by the fact that bitcoin gained something of a bad reputation.

IMPLICATIONS FOR EDUCATION

According to D. Lavin at Edtech Strategies, the following may be methods in which blockchain technology may be utilized:

1. Records Keeping: Student transcript/degree/test score/record validation and transfer, including those associated with college admissions;
2. Educator credentialing/certification/re-certification;
3. Management and tracking of school property and assets;
4. Management of student privacy and parental records;
5. Distribution of federal/state programmatic funds or private grants;
6. Distribution and payment of student loans. (Levin, D. 2016)

Generally, any and all records kept by educational institutions can be kept on a blockchain ledger. The advantages of security, chain of custody, and transparency would be bestowed on the administrative actions of an educational institution. As the role of digital distributed ledgers systems increases in education, institutional administrators will need to develop new skills, such as an ability to make value judgments on AI products and digital ledgers, developing research skills regarding AI and blockchains, interpreting data and using them effectively in administrative tasks and record keeping, utilizing new technologies and training members of an administration on such technologies. (Luckin, R.et.al. 2016)

CONCLUSION

Blockchain technology provides enhanced speed for transactions and because it is so fluid in its application, it seems that finally the information driven era has finally met its financial companion. This digital ledger has promised the economy to ensure trust by eliminating the third party that has been seen as a necessity in current day transactions. Also, blockchain provides a Chain of Custody, which can prove a product is genuine and has not been replicated. It seems evident that the blockchain technology, often mentioned in relation to the cryptocurrency “bitcoin,” would be tangible evidence that digital decentralized ledgers are tangible.

Therefore, the evolving environment of Artificial Intelligence and blockchain requires a multidisciplinary approach. No longer can financiers, educators, administrators just be satisfied with the traditional way of doing things. Future financiers and other stakeholders must first understand the challenges that these new technologies bring, including addressing the problem of bitcoin’s reputation. To reach new frontiers of the blockchain

technology, they must also search their own knowledge and expertise, and share their expertise and perspectives. Those who are able to adjust and adapt these technologies in their practice will be the ones will be leaders of finance and education.

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CAN ARTIFICIAL INTELLIGENCE MAKE ART?

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ABSTRACT

The question of whether artificial intelligence can create art has been widely debated in the art industry, with Professors of the Rhode Island School of Design such as Mark Milloff arguing that artificial intelligence cannot create art, and what may seem as their original work are mere "technological tricks." However, these opinions have not adequately addressed the recent advances in artificial intelligence and machine learning. This paper addresses the issue of artificial intelligence with particular attention to machine learning of creativity. Furthermore, by discovering the structure and compatibility of deep learning, this article will focus on the technology's possibilities in the various fields of art, which has long been strictly restricted to humans.

INTRODUCTION

The words "can" and "may" are, despite their similar and sometimes mixed usage, particles that have entirely separate nuances. "Can" refers to the technical ability to be able to do or achieve something, while "may" is mainly used to denote permission – think about the difference in meaning between the phrases "can I go to the bathroom?" and "may I go to the bathroom?"

Can artificial intelligence create art? If it can, may it? These two questions, although similar, yield entirely different answers from its creators and the public alike. Plainly speaking, researchers of artificial intelligence have already given life to artificial neural networks that can create images that already surpass human manual ability. Although yet trivial, the tunes developed by an AI system are stunningly vivid and concurrent. Then, may artificial intelligence create art? The answer to this question is much more controversial, for it forces us to contemplate upon the very concept of art and humanity.

The rapid evolution in the field of artificial intelligence and machine learning had given birth to the eager application in the area of art as in any other spheres of life. In June 2016, Google launched Magenta, a crowd-sourced project that applies machine learning to different fields of art, including music and visual image while aiming to build a community of artists and researchers. By exposing to Magenta millions of training examples and gradually adjusting the parameters, the research team in Google allowed it to establish its very own imagery about random objects. Also, the application of algorithms also allowed random noise to inspire generate purely original and astonishing images, which, according to BBC News, were compared to "the art a human might create when they had taken mind-altering drugs such as LSD, others to the work of tortured genius Vincent Van Gogh" (Wakefield, 2015). Similar projects are being conducted on other spheres of art. "Sony CSL Research Laboratory is planning to release a whole album of songs written by artificial intelligence (Ward, 2017)" reports Culture Trip. The Sony AI system called Flow Machines "analyzes a database of songs and then creates compositions following a particular musical style."

While many technological adaptations of artificial intelligence in fields such as mechanical engineering, medicine, and lifestyle are accepted and even eagerly welcomed, the stretch of artificial intelligence into the sphere of art and creativity has met, on the contrary, harsh criticism. Jonathan Jones, an art critique of The Guardian, had mocked The New Rembrandt, a 3D painted Rembrandt painting by an AI program, as "an April Fool's joke", stating that it was "a horrible, tasteless, insensitive and soulless travesty of all that is creative in human nature" (Jones, 2016). Mark Milloff, a painter and art professor at the Rhode Island College of Design, denotes such attempts for AI to create art as "a technological trick" (Lee, 2016).

The resistance in the art industry against the application of AI to art seems to be primarily centered on the supposed core of creating art itself: human intent. The Oxford English Dictionary defines art as "The expression or application of human creative skills and imagination, typically in a visual form such as painting or sculpture, producing works to be appreciated primarily for their beauty or emotional power" (Results for "Art," English Dictionary, Oxford Living Dictionaries). Another definition states that art is "works produced by human creative skill and imagination." The emphasis upon the existence of humanity and the soul in art greatens in some of the most influential quotes. Elder Uchtdorf quoted "the desire to create is one of the deepest yearnings of the human soul," and Adrien Elmer "art is when a human tells another human what it is to be human." The connection between humanity and art has been unseparated since the birth of art itself. Through the passing of millennium, science has disproven the belief that lightning was the wrath of gods, while astrology and mathematics have challenged the idea that the earth was the center of the universe. However, until now, the belief that art was related to the human soul and humanity itself has never been toppled. Perhaps the criticism and controversy upon using artificial intelligence to create art are intimately bound with the faith in humanity's supposedly divine, singular ability to exert creativity.

Amongst reviewing the ethical accusations against AI, however, one must recall that artificial intelligence itself is a replica of the human intellect. The structure of the deep learning model and the way they learn suggest that creating intelligence isn't about making machines smarter, but about making machines like human beings: to think, learn, and even imagine like us. If artificial intelligence advances to the point in which it can parallel the diverse functions of the human brain, then there is nothing that holds it back from becoming something very "human" indeed. Another fact that must be reviewed is that the criterion of labeling art isn't absolute; rather, it shifted with eras and the tides of popular culture. The expressionist and post-modernist movement alike had proven that art is sufficient when it can generate emotions in people. If art by artificial intelligence can do the same, who's to say that AI lacks in creativity?

It must also be noted that utility of artificial intelligence in art isn't about taking human artists out of a job: it is more about galvanizing and vitalizing the world of art. Francesca Rossi, a research scientist at IBM J.T. Watson Research Center, says "I think you have to be clear about what the goal is...The goal is to help humans be more creative, and not just to replace painters or songwriters or whatever. I think that's usually the way it's perceived, so that's why you have this resistance. So maybe the systems should be put in a package that shows clearly that you want to help people be more creative." (Ward, "2017). A new wave in art has always met great resistance, but one must remember that embracing it has also always opened a new chapter in its history. The question isn't about what AI may or may not do for art, but what it could, and will do.

IMAGE CLASSIFICATION

Image Classification uses a particular type of deep neural network, called a convolutional neural network (CNN). CNNs are particularly useful for distinguishing images and categorizing them. (Krizhevsky, et.al. 2012)

Our main goal is not to design algorithms that learn how to generate art and music. Such a goal would be premature as the area is in its infancy. But to make progress, we can use AI to distinguish between genuine original artwork and counterfeit works. Already there are AI programs that can distinguish between genuine currency and counterfeit currency. (Goodfellow et.al. 2014)

I. Convolutional Neural Network (CNN)

Pixeled images are processed by a multi-layer network that identifies visual features. As shown in the Figure 1, the network consists of four main steps (i.e. convolution, pooling, full connection, and output prediction).

(Goodfellow et.al, 2016)

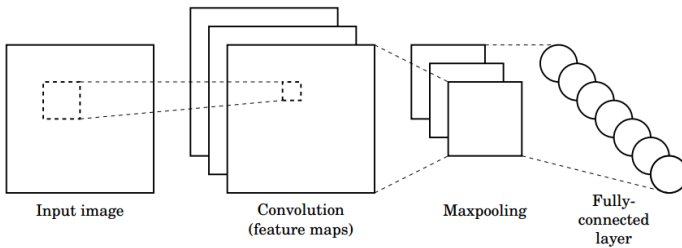


Figure 1.

Because neural networks process images as a two-dimensional array, each pixel in the image is given a numerical values from 0 to 255. A wholly black pixel is given the value of 0 and a wholly white pixel is given the value of 255. Red, green, blue layers or RGB layers are needed for colored images so a numerical value is given for the intensity of color's saturation in the pixel. The computer will then recognize the images in digital form by giving it a value of 0s and 1s. (Goodfellow et.al, 2016)

II. Steps of CNN

1. Simply put, convolution can be understood as the sorting of digital information. Its purpose is to simplify input images by sorting out particular features. A feature detector — also called as kernel, or filter — is placed on an input image. The values on the pixel and on the feature map are multiplied and the resulted values are placed on a feature map or an activation map. Although the feature map may lose some information, the processing speed is increased because the reduced size of the image requires less calculations. The purpose of the feature detectors is to eliminate features that are not important to the processing task, emphasizing the features that are only important. Multiple feature maps may be used to further filter the image while preserving the spatial relationship between pixels. This process is represented in Figure 2 below. (Goodfellow et.al, 2016)

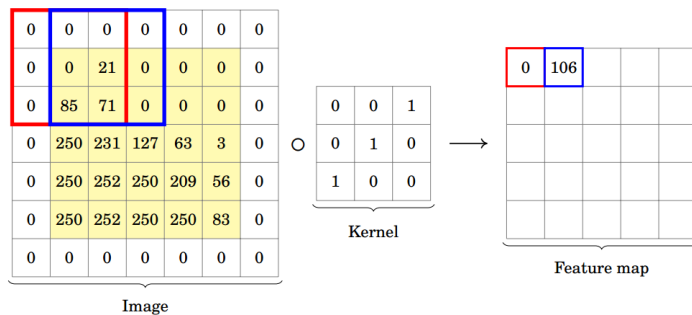


Figure 2.

2. ReLU layer

ReLU layer, rectifier layer units, is a process by which a rectifier is subsequently applied after convolutional layers are built. The mathematical foundation for this layer is $f(x)=\max(0, x)$, as seen in Figure 3 below. In other words, the activation is simply threshold at zero; this increases nonlinearity in images. In other words, the ReLU layer accelerates the convergence of stochastic gradient descent compared to the sigmoid/tanh functions which in turn accelerates the overall computational time for the CNN. (Krizhevsky et al., 2012)

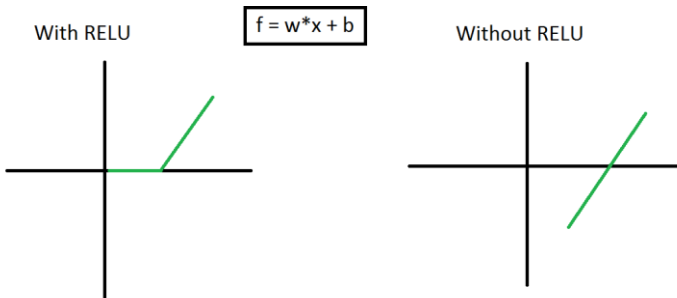


Figure 3.

3. Max Pooling

Like convolution, max pooling's purpose is to reduce the spatial size of the image and to decrease the computational complexity of the calculations. The most common procedure for this is called max pooling, as seen in Figure 4.

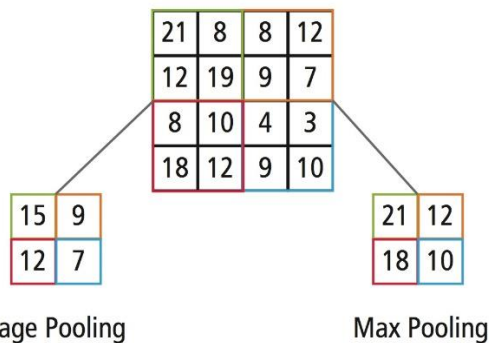


Figure 4.

This is done by taking the maximum value in each grid from the feature map as seen in Figure 4 above. In this example the maximum value in the green grid is 21, the brown, 12, the red 18, and the blue 10. By only considering the maximum values and disregarding other values, the number of parameters are reduced, thus preventing overfitting.

4. Flattening

After max pooling, feature maps go through the flattening process by which the numbers are taken row by row and placed in a single long column. Once all pooled features are flattened, the results form an input layer to be connected to a deep neural network.

5. Full Connection

Once the Convolutional Neural Network is connected to the Deep Neural Network, the attributes of both networks may be combined to take advantage of the what each network provides as a benefit. (Krizhevsky et al., 2012)

DEEP NEURAL NETWORK

While deep learning and artificial intelligence has elevated recently in the global technology market as a significantly prestigious mechanism, the concept of deep learning has in fact been around for several decades. Although the idea of creating an algorithm-based network was first introduced in the 1980s, deep learning technology had to undergo years of refining and breakthroughs to resemble that of today finally. (Goodfellow, 2016.)

At first, deep learning was primarily achieved by training a perceptron, or an algorithm for supervised learning. Training samples inserted into the perceptron results in a calculated output, and after each entry and exit procedure, the algorithm is adjusted to prevent errors. However, the approach of utilizing a single perceptron for deep learning soon met a drawback of it only being able to learn linear, simple information, which meant that the algorithm was powerless against outliers that eluded the category of the perceptron. (Goodfellow, 2016.)

To resolve this issue, researchers created a multilayer perceptron, also called a feedforward neural network. A neural network was nothing more than a composition of multiple units; each consisted of a single perceptron, connected to each other to create networked layers of algorithms. The layers were composed of three parts, according to their functions: the input, output, and one or more hidden layers, as seen in Figure 4. Such organization of neurons allowed the neural network to process high-dimensional vectors, for each layer serve to establish a comprehensive goal of learning, sorting, and utilizing data. Especially, the one or more hidden layers help to store the abstract representation of input data, similarly as does the human brain. (Goodfellow, 2016.)

Deep neural network

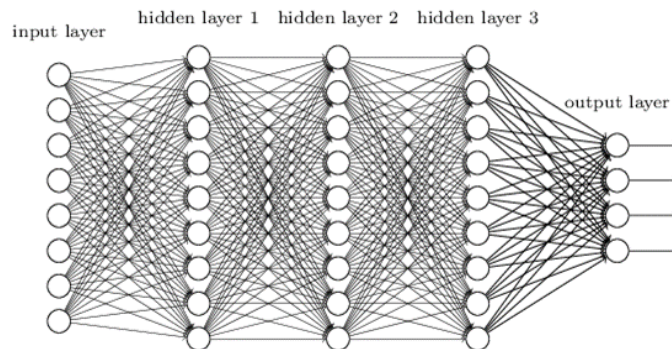


Figure 4.

The utility of hidden layers often proved to be effective, but met a few drawbacks such as vanishing gradients or overfitting, in which the back-propagation process – process in which the error contribution in each perceptron is detected and dealt with – lost significance due to too many hidden layers or was to concurrent with the training data. Only after decades of setback was these difficulties resolved, majorly by autoencoders and the Boltzmann Machine, that allowed the learning of probability distribution and thus precise, non-overlapping calculations. Therefore, the deep learning model was finally able to process and handle data in a flexible, comprehensive manner. It was after this procedure that it was viewed as a complete technological duplicate of the human brain. (Goodfellow, 2016.)

APPLICATIONS

Work is underway currently in Stanford where programmers are training convolutional neural networks to recognize who the artist that created an image is just by inputting an image into a network. (Viswanathan, 2017) As CNNs advance in power and efficiency and as the computation power of computers increase, the potential for AI and all its permutations becoming more and more prevalent in the art community will exponentially develop.

IMPLICATION FOR EDUCATION AND TEACHERS

That AI cannot substitute for a human teacher or tutor effectively may be an accurate statement currently. However, that fact should not mean a total rejection of the role artificial intelligence in art education because this paper has illustrated the potential uses of CNNs in processing and classifying images.

Educators must assume the concept that new technologies in AI when fully exploited will change the way art is taught and learned. This has larger ramifications because the traditional methods of learning, working, collaborating, and communicating are increasingly being modified. Educators must begin to devise new pedagogies, implement innovative digital systems, develop new areas of knowledge, and inform policymakers and educational stakeholders. (Luckin, et. al 2016)

CONCLUSION

To some scholars and artists, the question of "can" and "may" in artificial creativity is much more of a problem than "can" and "may" as in going to the restroom. To them, it is either a heretic idea or a mere joke: a bad one, too. Technically speaking, the structure of deep learning is no more than layers of data tissues and nodes. However, deeming the model unfit of creativity, for this reason, would be denying the very creativity of humans, for technically speaking, the human brain is but layers of data tissues as well. If the goal of creating AI is indeed to create "artificial intelligence," there is nothing that can, or should, stop computers from thinking, perceiving, and creating, as human beings do.

The idea of a constantly evolving breed with intelligence and even creativity is admittedly a disturbing one. Most scholars and technicians have realized that an era in which artificial intelligence will inhibit majority of human life has already come and that the fear of them taking over "human" jobs is a reasonable one at the least. However, researchers also claim that the ultimate objective of deep learning is to better human life, not replace it, even if it could. Similarly, the function of AI in the field of art revolves around the interest in duplicating, not eradicating, human creativity. This artificial intelligence should be viewed and studied as more of a tool: a gift. Embracing this new achievement and learning to utilize it affectively may lead to a more fruitful future in the field of art and creativity.

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CINEMA AT SCHOOL FOR AN INTERDISCIPLINARY APPROACH

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ABSTRACT

This paper presents a research concerning the introduction of Cinema at High School. This is an experimental work on the use of Cinema as a resource for teachers and students.

The Cinema, at school of different levels, usually is suggested as “cineforum” experience, a use of cinema based on the description of themes and a debate on the analytical interpretation of films. However describing the contents of a medium is not enough to develop a critical approach: today’s the schools of each levels are called to bring a different perspective on cinema and digital media education. Teachers and students, by the digital technologies, can explore the movie experience. Learning Economics-Business and Law understanding the value of historical cinematographic culture is the aim of this research project. The Cinema, through the early films, promotes the interdisciplinary teaching and the introduction of visual language. This project promotes and enhances the cinematographic heritage of the world by encouraging the teachers to introduce the Cinema at school.

Key words: high school, cinema and digital media education, economics-business studies and law, social science curriculum, interdisciplinary approach, collaborative learning, active learning.

INTRODUCTION

The Italian school contexts have not even well appreciated the use of cinema for teaching and learning experiences as a multimedia educational resource such as in the school contexts of other countries. Although in Italy, we have the attention of the Government, thanks to the new national indications on teacher’s curricula (Trincherò et al., 2013) and the national law in force “Buona Scuola”. In relation to teacher’s curricula of high school, the Italian Government published a Ministerial Order, n. 211 on 7 October 2010, called «Indicazioni nazionali riguardanti gli obiettivi specifici di apprendimento concernenti le attività e gli insegnamenti compresi nei piani degli studi previsti per i percorsi liceali». The law in force on the Italian School Reform called «Buona Scuola», law n. 107 of 13 July 2015 the Art. 1 is specific on the invitation from the Government to introduce, at school of each levels, the media education with a critical approach together the study of film and picture language. Moreover, the European Parliament underlined the importance of safeguarding the cinematographic heritage with the European Parliament Report on the Commission Communication on cinema on 7 June 2002.

The Department of Human Sciences “Riccardo Massa” at the University Milano-Bicocca Italy and the High School *Liceo Statale Carlo Tenca* in Milano, Italy has carried out in 2015 this pilot project on the pedagogical value of Cinema at School promoting the interdisciplinary approach and developing, refining active and significant experiences of Learning. Specifically, we proposed the use of cinema as a resource for the subjects of Economics-Business Law Studies integrated with the history of Cinema, its origin, given the expressivity of its symbolic language and the importance of the International Cinematographic Cultural Heritage. Several teachers of High School in Lombardy, with their students, explored and encouraged the cinema experience thanks to the use conscious of digital technologies.

THE STUDY

In contrast with cineforum method, the current research project on cinema and digital media education aims to understand how to design a course on Economics-Business and Law using an interdisciplinary approach.

The project founded on the idea to offer activities on analysis of film language, movie making and editing to the students of high schools — and later a stage to trainee teachers — on how to make innovative use of Cinema to overcome the rigid disciplinary boundaries’ forms of teaching.

The research project followed the methods of the interdisciplinary approach by Repko (2008) and the theory of Bergala (2008) relating film fragments to one another by organizing them around a theme (F.M.R.). Teaching and learning Economics-Business and Law starting from selected movies, especially the early silent movies, from the origin of Cinema history.

Other aim of this research is to exploit digital technologies in schools as a resource for boosting cooperative and collaborative learning, mainly in relation to “knowledge society” and the use of ICT (Calvani 2007, 2009; Yildiz and Keengwe 2016).

The research project began in 2015. The first year was been a pilot phase dedicated to monitoring the

experimental activities. At the beginning, we proposed this experimental work to one class, now the participants are 60 students with age from 14 to 16 years, the total is four classes.

FINDINGS

The theory of Alain Bergala (2008) founded on a pedagogic approach to cinema organizing, among other suggestions, a movie library at school, the use of movie fragments and clips strategic selected for the lessons and for elementary film editing exercises.

The recent literature on the interdisciplinary teaching has shown that students attracted by and engage more readily with interdisciplinary approaches, which help them to acquire new knowledge and reinforce existing knowledge. (Repko 2008).

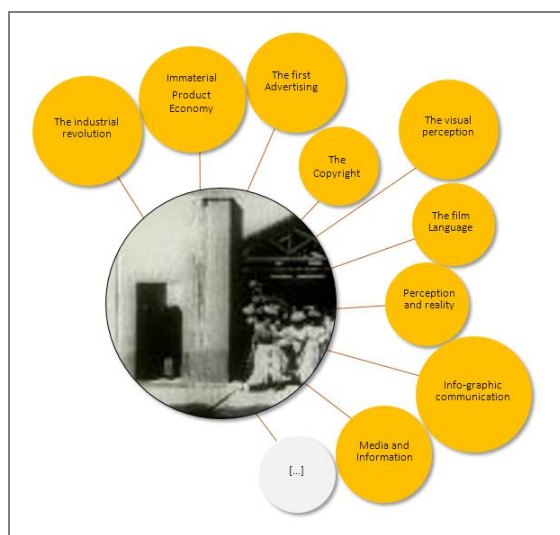


Figure 1: Expanding the borders of Cinema and Visual Arts, the students explored other frontiers of knowledge among Human culture, Arts, Science, Economics-Business and Law.

We are interested on the “reactivation” and consolidation within the cognitive development processes of individual students.

Once we have identified the connections and affinities among the various disciplines, our creative energy was in one direction to answer the follow question: how can we relate them to one another in such a way as to enhance students’ comprehension? (Poli and Benussi 2016). Moreover, other question: how can we foster creative connections allowing students to acquire novel perspectives and new cognitive strategies as they integrate new knowledge and acquire new abilities? (Bolter and Grusin, 2002; Calvani 2007, 2009; Dee Fink 2013; Gordon 2000; Maldonado 1997, 2005)

The proposed methodology helped students to become familiar on problem solving, thinking and decision-making, critical analysis, reflecting on information exchanged, etc. We tried to describe, with a quantitative graphic representation (see Figure 2) the student’s perception regard the efficacy for each different model of lesson proposed (Benussi 2016).

	1	2	3	4	5	6	
Classical teaching	1	7	8	2	5	4	
Teaching projecting the textbook onto the interactive white board (IWB)	3	6	5	7	2	4	
Multimedia teaching (*)	3	3	5	7	7	2	
Flipped classroom teaching (*)	5	3	8	3	6	1	
Exercises in labs (*)		2	6	6	8	5	
Active teaching style: debates in class inspired by the British parliamentary style debating		4	2	4	10	7	
Activities in collaboration with universities	3	2	6	4	4	8	
Law practical exercises in labs (*)		4	3	5	13	2	
Economics practical exercises in labs (*)		3	2	6	14	2	
Classes held in labs based on interaction with multimedia (*)	2	2	7	2	7	6	

Figure 2: The student’s perception of efficacy for each different models of lesson. (*) Interdisciplinary Approach Cinema – Law – Economics Business.

The interdisciplinary approach became even more fruitful, thanks to our proposal to teach the language of film and watching earliest films from the origin of Cinema, film realized by the pioneers of cinematographic

international heritage.

The lessons explored themes on Economics Business and Law by the classical teaching mode and other lessons introduced film literacy, increasing the audiences, knowledge and interest in film language, in particular among the audiences of new generation.

The students threw up surprising connections with other disciplines. The intersecting of different disciplines helped students to attain a deeper understanding of certain concepts and in particular, the root causes and complexity of themes that featured strongly in the early history of film (e.g. the first examples of Cinema advertising Europe to USA and the first USA movie copyrighted).

We introduced also other teaching modalities as the flipped classroom (classrooms in labs watching/listening to multimedia debates), the lean back (characterized by unidirectional reading or watching certain content prevails), and the lean forward (characterized by active and cooperative Learning). In addition, we proposed practical exercises in computer laboratory based on the analysis of multimedia contents in Economics Business, Law, watched early silent movies, significant film sequences and exercises on film language analysis and movie editing (see Figure 3 e 4).



Figure 3: Students working at school in the computer laboratory

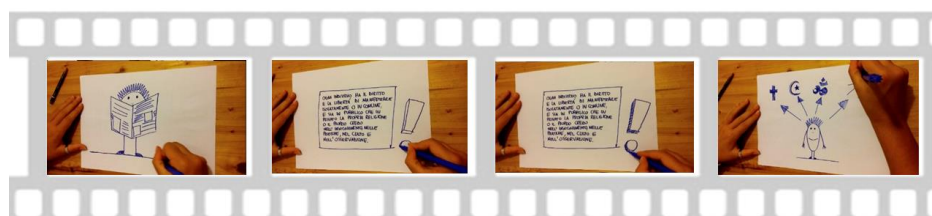


Figure 4: *The Freedom of Worship*, frames from one example of short film made by a student (2016-2017)

CONCLUSIONS

The students' evaluation on the results of these teaching/learning experiences was been positive.

The majority of students recognizes the efficacy of the interdisciplinary approach and the incisiveness of different teaching models of lessons in perspective of their future personal professional experiences.

The students appreciated the innovative teaching methodology based on interdisciplinary approach. However, they also valued positive the traditional teaching methodology.

They developed, among other skills, some fundamental economic principles, they are more conscious on the complexity of contemporary human society, about how to live in this world, and ask oneself if proper values coincide with the rules of law.

Moreover, from the positive results emerged the need to foster well-established cultural connections and relationships in different fields recognizing the challenges of the contemporary knowledge society, in order to prepare students to become Global Citizens and aligned with the actual Educational and Social Studies.

Our research project continues the promotion of the significant role of Cinema and the film language for an interdisciplinary approach on teaching and learning at different school levels and several other disciplines.

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CLASSROOM TEACHER STUDENT EVALUATION OF BURNOUT AND ALIENATION LEVEL

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The aim of this study is to investigate if there is a significant difference according to gender and class level variables on the alienation and burnout of classroom teaching students. Furthermore, the relationship between alienation and burnout levels of students have been tried to be determined. The research was conducted with 112 women and 97 men with a total of 209 Cukurova University 1st to 4th year students studying class teaching in the academic year of 2014-2015. In the study “The Burnout Measure Short Version” and “ Student Alienation Scale” is used. The data collected has been analysed using t-test and the Pearson moments correlation technique. The analysis results in students from 54 (25.8%) as the burnout is very low, at 75 (35.9%) experienced burnout danger, 56 of (26.8%) experienced burnout, 22 of them (10.5%) and serious burnout lived and 2 (1.0%) were determined to be in need of professional help. The alienation and burnout level of students shows significant difference due to gender and class level. Students alienation and burnout levels showed a significant difference according to gender and class. Results from the men's burnout and fourth grade students were found to have higher levels of alienation. The alienation between burnout and a positive correlation was found in medium level.

CLASSROOM TECHNOLOGY FOR ASSESMENTS OF COURSE LEARNING OUTCOMES

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There is a trend in moving from traditional curriculum-based teaching and learning to outcome-based learning, commonly termed as outcome-based education (OBE). This approach describes what the students can do after completing a program, a course, or a section within a course rather than what they learn. It requires tracking the performances of each student in different assignments e.g. assignments, quizzes, or exams, etc. and checking if a student has met an expected level of performance or not. It could be very laborious and time consuming if once attempts to do manually. However, there are a number of commercially available online course delivery systems. CANVAS-LMS (<https://www.canvaslms.com/>) of those Learning Management System that can simplify teaching and learning by connecting all the digital tools teachers can use in one easy place. This paper describes the different features that are available to course management, assignments, file sharing and tracking students learning outcomes. It illustrates with examples in teaching electronic courses.

COLLABORATIVE WORK AND TECHNOLOGICAL MEANS FOR IMPROVING LEARNERS' ENGLISH LANGUAGE WRITING PRODUCTION

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ABSTRACT

Writing is probably the most complex skill to develop during the foreign language acquisition process because of its specific features. This work aims to improve learners' English language writing production through working collaboratively and using technological means. One hundred ten students (38 males and 72 females) from two Ecuadorian universities participated in this study, which applied Collaborative Learning (CL) and Project Based Learning (PBL) approaches during 2015-2017. A group of participants answered online surveys and participated in focus group discussions to identify the strategies they use during their writing practice. It was found that participants' efforts and time dedicated to improving their writing skill in quality and quantity have a direct relationship with the learner's interests. It is concluded that the combinations of collaborative work and the use of technological means improve the development of participants' written communicative competence. The main progress was centered in the acquisition of technical vocabulary, improvement of participants' writing style and coherence of the text. Similarly, PBL fostered the improvement of participants' writing production in quantity and quality.

Keywords: Collaborative work, Project Based Learning, online applications, writing competence, role-play scripts, research essays

INTRODUCTION

When foreign learners begin higher studies, they need to be trained constantly on reading, writing and interpreting academic complex texts. Such challenge requires hard work, especially when the goal is to develop writing skills in the foreign language. Furthermore, it is necessary to consider that students' communication styles are changing in the two universities where the present study was conducted from a passive way of learning, in which students only receive knowledge from the instructors; toward an active learning, in which students look for knowledge from their peers with the aid of technological resources.

Despite this fact, it has been observed from previous studies that students have not developed enough their English writing skills since they present issues on lack of vocabulary, inappropriate grammatical structures, incoherence in the ideas, etc. It is essential to overcome these problems because intelligible writing allows keeping documents even more current (Sánchez y Contreras, 2012).

Nowadays, students have access to a wide range of information for amusement and educational purposes through the use of technological means; thus, it is necessary to encourage students to read articles or books in the target language to gain knowledge about different topics and become familiarized with the correct English writing.

Studies related to technological means were conducted by Hsu (2014) and Sharma (2015) who discussed the use of audiovisuals as authentic material to develop written communication properly and meaningfully. Additionally, teachers should direct students to use online dictionaries because they are tools that facilitate learners to develop writing skills during the beginning learning stage. Once they acquire more vocabulary and higher grammar knowledge, they will feel more confident to use dictionaries less frequently. However, novel writers find in "Web sites and resources that involve interaction (chat-rooms, wikis, blogs) on the Internet [...] as complementary tools for language learning" (Cevallos, Intriago, Villafuerte, Molina, Ortega, 2017, p.111).

Scholars as Aydin & Yildiz (2014) and Nguyen (2013) argued that collaborative learning allows students to create texts as members of the educational community. Mutwarasibo (2013) made important contributions about the significance of collaborative work to prepare students for the job market. In this respect, it is observed that 75% of young professionals in England do not communicate properly; consequently, educational institutions need to take measures to improve communicative competencies (British Chamber of Commerce, 2014). This is seen in Europe, where young people not only speak incorrectly but also use the inappropriate tone of voice. Such linguistic phenomenon affects clients' perceptions, and as a result, they decide not to purchase the products or services. This inappropriateness can also be seen in the written communication since young professionals might not transmit the information correctly causing the reader to be confused or disappointed, and because there is no clarity in the terms of the deals, business settlements are not arranged.

For that reason, the objective of the present study is improving learners' English language writing production through working collaboratively and using technological means. To accomplish this goal, it is necessary to answer the following research questions:

How do students collaborate in class to write scripts and research essays in the target language?

What technological means are used to write English language scripts and research essays?

How can students improve their writing production using technological means?

LITERATURE REVIEW

1. Development of writing skills in the university context

The development of oral and written language skills during the process of a foreign language (FL) acquisition is a challenge necessary to accomplish. Therefore, the use of technological information and Communication (TIC) facilitates writing activities performance to develop the macro abilities (Herrera, Morales, Holmes and Herrera, 2011).

Williams (2012) maintains that writing tasks take more time than speaking. When writing, students have the opportunity to deal with communication problems by asking more experienced peers, consulting dictionaries, or simply going into detail about their knowledge during the writing process. For this purpose, instructors need to lead learners to work collaboratively to get the most from each other when developing a written task.

Strategies as Role-Plays have demonstrated important contribution for the development of communicational skills, but also its combination with the use of technology in the local and foreign sphere has demonstrated outstanding results. Therefore, the results obtained through integrating Facebook and Skype to execute role-plays and dialogues on line, allowed to improve participants' Speaking and Writing skills with the collaboration of their peers and the self-correction (Yen, Hou & Chang, 2015).

Education in the XXI century must focus on the population's needs. The United Nations set the Agenda 30 goals for the sustainable development to propose a route to follow (UN, 2015). Consequently, the use of role-plays is proposed for script writing practice in a real-life context. "Role-play is a communicative activity related to Project Based Learning (PBL), with a didactic interactive approach that fosters the interaction based in real-life situations, with authentic language and material" (Rossi, 2016, p. 57). In this sense, communication according to Rossi (2016) is based on content more than on form.

However, in current practice to develop learners' English writing skills, "the culture of developing higher levels of thinking and reflection through this form of composition is almost inexistent. Using it as an opportunity for EFL learners to learn how to write and try out the new language" (Cevallos, Intriago, Villafuerte, Molina, Ortega, 2017, p.111).

2. Collaborative work for developing writing skills in a foreign language

In relation to CL, a study centered on the use of wikis for collaborative English writing projects in Foreign Language classrooms applied collaborative argumentative, informative, and decision-making writing by working in groups of four students. Similarly, the writings of the students in the wikis were analyzed to investigate about self-corrections and collaborative corrections as well as changes in relation to form and meaning (Aydin & Yildiz, 2014).

Another study about CL was focused in collaborative English writing situations as a second language. This study investigated the ways in which the Vietnamese students of English as a foreign language made possible peer structure among them during a collaborative presentation and how they benefit from this experience. The results show that collaborative work among peers creates the necessary learning conditions to have students help each other (Nguyen, 2013).

As a consequence, collaborative work is recognized as a valuable tool for learning development centered on the students. Its importance is seen in two ways: Firstly, when students are regularly encouraged to do collaborative work, they are inclined to develop skills of interpersonal communication. It is also thought that collaborative work properly organized and well lead can make students develop more cognitive skills. Secondly, it is often discussed that through working collaboratively, students gain experience and comprehension to how responsibilities are done in the workplace. Therefore, collaborative work leads students to be prepared for the job market (Mutwarasibo, 2013).

The motivation for writing among students is not easy. Within the writing problems, there are the generation and organization of ideas, thought patterns, cohesion, and coherence. However, to overcome these problems, it is necessary to have a variety of activities to transmit ideas through script writing and drama performance (Nurhayati, 2016).

3. Digital competence for novel writers

The European Parliament (2006, p.10) defined the term -digital competencies- as "the skills to search, obtain, process and communicate information, and transform it into knowledge [...] the challenge to develop reasoning skills to organize, relate, analyze, summarize and elaborate information again".

The introduction of Web 1.0 in the educational system generated more autonomous learners able to develop learning process in their own rhythms. As a result, learning environments became more authentic and coherent to current times. The Web 2.0 gave learners the possibility to focus on the content of their interests (grammar, phonics, writing, vocabulary, etc.) and the barriers of the physical distances were overcome. The web 3.0 allowed collaborative work among learners who are connected and exchange material in different formats as texts, videos, sounds, pictures, etc. Such exchange of information leads learners to produce their own materials. Consequently, it is remarked that learners are the ones who assume their own learning processes (Michavila & Parejo, 2008).

The introduction of digital clouds in the educational system allowed showing evidence of students' learning progress. Digital clouds can be accessed from any computer, tablets or smartphones with an internet connection and support the exchange of heavy documents in different formats (Nevin, 2009). They are used globally to link the communication tools and educational services (Sanchez & Contreras, 2012) offering a wide range of potential uses during the professional education.

The appropriate use of information and communication technologies (ICT) enables learners to build new experiences of writing. They also allow setting collective and collaborative learning, potentially reshaping space and school time, and expanding the role of the teacher as a knowledge mediator (D'Imperio & Rosendo, 2013).

In different contexts, writing is still the most used communicative skill; such condition demands future professionals to develop the competence for efficient writing communication. However, "teaching of the written language is mainly linked to the automation of the processes of codes' domain, and the learning of pre-established norms" (Martin del Campo and Martinez, 2014, p. 14).

At the beginning of the writing experience, learners use writing tools as on line translators and electronic dictionaries. In this case, Ecuadorian learners consider that online applications are essential for language learning; similarly, students report that not all tools are trustworthy due to the quality disparity of different languages dictionaries (Jin and Deifell, 2013).

To Musk (2014), target language avoidance appears through the use of online dictionaries. Likewise, Jin & Deifell (2013) observed that the generation of these dictionaries has had noticeable consequences in the way

novel writers use the foreign language. In Ecuador, “learning is still seen as teacher dependent and as such, the idea of going to a website to learn a language is difficult to grasp as effective. It is well known that a central principle in language acquisition is being exposed to the language” (Cevallos, et al, 2017, p.111).

Among the most common ICTs used in the process of writing development, audiovisuals, blogs and mobile applications, electronic dictionaries, and Google applications appear to be the most popular. The following lines offer a description of them.

a. Audiovisuals

A study conducted by Hsu (2014) relates to the importance of multiple English expositions before writing tasks. Additionally, it aims to explore the possibility to increase active vocabulary with a focus that goes beyond the first most frequent 2,000 words. The researcher incorporated online videos in his writing classes at the university and examined its effects in the use of advanced vocabulary.

To activate the previously learned vocabulary, a variety of audiovisual models was applied before the writing tasks: (1) videos with subtitles, (2) videos without subtitles, (3) silent videos with subtitles, and (4) videos only with sound. When English students watch a video with subtitles in the target language, they need to pay attention to two types of visual inputs (images and texts) as well as an audio input (sound) and as a consequence, they have a greater access to the target language. The audio effect explains why some students are able to write better with a variety of vocabulary after using audiovisuals. The online videos serve as an additional component that facilitates students to acquire knowledge for a writing topic. Before writing, the researcher looked for videos in YouTube and Google about movie extracts and in these way students found writing topics (Hsu, 2014). Another study related to the use of audiovisuals was conducted by Sharma (2015) in which it shows that students are motivated when using different audiovisual programs, live chats, TV debates, live movies and other authentic materials that replace books. In this way, the author of this study maintains that there is also a focus on sociocultural aspects that would avoid any wrong selection of spoken English words putting into play the communication purpose. Therefore, if students listen to native speakers, the script and essay writings will be more appropriate.

b. Blogs and mobile applications

Vurdien (2013) studied the use of blogs and explore how this tool involves a group of English students to practice writing skills through collaborative work. This instrument allows learners to freely write opinions since they all create a personal blog and read others' opinions, share ideas, and make comments on their peers' publications. The objective of the project was to activate the writing skills through specific tasks of writing, perceive the feedback effects of peers, and improve collaborative skills. Working among peers led students to improve planning and choose the correct style required for each task before the writing and work submission. Similarly, collaborative work was fostered through the students' interaction in the blogs.

Another study based on PBL was conducted by Nisbet & Austin (2013) who maintain that the applications available in smartphones and tablets are effective tools to increase the vocabulary development of adult students. Additionally, through the collaboration between students and teachers, there are different options for the autonomous learning through projects (Nisbet & Austin, 2013). According to Savery (2015), PBL approach centers on the students and aims to encourage them to do research, integrate theory with practice, and apply knowledge and skills that would lead them to solve a specific problem.

c. Electronic dictionaries

According to Jin and Deifell (2013), the online dictionaries generation has influenced greatly the way in which students learn a foreign language. A study conducted by those authors examines the use and perceptions of foreign students regarding bilingual online dictionaries through analyzing 250 answers to a web form survey of students enrolled in a language course in the United States. The results show that online dictionaries are consulted the most when students are creating and deciphering digital written texts.

d. Google applications

The action research conducted by Intriago, Villafuerte, Morales, Lema, and Echeverria (2016) aimed to improve English language reading comprehension and speaking skills virtually in college students through the use of Google Apps and Literature Circles (LCs). The results demonstrated an effective development of the reading comprehension and speaking skills in the target language. The participants went from A1 to B2 of the Common European Framework of Reference for Languages (CEFRL). Therefore, it is concluded that the use of "Google Apps" built virtual learning communities to strengthen the second language development at the university level. For this purpose, if students are motivated to read through Google Apps, they will develop better writing skills

since they familiarize with the correct structure of sentences and acquire new vocabulary.

METHODOLOGY AND INSTRUMENTS

The present study is an action research work which applies mixed methods of research to determine (i) Strategies applied by participants during their writing production in English language, (ii) Participants' attitudes for language practice using TICs, and (iii) Participants' perceptions about key activities for the writing production in English language.

The sample is composed of 110 students (38 males and 72 females) from two Ecuadorian public universities located in two different cities in Ecuador. The selection criteria of participants included the following three conditions: To be officially enrolled as students in each of the participant's universities during the period 2015-2017, to attend classes regularly, and to have the willingness to participate in this project.

Table 1

Participants

Locations	Male	Female	Total
Machala	18	42	60
Manta	20	30	50
Total	38	72	110

Source: Project Registration (2015-2017)

Instruments:

(1) Electronic Survey to identify learners' strategies applied during their writing practices. This instrument was designed ad hoc, by the research team. It consists of 7 questions about the electronic tools learners use during their writing practices. The instrument was tested by professors from Universidad Tecnica de Machala, Ecuador; using the experts-review triangulation method. This survey was applied through a Google Apps form.

(2) The Likert questionnaire of Villafuerte & Romero (2017) titled Learners attitudes towards the idiomatic practice on ICT. It was applied using an electronic form of Google Apps. The testing of this instrument reported a Cronbach Alpha = 0.83 in all their items, which is accepted by following the international standards for this kind of research.

(3) Focus group discussions that consist of 10 questions to determine key activities participants do during their writing practice. This instrument was designed ad hoc, by the research team, and tested using the technique - experts review triangulation-. Researchers from Universidad Tecnica de Machala in Ecuador collaborated in the validation test of this instrument.

Research organization

This work was organized according to the following steps

Step 1: Quantitative instruments application: Likert questionnaires.

Step 2: Qualitative instruments: Focus group discussion

Step 3: Analysis of the participants' writing production:

RESULTS AND IMPLICATIONS

Step 1: Quantitative instruments application: Likert questionnaire

(i) Electronic Survey to identify participants' strategies applied during their writing projects

The results of the survey are shown in Table 2.

Table 2
Strategies participants use for writing

Items	Always		Sometim es		Rarely		Never	
	n	%	n	%	n	%	n	%
1. I Write the research papers and scripts first in Spanish and then I translate them completely to English using Google Translate.	9	29	13	41,9	1	3,2	8	25,8
2. I write the research papers and scripts directly in English.	7	22,6	17	54,8	4	12,9	3	9,7
3. When I write the papers and scripts, I use Google Translate only in certain words or phrases I do not know.	10	32,3	20	64,5	1	3,2	0	0
4. I use online dictionaries to consult words to use in the research papers and role-play scripts.	8	25,8	10	32,3	9	29	4	12,9
5. I ask for help to the teacher when I don't know how to say or write something in English necessary to write the role-play scripts and research papers.	3	9,7	14	45,2	11	35,5	3	9,7
6. I ask my classmates for help to write the writing tasks.	11	35,5	10	32,3	6	19,4	4	12,9
7. I use the words, phrases or expressions learned in class to write the writing tasks.	20	64,5	11	35,5	0	0	0	0

Source: Project survey (Oct. /2016).

It is observed that 41.9% of the participants -sometimes choose to use the Google translator- to translate to English their full texts (scripts or essays) that were written in Spanish. When learners choose their first language avoiding the use of the target language, the foreign language acquisition decreases significantly (Musk, 2014). However, 54% of participants chose to write their scripts and essays directly in English.

Another significant finding was that 64.5% of the participants -sometimes use Google Translator- to translate phrases and expressions, they do not know in English; and 25.8% of the participants chose the -use of online dictionaries- during their writing production. However, 29% of the participants do not have the need to go to online dictionaries.

It was also observed that 35.5 % of the participants rarely ask the teacher for help; only 9.7% of them do it, but 35,5% of the participants always look for their peers' assistance. In this respect, the contribution of Savery (2015) leads us to understand that participants in - PBL- which focus primarily on collaborative work combine theory with practice to encourage learners to solve problems.

Finally, 64.5% of the participants mentioned that they always use vocabulary and grammar learned in the classroom; but 35, 5% of them indicated that they sometimes do it. In this regard, Williams (2012) argues that writing practices deepen learners' knowledge in a short time.

(ii) Learners attitudes towards the idiomatic practice on communication and information technologies

The most relevant Learners' attitudes regarding English writing practice using TICs are presented in table 3.

Table 3

Participants' attitudes toward language practices using technological means

Dimension 1: Integration of SNS into academic activities	N	Min.	Max	Sum	Average
1.1) I think using social networks is easy.	110	1	6	569	5.17
1.2) I think I know perfectly well how to use the social networks such as Google+, Facebook, YouTube, WhatsApp.	110	1	6	543	4.94
1.3) I think I do not need tutorials or help to use social networks Google+, Facebook, YouTube, WhatsApp, and Twitter.	110	2	6	490	4.45
1.5) Social networks sites like Facebook, YouTube, Google+, etc. facilitate contact with other people for collaborative work.	110	1	6	611	5.55
1.8) I think that university students do use the functions offered by social networks in multiple educational activities.	110	1	6	557	5.06
Dimension 2: English Language Practice through Social Network S.	N	Min.	Max	Sum	Average
2.1) Social networks sites because their functionality should be used for English language practice in higher education.	110	1	6	488	4.44
2.3) Social network sites are useful when working in a group	110	1	6	437	3.97
2.6) The Social network site I would use to practice the English language is google+.	110	1	6	386	3.51
2.15) I like the computer to correct my spelling in the English language.	110	1	6	589	5.35
2.20) If I want people understand my messages in English, I must check very well my spelling before uploading them to the web.	110	1	6	543	4.94
N. Valid answers.	110				

Note: Results of the research project (Mar. /2017).

Source: Results from the Likert questionnaires regarding learners' attitudes toward language practices using technological means (Villafuerte & Romero, 2017).

Participants showed positive attitudes toward the language practice using TICs and Social Networks. These attitudes are observed in the following items:

1.1) I think it's easy to use social media: 5.17 points average; 1.2) I think I know perfectly well how to use social networks such as Facebook, YouTube, Google+: 4.94 points average.; 1.8) I think that university students do use the functions offered by social networks in multiple educational activities: 5.06 points average.

Participants answered the following items showing their conviction about TICs and SNS as a support for collaborative work in English Class: 1.5) Social networks like Facebook, YouTube, Google+ make easier to contact with other people: 5.55 points average; 2.1) Social networks sites because their functionality should be used for English language practice in higher education: 4.44 points average; 2.6) the social network site I would use to practice English language is Google+: 3.51 points average; 2.15) I like the fact that the computer corrects my spelling in English: 5.35 points average; 2.20) If I want people to understand my messages in English, I must check very well my spelling before uploading them to the web: 4.94 points average.

Step 2: Qualitative instrument - Focus Group Discussion

The information collected by the focus group discussions were categorized into the following stages: Planning, execution, and evaluation. The results are shown in table 4.

Table 4

Key activities executed during the collaborative scripts writing practice

Categories	Activities	Category
Planning	Task Distribution and delegation	Moderate
	Analyze the topic	Very High
	Brainstorm	Moderate
	Collaborative work	Moderate
Execution	Write the dialogue clearly	High
	Use of audiovisual resources	Very Low
	Use understandable vocabulary	Very Low
	Relate the paper to the tourist area	Very Low
Evaluation	Relate to activities done in classroom	Moderate
	Find help in people with more knowledge in English	Very Low

Note: Results of the research project (Mar. /2017)

Graphic 1.

Cloud of the most frequent words repeated by the participants.

Find help in people with more knowledge of English
 Collaborative work
 Task distribution and delegation
 Write the dialogue clearly
 Relate the paper to the tourist area
Analyze the topic
 Use understandable vocabulary
 Brainstorm
 Relate to activities done in class
 Use of audiovisual resources

Source: Results of the focus group discussions (Dec. /2016)

The cloud graph presents the phrases that have been repeated around the category key activities executed during the collaborative writing of scripts. It is observed that "Analyze the topic" is the phrase of participants' greatest interest. These responses are linked to the category planning.

While the least repeated sentences "Use of audio visuals", "Use understandable vocabulary" and "Relate to the area of future work" correspond to the category -execution-. In relation to the category evaluation, the phrases observed are "Find people who have more knowledge of English" and "Relate to activities done in class". In this regard, role-playing is a communicative activity based on PBL with a didactic and interactive approach that fosters the interaction founded on real-life situations with authentic language and material (Rossi, 2016, p. 57). In addition, Hsu (2014) maintains that it is important to be exposed to English before writing since its objective is to increase vocabulary in an active way.

Step 3: Analysis of the participants' English language writing production

The analysis of the participants writing production development is presented in the following table:

Table 5

Evaluation of Participants writing production

Writing Product	Main challenge and progress	Collaborative support	Quality and Quantity evolution
Scripts	Writing role-play scripts enable students to practice vocabulary, phrases and expressions learned in class in a real-life situation.	Students asked peers for support and used technological means such as Google translate to consult words they did not know.	Initial production: Students did not participate in any communicative writing activity such as role-play scripts. Quality: Students did not know a lot of English vocabulary, phrases, and expressions. Therefore, their writing production was poor. Final state: During the study, learners participated in 20 role-play scripts by using the English words, expressions, and phrases learned in class. Quality: Students' written abilities improved significantly because they were able to increase the number of new words.

Similarly, their grammar usage developed effectively.

Essays	<p>Writing essays require novel writers to review scholar's publications for quotation.</p> <p>Writing essays develop digital competence in novel writers when they use ICT tools.</p> <p>Writing essays is controlled in the following aspects: grammar, pragmatics, content, Corrections and final quality control.</p>	<p>In this case, participants asked teachers for assistance more than to their partners to check grammar and writing styles. Consequently, the main messages in the text are understood since it becomes coherent, catch and maintain the reader's interest.</p>	<p>Quantity: Initial production: Each student participated during one semester with a half essay.</p> <p>Final production: Each student participated with an essay of a good level per semester. Total production 5070 essays.</p> <p>Quality: Initial state: average accepted. Final state: good.</p>
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Students' sustained acquisition of technical vocabulary and usage of previously learned class content.

Students developed their digital competence in the search of online information using TICs.

Learners wrote 20 scripts using collaborative scripts of high quality.

Learners wrote 50 research essays on time.

Learners showed improvement in their writing styles and coherence.

Learners use appropriate vocabulary and punctuation.

Source: Authors creation. (Aug. /2017).

Regarding the use of technological means to write role-play scripts and essays in the English language, the result of the surveys and the focus group discussions applied in this study show that Google Translate is the participant's most used tool during the execution of the writing projects.

Furthermore, results also corroborate with the insight that learners' positive attitudes for English writing are highly necessary. Learners' most relevant progress consisted in the use of clear phrases, appropriate vocabulary, direct language, and attention to details. It is also valuable to use short and simple sentences, organize the ideas and citations following a chronological order, and to develop a personal style of written communication. Other findings obtained during this research are:

Use of ICT for English papers revision

In this study, it is observed that Google Translate is the electronic tool most preferred by participants to write English language scripts and essays. Similarly, a study conducted by Jin & Deifell (2013) ponders that the generation of online dictionaries has affected the way students learn a foreign language. Accordingly, the use of technology focuses also on socio cultural aspects that would avoid any wrong selection of spoken English words putting in risk the communication purpose (Sharma, 2015).

Collaborative work

On the other hand, only one participant mentioned preferring working individually since it facilitates the generation of better ideas. According to this participant, there is not an agreement or an order when working in groups. However, previous studies have shown that collaborative work has proved to be an effective technique to develop writing skills. In this sense, Aydin & Yildiz (2014) conducted a study on the use of WIKIS for collaborative writing. Additionally, collaborative work leads students to develop more cognitive abilities and experience about how to handle responsibilities at work (Mutwarasibo, 2013). In this regard, according to Jin & Deifell (2013), online dictionaries are used the most when students are creating and understanding a digital written text.

Peer review during writing scripts practice

In relation to asking for help to write role-play scripts, the surveys showed that students rarely ask the teacher for assistance during the writing activity. On the other hand, the results of the focus group discussion showed that the majority of students ask their peers for help. As a consequence, most of the learners feel the necessity to work collaboratively with their classmates to write the scripts instead of asking the teacher for help. For this reason, collaborative work is the most preferred learning mean of the students.

Similarly, concerning the option of asking peers for help to write the role-play scripts, the surveys showed that they always did it. For that purpose, the focus group discussions showed that “analyze the topic” to write the dialogues was the most repeated phrase by the participants when they work collaboratively. In relation to using the learned content in class to write the role-play scripts, the surveys demonstrated that the majority of learners did it and the rest of them only occasionally. Likewise, the surveys showed that the minority of students do not use what it was learned in class.

Peer review during writing essays practice

Participants were open to the reviews and recommendations of teachers, but they were not totally open to accepting peers' review. Participants maintained that their peers did not have the experience and the necessary knowledge to criticize their papers. However, participants agreed about having their peers give opinions about the writing style of their papers for a better reading comprehension.

CONCLUSION

The results of this study confirm that participants' efforts and time dedicated to improving their writing skill in quality and quantity have a direct relationship with participants' interests or motivations. Even though ICTs enable learners to get higher levels of performances in their writing projects, the motivation for learning a foreign language is the most relevant factor that leads professors and students to collaborate with each other during writing practice.

Additionally, the use of technological means such as Google Translate and online dictionaries are fundamental tools to support learners in their writing of role-play scripts and research essays collaboratively. For this reason, students rarely ask the teacher for help to perform their writing projects since the majority of times they ask their classmates.

The use of technological means encourages learners' creative writing production of role-play scripts and research essays as part of a PBL process. After this practice, students are able to accomplish their collaborative writing tasks because they relate their ideas to real-life situations and previous research work. Furthermore, PBL enables learners to help each other to generate well-written dialogues and phrases since they have the opportunity to give their opinions respectfully about their peers' work. Consequently, the quality of their writing improved when they were well motivated to spend more time working and making an effort to produce written documents of the best quality.

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COMPARATIVE STUDY ON THE PERFORMANCE OF BACHELOR OF SECONDARY EDUCATION STUDENTS USING BLENDED LEARNING STRATEGY AND TRADITIONAL FACE-TO-FACE INSTRUCTION

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Technology offers various tools of improving the teaching – learning process. It revolutionizes teaching from traditional face-to-face to distance and online learning. This study described and compared the performance of Bachelor of Secondary Education students using the traditional face-to-face classroom interaction and the blended learning strategy. Two sections were used in the study, one section was exposed to traditional face-to-face and the other one was exposed in blended learning strategy. Findings revealed that students who were exposed in the two strategies have comparable performance in educational technology. Students from both sections perform superior and excellently in their activities. However, teacher and students from blended learning encountered challenges on access to computers and internet connection. In general, the use of blended learning strategy was viewed as very effective in teaching educational technology.

COMPARISON AND EVALUATION WITH SIMILAR TYPE PROGRAM TO BRUSH-UP SYSTEM FOR RE-EDUCATING SOCIAL WORKERS

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ABSTRACT

In recent years, the problem of shortage of successor in manufacturing industry in Japan has been concerned. In this paper, it has clarified the existence of other reasons for causing crisis of manufacturing by the following analysis. It is still a lack of understanding from the company and the support from the government, as well as lacking of studying about re-educating issue by the universities in Japan. There is a positive correlation between public expenditure on studying and making improvement of productivity. The enhancement of learning opportunities is necessary to overcome international competitiveness. Based on the analysis and evaluation above from our research, we are starting to promote the unique brush-up program for social workers.

1.INTRODUCTION

At Hokkaido University of Science (April 2014 school name change from Hokkaido Institute of Technology), the Core Human Resource Development Course for Citizen Core "Production Management Expert Cram School" is being held(Mikami, 2007& 2012). There are two objectives of this human resource development project aimed at this university. The first is to develop human resources who are responsible for technological innovation for machinery metal fabrication assembling manufacturing industry, which is regarded as vulnerable in Hokkaido. The other is to nurture manufacturing experts for factory supervisors and production control personnel who are responsible for the core of the enterprise. In recent years, the authors focused on the following two points of crisis concerning Japan's monozukuri due to the shortage of successors. First, what are the requirements for prevention of exit from business and corporate management required for core engineers from now. Second, what kind of production method / management method is effective for steadily progressing technology and skill succession. As a result, the author is in the uncertainty of survival measures corresponding to changes in the times seen in the Fourth Industrial Revolution, such as led by IoT and AI, behind the absence of advanced corporate human resources development as expected I am concerned. It is often said that although it is a serious problem of industry-specific problems with chronic talent shortage and aging society structural problems, it is not. Meanwhile, under the initiative of the Ministry of Education, Culture, Sports, Science and Technology, in July 2008, "Brush up Program for professional (BP) certification system was established to promote learning of social workers. Therefore, at this university, since in January 2008, we have only begun to

examine the "Production Management Expert Cram School", which is an existing similar lecture course, with the direction to connect it progressively with this BP system. In this paper, in order to make this connection fruitful, we analyzed similar courses that we have worked on so far. Furthermore, in order to effectively function BP to be introduced in the future, we evaluate the current performance and propose future countermeasures.

2. CURRENT STATUS ANALYSIS

2.1 Outline of previous courses

This time, the practical lecture subject to discussion of connection to BP was opened as a core human resource training course for engineers from 9 years ago. The course was conducted regularly at the rate of 8 times / half a year. The theme that responded to the deepening of the times and the times has been selected. The recruitment capacity is 30 people and is targeted at engineers who work for companies located in Sapporo city and suburbs, age, sex, work in charge of work are also various, and attendees who are motivated to improve businesses gathered (Mikami, 2010). Table 1 shows the plans and achievements of the core human resources development business in 2016. Looking at the contents of this program eight times, it consists of "lecture", "practical skill", "corporate tour", "presentation", and the lecturers are selected not to bias the field. The program of lecture No. 4 in the table I was in charge of is participating in all the past 9 years while changing contents. We will briefly describe the role played by the control mechatronics intelligence information (CMI) of Mechanical Engineering Department, which is the educational research field of the authors.

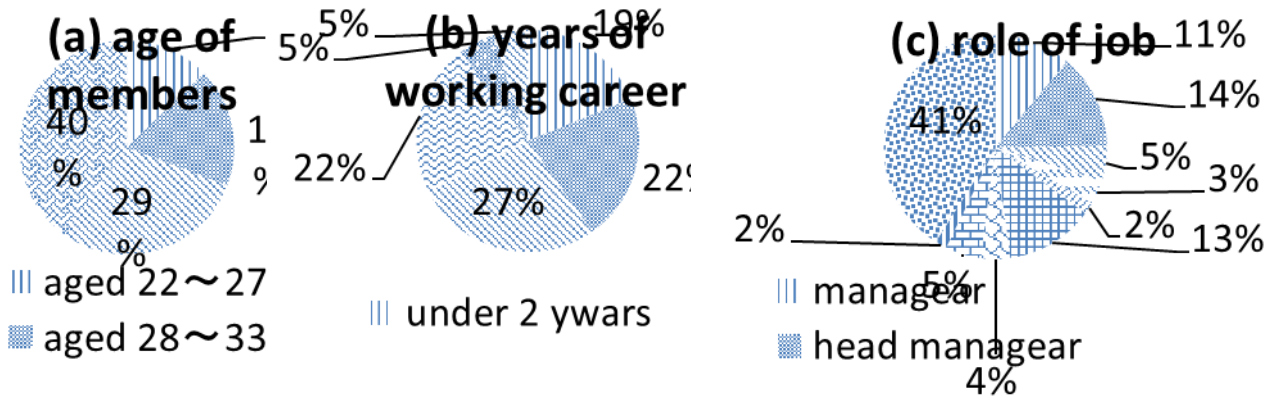
Table 2 shows the transition of Course No. 4. Our philosophy is technical support to accelerate the development of open innovation to challenge new possibilities. To do that, core human resources must introduce the fruits of the distinctive frontier area which are distinguished both in development and processing, and must provide and share development and manufacturing technology specialized. Five times in the first half have been deepened into a course focused on robust sequence control and the rest on the introduction of IoT's technology centered on 3D printers. Currently the business fields of SMEs are expanding, the diversity of needs and the speed of change are extremely rapid. New product introduction cycles are as short as half a year to one year, and early launch of facilities is required. Therefore, one of the technologies playing an important role is sequence control that easily follows "Variant and Variable Production System" (Sasagawa, 2011). By introducing this technology to the site, it is considered possible to realize improvement both in productivity and quality, in addition to one-stop engineering which can be integrated with the customer from the product development stage. On the other hand, as an example of IoT conversion in the second half, it is working with a smartphone. Also, if necessary, we exchange product information with headquarters and office, promptly transfer modeling data to 3D printers for trial production, proceed with modeling using travel time by the vehicle, after arrival at the destination It is also possible to immediately provide prototypes or parts. In this way, we are introducing a case where a one-stop working environment utilizing IoT technology is already being realized.

Table 1 The plans and achievements of the core human resources development business

NO	Theme	Overview
1	Opening Ceremony - General Topics How to view and think about KAIZEN	Recognize the current situation and future directions of manufacturing in Hokkaido and confirm the viewpoint of thinking and viewpoint of production control and cost reduction. Learn the knowledge of the Ergoma approach from the viewpoint of "fusion of productivity and humanity"
2	How to make improvements by just in time production method	Learn how to think and think about improvement in just-in-time production method in an easy-to
3	How to proceed with 5S activities	Learn 5S (arrangement, organization, cleaning, cleanliness, discipline) which is the basic Kihon in the basic to advance work and improvement well by item.
4	Fundamentals for making jigs	Learn about the theory of sequence control which is the foundation of saving labor and making jig tool and easy use technique using "GX Developer" exercise equipment.
5	Basic IE (Industrial Engineering) method	Learn the "IE method" that quantitatively and qualitatively grasps the waste lurking in work and movement indispensable for discovering problems at the site.
6	Just-in-time exercise	In order to realize short delivery in various types of small lot production, it is necessary to consider "Just-in-time thinking" as necessary (as necessary, (produce, delivery)) as necessary (quality and price) Learn knowledge and skills through exercises

Table 2 The transition of Course No. 4.

Year	A theme with a re-educating element added	Aim of the course
2010	Understand the outline of PLC	Know the usefulness of PLC
2011	Programming with SFC	Know the merit of condition matching type coding
2012	Programming with application instructions	Knowing data storage and calculation method by register
2013	Innovative jig processing and sensor connection	Modeling with a 3D printer
2014	Various variable quantity production System I	Modeling with a 3D printer
2015	Various variable quantity production system II	Evolving Additive Manufacturing(AM)
2016	IoT and Various Variable Production System	M and Industry - 4.0



Figures 1 (a) - (c) are the results of analyzing the composition of the participated students

2.2 Expectation for this course seen in composition of participants

Figures 1 (a) - (c) are the results of analyzing the composition of the participated students. (A) percentage of age, (b) percentage of years of service, and (c) percentage of posts. The total number of people attending the Core Human Resource Development Program has reached 291 in the past nine years, which is the number of (A) As for the proportion of the age of the students, from the aim of naming the core technicians and aiming to be a managerial strategy, the 10 years after university graduation, 12 years from the college of technical college, 14 years after the high school graduation seems to have passed Accounts for 70% of the total. (B) The percentage of years of service of participants is 22% from 6 years to 10 years, nearly 50% together with 27% from 11 years to 20 years. Based on this fact, we are actively participating in courses due to background such as being active as an outstanding company in current companies, being forced to acquire the skills required at the present workplace due to career change, etc. Can be inferred. (C) Most of the participants took on some role in the position of the position of posts, and there were also directors who served as corporate heavy responsibility, assistant manager and deputy director. Meanwhile, there are also a large proportion of manager chief and group chief class in charge of personnel training, and it can be seen that there is an aim to compensate for aging of managers and lack of successor in the background. Also, the proportion of the department to which the student belongs from another survey is attended.

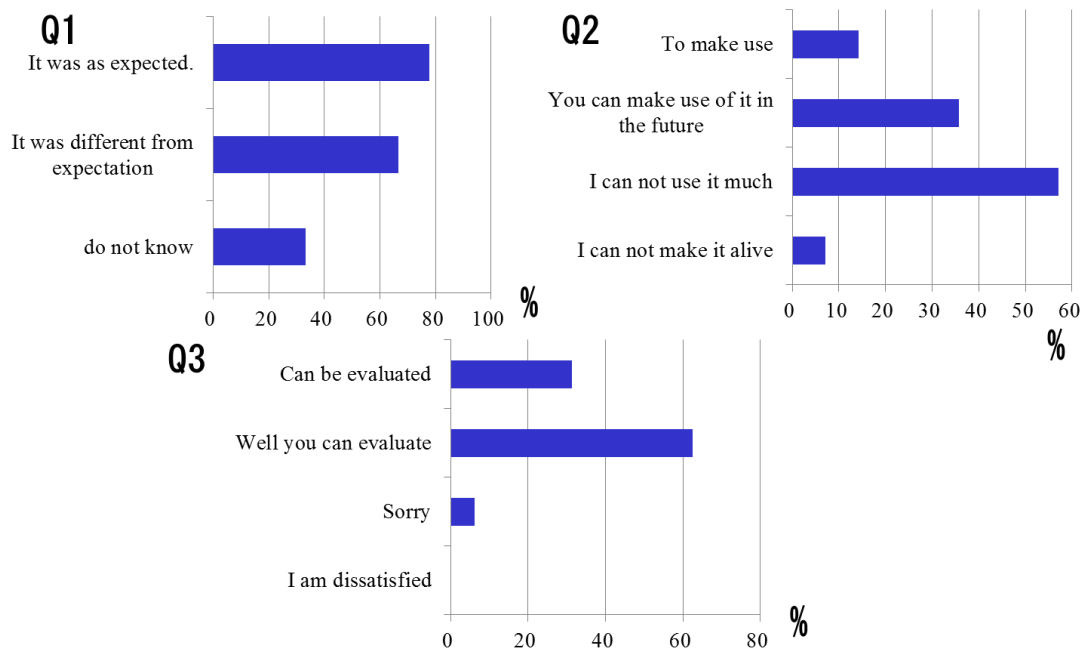
Figures. 2 shows a questionnaire result of the student for the course No. 4. (1) From the results of Q2, it can be seen that there are mixed expectations and anxiety for problem discovery and resolution ability, such as introduction of "Various Variable Production System" and IoT, in half of the 5 point difference. (2) From the result of Q3, even if you can understand what you took, you can see that it is a different problem from using it immediately for work. It is an important result concerning the basis of the main point of the course. (3) From the result of Q4, it can be seen as a result showing the necessity for structural change of the manufacturing industry. That is, Japan enters the era of "multiple equations" and "simultaneous equations" where there are four or more variables such that "ICT" and "environment" are added to "maturity", "population decrease", "declining birthrate and aging" (Seki, 2016). There is an indication that it did. Moreover, they are faced with a transformation

period that they have to solve. In addition, as an impression of free description, I got a good reputation that "I felt the sequencer capable of operating various machines with a simple program attractive", "I was able to dispel the difficult impression of 3D modeling" There. Meanwhile, we received stern opinions such as "How can we make use of it at our own factory?", "Strong image hard to improve what specific concrete improvement can be made".

Q1: Were the contents of the lecture as you expected?

Q2: Can you take lectures and make use of it to your work?

Q3: Can you evaluate the enhancement of course content compared to last time?



Figures. 2 questionnaire results of the student for the course No. 4

3. ISSUES FOR Realizing BP

3.1 Current Status Regarding Learning of Students

Looking back at the discussion so far, it is possible to regard the core human resource development worker for society as an opportunity offering of a kind of social worker's learning. If it is, it seems that it is not so high hurdle to convert this training business to BP as it is. However, despite the organizational program supported by the Ministry of Economy, Trade and Industry etc., there is a truly disappointing reality. It is clear that the entrance to social workers to higher education institutions in Japan is at the lowest level in developed countries and the reluctance to re-learn many of private enterprises is clear from materials submitted by the Ministry of Education, Culture, Sports, Science and Technology to the Central Education Council University Subcommittee (Natsume, 2016).

Figure 3 shows the percentage of international students enrolled in higher education institutions who are over 25 years of age (international comparison) by the Ministry of Education, Culture, Sports, Science and Technology according to the Ministry of Education, Culture, Sports, Science and Technology, The percentage is 1.9% in the undergraduate degree program of 25 years old and over, and 14% in the master's course of over 30 years old. This is well below the OECD (Economic Cooperation and Development Organization) member country average 17.6% of the undergraduate degree course and 30% of the master's course, and it is at the lowest level in developed countries. In the citizen's consciousness survey, 19.1% responded that they learned again, 30.3% thought that they wanted to learn, and nearly half received it positively. In contrast, as shown in Figure 4, education of private companies Training expenses have flatly declined since the 1990s, and have shifted to flat. Education and training that emphasizes importance is also mainstreamed in the daily work, 74% of full-time employees and 77.2% of nonpermanent employees, and it is not positive to receive regular education and training to leave. Also, I will point out that the design of institutional design at the faculty of engineering is extensive, unlike MOT, MBA and law school, so it is a big problem to which kind of curriculum is to be constructed.

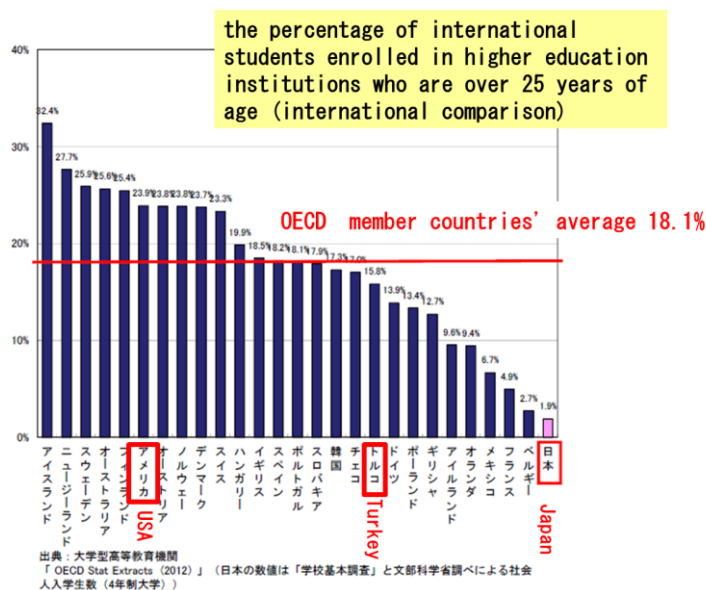


Figure 3 The international students enrolled in higher education institutions

3.2 Overview and evaluation of BP

In Japan, the need for learning of social workers is called out, MEXT has taken related measures such as selection of special entrants, night classes, day and night courses, subjects such as courses, student certification system. We also focused on programs based on competitive funds, "Strategic Promotion Project for Core Professional Human Resources Development in Growth Areas" (2011), "Program for Re-educating Public Human Resources for Advanced Human Resources" (14 years), "Vocational ability practical skills development program" (15 years), etc. Recently, the educational revitalization execution meeting has made proposals on policies on learning of social workers, and the Ministry of Education, Culture, Sports, Science and Technology, Ministry of Education, Culture, Sports, Science and Technology are working on concrete work. Figure 5 is a summary of the sixth recommendation reference material of the Educational Revitalization Conference held in March, 2015, which is summarized very well (Ministry of Education, Culture, Sports, Science and Technology, 2015. Sustaining Learning Society, 2015). For BP certification, it is required as a requirement for implementation that efforts that social workers are easy to attend such as opening weekends. In particular, what is being evaluated is the fourth part of the certification requirement enclosed by the dashed line. In other words, it is a requirement that more than 50% (guideline) of the program is occupied by lessons of two or more practical educational methods out of the following (1) to (4). This is described. (1) Workshops by teachers and practitioners (Over 5 years of practical experience in the field of study) (2) Interactive or multidirectional discussion (Problem discovery · Solution type workshops, workshops etc) (3) Activities in hands-on experience (internship, study abroad or field survey etc) (4) Classes in collaboration with enterprises (field work with companies etc.).

3.3 Company's Understanding of Revisiting

Despite aggressive promotion measures by the government, why are there few people who are learning from regular courses at universities? That is to say that schooling depends too much on individual voluntary efforts, in other words, the lack of support from companies and public institutions. According to the "University Survey on University Education Survey of Workers" (2009), there are only a few social workers who answered "graduate school studies" as a work related learning method, mostly "reading books", "various workshops · Participate in seminars" etc. are mentioned. The reasons why graduate school can not be studied are as follows: (1) The cost is too high (2) The working hours are long and there is not enough time. (3) The workplace is unable to understand (The workplace does not allow schooling) (4) In many cases it was not evaluated in terms of. Sixty percent of the respondents answered that "costs spent on learning are less than 10,000 yen", and no economic margin is felt either. According to Waseda University's "Research on Grasping the Education of Graduate School Education for Adults" (10 years), 8.0% of the companies surveyed sent employees to the graduate school during the past 3 years, and small businesses 3.9%, Big company 17.5%. Most companies do not allow studying in graduate schools, and even if they admit it, there are many companies whose conditions are permitted by their bosses. Looking at the tuition burden situation (multiple answers), the self-burden is overwhelming, 87.8%, the corporate burden 12.1%, the university burden (benefits type scholarship etc.) 5.4%, the government burden (education and training benefits etc.) 1.6%. A series of investigations is mainly targeted at graduate schools, but it seems that there is no big difference in the undergraduate stage. From the survey, the real person concerning

the learning of the social worker as follows is obscured and hidden. It can not be expected of corporate support, but rather is sometimes constrained. Even if you care about working around while securing your learning time somehow, you will have to pay a large tuition fee burden. I felt the necessity of schooling at the university / graduate school, but I can not fulfill it while I wish. Therefore, there are only measures to encourage learning with means of inevitable and inexpensive expenses. It is a matter of fact that it is difficult for society people to learn again unless they are prepared for a big sacrifice and risk.

3.4 What should be learned again

Originally, the development and improvement of capabilities of employees should be beneficial for both individual employees and companies. The fact that companies have carried out internal education is because the understanding of that point has been shared, and it is the same that the government promotes learning of social workers. If the roles and responsibilities of companies concerning vocational ability development fall backwards, it will increase for individuals. The reason individuals try to tackle the development of capacity and quality of workforce on their own responsibility is that companies evaluate whether the developed capabilities are worthy of adoption, employment maintenance, and treatment. Therefore, the individual side will only make efforts to seek improvement of employment and treatment, but what if we do not. Meanwhile, the reason why support for learning of companies is insufficient is that many companies are unable to endure long-term employment maintenance and education and training investment under a severe business environment.

Nonetheless, investment in education and training should be essential if business performance improvement and economic growth are ultimately stipulated for the quality of human resources.. As shown in Fig. 4, about 70% of the companies that have problems in human resource development have a problem. The reason is that the shortage (about 50%) of talented persons and the lack of time (about 47%) are cited, and it can be seen that the company loses the margin of human resource development. What is expected is public support, but according to the Ministry of Health, Labor and Welfare, public spending on education and training programs in Japan accounts for 0.03% of GDP, about a fifth of the OECD average is there.

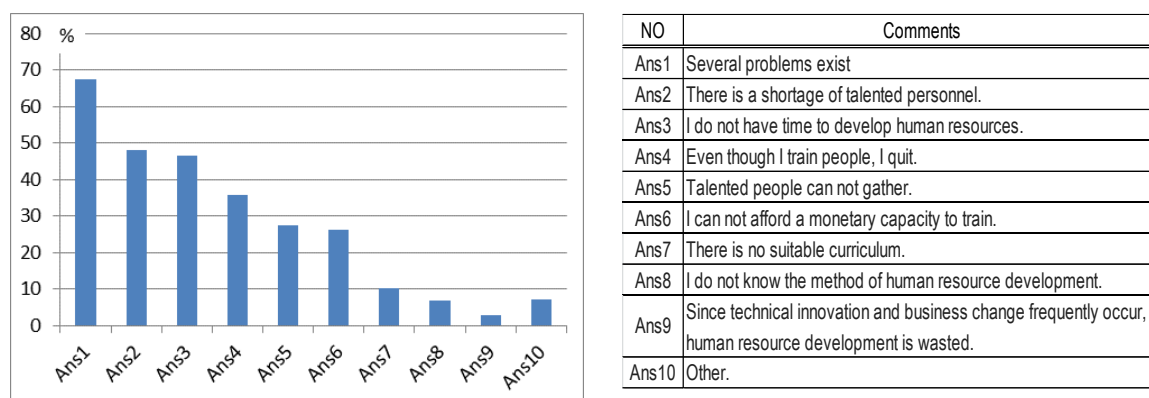


Figure 4 The companies that have problems in human resource development

How about overseas? Among the severe fiscal circumstances, many countries have established support systems for continuing learning by society. For example, in France, employees who satisfy prescribed conditions can receive education they desire using paid holidays regardless of regular or irregular. Tuition fees are free in principle and can be tackled with skill development without adjustment to working hours, concern for surroundings, worry of expenses, etc. There is also a separate development of skills that companies conduct as business orders. Both of the main financial resources are education and training contributions imposed on companies. There is no chance of international competition if you are mercilious about investing in human resource development. Employment after retirement in population reduction and pension problems will continue to increase. The demand for capacity improvement is only growing, and both countries and companies should make drastic investments in re-learning of working people.

4. Recommendations for analysis and evaluation

4.1 Recommendation Part 1 Enrichment toward knowledge-based society

Here, we would like to point out interesting facts on the relationship between low labor productivity and higher education. Figure 5 shows the labor productivity of OECD member countries on the horizontal axis with per capita public expenditure to higher education institutions. It is drawn as the vertical axis. As can be seen from the approximate curve, there is a beautiful positive correlation between labor productivity and public expenditure per capita to higher education institutions. The correlation coefficient is as high as 0.832 (Murata, 2017). It is said that in the theoretical model incorporating human capital formation in higher education, it is possible to theoretically explain the relationship between them. It is said that it is a knowledge-based society, and thinking that support to higher education institutions is affecting labor productivity is not quite unnatural at.

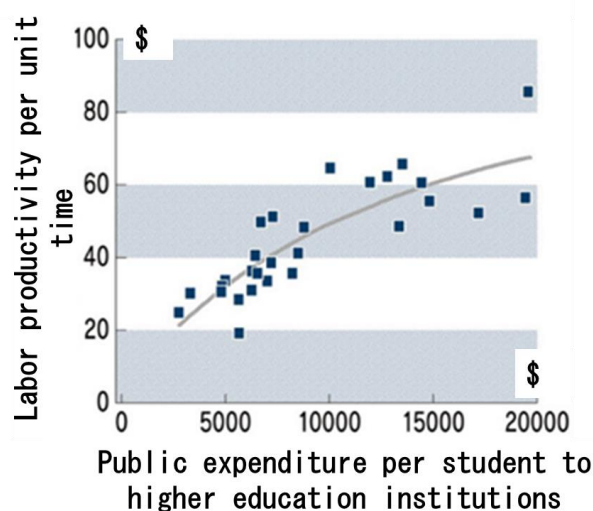


Figure 5 The higher education institutions for affecting labor productivity

4.2 Recommendation 2 Medium- and long-term perspectives

Effectiveness of education including university does not appear in a short period of time. It is necessary for at least 20 years for current primary school students to leave the university and become active as the center of organization. Even 18 years old university freshmen, it will take more than 10 years to be responsible. Although the university's "quality assurance of education" is shouting loudly, it takes 10 to 20 years time to show the effect of education. Therefore, in designing institutions for human resource development, political party politics is not pursuing short-term policy goals and effects due to victory in the election campaign, but policy advice based on a mid- to long-term perspective is important. Is it the most sought-after item? Educational policies that make it possible should become a key to

4.3 Recommendation 3 Search for new financial resources

On the other hand, for university education, it is also a tough fact that the per capita public expenditure on national universities and private universities has a big gap. If the relationship shown in Figure 5 is correct, increasing public spending on private universities, which accounts for more than 70% of students, is considered to lead to the creation of a foundation for Japan's economy. To that end, it is a fact that we need financial resources. Even though the Ministry of Education, Culture, Sports, Science and Technology recognizes the importance of higher education, it is currently the case that sufficient budget for higher education has not been secured. Considering the long-term effect of 10 to 20 years, it will be necessary to secure a financial source different from the previous ideas. I would like you to seriously review the administrative division between ministries and agencies

5. DISCUSSION

Based on the above, I would like to organize the points to keep in mind to establish the university BP currently under consideration. The application period is for 2018, and the past few months are a critical moment. 1. Currently Hokkaido's economic power point is food, tourism, auto parts, etc., but our university has tackled education for social workers to "human resource development of manufacturing industry". With a strategy based on this, it will be a program that can push security and trust forward. 2. Nursing programs, etc. are also conceivable to support women's advancing to society, but they do not have consensus of undergraduate medical

departments about BP as a premise within the university and may overlap with the graduate school establishment period of undergraduate course, We will decide not to implement implementation in fiscal year 30 in system field. 3. Since the possibility of implementing BP for each faculty is high in our university which has practical academic general university, it is possible that we will organize rotation in each department in the future. Particularly, applying the practical educational method will be consistent with the Diploma Policy of the University, and we believe that it will advance toward realization of certification. It is required to provide a program that can not be inferior to the company's unique technician education system with awareness of the division with some advanced dominant universities.

6. CONCLUSIONS

As mentioned above, it became clear that introducing the BP certification system makes it difficult to seek outcomes without resolving problems that hinder the promotion of promotion of educational reforms held by companies and social workers. It is important to remember that the time span until educational effect appears is long even if new program of support for social worker is added or review of institutional design is applied. To that end, it is important to establish a steady PDCA cycle for each program, proceed with scrutiny of the contents, and make efforts that do not become democratizing like "making the Buddha without entering the soul" is important..

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COMPARISON OF LEARNING MOTIVATION AFFECTED BY VECTOR INFOGRAPHIC AND BITMAP INFOGRAPHIC

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ABSTRACT

The objective of this research was to study the learning motivation affected by infographic using on reading materials focused on Vector infographic and Bitmap infographic. The two-group experimental research design has been applied on the 30 random samples of senior students studied in the 2nd semester of 2016 at the faculty of Industrial Education and Technology in King Mongkut's University of Technology Thonburi. The research revealed that 1) the vector infographic resulted in the excellent level of learning motivation while the bitmap infographic affected in the good level of motivation, 2) the vector infographic influenced the internal learning motivation with the good level while the bitmap infographic showed the moderate level for internal learning motivation for further lessons, 3) the learning motivation level affected by the vector infographic was higher than the bitmap infographic at the significance level of 0.05.

Keywords: Infographic, Vector infographic, Bitmap infographic, Learning Motivation

INTRODUCTION

Motivation is an energizer for conducting a behavior. It directs, continues and sustains behavior such as learning behavior, it directs students moving, points them in a particular direction, and keeps them forwarding. We often see students' motivation reflected in personal investment and in cognitive, emotional, and behavioral engagement in school activities (Fredricks, Blumenfeld, & Paris, 2004; Maehr & Meyer, 2004; Reeve, 2006). A most important learning behavior is reading which expanding students' cognition as a part of cognitive development. Unfortunately, the reading behavior of Thai people tends to decline. A research found an average of 28 minutes per day for reading per day. Similarly, The results of the research by The Publishers and Booksellers Association of Thailand coordinated with Faculty of Economics, Chulalongkorn University and Research Centre for Social and Business Development on Thai people's reading behavior and purchasing books, focusing on reading printed books and e-books after work or study hours only revealed that only 40% of the Thai people read regularly (more than 3 days a week) with the average reading time 46 minutes per day. While 20% of the Thai people read less than 3 days a week and 39.7% never read at all.

Furthermore, they survey about the average time spent reading per day, it was found that Thai people (aged 15-69) spent 28 minutes per days. Decreasing from the National Statistical Office survey in 2013, Thai people spent 37 minutes per day. For Internet usage and reading hard copy was found that they read the hard copy decreasingly almost half or 41.4% because most people read news on news web. Mostly turned to read news web and the news aggregator. So 2 of 5 respondents accepted that the internet using affect to reading decreasingly.

Based on the results of the PISA 2015 reading assessment, the average reading score for Thai students was 409 (below the OECD average). It is close to Jordan, Brazil, and Albania. Indonesia was the countries in Asia which have lower average score than Thailand. However, Thai students' the top group (at the top of the score 10%) get the reading score 514 points. Thai students' the low group (at the bottom of the score 10%) get the reading score 308 points. Overall, Thai students' the reading score trend drop from PISA 2012 to PISA 2015, the reading

scores decreased significantly (32 points). Compared to the core subject reading assessments in PISA 2000 and PISA 2009, the reading scores decreased significantly from 22 points to 12 points. Compared to PISA 2003 and PISA 2006, the scores were not different.

Infographics is the summarized information or knowledge in form of information and graphics that may be lines, symbols, graphs, charts, diagrams, etc., designed as a slide or animation, easy to understand, fast and clear. It can communicate people to understand the meaning of all information without the presenter. Infographics design is an implementation of incomprehensible data or a lot of text to present in various creative forms. There are important elements such as the interesting topics, pictures and sounds, which must be collected enough to summarize, analyze, visualize, attract interest and reducing time to explain. The used graphics may be lines, symbols, graphs, charts, diagrams, maps, etc., it's aesthetic, interesting, clarify, able to remember for a long time and making communication more effective.

The current learning for classroom instruction, the teacher's role is guiding the way for learners to learn by themselves, establishing a knowledge base to summarize the essence content in everyday life. This is appropriate and consistent with the learning motivation that is the process of learning behavior and also the learner's desire to participate in the learning process. That demand is stimulus and control of behavior to learner's goals. Motivation is the most important to learning because of it affects to learning expression and student's learning achievement. Moreover, it is also important for students to help them get through the tough situation about learning. Generally, elements of motivation consists of attention which causes of curiosity about the lesson. Humans have the different needs or motivation endlessly. If anyone try to get something with their extreme desire, it would cause an intensive motivation to success it easily. So that there are several factors which make the motivation such as their personality or nature of desire.

From the results of the PISA 2015 reading assessment in Thai people as mentioned above. It brought to the importance of this problem. Infographics is the summarized information to make reader clear and easy to understand. Moreover, it can help student enjoy reading and get accurate information by designing an infographic between vector infographic and bitmap infographic for enhancing learning and learning motivation. Including the learner is able to achieve their learning objectives. Finally, I hope that the results of this research will be developed in order to solve the problem effectively.

THE STUDY

The main objective of the research was to compare the affect of the using of vector infographic and bitmap infographic on learning motivation. The hypothesizes were set as the vector infographic resulted in the higher level of learning motivation than the bitmap infographic and that the vector infographic might influence in the internal motivation for further learning better than the bitmap infographic.

The two-groups experimental research design was applied on the 30 samplings which were ran domed from 512 senior students studied in the undergraduate's programs at the faculty of Industrial Education and Technology in King Mongkut's University of Technology Thonburi on 2nd semester of 2016 educational year. Then devised them into 2 groups equally.

The content used in this research was the topic 'How to make a good presentation'. Developed based on the principles of ADDIE model for instructional design. (Seals, B. and Glasgow, 1998: 177). Then the 2 different formats of e-books were composed, i.e., vector infographic e-book and bitmap infographic e-book, and have been qualified by 3 specialists. As well as the learning motivation self-assessment was developed to examine the affects of the e-book formats and the influence on the internal learning motivation on further learning.

The experiment began with explaining the sample about the purpose of collecting research data and how to design Infographic between vector infographic and bitmap infographic which affects to learning motivation. Then the researcher described how to design Infographic between vector infographic and bitmap infographic which affects to learning motivation. Including the researcher demonstrated the study approach to the sample.

There are two groups, each of them is 15 students (total students is 30). The first group learns from Infographic: vector infographic affects to learning motivation and the second group learns from Infographic: bitmap infographic affects to learning motivation. The design of the graphics. By the way, the study approach is to provide self-directed learning from Infographic between vector infographic and bitmap infographic which affects to learning motivation for 1 hour. After finished the lesson, the samples answered the self-assessment. Then the statistic techniques were applied to interpret the results.

FINDINGS

Part 1 Results of the quality Infographic between vector infographic and bitmap infographic which affects to learning motivation.

Table 1 shows the results of the quality assessment about Infographic between vector infographic and bitmap infographic by 3 specialists.

(n = 3)

The assessment items	1 st person	^d person	^d person	\bar{x}	Level of quality
1. The vector infographic which affects to learning motivation.					
1.1. Contents					
Mean	4.25	4.75	5.00	4.66	Excellent
1.2. Screen design					
Mean	3.80	5.00	5.00	4.60	Excellent
1.3. Color texts and sound					
Mean	4.00	4.60	4.60	4.40	Good
Total	4.02	4.78	4.86	4.55	Excellent
the assessment items	1 st person	^d person	^d person	\bar{x}	level of quality
2. The bitmap infographic which affects to learning motivation.					
1.1. Contents					
Mean	4.25	4.5	4.75	4.50	Excellent
1.2. Screen design					
Mean	3.80	4.20	5.00	4.33	Excellent
1.3. Color texts and sound					
Mean	4.00	4.00	4.40	4.13	Good
Total	4.01	4.23	4.72	4.32	Good

From Table 1 found that the content specialist evaluates the quality of Infographic: vector infographic which affects to learning motivation. Total average is 4.55 (Excellent). In the other hand the bitmap infographic which affects to learning motivation. That affects the motivation to learn. Total average is 4.32 (Good). Accordingly, Infographic have quality can be used to experiment with the sample.

Part 2 the results of analysis in student learning motivation on Infographic between vector infographic and bitmap infographic which affects to learning motivation.

Table 2 shows mean, standard deviation, internal motivation in learning of the students which affects to learning motivation.

(n = 30)

The assessment items	\bar{x}	S.D.	Level of learning motivation
1. The vector infographic which affects to learning motivation.			
1.1 An internal motivation	4.56	0.78	Excellent
1.2 An external motivation	4.55	0.72	Excellent
2. The bitmap infographic which affects to learning motivation.			
2.1 An internal motivation	4.08	0.68	Good
2.2 An external motivation	4.06	0.72	Good

From Table 2 found that the vector infographic which affects to learning motivation is "Excellent". Total average is 4.56. An internal motivation is "Excellent" (total average is 4.55). The bitmap infographic which affects to learning motivation is "Good". Total average is 4.08. An external motivation is "Good". (Total average is 4.06)

Part 3 the result of comparing the student's learning motivation score on Infographic between vector infographic and bitmap infographic which affects to internal and external motivation in learning.

Table 3 shows the study about comparison of the student's learning motivation score on Infographic between vector infographic and bitmap infographic which affects to internal and external motivation in learning.

(n = 30)

Mean	\bar{x}	S.D.	t	P
1. The internal motivation in learning.				
1.1 The vector infographic	4.56	0.10	9.01	0.00
1.2 The bitmap infographic	4.08	0.15		
*statistically significant at an alpha level of 0.05				
2. The external motivation in learning.				
2.1 The vector infographic	4.55	0.13	7.03	0.00
2.2 The bitmap infographic	4.06	0.23		
*statistically significant at an alpha level of 0.05				

From Table 3 found that comparing mean of internal motivation in learning, mean of the vector infographic higher than the bitmap infographic significance at .05 level. The external motivation in learning, mean of the vector infographic higher than the bitmap infographic significance at .05 level.

CONCLUSIONS

This research found that Infographic: vector infographics is "Excellent". The average is 4.55 and bitmap infographics is "Good". The average is 4.32 can be used in instruction. As a result of the ADDIE model (Seals, B. and Glasgow, 1998: 177). In the beginning, the researcher studied in background and significance of Thai people's reading behavior, found that Thai people's behavior about reading continues to tend downward. Moreover, the results of the PISA 2015 reading assessment showed that the average reading score for Thai students was 409 (below the OECD average). Infographics is the summarized information or knowledge in form of information and graphics that may be lines, symbols, graphs, charts, diagrams, etc., designed as a slide or animation, easy to understand, fast and clear. It can communicate people to understand the meaning of all information without the presenter. In addition, it was examined from by an advisor and improve the quality Infographic between vector infographic and bitmap infographic which affects to learning motivation. It can be used as the instructional media. By using Infographic that can help students to learn and understand, fast and clear in study. It's similar to Naruemon Thinlunrat (2555) studied in the influence of Infographics on complex information to change it more clear, easy to understand more than communicating by visual texts. The result showed that Infographic can change complicated wording information and related to various information to much more understanding more than communicating by visual texts. Including, people who participated were maximum satisfied and gave positive feedback.

The vector infographic resulted in the excellent level of learning motivation while the bitmap infographic affected in the good level of motivation. And the learning motivation level affected by the vector infographic was higher than the bitmap infographic at the significance level of 0.05. Then the vector infographic influenced the internal learning motivation with the good level while the bitmap infographic showed the moderate level for internal learning motivation for further lessons This comparison of the student's learning motivation score on Infographic between vector infographic and bitmap infographic which affects to internal and external motivation in learning, found that mean of the vector infographic higher than the bitmap infographic significance at .05 level. It is based on the assumptions. It shows that the sample group learned by the Infographic: vector infographic can easily understand, fast and clear. It affected to learning motivation more than bitmap infographic because of vector infographics use mathematical equations as visual construction, combining different types of objects. It can shrink and enlarge in size but the proportion and appearance of the image didn't change. It's suitable for Layout, Line Art or Illustration, all different from bitmap infographics. The bitmap infographics caused by the arrangement of small squares called pixels and stores the specific color values in each position. That process created various images. When the image is enlarged, it will increase small squares and decrease resolution. As well as the studied in an appropriate graphical media for the Learning of Usage of tools in the tool box of Photoshop program for hearing impaired learners: by Sutar Lungramai (2557). This pilot study is a comparative study between two types of graphics, Step by step - multiple Static Visuals (SSV) and Animated Visual (AV). The result showed that significant difference in both the posttest and the practice score between the two groups in all research tools. This indicates that both types of graphic media help the students to understand easily.

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COMPETENCIES OF TEACHERS OF CHILDREN WITH AUTISM SPECTRUM DISORDER IN INCLUSIVE ELEMENTARY SCHOOLS IN THE NATIONAL CAPITAL REGION: BASIS FOR A PROPOSED TRAINING PROGRAM FOR PROFESSIONAL TEACHERS

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ABSTRACT

The study aimed to present the teachers' profile, namely: (a) type of school, (b) teaching position, (c) highest educational attainment, (d) years of experience in teaching children with autism spectrum disorder (ASD), and (e) number of trainings attended in educating children with ASD, determine their levels of competencies on: (a) knowledge of the disorder, (b) structure in the classroom, (c) teaching language and communication, (d) teaching social competence, (e) decreasing problem behaviors, and (f) special issues, test if there was a significant difference on the levels of competencies of teachers when they are grouped according to their profile, and specify the problems encountered by the head teachers and teachers in terms of their competencies when children with ASD are included in the regular kindergarten classrooms. Descriptive research and purposive sampling were used. Thirty-four kindergarten teachers and 12 head teachers answered the modified Skill Competencies for Professionals and Direct Support Staff in Virginia Supporting Adolescents and Adults with Autism. Frequency, percentage, weighted mean, and independent sample t-test were employed. Few schools practice inclusion. Few teachers have teaching experience and trainings on ASD. Private school teachers are more competent than public school teachers. Teachers with longer years of experience and greater number of trainings are more competent. There are satisfactory levels of competencies. Problems in decreasing problem behaviors were ranked first, followed by teaching language and communication, teaching social competence, knowledge of the disorder, structure in the classroom, and special issues.

Keywords: competencies of teachers, children with autism spectrum disorder, inclusion

INTRODUCTION

Of the 92.1 million household population in the Philippines, about 16 per thousand had disability. Among the 17 regions, Region IV-A had the highest number of persons with disabilities (PWD) at 193 thousand followed by the National Capital Region with 167 thousand PWD. The Cordillera Administrative Region, on the other hand, had the lowest number of PWD at 26 thousand (Philippine Statistics Authority, 2013).

In 2007, there were 2,149 special schools with 59,029 (0.49%) children with special needs enrolled in the elementary level (National Institute of Special Needs Education, 2007). Today, there are only 416 special education (SPED) centers nationwide that are funded by the government, with four more waiting for recognition. There are almost 200 public schools that offer a SPED program but without a center. That is 620 out of 34,000 public elementary schools in the Philippines (Geronimo, 2014).

Recognized as a condition (Silberman, 2015), regarded as the most rapidly growing developmental disability, and ranked as the 6th most commonly classified disability in the United States of America (National Center on Birth Defects and Developmental Disabilities, 2011), autism spectrum disorder (ASD) occurs in all social, racial, and ethnic groups and is estimated to currently affect 1 in 68 children (Center for Disease Control [CDC], 2014). In March 2012, the prevalence rate was 1 in 88 children. This marked a 23% increase since the last report in 2009 (CDC, 2012). In December 2009, the prevalence rate was 1 in 110, reflecting a substantial increase from the rate of 1 in 150 reported just a few years earlier (CDC, 2007).

The National Institute of Mental Health (NIMH, 2014) defines ASD as a group of developmental brain disorders where the term "spectrum" refers to the wide range of symptoms, skills, and levels of impairment, or disability that children with ASD can have. Thus, some children are mildly impaired by their symptoms, but others are severely disabled.

As of May 2013, psychologists and psychiatrists have been using the diagnostic criteria for ASD as they appear in the fifth edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5) when evaluating individuals for these developmental disorders:

- A. Persistent deficits in social communication and social interaction across multiple contexts;
- B. Restricted, repetitive patterns of behavior, interests, or activities;
- C. Symptoms must be present in the early developmental period;

D. Symptoms cause clinically significant impairment in social, occupational, or other important areas of current functioning;

E. These disturbances are not better explained by intellectual disability (intellectual developmental disorder) or global developmental delay (American Psychiatric Association, 2013).

McIntyre, Blacher, & Baker (2006) stated that kindergarten is the first major educational transition in a student's educational career and a particularly important transition for students with ASD because a successful kindergarten transition leads to better academic outcomes and better generalization of skills. Mainstreaming provides opportunities to students with disabilities to spend a portion of their school day in the general education program and a portion in a separate SPED program. Inclusion is the "education in the mainstream of regular education regardless of race, linguistic ability, economic status, gender, age, ability, ethnicity, religious, and sexual orientation" (The Salamanca Statement and Framework for Action on Special Needs Education, 1994). The theory behind inclusion is that both students with and without disabilities benefit when they are taught in the same classroom with high expectation and positive interactions (Eldar, Talmor, & Wolf-Zukerman, 2010).

A pressing educational challenge facing school officials globally is ensuring educators are not only prepared to include these students but are trained as well to teach them effectively and according to grade level standards (Loiacono & Valenti, 2010). A significant concern of teachers responsible for students' learning in the inclusive classroom is their lack of knowledge and understanding of, as well as professional preparation for accommodating the characteristics and needs of individuals on the autism spectrum (Bellini, Henry, & Pratt, 2011). Most teacher-graduates receive minimal to no preparation in evidence-based practices for students diagnosed with ASD, being prepared through a single introductory course as general education majors or other courses centered on strategies and accommodations to address a variety of disabilities as special education majors (Morrier, Hess, & Heflin, 2011).

The main purpose of Teffs & Whitbread (2009) in conducting their study was to determine the level of formal and informal preparation of teachers to teach children with ASD as well as teachers' feelings of confidence and competence to include this population of children in their classroom community. A random selection from a database of teachers and administrators in Connecticut public schools was used. The survey was designed to gather information about the confidence and competence of general education teachers to include students with ASD in their classrooms. A number of participants reported having no formal training in the following areas, namely: (a) characteristics of ASD (35.4%), (b) instructional strategies (33%), (c) implementing the individualized education program (35.7%), (d) behavioral supports (42.9%), (e) social skills training (48.5%), (f) communication (46.9%), and (g) assistive technology (61.9%). Some participants commented that most of their training had come from their direct experiences working with children with ASD and from what they read in books and journals. More than two-thirds (76.9%, n=83) reported the necessity for more training or support to better meet the needs of their students with ASD. Within this group, the most frequently cited area in which additional training was needed includes social skills (82.9%), followed by behavioral supports (78%), communication (70.7%), assistive technology (63.4%), characteristics of ASD (52.4%), and implementing the individualized education program (48.8%). Responses to the survey showed that general education teachers in Connecticut had little training specific to teaching students with ASD and once in the classroom may lack the support they need to provide an appropriate education for students with this disorder.

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Messemer (2010) investigated perceptions of general education teachers regarding the inclusion of children with ASD. More specifically, the qualitative study used interviews to examine the relationship between self-efficacy and the willingness of ten teachers (six of whom taught primary school; four teachers taught middle and high school) to teach children with ASD in inclusive classrooms. Twelve open-ended questions were used during the interview process. Participants were unanimous (10/10) in reporting that disruptive behavior had a negative impact on their ability to teach and the students to learn. Analysis also revealed that nine out of ten participants believed they could teach all students in their inclusive classrooms, however, inclusion required additional administrative support, planning time, and professional development. Barnes (2008) has reaffirmed this result.

Previous research indicated that even when general education teachers received academic instruction and / or professional development training related to the inclusive classroom, they still did not feel completely prepared to instruct children with special needs in inclusive education settings (DeSimone & Parmar, 2006). Research findings for the past 50 years have reported that general educators perceived that they did not have adequate training to teach children with special needs in an inclusive environment (Kilanowski-Press, Foote, & Rinaldo, 2010).

Byrne (2012) examined regular education teachers' attitudes towards inclusion relative to their training on ASD. Teachers also identified barriers and benefits to inclusion. Participants included 100 out of a solicited 291 (34%) regular education teachers from K-12. A modified version of The Teachers' Attitudes Toward Inclusion Scale (TATIS), created by Ji- Ryun Kim (2011) was used for the study. The TATIS measured attitudes and beliefs that were critical to the inclusion of students with disabilities. It was modified to focus specifically on attitudes on inclusion of students with ASD. There was an overall significant difference in regular education teachers' attitudes towards the inclusion of students with ASD based on their training. Regular education teachers reported the following were barriers for including students with ASD into their classrooms: uncontrollable behavioral outburst that led to classroom disruptions (47%), required additional planning time (11%), and lack of support staff in their classroom (10%). The results revealed that teachers had more positive attitude towards the inclusion of students with disabilities when they had more SPED training. Regular education teachers who have no training with students with ASD may gain a more positive attitude towards inclusion if ASD training is provided to them. The most commonly reported barriers in including a student with ASD are behavior problems. Providing teacher training on behavior management for students with ASD may increase their openness in including students with ASD. A major barrier for the inclusion of students with ASD into the regular education classroom is lack of teacher training and understanding of ASD (Finke, Mcnaughton, & Drager, 2009; Scheuermann, Webber, Boutot, & Goodwin, 2003).

The purpose of the study by Hayes, Baylot, Williamson, Black, & Winsor (2013) was to examine any correlation between general education teachers' self-rating of academic training and professional development regarding students with ASD and their actual knowledge in each of the following areas: (a) evidence-based methods of teaching children with ASD, (b) teaching in an inclusive environment, and (c) characteristics of students with ASD. The participants were 38 males and 166 females from both public and private schools. Findings revealed that participating teachers did possess the knowledge necessary to teach students with ASD but lacked an understanding of how to do so in an inclusive environment. This lack of understanding may be due to the focus or breadth of the professional development or the specific academic training provided. Possibly any training these teachers received focused only on the content noted (such as characteristics and teaching methods related to ASD) and not on the application of that knowledge. This finding suggested that increased training emphasis should be placed on applying knowledge of ASD in an inclusive educational setting.

The study of Edward (2015) generally found that poor knowledge, lack of appropriate training, and lack of in-service training among teachers were highly associated with teachers' perceived challenges in teaching children with ASD in regular classes. The study also confirmed and extended those findings that existing teacher education training programs often did not adequately prepare teachers to resolve challenges associated with teaching children with ASD in regular classes. Teachers need to have a comprehensive knowledge of autism disability and be able to manage the manifested overt behaviors (Hart & Malian, 2013). This implied that handling children with ASD in regular classes required teachers who have knowledge and skills of inclusive settings.

Braid (2015) stated that one concern in the educational system of most developing countries today is the need to address the state of teacher-training institutions in terms of quality of existing teacher-training programs. Among the observed gaps are the lack of preparation of teachers in diagnosing students' capacities and are, thus, unable to address the demand for needed competencies; many teachers are not properly trained to deal with special students, especially those with emotional and behavioral challenges.

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As per United Nations Educational, Scientific, and Cultural Organization (UNESCO, 2006), research contributing to improvement in teacher development and training is required so that teachers working in difficult conditions can adapt to the changing paradigms of learning in the context of globalization. It is by acquiring new and relevant skills and improved teacher training that could have a multiplier effect on the way teaching-learning processes are organized and learning outcomes are influenced.

According to the World Health Organization (2013), most people with ASD and other developmental disorders live in low- and middle-income countries; however, most of the knowledge about these conditions is based on research done in high-income countries. The need to develop human capacity, especially in low- and

middle-income countries, has been raised as a priority issue in the development of services for ASD.

STATEMENT OF THE PROBLEM

The study sought to describe the competencies of teachers of kindergarten children with ASD in the public and private elementary schools in the National Capital Region. Specifically, it aimed to answer the following questions:

1. What is the respondents' profile in terms of:
 - 1.1 Type of school;
 - 1.2 Teaching position;
 - 1.3 Highest educational attainment;
 - 1.4 Years of experience in teaching children with ASD; and,
 - 1.5 Number of trainings attended in educating children with ASD?
2. What are the levels of competencies of teachers in terms of:
 - 2.1 Knowledge of the disorder;
 - 2.2 Structure in the classroom;
 - 2.3 Teaching language and communication;
 - 2.4 Teaching social competence;
 - 2.5 Decreasing problem behaviors; and,
 - 2.6 Special issues?
3. Is there a significant difference on the following levels of competencies of teachers when they are grouped according to their profile?
 - 3.1 Knowledge of the disorder;
 - 3.2 Structure in the classroom;
 - 3.3 Teaching language and communication;
 - 3.4 Teaching social competence;
 - 3.5 Decreasing problem behaviors; and,
 - 3.6 Special issues?
4. What are the problems encountered by the head teachers and teachers in terms of their competencies when children with ASD are included in the regular kindergarten classrooms?

METHODS

The descriptive research was used in this study conducted in the Department of Education (DEPED) recognized public and private elementary schools with special education (SPED) centers in the National Capital Region. Only kindergarten teachers who are currently handling children with ASD and who have taught these children within the last five (5) years were included in the study.

A modified Skill Competencies for Professionals and Direct Support Staff in Virginia Supporting Adolescents and Adults with Autism was utilized. A pilot test was conducted to validate the contents of the questionnaire. Twenty (20) teachers from private schools that mainstream or include children with ASD in their kindergarten programs outside Metro Manila participated in the dry run.

Frequency distributions, percentage, and weighted means were used for descriptive purposes. To test for a significant difference on the levels of competencies of teachers when they are grouped according to their profile, the independent sample t-test was employed.

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RESULTS

There were 34 teachers, 13 from the public schools and 21 from the private schools handling children with ASD in their regular classrooms. There were 12 head teachers from the six public schools and six private schools for a total of 46 respondents.

Only one (2.9%) public school teacher has a Master's degree while there were two (5.9%) private school teachers with Master's degree. The rest (91.2%, n=31) of the teachers earned a Bachelor's degree. Only two (5.9%) public school teachers had a background in SPED, whereas, nine (26.5%) private school teachers had SPED background.

Most (84.6%, n=11) of the public school teachers and majority (61.9%, n=13) of the private school teachers had 1–5 years of experience in teaching children with ASD.

Many (69.2%, n=9) of the public school teachers had not attended trainings in educating children with ASD, whereas most (61.9%, n=13) of private school teachers had attended 1–5 trainings.

TABLE 1
Overall Levels of Competencies of Teachers

	Type of School	Teaching Position	Highest Educational Attainment	Years of Experience in Teaching Children with ASD	Number of Trainings Attended in Educating Children with ASD
Knowledge of the Disorder	3.13	3.13	3.13	3.13	3.11
Structure in the Classroom	3.29	3.29	3.29	3.29	3.29
Teaching Language and Communication	3.17	3.17	3.17	3.17	3.17
Teaching Social Competence	3.28	3.28	3.28	3.28	3.28
Decreasing Problem Behaviors	3.11	3.11	3.11	3.11	3.11
Special Issues	2.93	2.93	2.93	2.93	2.93
Overall	S	S	S	S	S

Table 1 shows that there is a satisfactory level of competencies of teachers of children with ASD in inclusive elementary schools in the National Capital Region. Structure in the classroom received the highest mean score (3.29) followed by teaching social competence (3.28), teaching language and communication (3.17), knowledge of the disorder (3.11), decreasing problem behaviors (3.11), and special issues (2.93). Based on the results, teachers' weakest area of competency is addressing special issues or the understanding of the sensory systems, sensory processing, and sensory motor development. According to Virginia Autism Council (2013), stereotypical behaviors such as rocking or hand flapping, or triggering fight, flight, or freeze responses exhibited by individuals with ASD are related to sensory processing and commonly interfere with learning. This is an important finding of the study. Teachers need to understand the implications of special issues when children with ASD are included in the general education classrooms. They must be trained on how to address these special issues. Knowledge of the disorder and decreasing problem behaviors were at the bottom. It is important for teachers to have a complete grasp of the characteristics of children with ASD as well as the functions of the problem behaviors in order for them to develop a deeper understanding of these children and show a positive attitude towards their inclusion in the general education classrooms.

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TABLE 2
Significant Difference When Respondents Are Grouped According to Type of School

Indicator		WM	t	P - value	Decision	Remarks
Knowledge of the Disorder	Private	3.40	2.862	0.007	Reject Ho	Significant
	Public	2.70				
Structure in the Classroom	Private	3.57	2.817	0.008	Reject Ho	Significant
	Public	2.83				
Teaching Language and Communication	Private	3.46	2.961	0.006	Reject Ho	Significant
	Public	2.70				
Teaching Social Competence	Private	3.61	3.239	0.003	Reject Ho	Significant
	Public	2.75				
Decreasing Problem Behaviors	Private	3.42	2.939	0.006	Reject Ho	Significant
	Public	2.62				
Special Issues	Private	3.20	2.672	0.011	Reject Ho	Significant
	Public	2.50				

Table 2 reveals a significant difference among the six (6) competencies of teachers when grouped according to type of school. The p-values are less than the 0.05 level of significance. Therefore the null hypothesis is rejected. Private school teachers are more prepared to address behaviors, issues, and challenges and better trained to handle children with ASD in the regular education classroom than public school teachers. The confidence and competence that the former possess can be attributed to their educational background with more of them (26.5%, n = 9) empowered by SPED trainings. According to Khan (2011), there are five types of challenges faced by developing countries in implementing inclusive education. These include a lack of relevant research information, inadequate support services, lack of appropriate facilities and materials, inadequate training programs, and ineffective policies and legislation.

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TABLE 3
Significant Difference When Respondents Are Grouped According to Teaching Position

Indicator		WM	t	P – value	Decision	Remarks
Knowledge of the Disorder	Teacher	3.34	1.842	0.070	Fail to Reject Ho	Not Significant
	Head Teacher	2.92				
Structure in the Classroom	Teacher	3.38	0.778	0.440	Fail to Reject Ho	Not Significant
	Head Teacher	3.19				
Teaching Language and Communication	Teacher	3.22	0.450	0.654	Fail to Reject Ho	Not Significant
	Head Teacher	3.12				
Teaching Social Competence	Teacher	3.38	0.772	0.443	Fail to Reject Ho	Not Significant
	Head Teacher	3.18				
Decreasing Problem Behaviors	Teacher	3.26	1.190	0.238	Fail to Reject Ho	Not Significant
	Head Teacher	2.96				
Special Issues	Teacher	3.14	1.800	0.076	Fail to Reject Ho	Not Significant
	Head Teacher	2.72				

Table 3 reveals that there is no significant difference among the six (6) competencies of teachers when grouped according to teaching position. The p- values are greater than the 0.05 level of significance. Therefore, the null hypothesis is accepted. Head teachers and teachers have the same assessment of areas of strengths and weaknesses, and similar identification of areas in need of further professional development and support so as to successfully serve children with ASD. As stated by Mthembu (2009), successful implementation of inclusive education involves teachers who have the necessary knowledge, skills, competencies, and support to accommodate a wide range of diversity among learners in an inclusive classroom. School leadership is central in moving closer to a more inclusive society, and in terms of a child's experience of school life, leadership is crucial and complex (Ruairc, Ottesen, & Precey, 2013). As per Anwer & Sulman (2012), the school principal or the school leader has to ensure the success of an inclusive program with his or her backing. Billingsley, Mcleskey, & Crockett (2014) stated that school principals have a critical role in making schools an inclusive community that is responsive to the diverse needs of the students.

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TABLE 4
Significant Difference When Respondents Are Grouped According to Highest Educational Attainment

Indicator		WM	F-Value	P-value	Decision	Remarks
Knowledge of the Disorder	Bachelor's Degree	2.98	.991	.377	Fail to Reject Ho	Not Significant
	Master's Degree	3.31				
	Doctorate Degree	3.20				
Structure in the Classroom	Bachelor's Degree	3.23	.258	.773	Fail to Reject Ho	Not Significant
	Master's Degree	3.32				
	Doctorate Degree	3.70				
Teaching Language and Communication	Bachelor's Degree	3.15	.307	.737	Fail to Reject Ho	Not Significant
	Master's Degree	3.17				
	Doctorate Degree	3.70				
Teaching Social Competence	Bachelor's Degree	3.20	.624	.539	Fail to Reject Ho	Not Significant
	Master's Degree	3.33				
	Doctorate Degree	4.00				
Decreasing Problem Behaviors	Bachelor's Degree	3.00	.682	.509	Fail to Reject Ho	Not Significant
	Master's Degree	3.22				
	Doctorate Degree	3.70				
Special Issues	Bachelor's Degree	2.78	.991	.377	Fail to Reject Ho	Not Significant
	Master's Degree	3.10				
	Doctorate Degree	3.30				

Table 4 reveals that there is no significant difference on the six (6) levels of competencies of teachers when grouped according to highest educational attainment. The p-values are greater than the 0.05 level of significance. Therefore, the null hypothesis is accepted. The results of the study show that majority (61.8%, n=21) of the teachers have not been adequately trained to teach children with special educational needs. All the respondents have general teaching qualifications, but only 11 (32.4%) of them have received training in SPED. Out of 34 teachers, only 16 (47.1%) had short-term (1–5 trainings) professional development training. Kapinga (2014) stressed the importance of trainings by stating that, “the success of inclusive education rests on quality teacher preparation gearing towards inclusive education. How teachers are prepared is intrinsically linked to the quality of education provided in the schools” (p. 2). Even though teachers reported that they were not adequately trained to teach children with ASD, the results confirmed that they have a satisfactory level of competency needed to teach these children. However, more training is needed to enhance their knowledge of children with ASD and evidence-based practices to enhance the learning experiences of these children.

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TABLE 5
Significant Difference When Respondents Are Grouped According to Years of Experience in Teaching Children with Autism Spectrum Disorder

Indicator	WM	F-value	P-value	Decision	Remarks	
Knowledge of the Disorder	1 - 5	1.55	5.725	0.000	Reject Ho	Significant
	6 - 10	2.88				
	11 - 15	3.59				
	16 - 20	3.48				
	21 - 25	3.71				
	26 and above	3.00				
Structure in the Classroom	1 - 5	1.85	3.385	0.009	Reject Ho	Significant
	6 - 10	3.17				
	11 - 15	3.68				
	16 - 20	3.80				
	21 - 25	3.14				
	26 and above	3.25				
Teaching Language and Communication	1 - 5	1.35	5.052	0.001	Reject Ho	Significant
	6 - 10	3.06				
	11 - 15	3.51				
	16 - 20	3.73				
	21 - 25	3.20				
	26 and above	3.30				
Teaching Social Competence	1 - 5	1.45	4.718	0.001	Reject Ho	Significant
	6 - 10	3.13				
	11 - 15	3.64				
	16 - 20	3.95				
	21 - 25	3.37				
	26 and above	3.25				
Decreasing Problem Behaviors	1 - 5	1.35	4.672	0.001	Reject Ho	Significant
	6 - 10	2.90				
	11 - 15	3.49				
	16 - 20	3.78				
	21 - 25	3.37				

	26 and above	3.15				
Special Issues	1 - 5	1.40	3.881	0.004	Reject Ho	Significant
	6 - 10	2.72				
	11 - 15	3.36				
	16 - 20	3.38				
	21 - 25	3.09				
	26 and above	3.10				

Table 5 reveals that there is a significant difference on the six (6) levels of competencies of teachers when grouped according to years of experience in teaching children with autism spectrum disorder. The p-values are less than the 0.05 level of significance. Therefore, the null hypothesis is rejected. Del Corro-Tiangco (2014) stated that the more experienced teachers have better appreciation of the teaching profession and have more conviction for professional development.

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TABLE 6
Significant Difference When Respondents Are Grouped According to Number of Trainings Attended in Educating Children with Autism Spectrum Disorder

Indicator	WM	F-value	P-value	Decision	Remarks	
Knowledge of the Disorder	0	1.55	6.736	0.000	Reject Ho	Significant
	1 - 5	2.87				
	6 - 10	3.29				
	11 - 15	3.66				
	16 - 20	3.10				
	21 - 25	3.80				
	26 and above	4.23				
Structure in the Classroom	0	1.85	3.719	0.003	Reject Ho	Significant
	1 - 5	3.10				
	6 - 10	3.53				
	11 - 15	4.09				
	16 - 20	3.20				
	21 - 25	4.20				
	26 and above	3.60				
Teaching Language and Communication	0	1.35	6.422	0.000	Reject Ho	Significant
	1 - 5	2.95				
	6 - 10	3.36				
	11 - 15	3.94				
	16 - 20	3.32				
	21 - 25	4.60				
	26 and above	3.49				
Teaching Social Competence	0	1.45	6.241	0.000	Reject Ho	Significant
	1 - 5	2.99				
	6 - 10	3.58				
	11 - 15	3.80				
	16 - 20	3.48				
	21 - 25	5.00				
26 and above	3.86					
Decreasing	0	1.35	6.488	0.000	Reject	Significant

Problem Behaviors	1 - 5	2.79	5.262	0.000	Ho	
	6 - 10	3.33				
	11 - 15	3.74				
	16 - 20	3.30				
	21 - 25	4.80				
	26 and above	3.83				
Special Issues	0	1.40	5.262	0.000	Reject Ho	Significant
	1 - 5	2.59				
	6 - 10	3.18				
	11 - 15	3.66				
	16 - 20	3.16				
	21 - 25	3.80				
	26 and above	3.60				

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Table 6 reveals that there is a significant difference on the six (6) levels of competencies of teachers when grouped according to number of trainings attended in educating children with autism spectrum disorder. The p-values are less than the 0.05 level of significance. Therefore, the null hypothesis is rejected. Trainings that are specific to autism help in the teaching-learning process. If teachers were taught what to do when individuals with ASD exhibit challenging behaviors, then they would be empowered to address them appropriately and provide positive supports. Bayliss, Avramidis, & Burden (2000) mentioned that training affects the teachers' performance in the mainstreamed / inclusive classroom because trained teachers have more confidence in teaching children with special educational needs. The report published by European Agency for Development in Special Needs Education (2011) states "teachers need a repertoire of skills, expertise, knowledge, pedagogical approaches, adequate teaching methods and materials, and time if they are to address diversity effectively within their classrooms" (p. 4). Naicker (2008) reported that the teachers' lack of knowledge, skills, and experience of exceptional learners and mainstreaming has an impact on teachers' attitudes. Thus, it was recommended that they be provided in-depth knowledge of the philosophy of inclusion and pre-service and in-service training to accommodate students with special educational needs in the mainstream classes.

The problems encountered by head teachers and teachers in terms of their competencies when children with ASD are included in regular kindergarten classrooms are as follows:

HEAD TEACHERS	TEACHERS
1. The provisions necessary for successful implementation of inclusion / mainstreaming are inadequate to address regular teachers' needs and competencies. Teachers in the regular classroom lack adequate competencies in handling children with ASD in the inclusive setting.	1. KNOWLEDGE OF THE DISORDER - No background or training in handling children with ASD
2. One of the biggest challenges in the inclusive / mainstreaming program for children with ASD is the leveling and grouping according to their level of functioning as far as teachers are concerned. Teachers need to be trained in the preparation of lessons and materials as well as evaluation.	2. STRUCTURE IN THE CLASSROOM - Lack of visual aids, addressing the different needs of children with ASD - The child had difficulty adapting to his environment when he is in a regular class. - Some of the students did not understand their behavior so we need to explain to them the situation.
3. There are general education teachers who tend to be somewhat rigid with how they approach their students. As these kids have special needs, the approach must still be student-centered and individualized. Some parents of the other students are not as open to having classmates who are in the spectrum. Hence, there are students who tend to treat their classmates with special needs differently.	3. TEACHING LANGUAGE AND COMMUNICATION - It is difficult for the students with ASD to communicate with the teachers.
4. The child was not ready to be mainstreamed but had to be included in the regular classroom due to strong preference of parents and lack of available therapist to give one-on-one intervention. There is the issue of teacher readiness and competence to differentiate instruction.	4. TEACHING SOCIAL COMPETENCE - Children with ASD do not mind the other children that surround them. They are very sensitive when the class is noisy, which triggers their tantrums. - They experience bullying in the class.

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HEAD TEACHERS	TEACHERS
	5. DECREASING PROBLEM BEHAVIORS - Problems in focusing, problems in behavior, and attitudes towards classmates - The child sometimes shouts, sometimes he behaves, sometimes does beyond what is expected, and sometimes does not follow instructions given - Giving instructions or commanding are always repeated twice or thrice before they will follow - Attention span; behavior towards peers - Varied changing of behavior or the constant changes of their behavior that sometimes hinder their learning capacity - I need to act like a clown or an impersonator to lessen their tantrums and to get their attention - The behavior of the children in different settings - Problems in addressing behavioral issues; needs more training - Handling short attention span and poor sitting span - Their sudden outbursts or mood swings during discussion time. It affects the focus of the other children and diverts their attention to the children with ASD. It sometimes leads to questions that somehow make the other children think one of their classmates is different from them. - The transition of the kids from mainstream to inclusion and their behavior

	<ul style="list-style-type: none"> - Self-management when tantrums are triggered and distract the class - Classroom management and application of applied behavior analysis as well as mode of instructions for the special children
	<p>6. SPECIAL ISSUES</p> <ul style="list-style-type: none"> - Sensory processing difficulties during snack time, personal grooming, and artwork

The findings revealed that head teachers had a general view of the problems encountered when children with ASD are included in the regular classrooms, whereas, teachers enumerated the specific problems they encountered. Many (41.2%, n = 14) teachers stated problems in the behavior of children with ASD. This corroborates the results of the study conducted by Byrne (2012), which found that the most commonly reported barriers to including a student with ASD were behavior problems. Three (8.8%) teachers specified problems in teaching language and communication and teaching social competence. Two (5.9%) public school teachers admitted not having a background or training in handling children with ASD and stated problems in structure in the classroom. One (2.9%) teacher articulated problems in special issues.

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CONCLUSIONS

There are very few public and private elementary schools that include children with ASD in their regular kindergarten classrooms. There are very few teachers with teaching experience in educating children with ASD and who have attended trainings in educating children with ASD. In spite of the limitations, teachers have an overall satisfactory level of competencies in all areas, namely: (a) knowledge of the disorder, (b) structure in the classroom, (c) teaching language and communication, (d) teaching social competence, (e) decreasing problem behaviors, and (f) special issues. Private school teachers are more competent than public school teachers. Teachers with longer years of experience in teaching children with ASD are more competent and with more number of trainings attended in educating children with ASD are more competent. Problems in decreasing problem behaviors were ranked first, followed by teaching language and communication, teaching social competence, knowledge of the disorder, structure in the classroom, and special issues.

RECOMMENDATIONS

The Department of Education should encourage more schools to practice inclusion of children with ASD in the regular classrooms. It may start by consolidating the experiences of elementary schools that have implemented the inclusion of children with special needs and identify the barriers that have impeded other schools from following suit. Principals in the public schools and owners of private schools should further enhance the levels of competencies of teachers by providing professional development training, conference / workshop, and coaching, mentoring, or technical assistance by skilled professionals. Specialists such as occupational therapists, special education teachers, and speech-language pathologists may be invited to facilitate the training activities. The Commission on Higher Education must look into ways pre-service training programs could prepare future teachers to provide appropriate educational services to children with ASD and how to do so in an inclusive setting. Increasing the number of units in the Bachelor of Science in Elementary Education for special education subjects should be granted. Curriculum planners in the Colleges of Education in Higher Education Institutions should infuse evidence-based and competency-based autism interventions into the coursework. Parents of children with ASD should be provided training on the current trends and practices in the education of their children. They must be given an option to hire a private special education teacher to act as a shadow teacher in the regular classrooms. An information dissemination campaign to make teachers, parents, students, non-teaching personnel, and the community aware of the diagnosis of ASD should be organized by the schools that provide inclusive education to children with ASD. Teachers should structure the learning environment and create instructional materials for differentiated instruction to children with ASD. Administrators of schools must provide accessible facilities to children with special educational needs. Policy makers should address the needs of children with ASD and value the benefits of including these children in the regular classrooms. Parents of children with ASD should lobby for laws that would help facilitate the integration of their children in schools and involvement in the community.

The government should increase the budget allocated to special education. Future researchers should design a study that will look into new technologies and evidence-based instructional strategies that will facilitate the successful inclusion of children with ASD in regular classrooms. Inclusion should be regarded as a responsibility to understand, identify, and break down barriers to participation of individuals with ASD in the school and involvement in the community.

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COMPETENCY FRAMEWORK TOWARDS HIGH-IMPACT BLENDED LEARNING PRACTICES

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ABSTRACT

Conducting courses in Higher Education Institutions using blended learning mode is in great demand. Consequently, a lecturer also plays a role as an online instructor, described as blended learning instructor. He or she must be competent for high-impact blended learning practices as it is a foundation for an institution to provide quality courses that are relevant to current learning requirement and at the same time support the national education policy. However, blended learning instructors reported they do not have adequate skills, time and resources for blended learning and this indicates that competency gap is likely to persist. Hence, there is a necessity to develop a proper guideline to facilitate the learning instructors. The aim of this study was to develop a competency framework for blended learning instructors towards ensuring a high-impact blended learning practice at Higher Education Institutions. To understand the roles of blended learning instructors, the obstacles they faced including their needs to be successful and competent in conducting the BL, literature review was done and a conceptual framework has been developed from the findings. Recommendations were made on further actions to be considered by institutions in molding the blended learning instructors to be competent for the blended learning implementation. **Keywords:** *Competency Framework; Online Instructor; Higher Education; Blended Learning; e-Learning*

INTRODUCTION

Higher Education has been looking at possible best practices for designing blended learning environment (Bonk, Graham, Cross, & Moore, 2012) in response to various teaching and learning issues (Gedik, Kiraz, & Ozden, 2013; Lee, Yoon, & Lee, 2009; Zhang, Fang, Wei, & Wang, 2012) in higher education and to leverage the use of available learning technologies. However, literature shows that universities are still struggling with the implementation (Alebaikan, Troudi, & Calt, 2010; Moskal, Dziuban, & Hartman, 2013; O'Connor, Mortimer, & Bond, 2011).

The aim of this paper is to understand the roles of blended learning instructors, the obstacles they faced including their needs to be successful and competent for the blended learning implementation. To gear up the implementation, it is important to ensure the quality of delivery towards academic excellence with extensive use of this blended learning method, in line with rapid educational technology development. Hence, it is crucial for blended learning instructors to be competent and more prepared to adapt to global changes.

Most learners entering higher education nowadays have grown up in a world of information technology. They want to learn continuously and expect instructors to utilise the technology as well (Elham Akbari, Ahmad Naderi, Mahdi Hosseinzadeh Yazdi, Robert-Jan Simons, 2016) for the value and nurture their potential. A variety of electronic contents and communication media accessible via internet makes it easy for learners to access learning materials, collaborate with their peers and interact with their instructors, anytime and anywhere.

BLENDED LEARNING

Bended Learning is basically a combination of face-to-face or classroom learning and electronic learning. Electronic learning or well known as e-learning allows teaching and learning process to take place through web-based system via the Internet with no restrictions of time and place. This learning mechanism offers faster knowledge delivery and collaboration opportunities if both the learner and instructor are committed, cooperative and understand how to organise it well. Formerly, conventional method that is more towards

one-way educational process between lecturers and students were in practise. The presence of the Internet and multimedia technology has reduced the dependence on conventional teaching and learning which was only done through classroom or face-to-face teaching. Teachers who used conventional methods are usually more exam-oriented and aimed to finish the syllabus prescribed. Generally, this method is no longer acceptable by most higher learning institutions even though it is still being practised by some.

Earlier defined by Garrison & Kanuka (2004), blended learning is a thoughtful integration of classroom face-to-face learning with online learning experience. Later redefined by Moskal, Dziuban, & Hartman (2013) that in most standards, blended learning is a mechanism that bridges the old and the new learning process by impacting policy and strategic initiatives in higher education at virtually every level. Authors also emphasised that successful implementation of blended learning program demands an alignment of institutional, instructors, and student goals.

Blended learning recognises the strength and weaknesses in both online and face-to-face learning environment. It merges the strengths in both method and minimise the weaknesses of each by applying the other method; most weaknesses in face-to-face will be overcome using the online method and most weaknesses in online will be covered by the face-to-face method. However, both learner and instructor play a strong role towards the success of this blended learning method (Eom, Wen, & Ashill, 2006; Varela, Cater, & Michel, 2012).

With respect to the instructors' roles, summary of the key roles adapted from Salmon (2000) is shown in Table 1. By understanding these roles, blended learning instructors will be motivated and have a clearer path to plan for blended learning lessons, evaluation and communication.

Table 1: Roles for Blended Learning Instructor, Adapted from Salmon (2000)

No	Roles	Description
1	Confident	To be expert in content, provide focus to learner and being a role model in understanding the online process, technical skills, courteous in face-to-face and online communication, and motivated as blended learning instructor.
2	Constructive	Encourage contributions from learner, speak and write concisely and energizing online messages, appreciate the feature of learning management system (LMS), able to establish good online profile and capable to build online trust and purpose.
3	Developmental	Trigger debates through intriguing questions, able to adapt new teaching methods, know how to use and control LMS, able to engage learners during face-to-face session and via online, ready to take feedback and foster discussion.
4	Facilitating	Help to bring non-participants and control groups of learners, show sensitivity to online and offline communications, responsible in awarding marks fairly to learners and able to assist learner in using technology during learning.
5	Knowledge Sharing	Provide link to related valid sources, value learners' diversity with cultural sensitivity, know how to explore ideas, promote valuable treats, close off unproductive treats, establish/support a learning community and continuously show positive attitude and commitment in teaching and learning.
6	Creative	Create an encouraging, relevant online learning community, able to communicate effectively and create a positive learning environment, know how to structured activities to wheeling discussions, to able to evaluate the success of learners in holistic view via online lesson and face-to-face session.

Even blended learning is frequently awarded as a great method of learning; there are still concerns inclusive of readiness, instructors' competencies and resources. The costly high failure rate of online learning implementations deserves attention from institutional management (Arbaugh, 2014; Arbaugh & Duray, 2002). Studies found that important issues among lecturers who did not apply blended learning, were due to lack of knowledge, lack of an enabling environment, lack of support and no policy in place (Tshabalala, Ndeya-Ndereya, & Merwe, 2014). Previous research also found issues related to instructors such as lack of time, lack of interest, lack of co-operation and inappropriate compensation system (Mihhailova, 2006). In fact, the coordination between face-to-face and on-line learning are still debatable (Gedik et al., 2013) while it is a very important aspects for the instructor to be competent in managing the learning processes.

To become competent in blended learning is like to master the teaching using face-to-face method and this requires them to be competent in online method via the synchronous and asynchronous techniques while at the same time balance between knowledge discipline, technology and pedagogy.

Despite recent research in online instructor's competencies (Baran, Correia, & Thompson, 2013; Darabi, Sikorski, & Harvey, 2006; Diehl, 2016; Smith, 2005; Spector & de la Teja, 2001), studies are still lack of

necessary focus on blended learning instructors and their performance outcomes in blended learning implementation.

HIGH-IMPACT PRACTICES

High-impact means able to affect or influence someone or something in a powerful way. In the blended learning competency matter, powerful can be translated as having a lot of strength to control the learner and the learning environment. Moreover, applying high-impact blended learning practices allows an instructor to transform the knowledge and experience sharing to be significant and useful.

Focusing on the blended learning instructor's role in achieving the targeted outcome of education and retains learner, it is crucial for them to be competent in developing and executing a high-impact blended learning practices. Hence, it will grab the interest to engage the learner, increase understanding, build a better relationship and the outcome will be more valuable for the learner.

The steps describes by Bersin (2016) on how to develop a high-impact learning culture which may be adapted in executing the high-impact blended learning practices are summarised in the following points:

1. Continuous learning as part of competency development.
2. Learning is part of culture and everyone to take ownership of the learning.
3. Captive audience to be fully utilise to make it interesting and worthwhile.
4. The first impression must be great and personally benefits individuals.
5. Allows people to reflect on how they learn by putting them to practise on real situation
6. Provide incentives and opportunities for knowledge sharing.
7. Redesign the performance management to allow it become a driver of development.

All the listed steps have their strength in contributing to the high-impact blended learning practices. However, the most important point that facilitates others is the seventh steps; redesign the performance management which will require a specially designed competency framework for blended learning and appropriate measurement tool to be in place. Henceforth, the high-impact practises will be able to take place and nurtured.

COMPETENCY FRAMEWORK

Competency is referred as having enough skills or knowledge to do something well or at the necessary standard (*Oxford Advance Learner's Dictionary*, 2010) and it can refer to either individual or organisation. European Parliament and Council in 2006 (INTEF, 2017) has defined competence as combination of knowledge, skills and attitudes adjusted to a context. This is appropriate as these three elements are slightly different and rely on each other. For example, having the *skill* to complete a particular task will require good *knowledge* on the impacts and positive *attitudes* to conform to the pre-defined procedures. As a result, the person is meeting the necessary standard of the executed action and chances for success is high compared to those without these three attributes.

Early this year, comprehensive framework namely common digital framework for teachers has been released by National Institute of Technology and Teacher Training, Ministry of Spain (INTEF, 2017). Regardless the framework clearly referred to the digital competence for teachers, this framework is concentrating on the required skills to conduct an online teaching. It is not complaisant enough to be adopted for blended learning instructor in Higher Education Institutions as the demand is for them to be competence in both face-to-face and online teaching. Thus, it will be best to combine the framework with few others competencies models that include attitudes and knowledge like what has been proposed by Darabi, Sikorski, & Harvey (2006), Dobbins & Crocker (2002), and Salmon (2000). Those models comprised of other dimensions inclusive of psychological elements which are highly required in pedagogical dimension for teaching adult learners. To make it more structured, several validated teaching competencies proposed by Darabi, Sikorski, & Harvey (2006) will be used as a backbone to segregate the competencies into phases inclusive of preparation, execution, monitoring and reporting. Apart from that, collaboration is recommended to take place in every single phase and risk management will support the blended learning implementation process.

Preparation

Before the instructor actually starts to execute the blended learning, preparation has to be made. Table 2 summarise the competency categories discussed by Diehl (2016) which was earlier proposed by Jurgen Hilke in 2012. These attributes are relevant and important to be understood by the instructor during the preparation phase. Having these competencies attributes will allow them to establish a comprehensive planning and preparation to accommodate the blended learning process.

Knowledge in adult education (Dobbins & Crocker, 2002) is a basic competency as it is crucial for the instructor to understand the goal of teaching and have a clear direction on what to achieve. By having a clear understanding of the learning theories, techniques of learner centred are able to be practised where necessary adjustments might be applied to the intended audience.

In order to implement a high-impact blended learning, instructors need to be adequately prepared with the necessary competencies. It is crucial to incorporate their roles with the associated competencies into a comprehensive and effective blended learning process. Hence, analysis on the planned approaches and contents can be done to determine the effectiveness.

Table 2: Competency categories for blended learning

No	Competency categories	Description
1	Institutional context	Understand the institutional context in which the instructor's attach to, inclusive of academic policy, student policy, evaluation policy, academic integrity and other related policies.
2	Technologies	Knowledgeable about technologies used to support the online and classroom lesson
3	Instructional design	Understand the instructional design requirement of the course and environment for online and face-to-face session.
4	Pedagogy	Understand the pedagogical components of the face-to-face and online teaching and learning process.
5	Assessment	Knowledgeable about various methods to assess the outcome of teaching and learning in face to face and online method.
6	Social presence	Establishes a social presence and communicates effectively in classroom, through writing, online chatting and other medium like audio and video.
7	Discipline expertise	Become an expert in their own discipline to ensure for good and confidence knowledge delivery.

Execution

The digital framework for teachers (INTEF, 2017) comprises of five digital competence areas as summarised in Table 3. This framework is suitable to be adapted especially during the blended learning execution phase. All the competence areas are essential to effectively execute the teaching activities. For each of the competence area, details of skills and ability can be measured according to its level of proficiency level; beginner, intermediate and advance.

Table 3: Most relevant skill based on digital competence area proposed by INTEF (2017)

No	Competence area	Details
1	Information and data literacy	Able to identify, locate, store, organize and analyse digital information.
2	Communication and collaboration	Able to communication via online method and have intercultural awareness
3	Digital Content Creation	Able to create and edit new e-contents, understand multimedia contents, able to apply the intellectual property rights and use licenses.
4	Safety	Use of security, protection of digital identity, data protection, and sustainable use.
5	Problem solving	Able to identify digital needs and resources, creative use of technology, make decision when using appropriate digital tool and able to solve conceptual and technical problems through digital media.

In this execution process, design and delivery of teaching and learning activities play an important role (Dobbins & Crocker, 2002). Instructors to execute the planned strategies towards goal achievement, facilitates individual learners and group learning. Instructors also should be able to build learning on own and learner's previous experience while utilising reliable and variety of sources. They also should be able to use technology to develop materials and to engage learners and encourage learners to move towards higher order thinking

for problem solving. Communication opportunity either via face-to-face or technology media should be fully utilised to promote understanding and knowledge generation (Bigatel, Ragan, Kennan, May, & Redmond, 2012; Dobbins & Crocker, 2002).

Monitoring and reporting of teaching and learning activities

After the blended learning main delivery process, instructors should be able to monitor the goal attainment, communicate anticipated outcomes prior to beginning of the course, ensure the compliance of the requirements for record keeping and establish a systematic process for collection outcomes from learners and properly disseminate feedback to them (Dobbins & Crocker, 2002).

Collaboration

Collaborations generally support towards increase in resource collection, resource enrichment and indirectly promote peer sharing among adult education (Dobbins & Crocker, 2002). Effective instructors should be able to build a relationship with all the stakeholders to facilitate and improvise their service delivery starting from the preparation phase, in the midst of execution phase and during the monitoring and reporting phase.

Risk Management

The risks faced by Higher Education Institutions are diverse and the loss potentials is enormous (Bubka & Coderre, 2010). To control the risk of unsatisfied learners which might lead to bad consequences, it is important for the blended learning instructors to understand their learners to ensure that the learners are satisfied without compromising the learning objectives. If the learners have an issue or not satisfied, it has to be investigated in order to understand the contributing factors. In gathering the desired information with respective evidence, a procedure must be in place. This will help to determine what had happened, when and who were involved in the identified issue. The level of severity for the identified issues should also be classified to plan and justify the corrective action. Finally, necessary changes should be made and monitored accordingly. There mechanism describes the basics of risk management to be embedded with the required competencies for blended learning instructors which will aid them in the decision making process and eliminates the issues that may arise.

Risk management will involve investigation, analysis and prioritisation of an issue related to teaching and learning process inclusive of learner's satisfaction and necessary improvement on competency components. This will help in identifying appropriate corrective actions in order to ensure that high-impact blended learning practices are achieved and under control.

Apart from that, to proceed in blended learning implementation and to keep the motivation of the instructors intact, the risk management strategy should also be in place to support the preparation and execution of blended learning. Once the risks are identified and mitigated earlier, chances for issue to occur during the implementation will be lesser and this will make both learner and instructor happy and psychologically motivated in continuing with this blended learning method. Currently, no prominent studies have incorporated risk management as one of the required competency attributes by the blended learning instructor. Hence, it is an opportunity and necessary to include the risk management attribute in the competency framework for blended learning instructor. Moreover, flexibility in meeting unexpected circumstances can be demonstrated when the risk management is incorporated in the same framework. The proposed framework is shown in Figure 1 below.

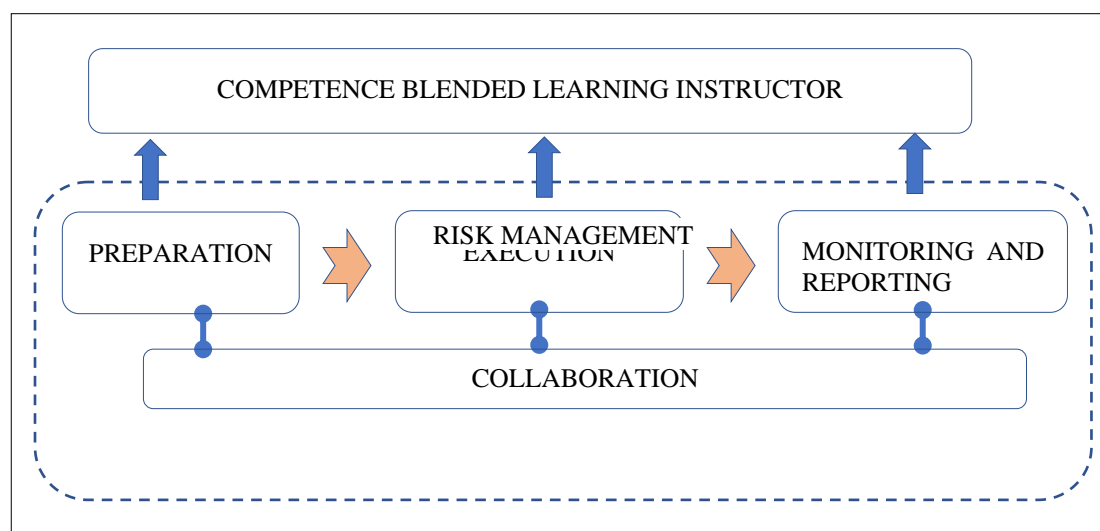


Figure 1: Framework for Competence Blended Learning Instructor

RECOMMENDATIONS

Action need to be considered by institutions in molding the blended learning instructors to be competent in the blended learning implementation. Challenges faced by them must be identified, analysed, prioritised and immediate action for mitigation and control activities must be in place without further delay. Despite developing the necessary competencies for instructors, other supports for the learners and instructors such as reliable and robust infrastructure must also be in place. For monitoring and control, it is important to track the result of blended learning implementation through continuous evaluation on students, instructors, and the institutions (Moskal et al., 2013).

In terms of evaluation, to warrant that there is a standard blended learning practices to measure the instructor, appropriate evaluation tool is in need. This will allow for fair and consistence self-evaluation or evaluation by other stakeholders. Nevertheless, we could not avoid various facets of human performance measurement that might intervene the measurement process (Bond & Fox, 2015). Therefore, it is recommended to consider for reliable measurement tools that will be able to measure their competency based on the other factors such as locations, courses and the measured competency items. For instance, Rasch Model could aid to measure the probability of success depending on the difference between the ability or competency of the person and the difficulty of the item (Bond & Fox, 2015).

CONCLUSION

Blended learning instructor framework is a set of competencies that educator need to develop in order to practise a high-impact blended learning implementation. The framework outlined in this study may assist blended learning instructors and institutions to determine targeted competencies for their professional development programmes. With the framework in place, the strength, weaknesses, opportunities and threats in blended learning may also be identified for the purpose of analysis and decision making. When instructors are occupied with appropriate competency, their expertise can be easily shared with the learners and they will be able to manage and control any challenges along the teaching and learning process effectively.

Generally, this paper represents the framework that can be used in the operational and strategic plan. It also added risk management attributes which are important but have not been discussed in other literature pertaining to the same matter. Framework has integrated necessary competencies in preparation, execution, monitoring and reporting, collaboration and risk management, to be mastered by blended learning instructors, who hold a major responsibility in the blended learning implementation. These concepts shall be mastered as earlier as possible to assist in the blended learning process while managing the possible risks before and along the process. Apart from that, the framework may serve as the basis to develop a measurement tool to access instructor's competency that can be utilised by the institution for needs analysis and development of competent blended learning instructor.

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COMPUTER-BASED LEARNING: E-LEARNING

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ABSTRACT

This article discusses how the computer-based e-learning is useful and practical in life today. Researcher has used a literary narrative research to build the foundation of scientific knowledge. Researcher has collected all the important points in the discussion, and put them in here with reference to the specific areas in which this paper was originally based. The results showed that someone who can not follow conventional education because of various causes, for example time constraint, geographical constraints, physical constraints, limited available seats, phobia of school, dropout, or home schoolers possible to be able to keep learning through e-Learning. Electronic learning (e-Learning) related to meeting with online learning or computer-based learning. In the future the application of Internet technology in the field of education and training will be needed in order to improve quality and equity of educational services, especially in Malay archipelago whose territory is scattered in very remote areas.

Keywords: Electronic Learning, Online Learning, Computer-Based Learning

INTRODUCTION

If a person brings a laptop to a distant place in small isolated island, the person starts to use his laptop and access to various training program materials available. There is no learning support services from tutor or other forms of learning support services. In this context, can the person be said to have implemented e-learning? The answer is NO. Why? This is because he did not get learning assistance services in his learning activities. But what if he has mobile phone and then successfully use it to contact a tutor? Is it in this context that the person has implemented e-Learning? The answer is YES (Newsletter of ODLQC, 2001; Rabiiah, 2008).

The illustration above provides clarity about learning activities that can be said as learning activities based on computer and network or e-Learning. Furthermore, the above description is actually only a small part of the possible benefits we can get when we understand correctly computer applications with the development of information technology that is so globalized recent decades. In subsequent developments the reality shows that computer and network applications are not limited to the manufacture, delivery and data storage only, it allows us to interact directly even at a great distance though. In situations where conditions have been conditioned interactions even can be done not only to one person, but to the entire community of network users. This application we easily see in the virtual world / internet, in other words the development of communication and information technology expressly provides opportunities for application in various fields. In line with the advancement of network technology and the development of the internet, it is possible to apply this technology in various fields including in education or training (Mohamad, Hardhono, et.al, 2017).

In the future the application of Internet technology in the field of education and training will be needed in order to improve quality and equity of educational services, especially in Malay archipelago whose territory is scattered in very remote areas. So it takes the right and fast solution in overcoming various problems which is related to the quality of education, as well as efforts to realize equity acquisition educational services as they are mandated by law (Ana & Elan, 2017).

With the application of distance education based on computer and network (internet, fax, internet-fax etc.) then the dependence will be the distance and time required for the implementation of education and training will be overcome. This is because all that is required will be available online so it can be accessed anytime. In this paper discussed matters relating to the application of internet and network technology for as a form of learning method, by providing some information on the understanding, advantages, disadvantages, as well as some examples of methods related to this computer and network-based learning system.

DISCUSSION

UNDERSTANDING OF LEARNING BASED ON E-LEARNING AND NETWORK

Electronic learning or e-Learning began in the 1970s (Waller and Wilson, 2001). The Concept of Computer-Based Learning and Networking is a form of learning model by utilizing web and internet technologies, the concept of learning and teaching is actually not new, not even new ideas or thoughts, even has developed since a few decades ago. Various terms are used to express opinions / ideas about electronic learning, among others are: on-line learning, internet-enabled learning, virtual learning, or web-based learning, web based distance education, e-Learning, web based teaching and learning. Its development in the world of formal education only occurred in the late 90's.

Globally Concept of Computer-Based Learning and Networking often defined only as e-Learning or Distance Learning. The development of e-Learning concept is characterized by the emergence of sites that serving teaching and learning process based on computer and network since the era of 15 years ago across all corners of the Internet from free or commercial ones.

Canada's education world for example has even begun to apply this system to the world of education, as well as in the emerging American community of e-Learning sites is open to anyone, while in the Malay archipelago of learning using this concept seems still limited applied in Higher Education. Malaysia Science University for example since 1986 has begun to pioneer a form of learning concept which they call as Student Centered Learning (SCL) that enables students to actively explore their understanding of course material. This concept emphasizes on student active learner not teacher active learner (Center of Social Sciences, 1999). From the illustrations excerpted from the Newsletter of ODLQC, 2001 as set forth in the earlier section above, at least can be drawn 3 (three) important thing as requirement of electronic learning activity (e-Learning), that is:

- a. Learning activities are done through network utilization ("Network" in this description is limited to internet usage. Network may include LAN or WAN - in the form of Website eLearners.com)
 - b. Availability of support learning services that can be utilized by participants learn, such as a CD-ROM, or printable material, and
 - c. The availability of tutor support services that can help participants learn when experiencing difficulties.
- In addition to the above three requirements can still be added other requirements, such as:
- d. Institutions that organize / manage e-Learning activities
 - e. Positive attitude of learners and educational staff on computer technology and internet
 - f. The design of learning systems that can be learned / learned by each participant learns,
 - g. The evaluation system on the progress or development of learners' learning, and
 - h. The feedback mechanism developed by the organizing agency.

Thus, it can simply be said that electronic learning (e-Learning) is learning activities that utilize the network (Internet, LAN, WAN) as a method of delivery, interaction, and facilitation and supported by various forms of other learning services (Brown, 2000; Feasey, 1998). In further details, the term "e-Learning" or "online learning" will be used interchangeably but still with the same understanding as has been stated.

LEARNING FUNCTIONS BASED ON E-LEARNING AND NETWORKING

There are at least 3 (three) learning functions based on Computer and Network to learning activities in the classroom, namely as an optional supplement, complement, or substitution (Siahaan, 2002).

a. Supplement

It is said to function as a supplement, if learners have freedom of choice, whether to utilize electronic learning materials or not. In this case, there is no obligation / requirement for learners to access electronic learning materials. Although optional, learners who use it will certainly have additional knowledge or insight.

b. Complementary

It is said to function as a complement if electronic learning materials programmed to complement the learning materials received by students in the classroom (Grimsey & Lewis, 2002). As a supplementary means of electronic learning material is programmed to into enrichment or improvement materials for learners in following the conventional learning activities.

Electronic learning materials are said to be enrichment, if to learners who can quickly master / understand subject matter presented by teacher in face to face (fast learners) given the opportunity to access electronic learning materials that were specifically developed for them. The goal is to further strengthen the level of mastery of learners on the subject matter presented by teachers in the classroom (Mark & Fintan, 2001).

Said to be a remedial program, if to learners who have difficulty understanding the subject matter which are presented by teachers in face-to-face classes (slow learners) are given the opportunity to utilize electronic learning materials that are specifically designed for them. The goal is that learners more easily understand the subject matter presented by teachers in the classroom.

c. Substitute

Some schools / colleges in developed countries give some alternative model of learning activities / lectures to the learners. The goal is that learners can flexibly manage lecturing activities in accordance with the time and daily activities of students. There are 3 alternative models of learning activities that can be selected learners, namely:

- a. Fully face-to-face (conventional)
- b. Partly face-to-face and partly via the internet, or
- c. Completely over the internet.

Any alternative learning model that students will choose not a problem in the assessment. Because the three models of lecture material presentation get recognition or the same assessment. If the learner can complete the course and pass through conventional or completely through the internet, or even through the combination of these two models, then the institution of education providers will give the same recognition. This very flexible state is very helpful to the students to accelerate the completion of the lecture.

HOW E-LEARNING IS IMPLEMENTED

The concept of learning by using Computers and Networking enables the process of developing knowledge not only in the classroom where the teacher concentrated in one direction, but with the help of computer and network equipment, students can be actively involved in the teaching and learning process. They can keep in touch with each other anytime and anywhere by way of access to the system available online. Such systems will not only increase the knowledge of all students, but will also help ease the burden of teachers in the teaching-learning process, because in this system some of the functions of teachers can be taken over in a computer program.

In addition, the results of the process and results of teaching and learning can be stored in data in the form of databases, which can be used to repeat the past teaching-learning process as a reference, so that it can be produced a better subject matter content.

As part of the development of e-Learning, web is one of the internet technology that has been growing for a long time and the most commonly used in the implementation of education and training remotely (e-Learning). In general, the application of communication on the internet is divided into 2 types, namely as follows:

a. Synchronous System

Applications that run in real time where all users can communicate at the same time, for example: chat, video conference, and so forth.

b. Asynchronous System

Applications that do not depend on the time at which all users can access the system and communicate between them according to their respective time, for example: e-mail, and so forth.

In the Malay archipelago, even if the development of the beneficiaries of this concept is somewhat sluggish. With network facilities owned by various educational institutions or institutions in Malay archipelago both intranet and internet, is actually very possible to apply web-based e-Learning support systems using synchronous or asynchronous systems, independently or combined, even though basically the two systems above usually combined to produce a more effective system because each has its advantages and disadvantages.

In some countries that have advanced with the condition of high speed network infrastructure will be very enabling the application of multimedia technology in real time like video conferencing for the benefit of e-Learning applications, however for general conditions in Malay archipelago where the network infrastructure is still relatively limited will experience obstacles and become ineffective. However, even without such multimedia technology, actually with the condition of the existing Internet network in Malay archipelago is very possible, especially by using the asynchronous system or by using a synchronous system such as customized chats with an educational support system to be developed.

Some of the institutions of e-Learning organizers can be put forward as follows:

- a. University of Phoenix Online is the most successful virtual university in the United States. The University of Phoenix Online has 37,569 students from 78,700 students overall, 38 campuses and 78 learning centers spread across the United States, Canada, and Puerto Rico. In addition, the University has graduated 10,000 temporary students. Other private virtual universities in America are only able to pass far below (Pethokoukis, 2002).

- b. Jones International University is one of the most successful universities in organizing e-Learning. The university has 6,000 students who studied online (Pethokoukis, 2002).
- c. United Kingdom Open University (UKOU) is the largest university organizer of electronics learning activities in the world with 215,000 students (Daniel, 2000).
- d. The College of Business at the University of Tennessee begins e-Learning specific lectures to 400 doctors working in the emergency room across the United States and in 11 other countries. The college that organizes the one-year program for MBA for doctors using e-Learning and face-to-face.
- e. Universiti Tun Abdul Razak (UNITAR) is the first university in Malaysia and in Southeast Asia that presents e-lectures (e-Learning). This electronic lecture was started by UNITAR in 1998 (Alhabshi, 2002).
- f. The Open University (OU) has conducted an Electronic Tutorial (ET) trial in 1999 for its students. The reason for this electronic tutorial trial is that it meets the needs of students to help them solve the difficulties encountered during self-study (Anggoro, 2001).
- g. Universitas Gajah Mada (UGM) has started preparing lessons that utilize the internet for postgraduate programs in hospital management and health services management in 1996 (Prabandari dkk., 1998; Universitas Gajah Mada, 2017).
- h. Florida Virtual School is one of the high schools in the United States that has grown rapidly in the provision of electronic learning. In the fifth year, the High School received 3,505 students by employing about 41 full-time teachers and 27 other teachers on a part-time basis. The motto of the school is "anytime, anywhere, through any path, at any speed." (Wildavsky, 2001).

Automation tasks that can be done by utilizing this connection are:

- a. Inclusion of announcement information by instructor
- b. Delivery of lecture files (file uploading)
- c. Authentication of website users

SEVERAL MODELS OF E-LEARNING IMPLEMENTATION

As explained above, e-Learning enables learning not only to take place formally in class, but with the help of computer and network equipment, students can be actively involved in the learning process, in a form of distance learning system without being constrained by geographical, space and time, the following is outlined 2 models of many models of organizing e-Learning in learning:

a. Model of e-Learning tutorial

This model has been applied by the Open University Online, based on the type of communication application that is done can be divided again into two, namely (a). e-Learning Tutorial by utilizing internet e-mail application and (b). Tutorial by utilizing fax-internet application.

- i. Electronic tutoring takes advantage of Internet email applications.

Internet-based learning system that can be developed can be a system that utilizes Internet applications called mailing-list. In this tutorial via the Internet teachers will discuss the material or task in writing and then the writing is distributed to all students via email. Then, when students open the Internet and check their e-mail, they can read the teacher's writing and give answers, comments or ask questions about the assigned task (Uno, 2017).

- ii. Electronic Tutorial via Fax-Internet

Fax-Internet Integration in the Internet tutoring system will expand the access point for learners. In the Fax-Internet tutorial concept, learners send or receive messages by fax and the teacher / teacher will receive or send the reply by email. When receiving a fax from a learner, the teacher or teacher receives the fax in the form of an attachment on an electronic mail (Mohamad, Hardhono, et.al, 2017).

b. Model Computer Supported Collaboration Learning

Collaboration is defined as cooperation between participants in order to achieve common goals. Collaboration is not just putting the participants into study groups, but also how to coordinate them in order to work together in the study. Related research in the field of collaboration via the Internet known as CSCL (Computer Supported Collaborative Learning), in which CSCL seeks to optimize the knowledge possessed by the participants in the form of cooperation in problem solving. In fact collaboration among participants tends to be easier than collaboration between participants and teachers (Mark & Fintan, 2001).

Users consist of students and teachers who guide, where the students themselves are divided into students and other students who act as collaborators during the learning process. Participants collaborate with tools available through an intranet or internet network, where teachers direct the course of collaboration to achieve the desired goals, as expected, to collaborate among students on problem solving related to the subject matter. This

collaboration can be realized in the form of discussion or question and answer by utilizing internet facilities commonly used for example: e-mail, chat, developed in accordance with the needs of the application to be made.

In the implementation of the e-Learning system, collaboration between students will be an essential factor, especially in asynchronous systems where students can not directly know the condition of other students, so if there is a problem in understanding the paper provided, there will be a tendency to fail to follow due to lack of communication between students, resulting in trending tendency in standstill condition, thus causing unexpected results.

There are 5 essential things that must be considered in running the collaboration via the internet, which is as follows:

- a. Clear, positive interdependence among students (Clear / clean, positive interdependence among students)
- b. Regular group self-evaluation (group self-evaluation on a regular basis)
- c. Interpersonal behaviors that promote each member's learning and success (the behavior of personal relationships that promote each success and member lessons)
- d. Individual accountability and personal responsibility (individual responsibility and personal responsibility)
- e. Frequent use of appropriate interpersonal and small group social skills (frequent use of small groups and interpersonal relationships according to social skills)

In the process of collaboration among students, teachers may engage in it indirectly, in order to assist the collaboration process by providing instruction in the form of a message to solve the problem. So hopefully the collaboration process becomes more smoothly.

Some of the tools needed to run the CSCL method are: Database, for storing lesson material and records related to the teaching-learning process, especially the collaboration process. Web Server, is a part of regulating access to the system and set the display that is required in the education process. Including system security settings. Developers like this application can be done using the software as follows:

Platform Open Source Linux
Web Server Apache+Tomcat
Programming Java
Script Java Server Page

Database MySQL / Postgress
Frame Work Struts
Development Tool Eclipse

The advantage of using the above software is entirely an Open Source that can be downloaded for free from their respective web sites, so that in the implementation can be reduced costs as low as possible, without reducing the reliability of the system itself. Another advantage is that access to such systems does not depend on an operating system platform (Romi, 2017).

Therefore, with the implementation of various Open Source Software like this, it is expected to achieve a safe, reliable, high performance, multiplatform, and low cost e-Learning system (Persero, 2017).

Advantages of Utilizing Learning Based on e-learning and Networking

e-Learning facilitates interaction between learners and materials. Likewise the interaction between the learners with the lecturers / teachers / instructors as well as among the learners. Learners can share information or opinions about a variety of things related to the education or self-development needs of learners. Teachers or instructors can place learning materials and tasks that must be done by students in a particular place within the web for access by learners. In accordance with the needs, teachers / instructors can also provide students with the opportunity to access certain learning materials as well as exam questions that can be accessed only once and within a certain time frame (Kudos Website, 2002). In more detail, the benefits of e-Learning can be seen from two angles, namely from the point of the learners and teachers:

a. From the Sudden Participant's Corner

With e-Learning activities it is possible to develop high learning flexibility. That is, learners can access learning materials at all times and repeatedly. Learners can also communicate with teachers / lecturers at any time. With this condition, learners can better strengthen their learning materials.

While infrastructure facilities are not only available in urban areas but have reached the districts and villages, e-Learning activities will benefit (Brown, 2000) to learners who (1) study in small schools in poor areas to follow certain subjects that the school can not provide, (2) follow a home schoolers program to study learning materials that parents can not teach them, such as foreign language and computer skills (Rabiah, 2017), (3) feeling phobia with a school, or a nursery student who is hospitalized or at home, who has dropped out of school but is interested in continuing education, issued by the school, as well as students in various regions or even overseas, and (4) not accommodated in conventional schools to gain education.

b. From the Corner of the Teacher / Lecturer

With the activities of e-Learning (Soekartawi, 2002a, b), some of the benefits of teachers / lecturers / instructors include, among others, that teachers / lecturers / instructors can: (1) more easily update the learning materials that are his responsibilities in accordance with the demands of scientific development, (2) to develop or research to increase its insights because of its relatively free time, (3) controlling the learning activities of the learners. Even teachers / lecturers / instructors can also find out when their learners learn, what topics they are learning, how long a topic is learned, and how many times a particular topic is being re-learned, (4) check whether the learners have done the exercises after studying a particular topic , and (5) examine the answers to the learners and inform the learners.

While the benefits of electronic learning according to A. W. Bates (Bates, 2006) and K. Wulf (Wulf, 1996) consists of 4 things, namely: (1) Increase the level of learning interaction between learners with teachers or instructors (enhance interactivity).

When carefully designed, electronic learning can improve the level of interaction of learning, between learners and teachers / instructors, among learners, and between learners with enhancing interactivity. Unlike the case with conventional learning. Not all learners in conventional learning activities can, be brave or have the opportunity to ask questions or express their opinions in the discussion. Why?

Due to the conventional learning, opportunities available or provided by lecturers / teachers / instructors for discussion or questioning are very limited. Usually this limited opportunity also tends to be dominated by some learners who are quick to respond and dare. Such circumstances will not occur in electronic learning. Shy or undecided or brave learners have ample opportunity to ask questions or submit statements without feeling watched or under pressure from classmates (Loftus, 2001). (2) Enabling learning interaction from where and at any time (time and place flexibility).

Given the learning resources that are already packaged electronically and available for students to access via the Internet, learners can interact with these learning resources anytime and from anywhere (Dowling, 2002). Likewise with the tasks of learning activities, can be submitted to the teacher / lecturer / instructor once completed. No need to wait until there is an appointment to meet with teachers / instructors. Students are not strictly bound with the time and place of organizing learning activities as well as on conventional education.

In this regard, the British Open University has utilized the internet as a method / media of material presentation. While at the Open University of Indonesia (OU), internet use for learning activities has been developed. In the early stages, the use of internet in OU is still limited to tutorial activities only or the so-called "electronic tutorial" (Anggoro, 2001). (3) Reaching students in a wide range (potential to reach a global audience).

With the flexibility of time and place, then the number of learners that can be reached through electronic learning activities more and more widespread.

Space and place and time are no longer an obstacle. Anyone, anywhere, and anytime, someone can learn. Interaction with learning resources is done via the internet. Learning opportunities are truly wide open for anyone in need. (4) Facilitate the refinement and storage of learning materials (easy updating of content as well as archivable capabilities).

The facilities available in internet technology and a growing variety of software help to simplify the development of electronic learning materials. Likewise with the refinement or updating of learning materials in accordance with the demands of scientific material development can be done periodically and easily. In addition, improvements in the method of presentation of learning materials can also be done, either based on feedback from learners and on the results of the assessment of teachers / lecturers / instructors as the responsible person or the constructor of the learning material itself.

Knowledge and skills for the development of electronic learning materials needs to be mastered first by teachers/ lecturers / instructors who will develop electronic learning materials. Likewise with the management of learning activities themselves. There should be a commitment from teachers / lecturers / instructors who will monitor the development of learning activities of students and simultaneously motivate the students, this activity actually leads to efforts to keep controlling the quality of the process itself.

CONCLUSION

If the computer network between primary and secondary school students is linked to a computer network that currently operates between various universities in Indonesia. Learners not only interact with teachers but also directly personally interact with college students and lecturers. What will this relationship gain from? it is clear that the thinking insight of learners will be opened wide with this openness. The learners become aware of why they have to bother studying the various subjects that have been taught. Why is Physics and Mathematics so important to be an electrical and computer engineer? We can expect that this openness will spur the learners to learn and increase his interest in various fields of science.

In line with the definition of e-Learning or electronic learning as an alternative learning activities implemented through the utilization of computer technology and the Internet. A person who can not follow conventional education due to various factors, such as time constraint, geographical constraints, distance constraint, physical constraints, conventional school capacity not available (limited available seats), phobia to school, dropping out of school, or being educated through home schoolers education is possible to keep learning through e-Learning.

The implementation of e-Learning is determined by: (a) positive attitude of learners (high motivation for self-learning), (b) positive attitude of education personnel on computer and internet technology, (c) availability of computer facilities and access to internet, (d) the support of learning services, and (e) affordable access to the internet for learning / education purposes.

Developments in various countries show that the number of internet users is increasing; as well as the number of students who follow e-Learning and e-Learning organizers. The function of e-Learning can be as a complement or additional, and in certain conditions can even be another alternative to conventional learning. Learners who follow the learning activities through e-Learning program have the same recognition with students who follow the learning activities in conventional.

Learners and lecturers / teachers / instructors can benefit from the implementation of e-Learning. Some of the benefits of e-Learning is the flexibility of learning activities, both in the sense of interaction with learners / learning materials, and the interaction of learners with lecturers / teachers / instructors, as well as the interaction between fellow learners to discuss learning materials.

Conventional educational institutions (universities, schools, training institutions, or vocational and advanced courses) have extensively organized expansion of learning opportunities for their 'target audience' through the use of computer and internet technologies (Collier & Thomas, 2002). Along with this, school-age students who follow electronic learning activities also continue to increase in number (Gibbon, 2002).

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CONSIDERATIONS FOR IMPLEMENTING WEBSITES WITH GREATER ACCESSIBILITY FOR PEOPLE WITH VISUAL IMPAIRMENT

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ABSTRACT

This research selected the main considerations that developers should implement in websites to ensure accessibility for people with visual impairment. This research is based on the systemic analysis of international guidelines and standards, including those presented by the Web Content Accessibility Guidelines (WCAG) 2.0. The WCAG guidelines are the most comprehensive and are used as a de facto standard by several countries worldwide. Since 2016 in Ecuador, the technical standard for accessibility NTE INEN - ISO / IEC 40500 has been implemented for the state's web pages. The new regulations seek that these types of websites comply with at least the first level of accessibility (level A) of the above mentioned guide. The considerations presented in this paper will serve as a guide to best practices for web developers looking to implement accessibility in their sites. The result of this work will be available for free with online access. It must be implemented the web accessibility guidelines does not ensure that a person with multiple disabilities can fully access the content of a site.

INTRODUCTION

People with visual impairment need help to make use of the computer, this help can be of the screen readers, who are responsible for narrating the elements present in the window thus minimizing a little the present difficulty in using this instrument. When navigating within the different programs and windows of the computer the screen readers completely fulfill their purpose, but do not usually work efficiently when dealing with web browsing because the pages of such sites are created from a In the wrong way, many elements are incorporated that make it difficult for the screen readers to work, thus reducing considerably the accessibility factor of the site. It is customary for programmers to develop websites with correct functionality by using all types of content such as images, forms, audio or video so that the site can be accessed, understood and used by end users. Typically, end users are identified as people without any disabilities who can use such content without complications; Thus generating a kind of discrimination against people who, due to a disability, can not access the web content on a regular basis.

This research analyzes the field of web accessibility for people with visual impairment, based on the different international studies on web accessibility in recent years, along with different standards and standards already in force in different countries of the globe to generate as An interactive web guide for web site developers based on

W3C standards in its WCAG 2.0 guide. This last one is the guide that the Ecuadorian Government has taken as reference for the creation of its own technical regulation of accessibility of websites.

In the Ecuadorian constitution sections have already been implemented that speak of inclusion for people with disabilities in the different aspects of society, health, work, among others. In its rules of accessibility web, it ensures that the sites that are created from now on are accessible for them, at least in a basic level, it presents the guidelines for the developers to create accessible sites. But despite all of the aforementioned the theme of web accessibility is still a relatively new area of which a very small group of developers are aware, so there is still an extremely high number of pages that are not accessible to The new pages with accessibility that are gradually seeing the light, because they were created from the beginning with this aspect in mind or because of what the law demands, adapting a page that was not previously accessible to the point that it is Accessible at least at a basic level so that it is not removed from the server.

INTRODUCTION

We must take into account that accessibility not only serves a specific group of users, but also helps improve the quality of websites [1] to improve the experience of all users in general, since it is a parameter that determines The degree of ease when accessing or using something especially for those who have a disability [2], as with people with visual impairment, since although they may have blindness or low vision, they may perceive an image presented in a Audiovisual medium through its other senses [3].

It can be said that, in order to achieve web accessibility, two main components must be taken into account. The first is the technical component, which refers to existing standards and guidelines to achieve a level of accessibility in particular, and the second component is the human, which will handle the user experience, from the point of content producer Creating and uploading accessible web content as well as end user [4]. This is speaking in a very superficial way, but some studies already cover web accessibility in several more detailed parameters such as the publication of user-created content, media-user interaction, access to information, versions of the same information available, Among others [5], all these parameters are also created according to the type of website being analyzed.

One of the most widely used standards internationally on web accessibility is the Web Content Accessibility Guidelines (WCAG) in its version 2.0, which is composed of 4 principles, each of them have guidelines and these guidelines in turn have compliance criteria [6]. In addition, to determine accessibility levels according to compliance criteria, there are 3 levels that are: Level A, Level AA and Level AAA [7]. Level A indicates the basic and mandatory level of accessibility, while AA and AAA levels have stricter criteria [8].

This is to ensure that web developers, when creating their sites, do so in a way that people who use assisted aids, such as visually impaired people who use screen readers, can navigate within the site to That can search and use the information deposited in the website. This is often a frustrating experience when it comes to visiting complex websites since the main tool of them, which is the screen reader, fails to quickly identify the available sections of the page due to the linear reading they employ, While the shortcuts that make it possible to skip to the main content of the page can also cause serious navigation problems [9].

In Ecuador in 2014 began to take the first steps of the country on its way to accessibility at the digital level. Now 2 years later, in 2016, through the creation of a technical accessibility standard for the state's web pages, the NTE INEN - ISO / IEC 40500. It is a faithful reference to the guidelines set by the WCAG [10] of the W3C . WCAG 2.0 is the latest version of the Web Content accessibility guidelines of the World Wide Web Consortium (W3C) [11].

Although there are recognized organizations of standardization such as the International Organization for Standardization (ISO) or the American National Standards Institute (ANSI), there are others such as the W3C that have so-called de facto standards, thanks to their use in practice [12] and thus have become the benchmarks at the international level in web accessibility.

For the development of web pages can be included numerous programming languages, but basically a website can be built entirely by HTML to create the structure of the page and by CSS for the design of it.

HTML (HyperText Markup Language), is a markup language used to define the structure of web pages; Is the basic language of the web, which is used for the creation of content or web pages [13].

CSS (Cascading Style Sheets), is the language used for the presentation of the web page, which includes aspects such as colors, letter font, as well as compatibility of web pages for different mobile devices [13].

For this research will be used the most recent versions of both languages, which are HTML5 and CSS3 since in

both versions have built-in tags that help improve accessibility for users.

A set of special attributes called ARIA (Rich Internet Access Applications) will be used to make web applications more accessible, allowing to mark places where content will be changed or to specify simple roles [14]

METHODOLOGY

All research, in addition to having its problem and objectives correctly defined, must also have a methodology to follow since, in general, researchers in training when approaching their object of study, usually do from a personal experience to interpret the Results at their own discretion.

The nature of this research, because it is a case study, is qualitative, focuses on achieving an approach to reality from a more human perspective of the construction of a social fact [15], through the search for information from Reference present in studies on the subject from countries that already understand and encourage the completion of web accessibility, using as a technique a comprehensive reading about accessibility in the country together with the analysis of the best guides used as international standards, achieving As a result, to construct an idea that is as close to reality as possible about the true situation of web accessibility in Ecuador, in order to determine the factors responsible for not complying with this aspect.

Culminating with the process of developing an interactive web guide oriented to web developers, based on the highest international standards of web accessibility in order to correct the problem that revolves around the lack of awareness of the developers who do not take into account The aspect of accessibility in the importance that should, in order to later appreciate in the medium term, an increase of designed and adequate websites that comply with a basic level of web accessibility for visually impaired people.

RESULTS

This guide is based on the guidelines of WCAG 2.0 to achieve the level of conformity A, which ensures the basic level of accessibility. By complying with this level of compliance, it is established that the website will pass positively accessibility tests carried out by means of tools such as the TAW or the Examiner [16], or by means of indicators determined in independent work On accessibility by analyzing valid web documents, images, headers, links or forms [17]. Although the WAI (Web Accessibility Initiative) emphasizes the importance of manually performed tests on the automatic, since they can only verify compliance criteria that support automation [18], although tools such as TAW can analyze all The pages of a website by entering its URL unlike others that only are responsible for evaluating the main pages of each site [19].

The guide, although designed to improve the accessibility of people with visual impairment, has the necessary guidelines to cover other types of disability, since this is how you can develop a web site accessible at its basic level.

It is composed of 4 fundamental principles with 3 levels of conformity [20] in addition, each principle has guidelines and these in turn, criteria. This guide is intended to reach the level of basic access that is Level A, by complying with its guidelines and conformity criteria of WCAG 2.0 summarized in this interactive guide.

The introductory page of the guide, as well as informational content on WCAG 2.0, has videos on the main accessibility issues according to several studies, as well as an introduction to the new HTML5 ARIA tags, important for designing websites with dynamic content since Allows developers to create functions and behaviors for the dynamic content of the page thus allowing a better experience for users who use assisted technologies [21] to navigate websites.

Then there is the first principle, along with a description of it with its guidelines, which have their definitions and examples (see pictures 1 and 2) that comply with this guideline for the developer to acquire the theory and examples necessary to assimilate Successfully what you are reading; At the end of each principle there is a small evaluation for the developer of ten questions about everything learned from the guidelines throughout the beginning (see Figure 3), with different types of questions in order that the knowledge gained, Are reinforced.

Figure 1: Accessibility guide - Content

Principio 1: Perceptible

La información y los componentes de la interfaz de usuario deben ser presentados a los usuarios de modo que ellos puedan percibirlos

Principio 1
Principio 2
Principio 3
Principio 4
Lecciones

Pauta 1.1 Alternativas textuales

La información y los componentes de la interfaz de usuario deben ser presentados a los usuarios de modo que ellos puedan percibirlos

Contenido no textual

Todo contenido no textual que se presenta al usuario tiene una alternativa textual que cumple el mismo propósito, excepto en las situaciones enumeradas a continuación:

- Controles, entrada de datos:** Si el contenido no textual es un control o acepta datos introducidos por el usuario, entonces tiene un nombre que describe su propósito.
- Contenido multimedia tempodependiente:** Si el contenido no textual es una presentación multimedia con desarrollo temporal, entonces las alternativas textuales proporcionan al menos una identificación descriptiva del contenido no textual.
- Pruebas:** Si el contenido no textual es una prueba o un ejercicio que no sería válido si se presentara en forma de texto, entonces las alternativas textuales proporcionan al menos una identificación descriptiva del contenido no textual.
- Sensorial:** Si el contenido no textual tiene como objetivo principal el crear una experiencia sensorial específica, entonces las alternativas textuales proporcionan al menos una identificación descriptiva del contenido no textual.
- CAPTCHA:** Si el propósito del contenido no textual es confirmar que quién está accediendo al

Figure 2: Accessibility guide - Examples

```

./imagenes/tjemp101.jpg >
<div id="desc">
  <h3>Como conectar un monitor</h3>
  <p>Primero sostenga el cable que ya viene conectado al monitor, y
  conectelo directo al CPU en la entrada VGA que es la que posee una
  forma de trapecio, luego como segundo paso, conecte el cable que
  viene por separado en el monitor por su lado hembra y luego por el
  lado que falta a un tomacorriente.</p>

```


3. Para los logos, su texto alternativo debe ser el nombre de la compañía dueña del logotipo.

```



```

4. Una imagen contiene un encabezado con el título 'Historia de la computadora, su texto alternativo debe decir 'Historia de la computadora'.



```



```

Figure 3: Accessibility guide - Lessons

Preguntas del Principio 1

- ¿Cuál atributo define una descripción larga de una imagen.?
 - a. alt
 - b. longdesc
 - c. description
 - d. name
- ¿Para mejorar la accesibilidad para las personas con discapacidad visual, una imagen además de un título, debe poseer?
 - a. Datos del autor
 - b. Un texto alternativo
 - c. Una copia descargable
 - d. Enlace a la Wikipedia
- ¿Una imagen que muestra a un dictador y posee el título de 'Las Crónicas de la Guerra', debe poseer como texto alternativo...?
 - a. El Dictador
 - b. Adolf Hitler
 - c. Las Crónicas de la Guerra
 - d. ImagenI
- En una publicación de un post, se colocan varios iconos con diferentes motivos, uno de Atención, que marca el inicio de un párrafo importante, y otro con el de una impresora junto a la palabra Imprimir. La alternativa textual de este ícono sería:
 - a. Alt= "Impresora"
 - b. Alt= "Imprimir"
 - c. Alt=""
 - d. Alt= "Impresión"
- Un gráfico de barras compara los artículos vendidos en los meses de junio, julio y agosto. La etiqueta corta dice "Figura uno: Ventas de junio, julio y agosto". Una descripción más extensa debería tener...
 - a. El nombre de los autores, la compañía responsable y el año.

DISCUSSION

The guide is designed so that the developer can create accessible websites at least at a basic level, opening a new field of interest in the web development helping to raise awareness in their environment about what is web accessibility for the visually impaired. It is available in the link: <http://accesibilidad.atwebpages.com/>.

CONCLUSIONS

- In determining the considerations necessary to implement accessible websites by studying different guides and standards, it is concluded that WCAG is the most comprehensive guide to web accessibility, as it covers different types of website content, bad practices and recommendations with Techniques to avoid them.
- Achieving a high level of accessibility does not 100% ensure that a person, for example with multiple disabilities, can fully access the content of a website, while a basic level of accessibility not only helps people with Disability, but also to other users.
- Examples of HTML code successfully complement the understanding of the content to the web developer.
- The implementation of the interactive guide on a website increases the reach of its content to a large number of users while allowing a better understanding of the accessibility standards in force in the country for the learning of website developers.

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CONSTRUCTION AND INTEGRATION OF ICT INTO DISTANCE EDUCATION

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ABSTRACT

Integrating Information and Communication Technology into teaching has become the norm of the century due to the influx of electronic gadgets, massification, inadequate traditional equipment and learning space. This study focused on the guidelines necessary for the construction and integration of a traditional course onto a web-based platform for distance learners who were engaged with an e-platform. The distance learners indicated that the e-learning mode helped them in acquiring more skills in the use of technology; and more importantly giving them the opportunity to study while working. Though Faculty expressed their views on how their expertise to design and develop courses using instructional design principles were enhanced, they still battled with time to construct the e courses. It was recommended that research into perceptions of Faculty about new technologies in teaching and learning could provide useful ideas into changing academic roles and inform institutional policy on online education and staff development. An example of an integration plan was attached. **Keywords:** Distance education, design guidelines, ICT integration, moodle.

INTRODUCTION

The sudden surge of information and communication technology (ICT) has led to easier, faster and more reliable communication all over the world, such that the world now appears smaller and more connected than before the 1990s. ICT is a tool, which refers to various resources and tools presented on the computer, in educational circles. It enables teachers and learners to link other learning communities in diverse ways. The internet for example, provides those living in rural areas with access to services that they may not have in their own communities. Digital environments provide both the technology and opportunity to liberate people from limitations imposed on them by geographical locations, disability, ethnicity, gender and age. In educational circles, ICT has been observed to be potent in forging collaboration, enhancing adult and self-learning and ensuring that connectivism is practised (Rowley & Hartley, 2008; Salmon, 2002). It also enhances learners' motivation, links them to enormous sources of information, and allows teachers more quality time for facilitation (Roblyer, Edwards, & Havrilule, 2004).

Technological progress and innovation have generated changes in how knowledge is acquired, exchanged, and communicated. This has diversified the acquisition of knowledge at higher institutions, as some have shifted from the traditional classroom studies to open modes of digital learning. Some of the possible examples of Instructional technology are the e learning courses and the distance education courses of today. In addition to potentially enhancing learning in the classroom, technology can also enable students to receive instruction remotely through distance education or online learning. Distance education may include videoconferencing and televised or audiotaped courses, but Internet courses (hereafter referred to as online learning) are the most widespread and fastest-growing mode of delivery (Queen & Lewis, 2011). Online learning programs range from programs that are fully online with all instruction occurring via the Internet to hybrid or "blended learning" programs that combine face-to-face teacher instruction with online components (Picciano & Seaman, 2009; Staker & Horn, 2012; Watson, Murin, Vashaw, Gemin, & Rapp, 2012)

This is the case of distance learners at the University of Education, Winneba who by virtue of their working schedules as well as their location are able to access education at the higher level. UEW distance education learners experience the blended learning programmes that combine face to face teacher instruction with online components. Digital technology plays a key role as a supporting pedagogical tool. In digital environments, learner autonomy is highlighted as it can provide course content and a variety of learning styles which could suit individual needs (Yang S. , 2006). Thus, the former 'all knowing' teacher presence is not required. The teacher basically now serves as a facilitator.

The main role of integrating technology in education is to assist learners to acquire skills and knowledge through interchange, interaction, and group work. Integrating ICT is often mistaken as wholly taking one's lesson, topic or curricula and uploading them and after that, using the computer to teach or display the information (OPNZ, 2014). Others oftentimes type their text or scan it for display by means of their laptop and a projector. ICT integration,

however, is the process of using ICT to enhance student learning in more interactive and extended ways (Williams, 2003). Integration, at best, could be done on micro levels (lessons) for trials and then progressed into integrating whole lessons (macro level) for teachers to adequately develop the required skills needed for smooth integration and supplement student learning. Through micro and macro skill development, an institution could go on large scale project of integrating ICT into their entire curriculum. Using ICT to support an institution's entire content and learning experiences of a whole course would be seen as integration on a macro scale (Wang & Woo, 2007).

Using technology to teach is as old as radios, and then later televisions (Cuban, 1986). Electronic learning (e-learning) is pedagogy enhanced by technology. It is a combination of well-designed web-based learning experiences through skilful facilitation. The term, 'e-learning' originated in USA, where it was defined as the process by which a learner applies digital media, including internet, computers, satellite broadcast, audio, videotapes, compact discs and interactive television in their teaching process to facilitate student learning (Yang & Yenb, 2016). This suggests that e-teaching is also practicable. According to Hativa and Goodyear (2002), in order for academicians to adapt to an increasingly diverse heterogeneous student body in institutions, there will be the need to find new teaching methods, modes, technologies, change in roles, conceptions and practices.

In Ghana, computers, laptops, palmtops and mobile phones are in vogue and employed to enhance social and business communications and recently, teach and learn. ICT in education employs instructional methods such as animations or simulations to enhance understanding of many conceptual and abstract phenomena. When used effectively, it engages learners in an exciting way so that learning becomes 'less burdensome'. It motivates and challenges their innate capabilities, so that learning becomes a construction of one's own knowledge based upon tested assumptions. Students thus develop reflective, process and concept skills. Teaching in an online environment induces a paradigm shift for teachers and students alike. One would have to consider the skills requirements, rights and responsibilities of teachers and learners, conduct and etiquette.

Technology affords changes in pedagogy and content knowledge as teachers shift perspectives on what knowledge is valued and where the knowledge is obtained. It enables a focus on student-centred learning, with learners engaging in different tasks that are often inquiry-based rather than focused on a finite set of content points (Dickers, 2015). Furthermore, it empowers students and reforms their ideas about education. According to Amaral and Shank (2010) blended or hybrid learning enhances student cognition and retention as visual images and sounds are remembered so that proper mental models could be built. Students learn better when corresponding words and images are presented simultaneously, rather than successively. Best use of audio and video channels or animation and narration must be learned and employed by teachers. Constant use or practice will improve learning and transfer of knowledge.

Pre-requisites to planning a model

With all the social and educational benefits of ICT and e-learning in particular, moving traditional courses online must become a prime objective for all academic institutions. Moving a course online is not a matter of chunking one's old teaching material up into pieces and mounting them. Many considerations have to be made. For example, materials have to be sequenced to facilitative progressive understanding, while avoiding work and cognitive overload. At the same time, students must enjoy the social aspect of e-learning through collaborative work or discussions and yet interact with teachers directly by means of reflective journals or chats in a safe, secure, digital environment. One other important requirement for effective integration of ICT would be to provide technical help and experts when necessary for learners. Teachers would also have to shift roles from their former focus on content delivery to varied responsibilities such as being facilitators, integration specialists and instructional technology researchers. Some instruction designs such as Salmon's (2002) 5-stage model, Laurillard's (2009) model on how to collaborate technology with traditional learning, and Kanuka's (2005) model on how to integrate diverse instructional strategies on the e-platform could be employed. These models present design guidelines for incorporating various resources and tools into e-activities. Teachers would have to be aware of learning theories such as those of the constructivists, behaviourists, associationists, cognitivists, situationists, connectivists, andragogists, and other modern theories so that the best paradigm for their course of study and anticipated activities could be employed as they build their e-courses. Cultural needs, access to internet, access to hard and software, the teacher's own role and online presence would have to be taken into consideration (Shank, 2005). Many more things such as whether facilitation would be synchronous, asynchronous or a blend of the two would be required (Anyangwe, 2012).

E-examples are developed to give students opportunities to practise and learn in active ways so as to test their knowledge and prepare for examinations. It allows for self-studies during and outside class. These e-exercises or e-examples can support active learning over a wide range as they expose students to variety of tests and learning

formats. More interestingly, learners get immediate feedback. For teachers or facilitators, feedback is given in real or delayed time as desired. Maintenance cycle is short and distribution is easy.

PROBLEM STATEMENT

The University of Education, Winneba expanded its student enrolment and had challenges with infrastructure and time tabling of courses. Thus, it resorted to a hybrid inline tuition to relieve itself of the self-imposed burden while students get increased access to knowledge in a diversified and innovative way. Its main challenge, however, was how to convert its traditional teachers to e-facilitators. The task of the traditional lecturer is shifting from the transmitter of information to the management and facilitation of student learning. These to-be e-facilitators had little or no knowledge on how to create an inclusive engaging learning environment online, to ensure that both they and their distant learners have the requisite skills as well as the awareness of comfort in a digital world.

RATIONALE FOR THE STUDY

The changing phase of education, increase in student numbers, a change in curriculum, teaching loads and assessment loads all suggest a change in the teaching and learning process. Thus, more flexible, responsive open and yet inclusive programmes, besides the need to teach differently favour the integration of ICT into modern classroom lessons (McShane, 2004). The introduction of ICT is also a response to a worldwide move to develop integrated educational technology. ICT could also facilitate the exposure of students to the large body of detailed information on education. The possible approaches could be in hybrid mode or full online mode.

PURPOSE OF THE STUDY

Social expectations, institutional vision and mission, and the desire to align one's institution with external world expectations puts demands on academics. The purpose of this study was to explore the feasibility of constructing and integrating a hybrid moodle approach into a distance learning study program and to find out challenges that students and Faculty could face in the use of this medium.

RESEARCH QUESTIONS

1. What challenges did Faculty face in the design, construction and integration of the integrated e-courses?
2. What challenges did Faculty experience during the execution of their e-courses?
3. What are students' perceptions about using e-learning platform as a learning tool?
4. What was the impact of the integration of e-course on Faculty?

METHODOLOGY

The exploratory research design was employed because the study was focused on gaining insights and familiarity for later investigation. It was to find out about problems or otherwise of the moodle in its introductory stage (with distance learners) and Faculty members' impressions about its integration.

Five lecturers who were into the use of the hybrid moodle software were conveniently interviewed while ten students were purposively sampled and interviewed from a population of nine (9) and nineteen (19) respectively. The instruments used were analysis of online documents and semi-structured open ended interview schedules (see Appendices B and C). The importance of learning theories and their implications on student learning were reviewed. The Moodle was chosen for use by the institution under study because it is an open source learning.

Directing objectives

Faculty had to understand their own personal theories and their limitations. They had to understand how good theories, particularly andragogy, would enable them to provide story lines for novice course designers to build instructional strategies and students to build sound conceptions. Besides, learning theories help teachers to understand themselves and students better. Faculty were also taken through the nuts and bolts of the e-learning process (Anderson, 2008). Some of the necessary criteria were:

1. who learners for a course were and their needs analysis
2. where and how our learners would apply knowledge; implying thinking through themes and context
3. creating learning activities on what learners should be able to do
4. creating assessment activities on how achievement of objective will be demonstrated
5. deciding the appropriate tools and media that would support activities to be incorporated
6. using warm, inviting, and inclusive motivational language
7. putting the course together
8. evaluating the course to see how it works

The model for designing the integration of ICT for the University of Education (UEW) was simple and sequenced. It allowed designers to construct their e-platforms to include resources and activities only after a label was given to each lesson, topic, unit or module. A structure of practical guide lines for use by Faculty is presented as Appendix A. To begin with, interested Faculty members were trained for two weeks intensively to develop course

manuals as a pre-requisite to building e-courses/ lesson and lecture notes were also developed. Within the lessons and notes, web-links and e-activities were embedded. Some of these were synchronous while others were time-delayed and asynchronous. Total available hours for the e-study was calculated and apportioned over teacher-time, student-time and collaborative activities. Provision of academic and technical help were made a core need for each lesson. The moodle platform was the institution's choice of LMS as it was easy to use and could be accessed freely online. Obtained data was analysed descriptively into experiential themes in order to bring out the strengths and weaknesses of the desired LMS and users' challenges.

Results

Table 1 shows some of the observations that students reported on during an interview session

Table 1

Students' observations on the use of the Moodle platform in learning

	Students' positive opinions	Students' challenges
1.	Increased engagement with course content	Meeting timelines
2.	Exposure to variety of learning materials	Inadequate ICT skills
3.	ICT competence enhances	Interruption in internet supply
4.	Vivid images increased conception	Interruption in power supply
5.	Collaboration was enhanced	Hesitation to explore Moodle
6.	Communication skills improved	
7.	Exposure to different teaching methods/styles	
8.	Research skills enhanced	
9.	Enhanced reflection	
10.	Enhanced cognition	

From Table 1, it could be seen that students' positive opinions outweighed their challenges. Two of the challenges were beyond their means; interruption in power supply and internet supply. Though some were of the view that they were pessimistic about the success of the use of the e platform for the course of study initially, they could now appreciate its relevance. Some indicated that the e-learning mode helped them in acquiring more skills in the use of technology. All the students interviewed did not hide their excitement on the fact that the e – learning platform employed by the University actually had given them the opportunity to pursue their education.

Faculty were also interviewed and their observations are presented in Table 2.

Table 2

Faculty members' observations on building and using e-courses

	Faculty's positive opinions	Faculty's challenges
1.	New pedagogies learned	Time constraints for construction
2.	Increased writing skills	Interruption in power supply
3.	Easier administration of assessment	Interruption in internet supply
4.	Rapid feedback on assessments	Revision of learning theories required
5.	Easy tracking for system of students' progress	Balance between technical demands and pedagogical goals
6.	Enhanced communication skills	Loss of roles
7.	Exposure to different teaching methods	
8.	Enhanced research skills	
9.	Good platform for getting all students aboard	
10.	Possibility of worldwide teaching and learning	
11.	Observable intellectual growth among students	

From Table 2, it is observed that though Faculty admitted that building an e-course requires a lot of time its benefits are many. Faculty indicated that the construction of their courses using moodle enhanced their technological skills which eventually made their work a bit easier. This is because it made the administrations of students' assessment easier and feedback on assessment rapidly given to students. Though some faculty members indicated how challenging it was to construct the e courses, they were motivated to revise and learn new theories which helped in the construction of the e courses. They confirmed how relevant the integration of ICT is to their profession now,

considering how advanced teaching and learning had evolved with technology and to be able to reach their students wherever they find themselves (Hativa & Goodyear, 2002).

CONCLUSION

Use of digital educational technology improved among Faculty and students alike. Faculty's expertise to design and develop courses using instructional design principles were enhanced. They gained knowledge in andragogy and were able to plan for the working adult category of learners better. The choice of dedicated Faculty for training was one big factor that saw the completion of this study to the end. There was a paradigm shift in favour of student-centred learning. Students also developed research skills and better conceptual models of many scientific concepts.

RECOMMENDATIONS

Teachers are engines for change but will require time, support and space to use technology in innovative ways to change their classroom roles in a significant way. Research into perceptions of Faculty about new technologies in teaching and learning could provide useful ideas into changing academic roles and inform institutional policy on online education and staff development. It is therefore recommended that a balance between technological demands and pedagogical goals are created. This would help create a platform where all lecturers would think more on using technology to enhance instructions with the appropriate pedagogy in achieving the best results to satisfy the diversity of students. The internet connectivity of the University could be boosted to help reduce the challenge some of the students face in accessing course instructions online.

Again, the offer of remuneration could encourage more lecturers to avail themselves for training and use of online courses in institutions. In-depth course and student evaluation for improvement of content, structure and e-tivities is recommended.

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Appendix A: A sample of an ICT integration plan

Subject	
Duration	
Student time on task	
Teacher time on facilitation	
Course title and Topic	
Introduction	
Objectives	
Glossary for the course	
Technology requirement	
E-platforms and interpretation	
E-tools	
E-tivities	
Get-in-touch platform	
Rationale based on learning theory	
Strategies for implementation	
Assessment modes	
Feedback platform	

Appendix B: Semi-structured interview items for students

1. What are some of the positive gains that have been made by you with the introduction of the moodle or e-learning platform?
2. Did e-learning particularly affect your engagement with your course content?
3. How about its effect on your interaction with your teacher and colleagues?
4. How else did it impact on you as a distance learner?
5. What challenges did you face?

Appendix C: semi-structured interview items for Faculty

1. What are your opinions about the integration of ICT into UEW's curricula?
2. How easy was it to integrate the moodle into your course?
3. How easy/difficult was it to build and use the moodle? Appropriate construction qualification?
4. What comments would you make with respect to online assessments?

What other comments would you want to make about the construction and integration of ICT into UEW's curricula for distance learn

CONSTRUCTION AND VALIDATION OF MATHEMATICS ACHIEVEMENT MOTIVATION SCALE (MAMS) FOR SENIOR SECONDARY SCHOOL STUDENTS IN NIGERIA.

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ABSTRACT

In consideration of the importance of Mathematics and the desire to alleviate the rate of failure in the subject, this study set out to construct, establish the reliability and validity of the Mathematics Achievement Motivation Scale (MAMS), a self-report instrument was designed for use among senior secondary school students in Nigeria using a survey design. The respondents were randomly selected among Senior Secondary School two from the six geo-political zones in Nigeria. The reliability of the instrument was measured using Cronbach's Alpha which was reported to be 0.89, the reasonable factorability of the entire items of MAMS provided adequate basis for empirical examination using Kaiser-Meyer-Olkin (KMO) and Bartlett's Test of Sphericity which also confirmed high validity, KMO measure of sampling adequacy was .87, which was above the recommended value of .6 which was also significant at $X(1219) = 5.807, P < 0.05$. The extracted factors of the eigenvalue after the ratios contributed about 84.38% of factors required to explain the items. The communalities ranged between .651 and .859 in which each item showed the degree of common dimension of the items while the factors loading ranges between .666 and .877. The instrument correlated well with Mathematics Motivation Scale and Mathematics Achievement Test at 0.94 and 0.89 respectively which connotes high criterion and predictive validities. The fit model that was derived really substantiated the relationship among the variables. All the two hypotheses were test at 5% level of significant. The implementation of the use of this instrument in Nigerian secondary schools will drastically reduce the rate of failure in Mathematics because it is both diagnostic and prognostic. **Keywords:** Construction, Validation, Achievement Motivation.

Background to the Study

Learning involves a relatively durable change in behaviour especially in the classroom setting which can be used to measure learning outcomes (Ilogu, 2005). Mathematics is a core subject that requires that all students at both primary and secondary must have qualitative learning of it. Though, there are many variables which often influence these changes, these include learning environment, teachers' instructional methods, learning strategies, students' expectation of their own performance, expectation of parents, attitude towards learning, determination to succeed, achievement motivation among others. Among these variables, the motivational ability inherent in the individual is of paramount importance (Weiner, 1999). The achievement motivated students therefore seek achievement attainment of realistic but challenging goals and advancement in school subjects like Mathematics to enable them actualize their dreams in life.

Studies have shown that some people are highly motivated to succeed and expend considerable effort striving to excel. Examples of abound in history. For instance, there is like Kanu Nwankwo, a Nigerian footballer whose remarkable recovery from heart surgery was capped by being voted as African footballer of the year and the British Broadcasting Corporation's (BBC) African Footballer of the year (BBC Sport 1999 Jon Krakauer, an American whose laborious and grueling effort to reach the summit of Mount Everest in May 1996 despite the death of some other contestants, Sampson Davis, Rameck Hunt and George Jenkins also exemplified their desire to achieve and thereby strove to become doctors (Passer & Smith 2004). Although, most students are keenly aware of society's emphasis on achievement, whether in academics, sports, music or other fields through personal effort and abilities to attain their goals but individuals differ in their achievement motivation, those who are not as motivated to succeed do not work as hard to achieve.

Weiten (2007) asserts that achievement motivation involves the need to excel, especially in competition with others. He also opined that people who are relatively high in need for achievement work harder and more persistently than others. Studies have made several attempts to derive some instruments to measure achievement motivation. Examples of such instruments are: Achievement Motivation Scale (AMS) by Shah (1988), Mathematics Strategies for Learning Questionnaire (MSLQ) by Pintrich, Smith, Garcia and McKeachie, (1991), Achievement Motivation Profile (AMP) by Friedland, Mandel and Marcus (1996), and Student Motivation Achievement Learning Strategies Inventory (SMALSI) by Stroud & Reynolds (2005).

The need to measure achievement motivation in students cannot be overemphasized as this is a crucial exercise that needs adequate attention in order to enhance students' performance. A leadership-oriented teacher sets challenging goals, has high expectations of students, and displays confidence that students will assume responsibility and put forth extraordinary effort.

The process of measuring involves cogent variables such as: the characteristics of achievement motivated students, locus of control, efficacy, attitude of teachers, parental expectation and the expectation of the students. Omoegun (1995) identified the home and family background as a major cause of maladaptive behaviours, while discussing adolescent crises, hence the relevance of parental expectation as part of the home front variables measured in this research. The measurement of achievement motivation is relevant in many areas such as pre-assessing of abilities, monitoring learning process, diagnosing learning difficulties, supplying information to parents and selection of students for purposes like quiz, debate, sport, promotion, class type placement and awards, among others.

It has been the desire of both past and present Nigerian leaders to achieve sustainable development in the educational sector and policies are being continuously developed for implementation in this area. Many policies and programmes such as the National Policy on Education (NPE), emphasize the importance of Science, Technology, Engineering, and Mathematics Education (STEM) to the national development (Fafunwa, 2004). The 60:40 admission policies in which 60% of admission is in favour of Science and Information Technology (Effiom, 2008), the Vision 20-20 of the Millennium Development Goals (MDGs), the Seven Point Agenda of the late President Musa Yar'Adua, and Education for All (EFA) were all borne out of the same concern (Danmole, 2011).

Statement of the Problem

Mass failure in Mathematics in Nigerian schools in the past thirteen years as seen in Table 1 has been a source of concern to both government and stakeholders in the educational sector nationwide (WAEC, 2006). This research focuses attention on the experiences of students in Mathematics as a result of serious challenges it generates to research in this part of the world. As a way of suggesting a possible solution to this national problem which, particularly, is challenging the proficiency of Mathematics teachers in the educational sector, this research is intended to investigate the assertion that virtually all Nigerian students do not know that it takes goal-setting to succeed, and that it takes motivation to achieve every set goal.

Table 1: Percentage of Failure in Mathematics 2000 - 2012 across Nigeria

Year	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
% of failure	63.94	65.94	63.09	65.48	61.34	55.88	58.88	53.15	66.91	74.01	60.43	69.3	61.19

Source: WAEC Report 2012

In spite of the obvious importance of the measuring instrument of achievement motivation that is both diagnostic and prognostic for successful performance, the use of such measurement tools appear not to be inexistence in schools in Nigeria hence the need to construct and validate an instrument that can measure the achievement motivation of Senior Secondary Students especially in Mathematics. The construction and validation of the instrument could assist in exploring some of the major reasons behind mass failure in Mathematics which in return could assist in proffering a lasting solution to the problem through the early use of the measuring instrument.

Theoretical Framework

The theoretical framework for this study is based on:

1. **Achievement Motivation Theory (McClelland, 1955)**- McClelland's theory of achievement motivation states that a person's tendency to approach a task (effort) is a function of the strength of the achievement need, the strength of the need to avoid failure, the person's subjective belief about the possibility of success or failure, and value of the incentives associated with either success or failure.
2. **Theory of Motivation (Maslow, 1943)**- Maslow (1943) stated that people are motivated to achieve certain needs. When one need is fulfilled a person seeks to fulfil the next one, and so on
3. **Social Cognitive Theory (Bandura, 1997)** The Social-cognitive theory of Albert Bandura (2001), states that behaviour, environment, and person/cognitive factors are important in understanding personality.
4. **Expectancy Value Theory (Fishbein, 1975)**- Expectancy Value theory states that a person's behavior is determined by how much a goal is valued, and by the degree that the person expects to succeed.
5. **Realistic Mathematics Education Theory (Freudenthal, 1991)**- Realistic Mathematics Education (RME) theory of Freudenthal states that Mathematics must be connected to reality and human activity

Rationale for the Choice of Theories:

Theories representing major frameworks in achievement motivation have been developed over the decades. These theories also share a common social-cognitive heritage. Social-cognitive theories examine cognition and behaviour (e.g., attributions, expectancies, purposes, perceived needs, capacities, and vulnerabilities) that are contextually located and influenced. This does not imply that the place of achievement motivation instrument is explicit and central in each theory; however, when it comes to operationalizing the theories in achievement motivation research, there is often a clear relevance for the importance of Mathematics which cannot be over-emphasized and the environment in which the learner finds self. The drive that propels the student to achieve may be central on the value placed on mathematics by the students and the expectation of success is inevitable.

Purpose of Study

The purpose of this study is to specifically:

1. Construct and validate a Mathematics Achievement Motivation Scale using reliability and validity processes.
2. Establish the concurrent validity of Mathematics Achievement Motivation Scale (MAMS)
3. Investigate the possibility of Mathematics Achievement Motivation Scale (MAMS) predicting students' performance in Mathematics Achievement Test (MAT)

Research Hypotheses

The following stated hypotheses were tested during the study:

1. There is no significant internal consistency in the scores of students in Mathematics Achievement Motivation Scale (MAMS)
2. There is no significant coefficients of concurrent validity when Mathematics Achievement Motivation Scale (MAMS) is correlated with Mathematics Motivation Scale (MMS)
3. There is no significant predictive validity of the Mathematics Achievement Motivation Scale (MAMS) on Mathematics Achievement Test (MAT)

The Pilot Study Stages

Generation of items occurred in two steps: First, the content of the questionnaire was derived from face-to-face, semi-structured interviews performed by the researcher. The researcher considered the reports of the interview and having read about the characteristics of achievement motivated students was able to generate 84 items which was first given to the experts for content validity for necessary amendments prior the pilot testing. The pilot study took place at a senior secondary school in Ikorodu North Local Council, Lagos State which was not involved in the main study. Seventy five SS II respondents were randomly selected for this stage of pilot testing and the number comprised thirty three boys and forty two girls who were in the three class-types as defined in this study. To achieve as high a response rate as possible, the purpose of the questionnaire was explained in addition to the covering letter as opined by Dillman (2000) and item reduction and validation was done.

Research Design

The research design used in this study was an instrumentation design and it is subsumed in descriptive survey design. According to Kerlinger (1986), "survey design is the study of large and small population (universe) by selecting and studying samples chosen from the population to discover the relative incidence, distribution and interrelations of sociological and psychological variables".

Population of the study

The target population for this study comprised all Senior Secondary Two (SS II) students in public co- educational schools within the six Geo-Political zones of Nigeria.

Sample and Sampling Technique

The sample for the main study comprised 1,219 SS II students drawn from all the six geo-political zones of Nigeria. Multistage sampling method was adopted for this study.

Instrumentation

Three research instruments were used in this study for data collection:

1. The Mathematics Achievement Motivation Scale (MAMS) which was constructed by the researcher used a Likert-Scale response format.
2. The Mathematics Motivation Scale (MMS): was validated by Eric Zhi, Feng Liu and Chan Hung (1991). The scale was developed based on the theoretical framework of Social Cognitive Model of Motivation
3. The Mathematics Achievement Test (MAT) was constructed by the researcher who has been teaching Mathematics for over twenty years. The items were based on the first four domains of cognition; the content was done based on the table of specification and also through item analysis.

Analysis of Data and Presentation of Results

Each of the research hypotheses was tested in the o.

1. The factor analysis that was performed on the 84-item questionnaire after the administration of the instrument during the pilot study was very helpful in selection of the 30 items after matrix component was rotated. Also, the 30 items which have the highest component matrix values were selected for administration in the main study.
2. The iterative process of item selection resulted in a selected version which comprised 30 items which were administered to the larger population. The thirty-factor structure accounted for 80.97% of the total variance. The overall scalability was satisfactory, as all items showed a good fit to the Achievement Motivation variable within each dimension. The item analysis of the Mathematics Achievement Test (MAT) was also conducted at this level and all the items were found to be good for use.
3. The rotated component matrix, component, component scores coefficients, component score covariance matrix, component scores coefficient matrix were all done.

Table 2: The Coefficients of Reliability of the Pilot Study

	Chronbach Alpha	Chronbach Alpha Based on Standardised items	No of items	Extracted items
MAMS	.79	.81	84	30

Table 3: The ANOVA of the Pilot Study

	Sum of Squares	df	Mean Square	F	Sig
Between People	152.539	53	2.878		
Within People					
Between Items	985.249	80	11.816	19.64	.000
Residual	2549.591	4240	.601		
Total	3494.840	4320	.809		
Total	3647.378	4373	.834		
Grand Mean = 3.23					

The eigenvalue of the 84 items of MAMS reveals that after the thirty-factors the eigenvalue of the others 54 items were almost the same, the Factor Matrix also indicates that all the items positively correlated between each variable and each factor, the Rotated Factor Matrix revealed the loadings after the rotation and the purpose of factor extraction is to determine the appropriate number of factors to be extracted. All these provide an adequate basis for proceeding to an empirical examination of adequacy of factor analysis on both overall basis and for each variable. Also, the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy was .87 which was above the recommended value of .6 and Bartlett's test of Sphericity was significant ($\chi^2(1219) = 5.807, p < 0.05$).

Table 4: KMO & BARTLETT'S TEST OS SPHERICITY

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	.866
Bartlett's Test of Sphericity	Approx. Chi-Square
	5.807E3
	Df
	435
	Sig.
	.000

Table 5: Model Summary

Model	R	R ²	df1	Sig
1	.899 ^a	.808	27	.000
2	.898 ^b	.807	1	.460
3	.896 ^c	.804	1	.289
4	.893 ^d	.798	1	.162

The factor analysis enabled the study to structure the variables into its principal components. The factors' scores obtained from the Factor Analysis were used in fixing the regression model of the type

$$Y = (\beta_i, X_j, \epsilon) \text{ where } i = 0, 1, 2, 3, 4, \dots, n$$

$$j = 1, 2, 3, 4, \dots, n$$

β_0 is the intercept of the regression line

let X_j be the j th principal component derivable from the Factor Analysis, the model is

$$Y = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3 + \beta_4 x_4 + \dots + \beta_n x_n + \epsilon.$$

The study used the backward selection techniques to obtain the best model and Model 1 was found to be the best model. ($R^2=0.808$)

Model 1 was found to be the best model. ($R^2=0.808$) and it is significant as shown ANOVA

Testing of Hypotheses

Hypothesis 1: There is no significant internal consistency in the scores of students in Mathematics Achievement Motivation Scale (MAMS).

Table 7: Mean, Standard Deviation and Reliability of MAMS

Mean	Standard Deviation	Variance	No of Items	Cronbach Alpha
91.53	10.21	104.25	30	0.89

Table 7: shows the result of the statistical test of the reliability of Mathematics Achievement Motivation Scale (MAMS). It was found that the 30 items of the MAM scale has a Cronbach's alpha Reliability

Coefficient of 0.89 which was an improvement on the pilot study where the first eighty-four item instrument had .79 at .05 level of significance. This high coefficient value indicates that each dimension of MAMS has sufficient internal consistency.

Hypothesis 2

There is no significant coefficient of concurrent validity when Mathematics Achievement Motivation Scale (MAMS) is correlated with Mathematics Motivation Scale (MMS)

That is the scores of the participants in Mathematics Achievement Motivation (MAMS) will not sufficiently yield high coefficient of concurrent validity.

Table 8: Correlation between MAMS and MMS

Variables	N	Mean	SD	r cal	r _c
MAMS	1219	91.53	10.33	0.94	0.062
MMS	1219	91.51	10.29		

* Significant, $p < 0.05$

Table 8 shows MAMS mean(x) score of 91.53 which is higher than that of the MMS mean(x) score of 91.51. The result of the Pearson product moment correlation shows that the calculated r-value of 0.94 is greater than the critical r-value of 0.062 at .05 significance level. This led to the rejection of the null hypothesis and the alternative hypothesis was upheld. This means that scores of the participants in Mathematics Achievement Motivation (MAMS) significantly and sufficiently yielded high coefficient of concurrent validity with the scores in MMS. Also the MAMS which is the dependent variable while MMS, a validated instrument is the criterion correlate well at 0.94 implies that $R^2 = .88$, this also ascertain the higher validity of the MAMS.

Hypothesis 3: This was first computed before using SPSS to compute the means and standard deviations of both variables from the total scores. Hence, Pearson Product Moment Correlation (PPMC) method was used to determine whether a relationship existed between the two variables. The result of the analysis of the first part data is presented in Tables 9 and 10

Table 9: Relationship between MAMS and MAT Scores

Variables	Mean	Std. Deviation	N	r-cal	r _c
MAMS Score	61.53	10.33	1219		
				0.89	0.062
MAT Score	58.46	12.21	1219		

* Significant, $p < 0.05$

There is significant predictive validity of the MAMS on the MAT scores.

Table 10 Descriptive Statistics and Pearson Correlation Analysis

	MAMS	MMS	MAT
MAMS	1		
MMS	0.94**	1	
MAT	0.91**	0.89**	1

** . Correlation is significant at the 0.05 level.

Table 10 presents the result of the Pearson product moment correlation of the instruments which show that the r-calculated values of 0.94, 0.89, and 0.91 were obtained at 0.05 significance level; hence, the null hypothesis was rejected and the alternative hypothesis accepted. Also, it is observed that higher scores in achievement motivation would lead to increase of performance in Mathematics.

SUMMARY OF FINDINGS

The study was carried out to purposely construct and validate a measuring instrument that can measure the achievement motivation of Nigerian secondary school students in Mathematics. The following are the highlights of the findings based on the research hypotheses.

The scores of the participants in the Mathematics Achievement Motivation scale (MAMS) yielded significant and high internal coefficients with Cronbach's Alpha 0.89 at 0.05 significant levels. DeVellis (1991) posited that: ... an alpha below 0.60 is unacceptable; 0.60–0.65 undesirable, 0.65–0.70 minimally acceptable; 0.70–0.80, 0.81 – 0.90 very good and if much above, 0.90 excellent, It was discovered that having used six of the De Vellis (1991) guidelines among others, the instrument was found to be reliable and valid. The item discriminability which determines whether the students who have done well on

particular items have also done well on the instrument as a whole was good as this was evidenced in this study. This MAMS measures measured the degree to which the test items are homogenous, that is, measuring the same things, talents or skill (Mathematics) as asserted by Ilogu, 2005

This is a generic term associated with a number of multivariate statistical methods that model sets of manifest or observed variables in terms of linear functions of latent unobserved variables (Mulak, 1982). In other words, in factor analysis, dependent variables are manifest or observed variables linearly dependent on a set of latent unobserved independent variables (Ilogu, 2005). A measuring instrument can be reliable without being valid, but it cannot be valid unless it is first reliable (Ary, Jacobs & Sorensen 2010). The concurrent validity of Mathematics Achievement Motivation scale (MAMS) and Mathematics Motivation Scale (MMS) was significant. The scores of the participants in the MAMS yielded significant high coefficients of concurrent validity when compared with MMS. The correlation coefficient between the two instruments was 0.94 at 0.5 significant levels.

Validity, which is the development of sound evidence to demonstrate the test interpretation (of scores about the concept or construct that this MAMS has measured) matched the proposed use (AERA, APA, NCME, 1999). Therefore, the focus of validity emphasized *evidence* and *use* of this instrument rather than types (Thorndike, 1997). Validity is the degree to which all evidences point to the intended interpretation of test scores for the proposed purpose. Thus, a focus is on the consequences of using the scores from an instrument (Hubley & Zumbo, 1996; Messick, 1980). This is a generic term associated with a number of multivariate statistical methods that model sets of manifest or observed variables in terms of linear functions of latent unobserved variables (Mulaik, 1987).

The degree of correlation between the scores of the students in both MAMS and MAT confirmed the predictive validity of the MAMS instrument which implies that an instrument measuring the trait “achievement motivation” has shown to predict that high scorers work more independently, persist longer on problem-solving tasks, and do better in competitive situations than low scorers. This is corroborated the assertion made by Weiner in 1992 when he said that the achievement motivated students want and expect to succeed; when they fail, they redouble their efforts until they succeed and not surprisingly, students who are high in achievement motivation tend to succeed at school tasks (Stipek, 1993). Attitude of students towards correction confirmed Fodor and Carver, 2000 that achievement motivated people to handle negative feedback about task performance more effectively than others. Bank and Finlapson (1980) found that successful students were found to have significantly higher motivation for achievement than the unsuccessful students. Johnson (1996); Broussard and Garrison (2004); Skaalvik and Skaalvik (2004); Skaalvik and Skaalvik (2006) and Sandra (2002) in their respective studies discovered significant relationship between achievement performance and motivation.

With respect to motivation, a behavioural theorist might focus on the degree to which students learn to do schoolwork to obtain desired outcomes (Bandura, 1986; Weielkiewicz, 1995 of: Sprintall 2006). Kushman, Sieber and Harold (2000) opine that high motivation and engagement in learning have consistently been linked to reduced dropout rates and increased levels of students’ success. Also high achieving individuals monitor their own learning and systematically evaluate their progress towards their goals more than low-achieving individuals do (Zimmerman & Schunk, 2001). In 2007, Ilogu also asserted that teachers should emphasize achievement motivation for students in any learning situation because he discovered that students with high achievement motivation perform better than those that are not really motivated to achieve.

The strong relationship between expectations and academic achievement has been well established both theoretically and empirically (Johnson, Livingston, Schwartz, and Slate, 2000; Marzano, 2003). Summarily, an instrument measuring the trait “achievement motivation” has shown to predict that high scorers work more independently, persist longer on problem-solving tasks, and do better in competitive situations than low scorers.

CONCLUSION

In consideration of the summary, discussions and the implications of the findings and the following conclusions can be drawn:

1. The Mathematics Achievement Motivation Scale (MAMS) is reliable
2. The concurrent and predictive validity of Mathematics Achievement Motivation Scale (MAMS) was established

The main purpose of the study which was to construct and validate an assessment instrument to enhance achievement scores in Mathematics so as to contribute to the effort being made through the Nigeria Policy on Education in order to attain the national goal has been achieved. The need for assessment instrument seems global as Robert A. Garden in his “Development of TIMSS Performance Assessment Tasks” asserted the need to focus on educational policies, practices, and outcomes in order to enhance mathematics and science learning within and across systems of education by Beaton, Mullis, Martin, Gonzalez, Kelly, & Smith, 1996 and this also corroborated by this study.

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CRITICAL REFLECTION AS CATALYST TO UNLOCK THE POWER OF EXPERIENTIAL LEARNING

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ABSTRACT

Experiential learning is widely accepted as a teaching methodology which aids the transfer of learning. It is however also a fact that the transfer of learning remains elusive. The aim of the research study was to explore the nature and extent of reflective practices by students on a Coaching Master's programme at a South African University. The specific focus was to determine the perceived value of these reflective practices on the learning journey of the student. The data sources were semi-structured interviews as well as the summative reflective essays of students who formed part of the programme. A phenomenological interpretive approach was used to analyse the data and to extract the meaning of students as it pertains to the stated research objectives. When asked to report on the perceived value of reflection, students reported numerous programme related areas which subsume both emotional and practical skill aspects. It was found that reflection heightened the conscious awareness related to a wide variety of students' coaching experiences, thereby enabling students to contemplate new coaching behaviours. The reported behaviour changes covered a wide array of coaching related aspects which range from improved pre-coaching activities, improved coaching practice as well as improvements in coaching results for clients. These findings highlight the transformational influence of reflective practice when it is embedded in an experiential learning programme. The lessons learnt from this study done at tertiary level is of particular importance to the teaching fraternity because it can, if implemented as part of the schooling system or teacher training, become a key tool for transformative learning.

INTRODUCTION

Transfer of learning at higher education institutions could improve significantly if the structure of experiential learning programmes as it relates to reflective practice, is foregrounded. Evidence to suggest that the challenge of the effective transfer of vast amounts of information can be improved, could potentially influence both learning as well as teaching practices and it may also influence the way educational programmes are structured. It could further have far-reaching implications for the learning experience of students as well as for the labour market which receives the students after completion of their studies.

The challenge that institutions of higher learning face relating to the transfer of huge amount of programme related learning, is made explicit by empirical evidence which suggests that transfer of learning is not ordinarily achieved (Baldwin & Ford, 1988) and furthermore illuminated by the fact that this learning transfer deteriorates over time (Wexley & Latham, 2002). This decay of learning over time is random and it cannot be predicted precisely what data will be lost but some loss will inevitably occur (Hastings & Pekelney, 1982). It seems evident therefore that there are distinctive demands on experiential learning programmes to succeed in its quest to transfer learning effectively.

This article focuses on the perceived value of reflective practice on the learning journey of the M Phil Management Coaching student at the Business School of the University of Stellenbosch in the Republic of South Africa. The research further set out to determine how reflective practices, as an important component of the programme structure, contributed to the translation of learnt concepts into context-relevant behaviour changes for M Phil students. Boaden (2006) affirms that the learning programme structure indeed makes a difference, for not only programme participants but also their organisations and the clients that they serve.

The findings of this study strengthened the M Phil programme foundation because it confirmed the elements of reflective practices that support the transfer of learning and it reported on possible improvements where these practices were found to be less than optimal. This research will also be useful to academic staff who are developing experiential higher education learning programmes nationally and internationally.

The M Phil Management Coaching programme at the University of Stellenbosch aims to impart both a broad range of theoretical underpinnings of coaching as well as the practical skill to conduct coaching. The main adult-learning approach is experiential learning, which is supplemented by work-based learning and evidence-based practice. Reflective practice is integrated into all aspects of the programme by way of providing students with suggested areas to reflect on and this is done in the form of a reflective journal. The suggested areas for student reflection covers the different programme areas which subsume, *inter alia*, reflection on the student's own personal learning style, reflection on the development of the student's personal coaching framework, reflection on learning days, supervision-groups and skill practices with the key focus being "how these inform the student's development as coach". Students are prepared for reflective practice by teaching and also through formative assessment feedback on assignments and face-to-face feedback during group-supervision-sessions.

Rouiller and Goldstein (1993) states that since the introduction of Kirkpatrick's four levels of evaluation, the evaluation of the transfer of learning has included examination of the characteristics of learning programmes. It was therefore sensible to assess the perceived contribution of reflective practice in the quest to determine its perceived contribution to the transfer of learning on this programme.

CONCEPTUAL FRAMEWORK

Experiential learning as relevant learning theory

Experiential learning theory was chosen as the relevant theory and the experiential learning theory of Kolb was chosen as the specific theory for this research project. The description of the programme structure above, indicated that experiential learning theory forms the foundation of the M Phil Management Coaching programme. The distinctive feature of experiential learning according to Andresen, Boud and Cohen (1995), is that the experience of the learner occupies the central place in teaching and learning. They further argue that the ultimate aim of experiential learning includes the learners' own assumption of something that is personally significant to them. While it is acknowledged that the views of experiential learning differs, the definition of McGill and Warner Weil (1989) offers the following widely accepted explanation:

"The process whereby people individually and in association with others, engage in direct encounter and then purposefully reflect upon, validate, transform, give personal meaning to and seek to integrate their different ways of knowing. Experiential learning therefore enables the discovery of possibilities that may not be evident from direct experience alone".

Experiential learning cycle of Kolb

The experiential learning theory of Kolb (1984) is applicable, not only because it forms an important part of the M Phil Management Coaching programme but also because Kolb is regarded as one of the spiritual Fathers of reflection (Streumer & Kho, 2006). The experiential learning model of Kolb is described as a very useful model for coaching because all clients show up for coaching with their own concrete experiences. The coach and the client then engage in observation and reflection, thinking and theorising based on the client's observation, resulting in a decision regarding what new thinking, feeling and behaviour would be appropriate in the specific situation under discussion (Stout Rostron, 2012).

Kolb's experiential learning model is presented below (Figure 1) as a four-stage model in which action is the basis for reflection. The reflections are assimilated into findings, from which application of new behaviours can be inferred. Each of the four stages are equally important in contributing to the learning process. According to Kolb (1973) the student needs to display four different kinds of abilities to be effective in the experiential learning process. These abilities subsume the ability of the student to involve him/herself fully, openly and without bias in new experiences (action), the ability to reflect and observe these experiences from many different perspectives (reflection), the ability of the learner to create concepts that integrate these observations into theories which are logically sound (findings) as well as the ability to use these theories for decision making and problem solving (application).

Figure 1 below, depicts the four stages in Kolb's experiential learning model and illustrates the location of reflection in the experiential learning cycle.

Figure 1: The experiential learning cycle of Kolb

Source: Adapted from Kolb, 1984

Given the fact that this study focuses on the perceived value of reflection, it is evident that the concept of reflective practice and its theoretical aspects should be clarified.

Reflective practice

According to Hickson (2011), the concept of reflection has been around since ancient times and there is renewed interest in reflective practice as a way of understanding and learning from experiences. Reflective learning is defined as the process of internally examining and exploring an issue of concern, triggered by an experience, which creates and clarifies meaning in terms of self, and which results in a changed conceptual perspective (Boyd & Fales, 1983).

There is a need to distinguish between important theoretical aspects of reflection, which emerges from the further exploration of its definition. Bourner (2003) differentiates between reflective learning, which is subjective and the process of reflection, which is not. He argues that the core of the reflective learning process is interrogating what happened with searching questions, which can be identified separately from the content of the reflection. Reflective learning is therefore not what happens to a student but what the student does with what has happened. The assessment of reflection should therefore not only focus on the content of reflection but on the actions of the student based on the experience. This separation corresponds with the experiential learning theory of Kolb that separates action from reflection. It is therefore important to discuss a structure for the assessment of reflection.

Assessment of reflective practice

While there is a renewed interest in reflective practice during experiential learning, there is a need to map reflective statements against reflection models in order to aid the assessment and analysis of reflective endeavours (McKinney & Sen, 2012). The challenge which remains pertinent however is that the method for collecting and assessing student reflections is difficult (Dalal, Hakel, Sliter & Kirkendall, 2012) and therefore accurately linking depth and its consequences remain illusive. The reflective work of students should firstly be classified into unreflective thinking which comprises of bringing thoughts into conscious awareness and critical thinking which requires asking questions and responding to these searching questions (Bourner, 2003).

The selected model to code reflective writing of students

The model proposed by Kember, Jones, Loke, Mckay, Sinclair, Tse, Webb, Wong, Wong and Yeung (1999) assumes that if a curriculum is designed to encourage reflective thinking, there is a need to determine whether students reflect as well as the depth of their reflective thinking. In their quest to find a suitable model, Kember *et al.* (1999) came to the conclusion that there does not appear to be any widely accepted procedure for determining whether reflective practice takes place or for assessing the level of reflective thinking from written reflective journals. The thrust for the development of their own model was that it should focus upon reflective thinking, as it appears in students' reflective journals, and that it should assess reflection directly. The coding scheme developed by Kember *et al.* (1999) is based on the work of Mezirow (1991). This model is depicted in Figure 2 below and it sub-divides reflective thinking into non-reflective action, which comprises the shaded lower levels while the upper levels are regarded as reflective. Categories on the same horizontal level are regarded as of equivalent value at the level of reflective thinking.

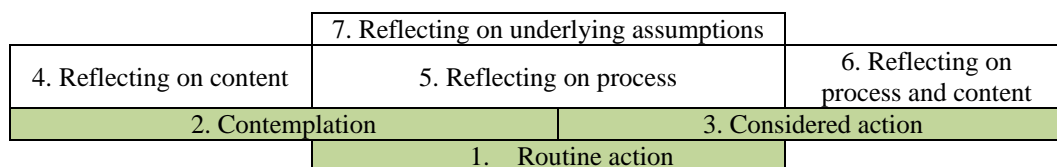


Figure 2: Coding categories for reflective thinking

Source: Kember, Jones, Loke, Mckay, Sinclair, Tse, Webb, Wong, Wong and Yeung (1999)

Three types of non-reflective action are distinguished, namely habitual action, thoughtful action and introspection. Habitual action is action that is performed with little conscious thought such as driving a motor vehicle. Action that makes use of existing knowledge without assessing that knowledge results in learning which remains within pre-existing perspectives which is classified as thoughtful action. Introspection lies in the affective domain and refers to feelings or thoughts about ourselves. Although it can encompass the identification of feelings towards others such as being attracted to others, it does not entail us deciding how or why these feelings developed and therefore it remains at the level of recognition of the feelings (Kember *et al.*, 1999).

While content- and process reflection is being interpreted as being equivalent in level, these two types of reflection are distinguishable in terms of the subject matter of the reflection. Content reflection deals with “what” while process reflection deals with “how”. The definitions by Mezirow provide a clear distinction between the two concepts. Content reflection is defined as reflection on what we perceive, think, feel or act upon while process reflection examine how one performs the functions of perceiving, thinking, feeling or acting as well as assess the efficiency in their performance (Mezirow, 1991). Content reflection may therefore refer to the features, which are noticed when encountering a new concept, while process reflection may entail asking the question: “What procedure am I following when performing a certain skill?” The model in Figure 3 above also makes provision for a combination of these two modes of reflective thinking on the same horizontal level. If content reflection and process reflection is combined, it would therefore still be categorised on the same level.

The highest level of reflective thinking in this model is named premise reflection. Mezirow (1991) states that premise reflection involves the individual becoming aware of why they perceive, think, feel or act the way they do. The underlying, often unconscious, set of beliefs and values that were assimilated also have to be identified and critically reviewed. Mezirow (1997) states that our frames of reference are the structures of assumptions through which we understand our experiences. Mezirow (1991) points out that perspective transformation is difficult as it involves an interruption during which a problem becomes redefined so that action may be redirected. Premise reflection is therefore seen as a higher level of reflection because it transforms the student’s meaning framework, which includes beliefs and assumptions, by opening the possibility of perspective transformation.

RESEARCH AIM, OBJECTIVES, METHODOLOGY AND DATA COLLECTION

This study aimed to answer the research question: “What is the perceived contribution of reflective practices to the learning journey of the student on the M Phil programme?” The research objectives, which guided the research, included:

- To determine the depth of students’ reflections;
- To determine the perceived value which students derived from reflective practices

The study followed a phenomenological, interpretive approach. Seamark and Lings (2004) indicate that interpretive phenomenological analysis concerns itself with the subject’s experience of the topic being researched and therefore does not attempt to produce an objective statement. It rather tries to disentangle the meaning from people’s stories through interpretive engagement with data collected through interviews and transcripts.

The aim of the research was to explore the depth and perceived value of reflective practices by students on the M Phil programme and to determine the perceived impact of these practices on the learning journey of the student. The scientific inquiry into the students’ experience focused on data gathered through semi-structured interviews as well as data contained in the summative reflective essays of students. The collection of data was followed by coding and categorising the qualitative data before analysing it and drawing conclusions.

The phenomenological position required that social science should take into consideration that people are constantly updating and changing their interpretation of the world (Babbie & Mouton, 2011). This aspect was particularly relevant due to the focus of the research on the learning journey of the student over a period of one year. The summative reflective essays of students covered their learning journeys during the programme and allowed them to record their learning journeys as these unfolded.

A purposive sample of six students were drawn from the group of twenty-four students who started their M Phil programme and these students were interviewed with a semi-structured interview. The interviews were recorded and transcribed. The summative reflective essays of the sampled students were also analysed as supplemental evidence to attain the research objectives. The fact that two data collection methods were used, enabled triangulation, which strengthened the study. Consent was obtained from each student before the data gathering process commenced. Confidentiality was ensured by not revealing any information about a specific student in the study but by only reporting on themes that emerged from the data. The research data was also stored securely and only the researcher had access to it.

The data analysis commenced after the data collection process was completed. The data analysis comprised coding of the data according to themes. The coding process was assisted by the elements of reflective practice identified as part of the relevant theories that were described in the conceptual framework above. The data was transformed and reduced through an inductive approach. A relevant qualitative software package, namely

Atlas.ti was utilised for the initial stages of the data analysis process. The *Atlas.ti* software package supports qualitative data analysis by electronically enabling different levels of coding and displays this information per coding level. Further detailed qualitative data analysis was completed manually. The research findings were based on the evidence in the qualitative data and recommendations were based on the findings.

FINDINGS AND DISCUSSION

The findings below are based on the analysis of gathered data. Emerging themes and relevant quotes from the gathered data are presented per research objective. The findings and discussion is presented below the qualitative data samples per theme. The reference “*Int*” before every data quotation refers to interviewee while the reference “*RE*” before each data quotation refers to a reflective essay. Both interviewees and reflective essays of students were data sources for the study.

Findings related to research objective 1: To determine the depth of students’ reflections.

Theme 1: Rigour in reflections

The following are examples of the responses:

Int 1: “I used the ICF competencies and feedback provided by peers and academics after assignments, to add rigour to my reflections.”

Int 3: “I embraced feedback from supervision because it gave me a chance to reflect better. The other thing that I embraced, was that I had something called OCS (observed coaching sessions). I paid a coach to watch me coach and then give me feedback. I also asked my clients to give me feedback after each session, which they gave me in writing. So for me there was so much that come out of that, so I used a lot of that learning in my reflection.”

The observations confirmed that there were various sources of feedback which students gathered at different times during the programme. This feedback from lecturers, peers and coaching supervisors added rigour to students’ reflections. Rigour in reflection enables evidence based, deep reflection that supports the transformation in students’ behaviours. These behaviour changes are essential for the formative journey of the coaching student. This finding indicates that the common challenge during reflection, namely that students’ reflections are based on their own unverified opinions, with the result that they have no new knowledge on which to base an attempt to reconstruct ideas or practice (Ryan, 2013), have been circumvented.

Theme 2: Focus of reflections

The following are examples of the responses:

RE 1: “... I personally feel I did not do too well as a coach. The model that I had did not suit her personality. Instead of applying the Time to Think-methodology, personal construct methodology would have worked better. Issues that came to the surface were how ... handled the situation, the loss of esteem regarding the job, and the positive spinoff of having more time in the new job to focus on other activities.”

RE 2: “The second day of supervision took place on 16 June. The seven-eyed model of Hawkins was used to facilitate the process by group members each asking a question based on the case you presented. This assisted to focus you on the issue you grappled with and effectively reach a solution in this regard. I presented a case where I coached ... and I felt the lines between coaching and managing became blurred. The group helped me to establish that in this instance, I should have just acted as the manager and referred him to someone else for coaching assistance. It helped me realize that as a coach you should not coach your own staff, as you will naturally tend to take on a managing role. I have subsequently referred him and another staff member in my own team to someone else.”

Evidence was found of both content and process reflection. Kember et al. (1999), define critically reflecting students as those demonstrating insight through analysis and an evaluation of the situation. The reflections of students contained critical analysis of their own behaviour and therefore met the specified criteria. This confirms that students have moved beyond non-critical reflection into the space of critical reflection. This provides the basis for the highest level of critical reflective practice, namely premise reflection, during which a change in the underlying belief, value or assumption is consciously made. Another insight gained was that students were adequately prepared and supported to implement reflection on the programme.

Theme 3: Evidence of premise reflections

Two of the six sampled students provided evidence of premise reflection. The quote below is an example of a premise reflection.

RE 4: *“I have learnt that I did not have to be responsible for the health, safety and well-being of others. I am able to see more clearly how coming from being a rescuer was not serving anyone – not my clients, and definitely not myself. ... The shift for me is that I have been able to step back and give myself more space to actually play out my own life. But more profoundly is the fact that I have been able to step back and give my clients more space to do the same with their own lives. I am able to hold them gently but also in a way that supports them in being more accountable for their own learning and development. I understand that my clients need to move through all the phases of learning in order to truly grow into an enlightened version of themselves and extended way of being. ... What I am more conscious of is that I am able to release things that do not belong to me. I am getting better at letting-go and by implication I am therefore taking on much less. I am able to be more present and complete in my own life, making me more available and able to provide more supportive coaching conversations. In stepping back from: ‘I need to help people to protect them from harm and save them from pain’ I am actually able to empower them more and in the process help myself to grow too.”*

Kember *et al.* (1999), mentions that for writing to be coded as premise reflection, there needs to be evidence of a significant change of perspective and it is unlikely that it would occur frequently in the journals of students. The fact that only two of the six students provided evidence of premise reflection, support this notion. Mezirow (1991) explains that conventional wisdom and deep-seated assumptions are hard to change partly because they become so deeply embedded that we become unaware that these are assumptions or even that these assumptions exist. It seems premise reflection does occur with a lower frequency than content and process reflection. It is also evident that premise reflection requires the student to ‘dig deep’ in order to uncover the underlying beliefs, values and assumptions. The transformational nature of premise reflection becomes clear because of the disruption in the existing behaviour pattern.

Findings related to research objective 2: Perceived value of the reflection*Theme 1: Value of reflection as it relates to heightened awareness*

Students reported a wide variety of benefits of reflection in terms of heightened awareness as evident from the following quotes:

Int 5: *“In class people became emotional. At work people also become emotional. I would go out, give them ten minutes and then resume the conversation. Nancy Kline said that if a person becomes emotional it is time for a breakthrough in terms of your thinking. I had to go through that. Why do I get the urge to run away when people become emotional? I wanted people to be rational and clinical and did not understand why they became emotional. Reflection assisted me to change, to grow. I became aware of my own emotions and my own thinking.”*

Int 5: *“I became aware that me being in a hurry had an effect on my client. I could see how my questioning them and trying to hurry them along was affecting them. I realised that this was not a recipe to get from one point to another. This was the beauty of it. My clients said they looked forward to the sessions. Sometimes it takes four or five sessions for clients to open up. I mastered attentive listening and the pace.”*

RE 1: *“With the time limit of twenty five minutes per session given, one makes the mistake to setting a goal in order to start with the session, so that there could be an outcome. This leads to no purpose to the discussion and talking around in circles. Time pressure and being results orientated cause one to want to rush in and start the coaching session. Goal clarification needs to be done, and it is possible that the initial goal stated by the client is only a symptom of an underlying core challenge. Goal clarification is very important. I will rather take longer to clarify the goal, than to dive into unpacking the situation.”*

RE 6: *“I did realise that for a client to ‘expose’ himself to a coach, there needs to be trust and trust building starts off with contracting, knowledge of each other, ethics adhered to, professionalism in the intervention and a few other factors.”*

The areas where students gained a deeper level of awareness were, among others:

- Insights into own values, beliefs and assumptions.
- The effect of a less than optimal state of mind during coaching on students.
- The effect that clients' emotions had on their coaching.
- How their pace as coaches affected the client.
- The importance of clear goal setting defined at the onset of a coaching session and the consequences if this was not done.
- Understanding and implementing professional coaching boundaries.
- The lack of foundational knowledge which was subsequently translated into a personal development area.

From the summary of the distilled learnings of students above, it is concluded that reflection created an in-depth awareness of what happened during coaching conversations. The fact that reflection revealed additional information regarding coaching practice, categorises it as a valuable observation tool which brings aspects of coaching practice into awareness which might have gone unnoticed. This is also indicative of the fact that the student is actively engaging in the second step of the experiential learning cycle of Kolb (1984), namely reflection, because the reflections are focused and it produces a tangible output. The fact that these developmental aspects were observed provides a vital link in the experiential learning cycle, which, if it was not observed would leave a substantial void in the development of the student coach.

Theme 2: *Value of reflection as it relates to resulting behaviour changes*

Some of the quotations from students are provided below:

RE 4: *"I have become more learner-centred and have embraced the opportunity to allow the client to take centre stage."*

RE 4: *"I have found that since my concerted effort to slow down, and to manage pace and time differently, I feel that I am getting more done - in the same time period. How I listen and the quality of attention I give my clients is something that I am working hard to improve. I find that when I manage silences better I definitely create space for both of us to think."*

RE 5: *"I now respect people and their spaces more. There are many roads to Rome and your route determines how you get there. It is of no consequence if you reach it in the same amount of time as me. If you want to change your destination I have to respect it as what you need at the time."*

This section provided evidence of transformed behaviour as a result of reflective practice over a wide range coaching components, such as more focused contracting, student coaches who clearly states their own values clear at the onset of coaching, making time to become quiet and focusing their attention on the client before coaching, focusing more on the pace of the client and creating more time to think during coaching sessions. The abovementioned results become all the more extraordinary when it is considered that doing reflection and implementing the intended actions are not automatically forthcoming (Boud, Keogh & Walker, 1998; McAlpine *et al.*, 1999). These new behaviours came about as a result of the students' active participation in the experiential learning process, of which reflection formed and integral part.

Alignment between underlying beliefs and values, people's actions and their words seem to hold the key to lasting behavioural change. Bradt and Vonnegut (2009) states that for behaviour change to be sustainable, people's being (their core values, assumptions, beliefs, and intentions), their actions and their words need to correspond. When people's words and actions match but are not aligned with underlying assumptions and beliefs, those people's words and actions will change over time.

Student coaches could therefore be able to predict the extent to which their behaviour change is sustainable by reflecting on the alignment between their actions and words on the one hand and their underlying beliefs and assumptions on the other. This technique is therefore an invaluable diagnostic tool for students' own professional development and also has value to assess whether behaviour change in coaching clients is likely to be sustainable.

CONCLUSION

This study presented an overview of how reflective practice was integrated into all aspects of the learning programme structure at tertiary level and how students were prepared to effectively implement reflection. The research finding suggested that students were adequately prepared to reflect and that students exhibited rigour in

their reflections. A probe of the depth of students' reflective practices revealed that these reflections did indeed satisfy the criteria for critical reflection and that, in a minority of cases it contained evidence of premise reflection. It emanated that students however needed more support to engage in premise reflection.

The enquiry into the reported value of reflection revealed increased awareness of a wide array of situational aspects and processes occurring within the individual mind or the self such as beliefs. It was concluded that reflection brought these aspects into conscious awareness, thereby enabling a more objective basis for reflections. The reported behaviour changes in coaching students covered a broad range of coaching areas from improved contracting, more focus during coaching sessions to positive behaviour changes in their clients as a result of their own changed behaviour. These behaviour changes came about as a result of the student moving beyond reflection to application, thereby purposefully completing the experiential cycle.

The reported behaviour changes also extended to coaching clients which evidences the attainment of the ultimate goal of coaching, namely the enhancement of performance and well-being of coaching clients. It also serves as confirmation that the transfer of learning occurred. There is however recognition of other intervening variables, apart from reflection, which might have contributed to the reported behaviour changes in both the coaching students as well as coaching clients.

One further fact which emerged is that the reflective essays of students which thematically summarised their reflections contained evidence of the transfer of learning. The normal arduous, lengthy and costly process of data collection to establish learning impact assessment is therefore eliminated, because the data is generated as part of the assessment requirements of the programme.

The prominent finding of this study is that critical reflection, if purposefully implemented into a learning programme, serves as the catalyst which unlocks the power of experiential learning. Critical reflection is therefore a skill that teachers and learners should acquire and develop to fully harness the power of the experiential learning process. Further research on a criterion-based assessment framework to guide the development and assessment of critical reflection skills will assist its practical implementation as part of experiential learning programmes.

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CULTIVATING SUCCESSFUL PROFESSIONAL LEARNING STRATEGIES FOR TEACHER FACILITATORS

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ABSTRACT

School districts frequently employ train-the-trainer techniques to deliver professional development. This method yields mediocre results as the needs and qualifications of these teacher facilitators are not always taken into consideration. This paper reports on an in-progress action research case study on effective professional development strategies that enable and support teacher facilitators in a Kindergarten through High School (K-12) School District. The core ideas associated with professional development design themes, coaching support for teachers, and performance improvement methodology undergird this study. Attending to the performance needs of these facilitators by providing professional development on adult learning theory best practices, allowing for autonomy of roles to support the professional learning activities in their schools, and providing coaching partnerships that promote collaboration among the facilitator, school administration, and district support have emerged as initial themes from the first two cycles of this action research study.

DEĞERLERİN OLUŞUM SÜRECİNDE METACOMMUNICATION

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İnsanın doğası gereği, yaşamını tek başına sürdürmede önemli sınırlılıkları bulunmaktadır. Bu durum insanların bir arada yaşaması olgusunu doğurmuştur. Sosyalleşme sürecinin en temel aracı olarak iletişimin, duygu ve düşüncelerin insan toplulukları arasında sözel veya bedensel hareketler kullanılarak değiş tokuş edilmesini sağlayan toplumsal etkileşim süreci olarak tanımlanması mümkündür. Kişiler ne kadar sağlıklı, iyi bir iletişim içinde, kendinin ve diğer insanların istek ve ihtiyaçlarının farkında olurlarsa, toplumun da o kadar sağlıklı ve istenilir düzeyde olacağını düşünmek yanlış olmayacaktır. Bu noktada kişilerarası iletişim süreçlerindeki boyutların daha iyi anlaşılabilmesi için ilişkilerde iletişimin içerik ve ilişki boyutları üzerine bir değerlendirme yapılma ihtiyacı doğmaktadır. Çalışmada; kişilerarasında sağlıklı kişilerarası iletişim sürecini gerçekleştirebilmeleri ve başarımları için kişilerin iletişim süreçlerinde ilişki ve içerik boyutları araştırılarak bazı yol gösterici genel kurallar üzerinde yoğunlaşmıştır. Çalışmada öncelikle, iletişim süreci ile tanımlarına ve iletişimin temel özelliklerine yer verilmiştir. İletişim ile ilgili açıklamaların ardından iletişimi etkileyen faktörler tanımlanmış ve sağlıklı iletişimi belirleyen ölçütler incelenmiştir. Daha sonra, kişilerarası iletişim çalışmalarına ilişkin alan yazından elde edilen verilerden söz edilmiştir. Bu doğrultuda, içerik ve ilişki boyutlarının ilişkilerde kişilerarası iletişimdeki rolü incelenmiştir. Bu araştırma, genel bir değerlendirmeye toplumlar için, daha özele inerek toplumun çekirdeğini oluşturan bireyler için özel bir önem taşımaktadır.

DELETE FALSE DICHOTOMIES, ENTER CONJUGATE QUALITIES

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ABSTRACT

Instructional design like many other human endeavors is an assembly of decisions. Ultimately decision making is making choices from among the options whether given or created. This article analyses paired dynamic quality attributes of systems as applied to instructional design. To simplify the topic by examples take unity-variety: Unity is responsible for organizational identity. It may end up with uniformity if the designer omits variety. Stability-flexibility is another concurrent bipolar quality. Stability is necessary for maintenance while flexibility is essential for adaptability. Third but not the last example is integration-differentiation: Sub-components are integrated among themselves to constitute the whole. However, every element must have a unique function to be differentiated within the whole. Conjugate qualities are not falsifying alternatives but complementary attributes essential for effectiveness and efficiency of the instructional design and practice. Conjugate qualities do not comprise opposing options but two domains of opportunities to be utilized in optimal proportions. Other examples of conjugate qualities will be extracted from theory and practice relevant to the ICTs in education.

Keywords: *Instructional design, quality attribute, false dichotomy, conjugate quality, bi-polar quality*

INTRODUCTION

In every domain of life one confronts with dilemma within which a choice has to be made. Instructional design is not an exception. There are so many attributes expected of instructional designs implicitly or explicitly. Most of these attributes depend on the creativity of the designer. Since creativity requires originality, fluency, and flexibility these attributes will eventually turn out to be case specific, intuitive, and untaught artifacts. For instance the designer may promote a certain philosophy, content, method, gadget, so and so forth. Also most of the time, these traits compete with each other. One may give emphasis on the humanitarian aspect of the instructional process rather than the technological innovation involved. While making their decisions designers must be aware of the options available. The purpose of this paper is to review the implications of notorious false dichotomies, and to discuss how to consolidate them as conjugate qualities in instructional design. The “applicability of assertions” will be tested by the real or hypothetical, but definitely plausible examples.

TRUE AND FALSE DICHOTOMIES

There many instances in any process in which one comes to cross-roads and has to make forced choices: Stop or go ahead, turn left or right, say yes or no, see if what has been done right or wrong. If the options are mutually exclusive the case is a true dichotomy. No one can eat the cake, and keep it too. There are so many false dichotomies in every domain of life but of course all dichotomies are not false (Joerges, 1997).

The main concern of this paper is to focus on false dichotomies. Verbal, logical and/or scientific arguments must converge upon the examples. First of all a distinction must be made between the two proximal concepts: Contrary and contradictory. Consider the pair of adjectives useful-useless and useful-harmful. The former pair is an example for contrary attributes and the latter one is for the contradictory. One must avoid confusing the two. If we consider only the opposite polarities we may tend to judge impulsively in a hurry ignoring the intermediate values. We must also distinguish between the positions of the decision makers. If the decision maker is a consumer then s/he has to make a real binary choice to buy or not to buy the knife. There is no mid-point between Yes, or No. The option “Perhaps” is embedded within the “No”. This is a true dichotomy, a binary choice. Designers however have to consider almost all of the intermediate values between two opposite polarities whether contrary or contradictory. Every quality is a matter of degree for the designer. We cannot just say that the computers are absolutely useful or useless in education. We cannot expect the same functions either from the teacher or from the technology. There are always intermediate points between the bipolar qualities or binary options. In cases of conflicts relying on only two sides always jeopardizes the effectiveness or at least the efficiency of the design. Because approval of false dichotomies will distort the reasoning, set limits to imagination, restrict the vision, and encourage superstitious beliefs.

Dichotomies discourage imagination and an awareness of complexity and encourage reductionism and simplistic thinking. (Govier, 2007)

Designers do not have to think in binary terms. They are capable of recognizing the concepts like continuum, range, degree, variety, and enrichment. Systems theory deserves a special notification because it enables the designers to understand, describe, and prescribe the organized complexities. This is not to reject the true dichotomies which are formed by the contrary assertions. Designers are bound to dichotomous apparatus like ‘right/wrong’, ‘correct/incorrect’, ‘true/false’ and ‘yes/no’ at least to express their final decision.

But on the other hand there are so many false dichotomies which emerge in many instances and in a variety of contexts. Practicality and parsimony cannot be an excuse to reduce a compound attribute to simplify into a bipolar choice, because design is not a simple task. High level cognitive, affective and psycho-motor skills require extremely intricate learning system designs. It would be self-refuting to undermine the role of designer's mind to design an instructional system to construct wisdom in the student's mind. Luckily homo-sapiens is capable of coping with complexity (Runco, 2014).

FALSE DICHOTOMIES RELEVANT TO INSTRUCTIONAL SYSTEMS

The major assumption of the approach is that all educational practices are unavoidably open systems by their very nature. Open systems metaphor is not an alternative methodology by which one can design better, more effective or more efficient educational practices. It is a paradigm which enables the designer to describe, explain, predict and prescribe every kind of educational project which may be good or bad for some reason. It is a value-free model by which one can analyze a liberal or totalitarian school of education. No one has to comply with any of those myriad of learning theories to develop a science course, neither to deny them. The least effective and the most efficient educational practices can be explored with the help of systems concepts. All instructional systems, whether we like them or not, work towards accessing or recoil from them, have structural elements, and functional processes. The word "system" in the term "educational system" is not used arbitrarily. On the contrary, it is a technical concept that is both descriptive and explanatory. False dichotomies will be exemplified in terms of the vocabulary used in open systems thinking (Katz&Kahn, 1966).

There are mainly two sets of optional items in the design procedure: First set of items encompasses the structural components (e.g. objectives, physical settings, social settings, instructional methods, and educational media) of the learning system. Some false dichotomies relevant to instructional components are listed in Table 1.

Table 1. False dichotomies relevant to instructional components

System Components	False Dichotomies
Input	Nature-Nurture Competitive-Ubiquitous
Output	Practical-Theoretical Values-Skills
Competency Aspects of Objectives:	Intellectual-Practical Vocational-General Convergent-Divergent
Subject Matter	Content based-Competency based Disciplinary-Interdisciplinary Spiral-Core (Curricular paradigm)
Physical Settings	Large-Small Special Purpose-Multi Purpose
Social Settings	Mixed-Fixed Homogeneous-Heterogeneous Democratic-Autocratic
Methods/Strategies/Approaches	Expository-Inquiry Teacher Centered-Student centered Inductive-Deductive
Educational Media	Distant-Face to face Hardware-Software Techno-mania-Technophobia
Teacher Paradigms	Born-Made Authority-Coach Specialist-Generalist
Assessment &Evaluation	Norm referenced-Criterion No grades-Tough grades Centralized-Decentralized

DYNAMIC SYSTEM CHARACTERISTICS AS CONJUGATE QUALITIES

A system consists of actions, not only of objects. The dynamics that are to ensure learning in educational systems ought to be seen from the viewpoint of mutual relations and dependencies. The optimal level of these characteristics reflects the value, and soundness of the school system. A list of major dynamic system attributes will be reminded below. These are bipolar qualities which should not alternate but complement each other. False dichotomy is the case when the designer overemphasizes one of these qualities over the other. To the extent that the designer achieves their optimal proportions these bipolar qualities conjugate each other i.e. join together.

1. Integration-Differentiation: The fact that each component of a system has its own unique function is an indicator of differentiation. Integration is what holds each of the separate elements together thus providing coherence. Five sense organs have their own unique capabilities but perfectly coordinated in a human body. Same is true for sub-systems like circulatory, respiratory and digestion sub-systems in living organisms. Resistances, capacitors, inductances etc. are neither redundant nor independent elements in an electrical circuitry designed for a prescribed output. Departments in a faculty have their own unique objectives and functions but they share some values and principles to contribute to some multifold goals. Differentiation is essential for effectiveness, integration supports efficiency. Tendency to exaggerate differentiation results with breakdown of the system. Drift to complete integration ends up with monolithic, solid, static structures. Table 2 is an attempt to display how to make “integration-differentiation” coupling a conjugate quality, and how to avoid making it a false dichotomy.

Table 2. Examples for the uses and misuses of “integration-differentiation” in an instructional system

Instructional sub-components	Differentiation: Unique characteristics/Functions
Home	Preparatory and/or remedial readings
Classroom	Group discussions, presentations
Laboratory	Individually prescribed experiments
Textbook	Storage and retrieval of visual information
Smart-Board	Expository displays by a presenter (teacher)
Smartphone	Quick and instant access to information in any setting at any time
Student	Individual learner, target for educational objectives, reference for evaluation
Class	Relatively stable unit of social network among students
Family (Parents)	Investor, observer, stake holder, partner
Staff	Administrators, counsellors,
Teacher	The one authorized to control all of the above
Lecture	Easy, quick and organized presentation of advance organizers
Drill &Practice	Active appropriate student involvement on the learning tasks
Instructional sub-components	Integration: Complementary characteristics/Reinforcements
Home-School	Continuity of settings, home-work, extra time-on-task
Classroom-Laboratory	Unification of theory and practice
Textbook-Computer	Permanence and transience, speed and accuracy, content and process
Lab-Computer	Real and virtual, observation and recording, authenticity and simulations
Teacher-Parents	Feedback, guidance, cooperation, collaboration, coordination
Instructional sub-components	False dichotomy: Omission of differentiation (overemphasized integration)
Teacher-Slide projector	Teacher reads the text on the screen
Using computer as a video	A demonstrative movie on the computer without any interactivity
Lecture-Textbook	Teacher gives a chalk-talk on the subject matter verbatim from the textbook
Homework-Exam	Identical or similar tasks both in the exam and in the homework
Instructional sub-components	False dichotomy: Omission of integration (exaggerated differentiation)
Teacher-Slide projector	Teacher tells an entirely different story irrelevant to the graphics on the screen
Using computer as a video	Two different movies without any thematic relevancy
Lecture-Textbook	Teacher gives a ceremonial talk independent of reading assignment given before
Homework-Exam	Including difficult exam questions that doesn't compare the drill assignment

Within an educational system, there are different settings, ranging from home to school, and factories to oceans. There is a variety of equipment from computer to blackboard. (Mergel, 1998; Oakman, 1995) Educational systems accommodate array of people from students and teachers to administrators and parents. There are various processes like exams, lessons, and recreational activities. In order for all these diverse elements to reach their varied objectives, they have to get integrated with one another. Instances of integration include homework (integrating home with school), counseling (integrating individuals with society), and the content of lessons with instructional equipment. Teachers being forced to become guidance counselors, encouraging guidance counselors to evaluate teachers, wasting the computers as electronic page turners, the turning of television into an illustrated radio or a cartoon book, the use of laboratories as classrooms, and delivering lessons in lecture format are all examples that are contrary to the principle of differentiation. On the

other hand, irreconcilable discord between teachers and guidance counselors, discriminatory-preferential treatment by administrators, video films having nothing to do with the subject matter contained in textbooks, and computer software that cannot be used with available computer hardware are all examples of failure in integration. The extreme points of integration and differentiation are redundancy and chaos respectively.

2. Flexibility-Stability: Every system tends towards both maintenance and expansion. To be able to adapt to environmental changes, a system must not only be flexible to some extent, but also robust enough to withstand negative impacts. Nevertheless, if it is too flexible, the system slackens and disintegrates. Similarly, excessive resilience impedes growth and development. Car tires are manufactured to be flexible enough to adjust to the ground but also solid enough to resist the external forces. Skyscrapers are built on stable foundations but bendable columns against wind and earthquake loadings. So are the long steel bridges. Muscles are relatively flexible elements responsible for movement. Bones are relatively solid to maintain equilibrium. Homeostasis combines stability and flexibility in organisms in a single word. The literature on educational design and practice suggest that sound principles ought to be used instead of rigid rules by the administrators and evaluators. Even in testing procedures strict rules are gradually being replaced by more adaptive means and methods. Table 3 is a list of intuitive examples to delineate flexibility and stability in bi-polarity.

Table 3. Stable or flexible modes of some selected instructional sub-components

Instructional sub-components	Stable	Flexible
Educational objectives	Set by ministry	Arranged by the teacher
Seating arrangement in a class	Fixed	Mixed
Physical setting for interaction	Rectangular classroom	Fat L classroom
Mode of interaction	U-Shaped seating	Roaming around
Peer partnership in a lab	Permanent	Rotational
Syllabus	Strict	Tentative
Teaching methods	Lecture	Discussion
Information storage	Textbook	Computer
Information retrieval	Sequential	Random access
Reinforcement schedule	Fixed	Intermittent
Homework assignments	Common for all	Voluntary projects
Evaluation	Standardized	Contract based
Student Involvement	Teacher Directed	Student initiated

3. Equifinality-Multifinality: The state where a system has the necessary means and processes to attain any goal or objective is called equifinality, while having the means and processes to achieve more than one goal or objective is called multifinality. In other words if the design allows more than paths to achieve the same objective that's what is meant by equifinality. Equifinality is a measure of the system's effectiveness. Multifinality, on the other hand, is a measure of its productivity, because the same path yields two or more outcomes. Table 4 displays two hypothetical paths of instructional system configurations. Path A illustrates multifinality. First objective (Obj 1) can be attained at by two different configurations (Path A and Path B). The equifinality approximates to single-finality when overstated. Multifinality ends up with random occurrence when inflated. Boosting one option at the expense of the other is another description of false dichotomy.

Table 4. Description of equifinality-multifinality in an instructional as a quality conjugate

Instructional system configuration	Inputs	Physical Settings	Social Settings	Educational Media	Teaching Methods	Teacher Functions	Objectives
Path A	Differential Readiness	Home	Individual study	Textbook	Lecture	Scaffolder	Obj 1
		Lab	Collaborative experience	Apparatus	Simulation	Reflective practitioner	Obj 2
Path B	Equal Readiness	Home	Individual study	Textbook	Lecture	Transmitter	Obj 1
		Lab	Parent support	Apparatus	SQRR	Catalyzer	

4. Permanence-Transience: Every instructional unit takes time: An instant or a life-time! Measurement of time in instructional design is as essential as it is in engineering. Some components (events or things) have to be relatively permanent for the maintenance of the system. Food is relatively permanent input than the air inhaled by the living organisms. So is the gasoline for a car compared to paint. Open doors are more transient elements than the floors in the buildings. Motion sensitive sliding doors can be good example how to optimize

permanence and transience. Biorhythms are optimal cycles of events in living organisms. Objects and events in an instructional design have to be optimized within the permanence-transience interval. Physical settings are relatively more permanent than the social settings. Walls and furniture stay there overnight but groups come together and disperse relatively within shorter periods of time. Lessons are relatively more permanent than the breaks in the school. If the school bell rings permanently the classes degenerate. It has to be transient enough just to inform the beginning and the end of classes and the breaks.

The length of the period of storage and retrieval of data varies for different types of data. Student attendance must be recorded everyday. The period for quizzes may be left arbitrary to the teachers. Registration records may be updated annually or semester wise. Course grades will be kept forever. Mail addresses can be changed on demand. School performance on central entrance examinations will be appended each year. Some data can be used at the beginning of the year to see the students' level of academic performance. Assessment scores of classes can also be analyzed at the end of the term to see how each class compares to other class in the school.

The extreme permanency will result dullness and boredom. A long ceremonial talk by the dean on the commencement day is a very straightforward example. A sharp transience is practically the same with the immediate removal or the absence of the component. What is written on white-board or the visual slide on the screen cannot be shown forever but they shouldn't be removed immediately. To a great extent educational media is responsible for the permanence and transience of information storage and retrieval. Textbooks store huge amount of visual information in print almost permanently. Permanence in digital media is shorter compared to paper media for two reasons: First the magnetic materials (disks, flash-cards etc.) are more vulnerable to some conditions like heat, humidity, mechanical influences etc. Secondly the digital technology requires an intermediate technology for retrieval of information card readers, disk drivers etc. These intermediate technologies are developing so fast that they are becoming obsolete within short periods of time. Tablet PCs for instance cannot replay DVDs. Most of the floppy disks are just nostalgic collections objects. These are the subordinate reasons why designers have to consider permanence-transience as conjugate qualities.

SOME OTHER CONJUGATE QUALITIES AND THEIR BI-POLAR EXTREMITIES

Instructional designers can discover or invent other quality attributes with their conjugates. Table 5 exhibits some other desirable attributes expected of instructional systems with their extremities. These bi-polar extremes are the warnings to system designers against falsifying dichotomies.

Table 5. Some Extreme System Characteristics and their Optimal Boundaries as Conjugate Qualities

Extremities	Conjugate quality attributes within optimal boundaries	Extremities
Stiffness	Integration : Differentiation	Isolation
Rigidity	Stability : Flexibility	Volatility
Singularity	Equifinality : Multifinality	Turmoil
Adhesiveness	Permanence : Transience	Absence
Unresponsiveness	Persistence : Adaptation	Surrender
Inefficiency	Effectiveness : Efficiency	Ineffectiveness
Tight-fistedness	Parsimony : Prosperity	Waste
Dullness	Predictability : Originality	Illusory
Uniformity	Unity : Variety	Complexity
Doctrinaire	Demonstrative : Interactive	Demagogical
Archaic	Classical : Modern	Marginal
Gloomy	Realistic : Imaginative	Fictitious

The problem is many transferred authorities give advice to instructional designers showing one or the other polarity of conjugate qualities without considering its conjugate and ignoring the intermediate values. No one dares to suggest "Rigidity", "Turmoil", or "Inefficiency". The point is if the designers exaggerate "Flexibility" then they may come up with "Volatile" means and methods. The question is whether "the abolishment of exams" is an imaginative proposal or not. Does the curriculum enrichment mean buying expensive toys for kindergarten children? Can the resistance to every change in the environment be called "persistence" in educational practice? If the teacher does not have another effective substitute for power-point presentation then "equifinality" ceases to exist in case of power failure.

QUANTITY QUALIFIES QUALITY

Conceptualizing the dichotomy (using separate and distinct categories of qualities) is not consistent with a coherent philosophy of science. What are given as qualities, are just prescriptive constructs. They are just the beginning and the end points. Quantitative methodologies ought to follow to enable the designers as operational as possible. It should be noted here that false dichotomization between qualitative and quantitative research has to be avoided.

The debate between qualitative and quantitative researchers is based upon the differences in assumptions about what reality is and whether or not it is measurable. The debate further rests on differences of opinion about how we can best understand what we "know," whether through objective or subjective methods (Newman & Benz, 1998).

According to Newman and Benz (1998) the differences between qualitative and quantitative research can be analyzed with respect to four criteria:

1. Is the objective reality sought through facts or is it socially constructed?
2. Is the purpose to look for causes or for understanding?
3. Is the research experimental / correlational or a form of ethnography?
4. Is the researcher's role is detached or immersed in the setting?

QUALITY ATTRIBUTES FOR QUANTIFICATION OF QUALITY

1. Access-Security: Data must be easily accessible to data consumers. An up-to-date medium is the Internet. There will be precautions to maintain the data security. There will be different access levels for administrators, teachers, parents and students. When a participant logs in data-storage system must produce a record for each entry (Mandinach, 2006).

2. Comprehensibility-Complexity: Data Comprehensibility deals with the understandability of the information. how understandable the functioning of the tool is; how clear the presentation of the data are; and how easy it is to make reasonable inferences from the information presented. The more understandable, the more likely the tool will be used. Some parts may be open to misinterpretation and ambiguity even by trained specialists. The multiple forms of graphic representations are intended to make the data readily understandable to different users. Too much emphasis on understandability ends up with oversimplicity.

3. Data for validity vs. validity of data: In any assessment program a precise definition of what is to be measured and what method of measuring it is the most appropriate are the most crucial issues (Bond, 2004; Guilford, 1965; Hambleton, 1978). Irrelevant assumptions, inconsistent definitions, incorrect evidence can easily be taken for granted all along the assessment program. Item format chosen, values accepted, omitted options, and logical comparisons to prior practice must be reviewed by the expert eye (Rust & Golombok, 2009). Data quality includes but is not limited to validity. For instance classical test theory is internally inconsistent in the quantitative reduction of test data. As the inter-subject variability decreases, the reliability coefficient may take minus values which contradict the conceptual and logical definitions of reliability. Also, reliability is indefinite when the variance diminishes. The desirable magnitude of the item difficulty index suggested by classical theory to optimize the reliability, contradicts the conceptual framework of validity. The performance of a student is defined as the composite of the truth and the error. The shortcomings of the theory stem from the assumption that the error varies randomly within the observed scores. Randomness could be taken as a measure of the error, instead of assuming that the error is random (Shannon and Weaver; 1949; McGill, 1954). Chance success can be eliminated without any extra irrelevant procedure for corrections. New quantifiers can be developed to describe the quality characteristics of a test items, and also inter-item and item-test relationships. No confirmatory factor analysis can correct the semantic inadequacies or distractors embedded in a statement of test item. Can there be linear structural model to correlate the intensity of stimuli with the amount of retention of response reinforced intermittently? The intensity of applause in a ceremonial talk as measured in decibels can hardly be used to interpret the meaning of a joke in its cultural context. Data for the construct validation of a test is mostly a qualitative adventure by its very nature. But the agreement among expert opinion can easily be expressed with a simple proportion.

4. Timeliness-Spontaneity: Data must be current and timely to be used for decision making. The delay between data collection and the decision making restrains the benefits of evaluations. Especially the time interval between the input and the feedback data is very crucial for educational assessments. On the other hand there are so many not premeditated learning experiences in an educational setting. Therefore the assessment system must be capable of managing spontaneous data which may arise from unplanned instructional endeavors. In classical testing programs steps are sequential and simultaneous for everyone. All of the students start responding to

questions at the same time and drop their pencils when the bell rings. Such a timely, preplanned testing is not necessarily the best practice for today. On-line, web-based testing offers subjects self planned assessment schedule.

5. Measurement Equivalence vs. Discriminating Measures: It is difficult to compare observed mean scores in raw data without having measurement equivalence. A test or a subtest is said to have measurement equivalence across populations if subjects with identical scores on the construct have the same raw score at the item level, or at the subtest level. Since subjects differ with respect to the construct measured by items discriminating functioning of the item is widespread in test data. In free-format items, each item could evoke a myriad of different responses. In analyzing such data, it may be more practical to categorize these responses into a limited number of categories that can be rank ordered in order of attainment or intensity (Raju, Laffitte, Byrne, 2002).

6. Quantitative vs qualitative: In the past the quantitative research has been recognized as indispensable support for educational experiments and explorations. Recently however, a greater portion of educational research is qualitative in nature (Callingham and Bond, 2006).

Why do qualitative approaches appear to dominate this field?

Is it because that the usual quantitative methods are unable to discover the important qualitative aspects educational events?

Are there some qualities for which the principles of the metric system can be ignored?

Can any quantitative research methodology in education not sustain sensitivity to those significant qualitative aspects of educational research?

How can the general, applicable, communicable findings of quantitative research be left aside?

Some researchers maintain the view that any aspect of the human condition should not be described along a single dimensional scale (Medley, 2000). But the weight of a newborn baby or the height of a basketball player yield some information which cannot be overlooked. They may be insufficient all by themselves for the complete description of physical qualities. Is there a perfect qualitative description of the physical well being? Multiattribute measurement is essential but measurement of each attribute may be useful for some decision. In some cases a single index can be developed to summarize a set of attributes as single quantifier. Human Development Index or ICTs Index are commonplace examples among the many others. Obesity index for instance combines weight and height together and uses that score as a summary of physical and physiological well being. There may be some practical concerns in such classifications. But the purposes for research projects are the same in essence. All scientific studies tend to produce a better descriptions, explanations and predictions about the phenomena within their scope. In qualitative research data are collected in free format styles such as interviews, essays, and observations. There may be no prior methodological reservation for the next coming stages. The researcher discovers patterns and assigns codes to these patterns during the data collection (Callingham and Bond, 2006).

These codes are nothing but nominal scale values some of which may comprise a new variable as data accumulates in progress. Formally this is not an endless process. There will be a point in time at which no new patterns appear. Then the researcher stops and reduces data into information. No matter how verbal or pictorial the codes are there will be implicit quantifiers in descriptions, comparisons etc.

UNIFYING THE QUALITATIVE QUANTITATIVE ATTRIBUTES

Data qualities summarized above ought to be seen from viewpoint of mutual relations and dependencies. The optimal level of these bipolar characteristics reflects the value and soundness of the assessment system. One can find some other unified bipolar features of a data system. A myriad of assessment procedures must be analyzed to discover the bipolarities relevant to a particular research which researchers run into. Bipolarities are discussed with reference to conventional assessment experiences. Some commonplace examples are given for clarification. The focus was on the research concept. The more bipolarities considered, the more complex and unclear the discussion will be. But this is the way to develop our conceptual skills. We must reflect upon at least two sides to every attribute one may come across. Such a reflection requires both theoretical and logical analysis. Theoretical analysis delineates natural world of beings while the logical reasoning deliberates the means and the ends of practical conduct. This is another bipolarity which requires reunion between two forms of reason. One should stay away from self-centered preferences to discriminate between theoretical and logical analysis. Because the overexpansion of either into the realm of the other. This is something which is consistent with the interconnectedness of structural elements. No single attribute can be subordinated to another. We cannot emphasize any quality at the expense of another. Bipolarity suggests that any attribute is composed of two challenging qualities in agreement. A compliant relationship between the two poles as such exhibit a variety within a unity. But bipolarity in open systems is not as simple as unity of opposites. The contradiction does not take place between the competing qualities, but between their extremities. In fact the extremities of desirable attributes of open systems do not qualify but rather turn down the system. In other words whenever a system assumes an extreme polarity of some attribute ceases to exist as a coherent system. Such a logical process has

been referred as dialectics. Dialectics dates back to Plato. Hegel elaborated the dialectical thought. In lay conversation dialectics is immediately coupled with Marx and Marxist materialism. In the discussion here there are some differences between the optimization for compliance between the bipolar system attributes, and conventional Hegelian or Marxist dialectical approach. First of all bipolar attributes do not alternate but complement each other. Bipolar attributes are not antagonistic contradictions such as war or peace, life or death, yes or no etc. are at least virtually separable. For instance there are assessments based on measurement excellence, and yet there are some others which purify discrimination. The proposed approach here does not disqualify any quality, but rather attempts to unify them. In other words the bipolar attributes of systems can be identified and defined as independent parameters, but their coordinated standings is more explanatory and prescriptive as well. The fission of Only the extremities of bipolar attributes are antagonistic. The educational researcher's role is to discover the optimal values of bipolar characteristics for a given level of effectiveness and efficiency. Educational research designer is supposed to mediate the bipolar options to bring about a desirable composition. Second difference between the classical dialectical synthesis and the search for compliance is that in the former thesis and antithesis are not separable, but in latter the attributes bipolar attributes is possible but their fusion is more desirable.

CONCLUSIONS

All instructional components and sub-components are designed expecting a combination of bipolar quality constructs. The notion of the quality continuum, as opposed to a dichotomy, must be explored and emphasized on scientific grounds.

The dichotomies in educational program conceptualizations in higher education do not help us. I am speaking of the dichotomies between thinking and feeling, between theory and application, between content and process, and between learning from books and lectures on the one hand and learning from experience on the other. These dichotomies tend to obscure what takes place in learning that is deeply meaningful to the student as a person. (...) most of us know professors who never seemed to be aware of the false dichotomies in education (Koile, 1966, p. 60.)

False dichotomies mentioned above challenge to the intellectual value of instructional design. The truth is in many circumstances vibrate within the binaries. Instructional designers must recognize that they have polytomous options. Persistent opposition between "either/or" is a source of personal anxiety and a professional barrier for them. Their fluency will be escalated by "and/also" paradigm.

Due to the variety and abundance of quality attributes, designers might be confused, and be scared making mistakes (Haddad & Draxler, 2002; Sloep, Hummel, Manderweld, 2005). What they should do is to choose quality attributes and optimize polarities. The more qualities they choose and the more optimizations they make, the more they will exploit quality potentials of instructional design. Both of the quality couplings cannot be maximized simultaneously. There will be gap between designers and practitioners. Practitioners and even the students as consumers need training so that they can contribute critical and creative feedback about the design and its implementation. Teamwork is crucial. Academicians in the educational sciences are already sharing their views with one another. In every country the indispensability of educational investment has been accepted. Universities and non-governmental organizations may develop some prototype unit designs and hunt for funds to complete the series.

Collaborations with each other, across disciplines, and with practitioners and participants are ways to work together. This approach can enhance the quality of our work lives as well as our own leisure lives (Henderson, 2000).

At the end quality level of an assessment can be assessed by the level of reasoning it provides. These levels are parallel to Stevens scales of measurement.

Mathematical Level: Complete absence of dimension or construct being measured can be defined. Equidistant or uniform units of measurement exists. Thus proportional or differential comparisons are meaningful. Systematic and constant errors are eliminated, and random error can be tolerated by repetitive measurements. Numerical data is isomorph with the numbers. Mathematical formulas can be developed. All parametric statistics can be performed.

Analytical Level: Absolute absence of construct concerned is uncertain. Thus proportional reasoning is missing. There exists an arbitrary zero point which pertains all observations therefore constant error is not systematic and also does not mix with random error. Appropriate use of uniform units is possible. Comparisons can be made in terms of arithmetic differences. Parametric statistics can be performed if their distribution assumptions hold.

Exploratory Level: Observations are expressed in terms of ranks or ratings. Comparisons depend on ordinal positions of the subjects based on objective criteria. Non-parametric statistical inferences can be drawn. Assertions involve implicit quantifiers.

Classificatory Level: Objective discrimination with respect to a predetermined criterion; subjective selective engagement with context, often in supportive formats, appropriate recognition of conclusions but without verification, frequency distributions, intuitive taxonomies, colloquial or informal engagement with context.

Ipsative Level: Idiosyncratic engagement with context, tautological use of terminology, and demonstrating basic mathematical skills rhetorically, rough probabilistic estimations.

This hierarchical categorization is just an example of classificatory level reasoning. It is just another way of saying that the quality of reasoning ascends parallel to the increase in the amount of quantity involved. One may quite rightly challenge its designation and exemplary content, because it is a hermeneutic approach to quality versus quantity dilemma (Morgan, 2014).

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DEMOCRACY EDUCATION BY USING SPORT

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Aim: Aim of this study is to make ointments of the situation which habit of being supporters and ignoring the opposite side without understanding is gradually increasing in today's world and Turkey. The situation which if you are different, you will be unwanted, is becoming a contagious disease that rapidly passes through animals such as bird flu and pig flu.

Method.: The population of the research consists of 1000 5th grade students who studies in Cagaloglu, Istanbul-Turkey (<http://fatih.meb.gov.tr>, Ağustos 2015) 2014-2015 teaching season. The sample population, which includes 95 5th grade students who studies in IELEV Schools was drawn via accidental sampling method. Data was obtained from the sample by the measurement scales of students' perception as a supporters and analyzed by the methods of t-test, ANOVA, chi-square test with SPSS 21.0 program.

Findings: Students' perceptions of being supporters, which are While 48% of male students say that they will support any decision of the team, 10% of female students defend this view. Also, While 97% of male students do not have any views on why they keep their teams, 100% of female students do not know why.

Conclusion: In the 2014-2015 academic year, we developed a model to improve democratic living and thinking habit and it consists of some steps which are;

- 1- Fan Survey
- 2- Sport square debate-1 (advocacy of own teams)
- 3- Video shows about the clubs
- 4- Sports field debate-2 (Advocacy of opposite teams)
- 5- The comparison of sport and supporter perceptions in Turkey and Europe
- 6- How should or should sports in Turkey and the world in 2030 be?
- 7- Now to rebuild the supporters psychology of 2030
- 8- Fan Survey-2 After the above studies have been done, our students have had the greatest change in their understanding of what is different and why they ask the question in their decisions.

Moreover, The theory of functionalism (Functionalist) evaluates the contribution of sport to society order and stability. This model provided to contribute to the formation of a fair, honest and conscious youth with the spirit of struggle, awareness of the richness of the differences. What is more, It reached to prevent behaviors contrary to the violence and fair-play spirit of society and also to become a behavior of asking why the question in decision making processes.

Keywords: Sensibility, respect other, decide

DESIGNING AN INTELLIGENT ALGORITHM VISUALIZATION ENVIRONMENT

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Learning the concepts of data structure and algorithms to novices is not easy. Algorithm visualization (AV) technology graphically illustrates logical steps and physical changes of algorithms under study, which are arguably the most critical or difficult for the students to grasp. Since its advent in the late 1970s, various AV systems have been proposed. They include dynamic features, based on animation techniques, aiming at illustrating the behavior of basic algorithms and fostering students' experimentation and algorithmic knowledge construction. Despite this, it has not caught on in mainstream computer science education.

Based on the concept of learning analytics, this paper presents the design of an intelligent web-based dynamic algorithm visualization environment for supporting online students' learning about **complex concepts in data structures and algorithms**. We will introduce the design of the architecture, user interface, and database for collecting student behaviors. And then we discuss how to apply machine learning techniques to detect the engagement of learners with the data collected, identify critical or difficult points for the students, and determine the strategies for improving the environment and effectiveness. Finally, we will present some technical considerations for platform and tool selection in implementing an algorithm visualization environment.

DESIGNING AND DEVELOPING A WEB APPLICATION FOR LEARNING GEOGRAPHY

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“When taught effectively, the study of geography can fascinate and inspire people” (IGU, 2016, p.4)

ABSTRACT

This work proposes a didactic approach that is applied to new technological dimensions which, thanks to their multimedia and interactive aspects, impinge on the mechanisms through which cognitive processes organize coding and decoding of information. In other words, virtual environments act as dynamic spaces of action in which cognitive functions, students' communicative and social actions are catalysed. As a result, this modifies the conceptual maps through a 'click'. Hence, learning is seen as a product of the acquired understanding through a conscious interaction developed during sharing and cooperation activities. Through a neogeographic approach, the objective of this study is the creation of a didactic Web App called Geomoon that, besides its educational potential, can promote learning. A particular characteristic of the project is that it can be functional to a playful learning methodology through activities that allow meaningful learning using virtual visualization-localisation of maps of specific geographical areas.

INTRODUCTION

Following the radical change in mapping practices due to the emergence of the Geographic Information System (GIS) since the 80s, the new approaches to mobile and web mapping and to the use of cartography and geo-referencing have challenged the traditional approaches of knowledge acquisition and teaching. The backdrop of these developments is a series of innovation technologies and the evolution of social practice which have been coined as *geoweb* and *neogeography* within the field of geography (Papadimitriou, 2010; Borruso, 2013a). Neogeography provides a link between geography and digital art and the vectors of this link are the geospatial technologies as well as information and communication technology. The new possibilities connected to Web 2.0 have profoundly changed the role of the user in terms of the generation of contents and interaction (Höhnle et al., 2013).

It is now acknowledged that mobile devices are ever more present in students' lives and geography utilizes smart phones, computers and tablets as a means to collect research data for the production of spatial knowledge, to access web pages that are based on contents related to information about specific localities, and potentially to view guided virtual routes (Arribas-Bel, 2014). Such mobile devices act as physical intermediaries that the students can be trained to use to record, analyze and interpret the world around them. Recent research in geography has explored the creative ways this pervasive tendency of the use of mobile devices in everyday life in the city. Kelley defines these as “implicit pervasive technologies” (Kelley, 2014, p. 837). More than ever before, teachers have the technological devices, even if it is simply one work station, to motivate and involve the students in their learning and, above all, apply new strategies to stimulate the teaching of geography.

The new media bring about significant changes in the way learning takes place. There is a wide gap between how people normally learn and the way in which new generations approach information and knowledge. Digital natives easily adapt themselves to new technological devices and technology because they are not afraid to make mistakes, knowing that they can always return to the previous state (Şahin & Bulut Serin, 2016). In addition, considering the capacity of the brain to continuously remold itself according to the stimuli it receives, it can be

hypothesized that the brains of those interacting with technology can be restructured as a consequence of this interaction (Prensky, 2009). In line with this hypothesis some aspects can be highlighted with regards to lesson planning using interactive multimedia: the ability to elaborate in parallel, which entails a more diversified form of concentration; image-illustrating texts; the interaction with the computer generates more active situations than reading which is more passive. It takes on a non-linear organization of information and a problem-solving approach (Prensky, 2001). The key to virtual learning is not much technology itself, but the interaction between the students and the former. Situated learning (Lave & Wenger, 1991) and cooperative learning (Johnson & Johnson, 1999), inspired by a constructivist paradigm, indicate, in fact, a teaching model in which knowledge is co-constructed by the teachers and the students in the same context in which it is applied and is given shape through the interaction among people, instruments, languages and technology.

The construction of content knowledge in geography, thanks to technology, is not understood as uni-directional, from the teacher to the world, but is enriched by relational knowledge (Banini, 2017). This approach is able to represent complex relationships that characterize the reality of such complexity, both on a qualitative and quantitative level. Furthermore, it can be analyzed and delivered in an educational context (Trimarchi, 2012) since such knowledge is produced not only by being concretely in a location, interacting with social actors and economic operators, but also by navigating on interactive sites, blogs and social networks of various local entities or other citizens. Nevertheless, in a formal educational context, the new media are still underrepresented, but very lately the current Minister of Education (Italy) has declared that a ministerial commission will be created to design a set of guidelines on the use of smart phones in class to increase awareness of how these can be utilized effectively in line with educational needs (Zunino, 2017).

CONCEPTUAL DESIGN OF THE WEB-APP

The Geographical and cartographical contents are strongly present in the Web 2.0 and the function of some devices have a lot of potential to improve the teaching of geography and help the students to develop their capabilities (Borruso, 2013b). Google Maps, Google Earth, GeoWeb 2.0, WikiGIS, Youtube, the Social Network and the whole online universe give life to static content knowledge. As Pesaresi outlines “enthusiastic attitudes have been observed among many children, firstly when recognizing the spaces they are familiar with and secondly when exploring places they wish to visit and which they can navigate through in the meantime” (Pesaresi, 2011, p.137). The same nature of Google Earth allows students to explore the planet in a dynamic and interactive way, helping them to understand the concept of local space and to learn in a fun and significant manner (Patterson, 2007). This can act as a support to students to learn about the five themes in geography: position, location, the rapport with the location, movement and regions (Lanegan & Natoli, 1984). Not only does its use support special thinking, it also helps in developing critical analytical competencies and prepares students to use more advanced functions found in a GIS. The various phases of a lesson could actually be developed to aid students in working autonomously in an interactive manner, but at the same time collaborate with each other. A single map in paper form may not be as effective in illustrating a process. On the other hand, digital maps create a more dynamic approach, provide users information regarding a place and increase the level of interaction, thus improving the novice explorer’s experience. For example, the user can see the urban landscape from space as well as from other angles and appreciate the depth through a virtual fly-through (Patterson, 2007). Significant teaching strategies emerge in Google Earth particularly through the existing relationships between physical and anthropic aspects and the analysis of elements that distinguish the different landscapes (Pesaresi, 2007).

The combination of Geospatial Web and the teaching of geography offers students a constructive link between theory and practice. In the didactic field, we want to promote an approach based on blended learning, that is, the effective integration of the two main components (face to face and Internet technology). It represents a fundamental reconstitution and a reorganization of the teaching and learning dynamics, where online learning and knowledge management (by the teacher) blends into a dynamic and meaningful learning experience in which concentrates on building new knowledge (Garrison & Kanuka, 2004).

WEB-APPLICATION GEOMOON

Geomoon is a client/server web application for a stateless environment, i.e. without a memory, which uses the internet. A web app can be defined as an accessible application via web through a network, such as the internet or through an internet network. Therefore, knowing how to program for the web entails knowing the diverse mechanisms and tools to save or pass on data, known as parameters, among the various pages of the web application. Practically, a web-application is a programme that does not need to be installed on the computer since it is made available through an online server and can be used through any web browser (e.g. Google Chrome, Mozilla Firefox, Opera, etc.) in client mode. A link can be created on the desktop of the computer or on the homepage of any mobile device through the addition of a bookmark. A distinctive characteristic is the fact

that it puts to fruition pre-established services - in the case of Google applications, examples of these services include the Google Chrome (search engine), G-Mail (webmail service) and Google Maps. In contrast to static websites (HTML), web applications are designed with one or more technologies (PHP, Ajax, Servlet, Database, etc.) which allow the creation of a dynamic site. In other words, a site in which the content of the pages varies according to the interaction. Through a simple web interface, the student has the possibility to visualize, insert, ask for and add the information.

The web-app being proposed is in line with the International Geographic Union (IGU) standards contained within the International Charter on Geographical Education (2016) that states:

“a) As location is a key factor in life, especially in an era of globalization and the internet, geography with its focus on spatial variability provides a very practical and useful perspective on everyday life. b) Geography is the discipline where knowledge about locations and regions has its base. The appreciation of unique contexts and circumstances in an interconnected world helps deepen our understanding of human diversity; c) Geographical knowledge and skills, especially when mediated through geospatial technologies offer unique opportunities to make sense of the modern world” (p.10).

A characteristic of Geomoon is its versatile nature: it is designed for primary school children with the aim of developing their ability in exploring a territory. It can be used for a variety of lessons to trace different routes according to the geographical content knowledge to be taught. The engagement in the game is stimulated by the incentive of finding little Pokemons that act as avatars, inserted in strategic points of interest (Plutino, 2016). Through this game approach (Piaget, 1962; Vygotsky 1967; Martlew et al., 2011), learning can be considered as a participatory approach rather than the compulsory acquisition of knowledge where more effort takes place (Bergen 2009) and favors competency development (Wood & Attfield, 2005). Another aspect of Geomoon consists in a succession of slides, designed specifically to encourage learning, and the assessment and evaluation of learning through a quiz. More specifically, the first step consists in discovering the town of Salerno (Italy) through the interactive geographical map. The interaction of the students with the map is essential to acquire the knowledge and model the conceptions of the location.

The home page of this app consists of three main buttons: Navigate, Explore and Quiz, each of which opens an interface. Under the links a video was inserted of one of the Pokemon episodes to make the children aware of the imaginary world of these characters and enthuse the students towards learning (Fig. 1).



Figure 1. Homepage of Geomoon

The **Navigate** button takes the students to a map of the city of Salerno extracted from My Google maps where three specific points ((Maritime Station, Minerva Gardens and Irno River) highlighted with the icons of the little Pokemons (Fig. 2).

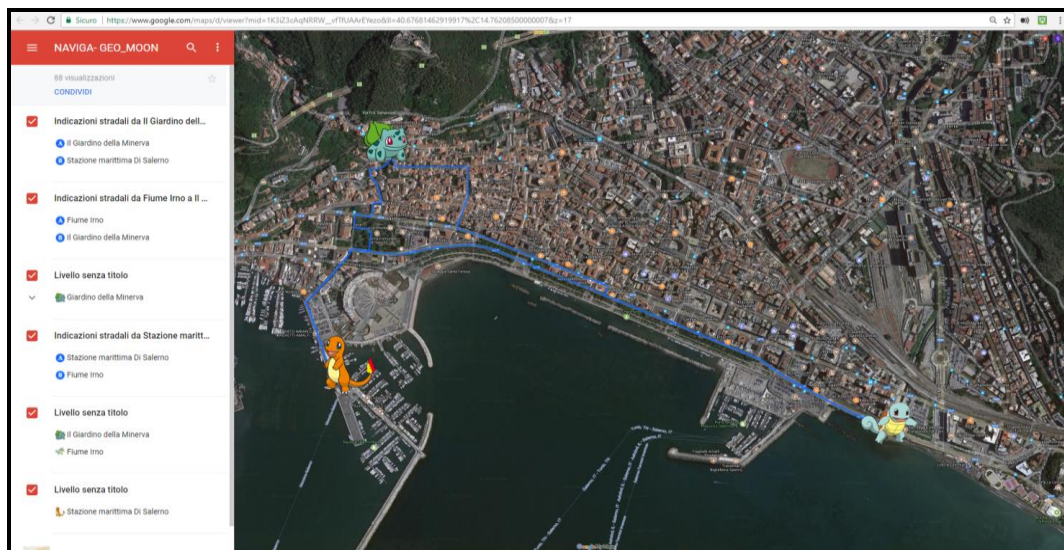


Figure 2. Maps of the city of Salerno with the position of the three pokemon (orange, green and blue) representing the places of the lesson

When clicking on the orange Pokemon the students are virtually taken to the Maritime Station in Salerno (Fig.3) and opening a linked they can see also the commercial port (Fig 4), to understand the different functions: commercial and tourist.

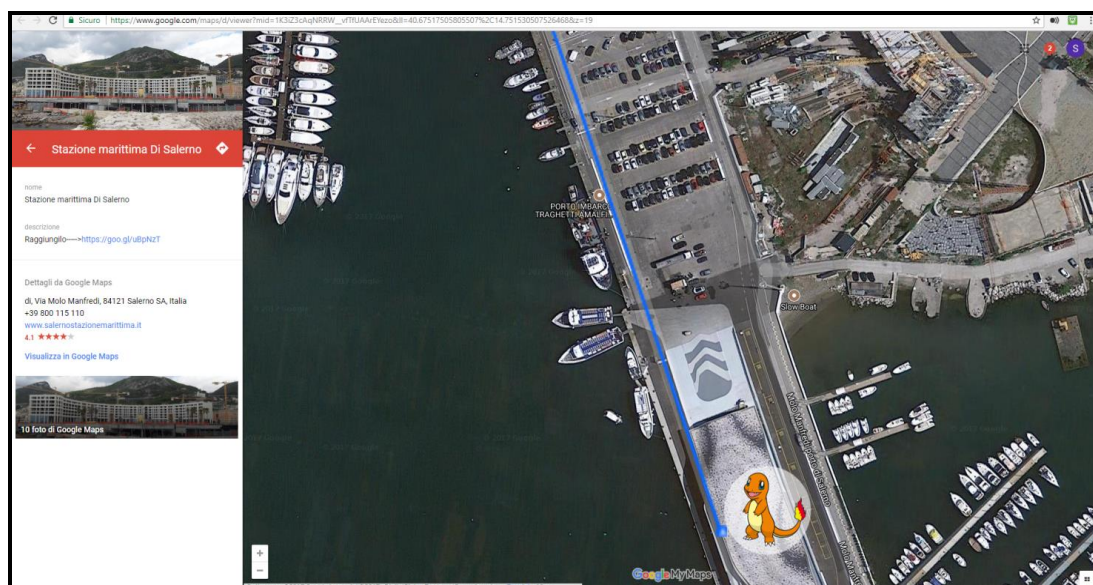


Figure 3. The Maritime Station in Salerno

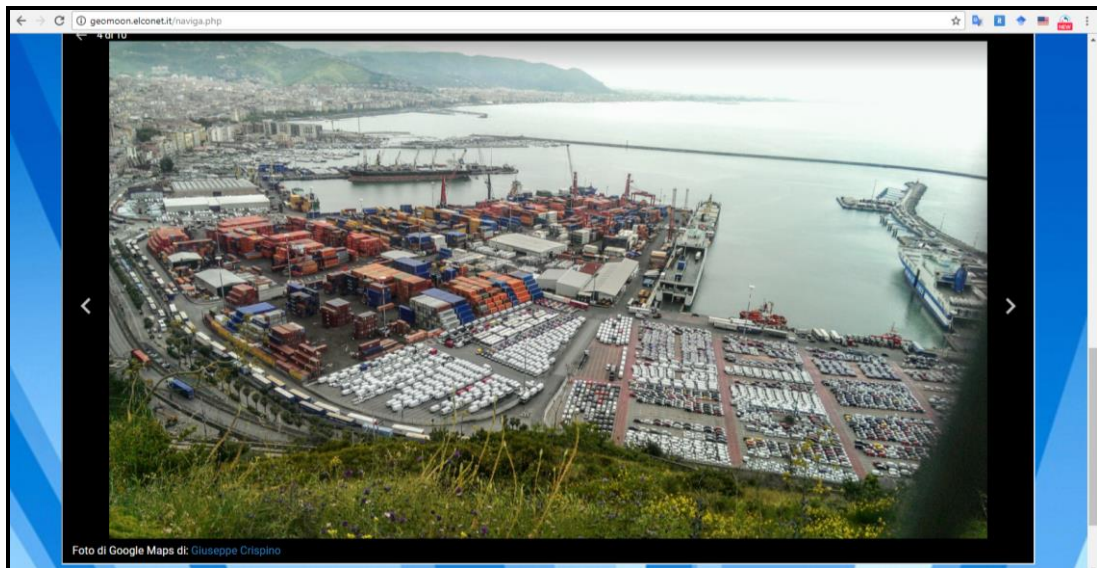


Figure 4. The commercial port and the facilities

Through the link “reach this point” (Fig. 5), starting from the green Pokemon (positioned at the Minerva Gardens), the web-app provides the walking route, or the car and bus options. The visualization of the route is necessary for spatial orientation that spans from daily walks to practical routes. In addition, using the Geospatial Web, the mapping of the location allows students to understand the interdependence of the concepts of space, location, people, the environments in the context of the links between their house, school, family, community and world beyond their neighborhood (Fig. 6).

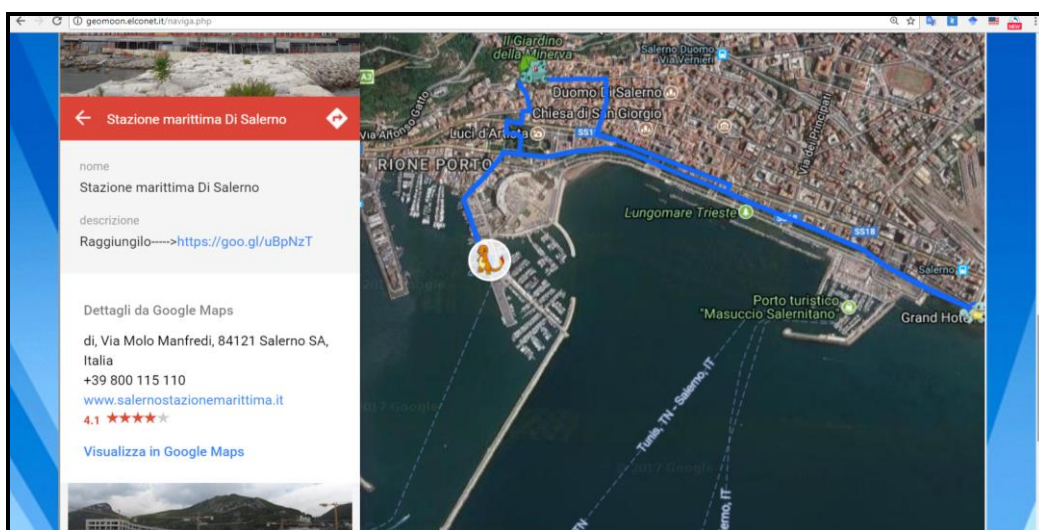


Figure 5. Window display that allows exercise

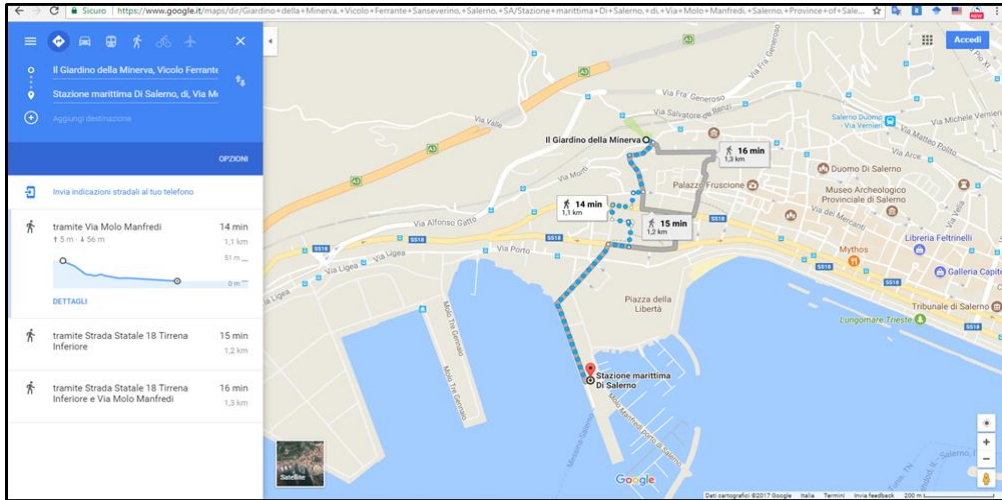


Figure 6. Visualization of the route of Minerva Gardens at Maritime Station

Clicking on the blue Pokemon the students can visualize the route of the river Irno which flows through the town of Salerno (Fig. 7), both on the map and on the satellite (Fig. 8) starting from the river bed to its source. Such visualization helps the students to learn new knowledge.

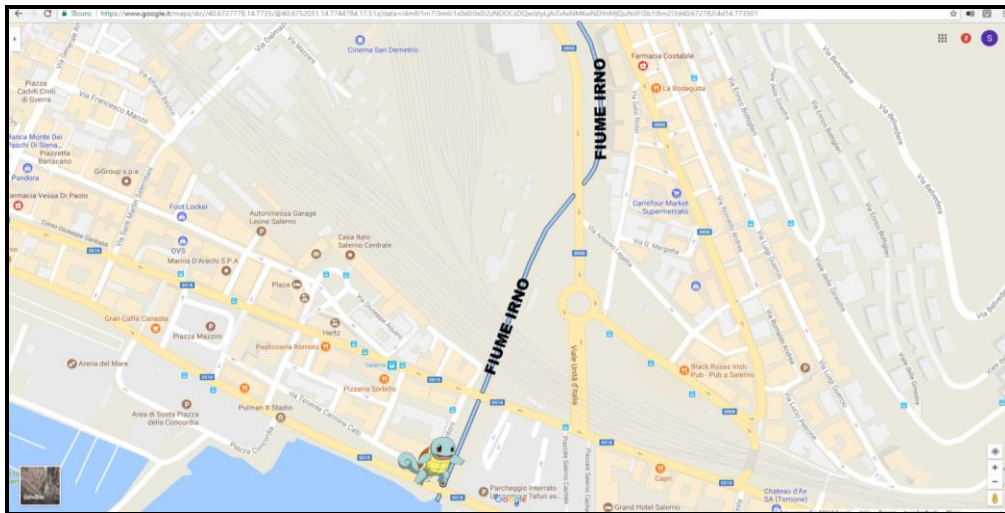


Figure 7. The route of the river Irno

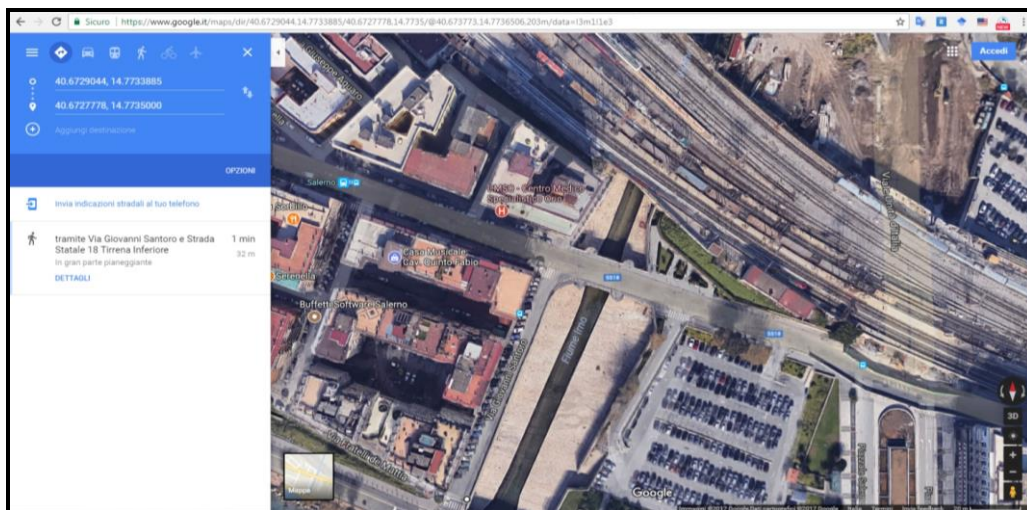


Figure 8. The route of the river Irno on the satellite

With the button – **Discover** – the students open a series of animated slides suitable for the class, with geographical content on the town of Salerno in the diverse aspects of physical, human and economics geography (Fig. 9, 10, 11, e 12).

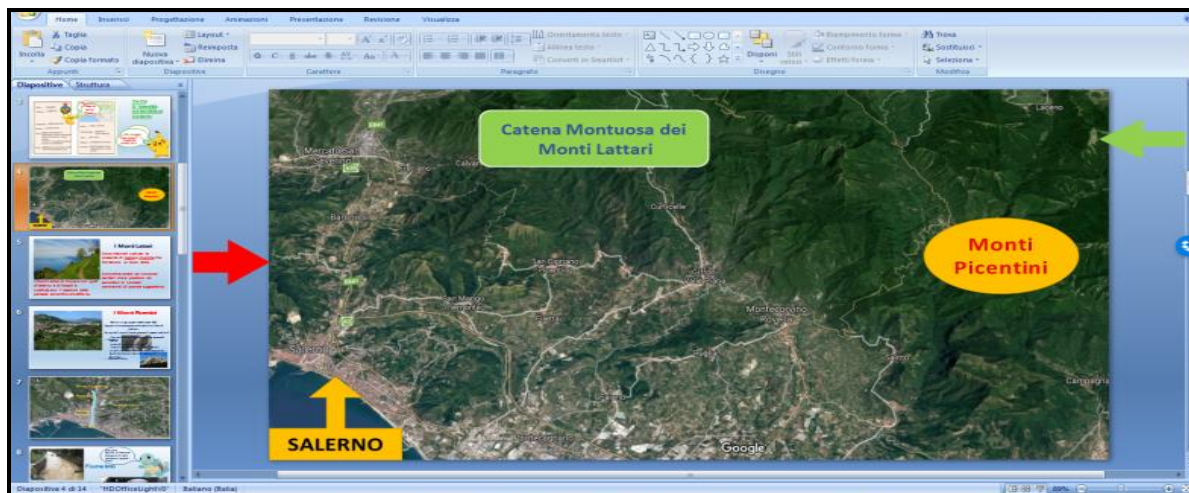


Figure 9. Orography of the territory

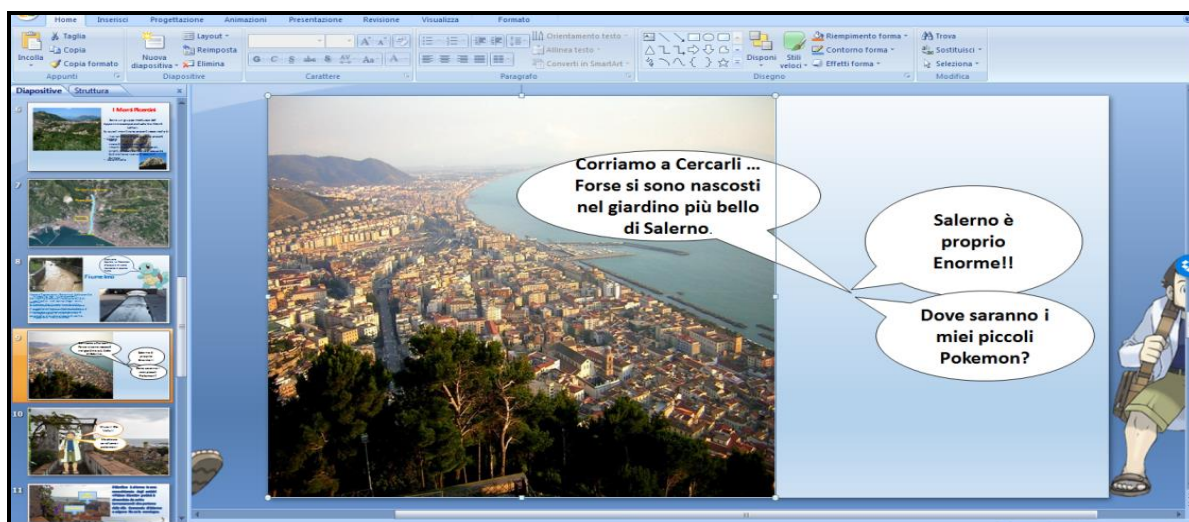


Figure 10. Anthropic aspect of the city



Figure 11. Animated slide on the Irno river

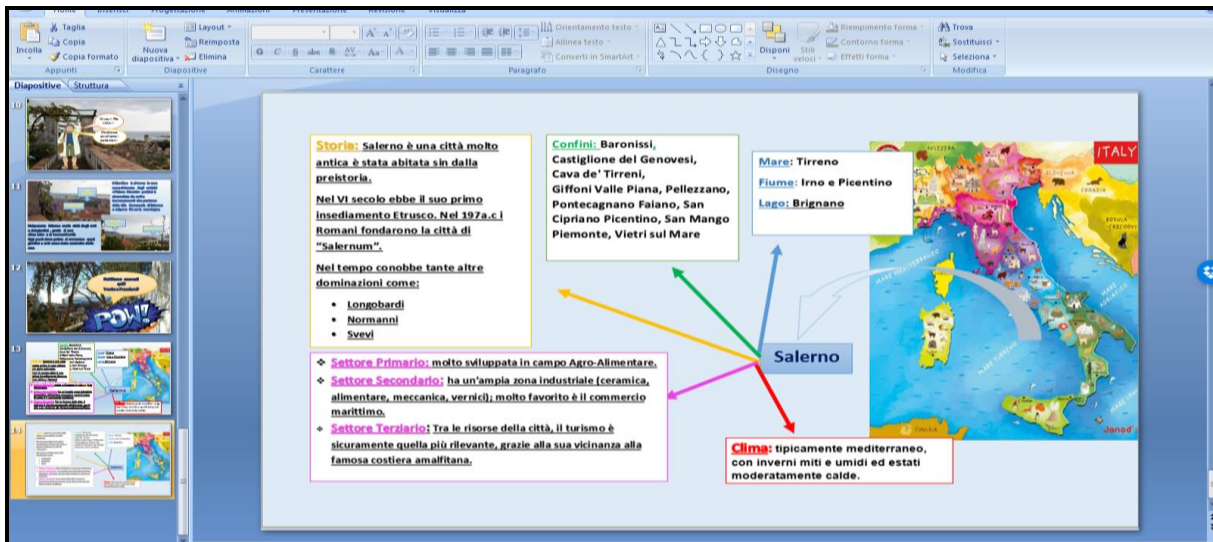


Figure 12. Conceptual map summary

The last interface – **Quiz** – the students can test their knowledge acquisition and geographical competencies about the town of Salerno, by answering a questionnaire containing multiple choice type questions. The results of this quiz is also recorded in the system for the teacher to monitor. It also provides the students with the correct answers when the students make mistakes (Fig. 13).

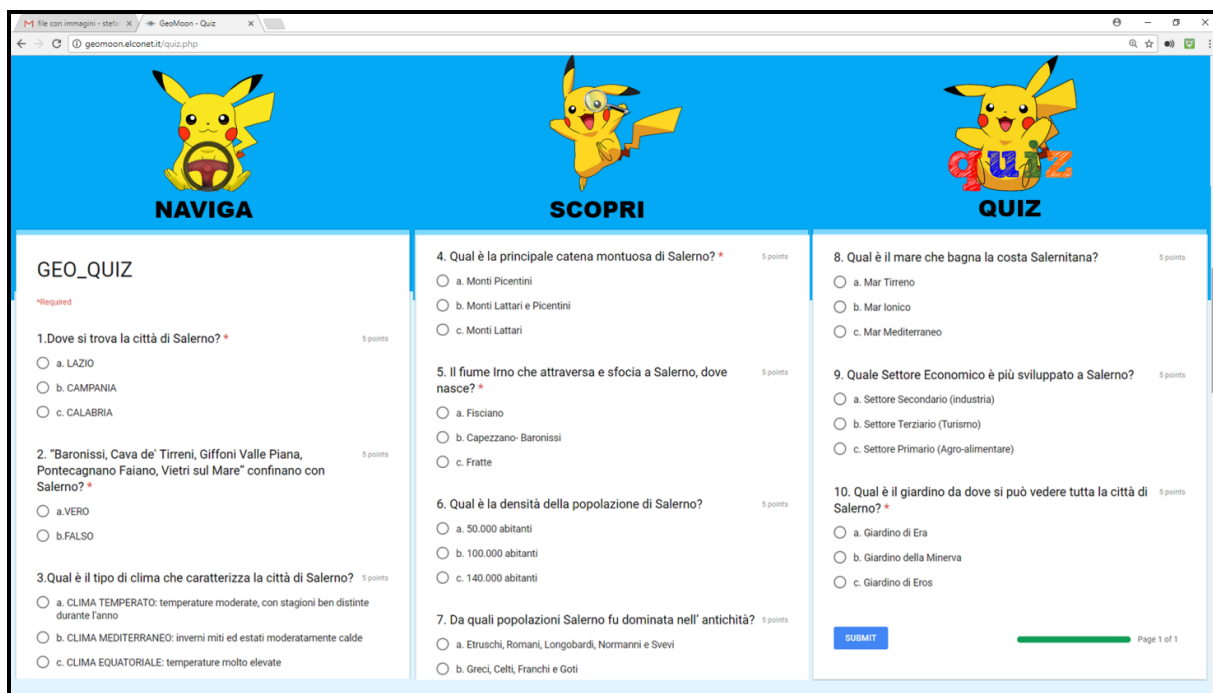


Figure 13. Questionnaire in Geomoon

CONCLUSIONS

The use of Geomoon in lesson planning and allows the adoption of a learning approach that is more active because the tool helps to facilitate this type of learning. It supports the understanding of many concepts related to geography and helps the students to consider the processes of certain geographical phenomena and their history - an example of this is the fact that the river Irno was buried. It highlights the evolution of technology and how this has contributed to modelling culture (how to identify the changes in population over time and how the improvement in transportation has impacted urban development). In the educational field, with the use of this app, the aim is that of promoting a blended learning approach.

Within this context, from an educational point of view, the teacher's role of mediation is very important as it allows access to new technology based on a critical approach aimed not only at learning how to use the tool, but also at understanding the cultural, social and political implications that its use brings about.

Geographic maps is a fundamental tool in geography "is like a very weird bestiary, but also a world that the child discovers with all the strength of his own intelligence in training, with words to express concepts, scales and numbers to count" (Frémont, 2007, p. 47) necessary for a spatial orientation that goes from daily routines to imaginative dream / desire pathways to practical reality. It must become a family member from the early years of schooling, a facilitator to store the notions and gain mastery of reading and interpretation. Using this web app would allow them to approach it with less detachment and more enthusiasm.

Nowdays, Geomoon is in the beta-release version, and it works on Microsoft Explorer, Safari, Chrome, Firefox and Opera on PC and Mac. Future research will focus on the effective capacity of the tool to foster the learning processes following the exposed criteria. To achieve this aim, the tool will be used, during future works, in Italian school's classrooms by teachers and students without the supports of researchers.

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DETERMINATION OF THE FREQUENCY OF ATHLETIC TRIAD IN WOMEN ATHLETES IN OLYMPIC BRANCHES AND THE AWARENESS LEVELS OF ATHLETES AND TRAINERS REGARDING ATHLETIC TRIAD

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ABSTRACT

The aim of this study is to determine the awareness levels of the national level athletes and coaches regarding Female Athletic Triad and whether our athletes carry the symptoms of Female Athletic Triad. The research was conducted in the time period between May-December 2015 with the voluntary participation of 115 national level athletes competing in various sports branches. 3 of the participants competed in Artistic Gymnastics, while 5 competed in Marathons, 9 in Badminton, 25 were Licensed Badminton League Sportsmen, 9 competed in Basketball, 6 competed in Arm Wrestling, 12 in Ice Hockey, 5 in Curling, 11 in Soccer, 4 in Weightlifting, 7 in Taekwondo Competition, 5 in Taekwondo-Poomsae, 7 in Volleyball and 7 competed in Swimming. Female Athletic Triad Questionnaire which passed the general validity assessment and was created by Heidi Wengreen of Utah University was used as part of the data collection process. As a result of this study; majority of the athletes stated that they "have not heard of the Women's Athletic Triad before". Regarding the question related to the intake of calories, athletes, weightlifters and swimmers answered that they were not able to take. Regarding the question related to the stress fractures, Athletics, Badminton and Weightlifting branches answered yes. Again when the first menarch age of many badminton players was questioned, League badminton players and Basketball players were determined to be in the 14-15 age group, along with Athletics and National Badminton Players in the 15-16 age group. To a question regarding the menstrual regularity, athletes in the sport branches Badminton, Basketball, Arm Wrestling, Ice Hockey and Taekwondo Poomsae answered that their menstruations were very irregular throughout the year. In the light of all these results, it can be suggested that the athletes under risk may be informed about Female Athletic Triad via seminars prepared through the support of the Ministry of Youth and Sports, the Sports Education Department and the sports federations domain experts and afterwards these seminars can be extended to every sports branch.

Keywords: Female Athletic Triad, Female Athletes, National Team (A Level)

INTRODUCTION

Participation in sports activities allows friendships to be built among teammates while boosting self-esteem and pushing the women to have healthier lifestyles. In the light of the information on the field, it is also safe to say that women can develop particular medical conditions including the Female Athlete Triad (Troy et al., 2006).

The Female Athlete Triad consists of three elements that are 1-Disordered eating 2-Amenorrhea 3- Osteoporosis and osteopenia. In 1997, The American College of Sports Medicine (ACSM) published a position stand in which

they stated that more epidemiological and clinical data was needed in order to support the importance of the Female Athlete Triad (Dipietro & Stachenfeld, 2006).

The three corners of the Women's Athlete Triads are related to the psychological and physiological mechanisms. In order to achieve an optimal standard, psychological pressure and a requirement to maintain a low body mass usually result in intense training. This is combined with low-energy intake and stress hormones produced psychologically by the endocrinologic control of menstrual cycle, and causing the athletes to become amenorrhea (menstruation or abnormal cuts in menstruation). Amenorrhea caused by dysfunction of the hypothalamus and pituitary gland causes a decrease in estrogen production. This hormone is a means to maintain adequate bone mineral density (BMD). This is why low estrogen levels are associated (Birch, 2005).

The three corners of the Female Athlete Triad are connected through psychological and physiologic mechanisms. In order to achieve an excellent standard –and usually to maintain a low body mass- the athletes train extensively. When the extensive training comes together with low energy intake and the stress hormones produced by psychological changes in the endocrinologic control of the menstrual cycle, the athletes may become amenorrheic, which can be explained with the absent or abnormal cessation of menses. When the dysfunction of the hypothalamus and pituitary gland causes amenorrhea, the production of estrogen decreases. Estrogen is fundamental for maintaining decent bone mineral density (BMD). Therefore, low estrogen levels are associated (Birch, 2005).

All female athletes may potentially develop the triad, however, athletes who compete in sports in which low body weight is considered to be essential may bear an increased risk of the triad. This data is contradicted by a position statement which states that this syndrome occurs not only in experienced athletes, but also in non-athletes and in other women who are active but are not training for any particular sport. However, it is unclear to which degree the girls and women practicing physical activity at different levels are at risk of the triad (Torstveit & Borgen, 2004).

METHOD

The research consists of the athletes competing in A level national teams and the A level national team trainers who coach them. 3 of the 115 voluntary participants competed in Artistic Gymnastics, while 5 competed in Athletics Marathons, 9 in National Badminton, 25 were Licensed Badminton League Sportsmen, 9 competed in Basketball, 6 competed in Arm Wrestling, 12 in Ice Hockey, 5 in Curling, 11 in Soccer, 4 in Weightlifting, 7 in Taekwondo Competition, 5 in Taekwondo-Poomsae, 7 in Volleyball and 7 competed in Swimming. Regarding the questionnaire applied to the trainers however, 3 of the 16 participating trainers coached in Artistic Gymnastics while 1 coached in Athletics, 1 in Badminton, 2 in Basketball, 1 in Arm Wrestling, 1 in Ice Hockey, 1 in Curling, 1 in Soccer, 1 in Weightlifting, 1 in Taekwondo, 2 in Volleyball and 1 in Swimming.

Initially, 6 socio-demographic questions prepared by Heidi Wengreen from the Utah State University were used as part of the data collection tool, which were then followed by 26 additional questions about the Female Athletic Triad, forming the 32-question Female Athletic Triad Questionnaire.

In the questionnaire applied to the trainers however, 20 questions were asked, which included 1 socio-demographic related question and 19 Female Athletic Triad related questions.

FINDINGS

Table 1. Awareness Levels of FAT

	Branches	Yes	No	
	Art. Gymnastics	%0	%100 (3 people)	
	Atl. Marathon	%60 (3 people)	%40 (2 people)	
	Badminton L	%8 (2 people)	%91 (22 people)	
	Badminton M	%11 (1 people)	%88 (8 people)	
Have you	Basketball	%44 (4 people)	%55 (5 people)	
ever heard of	Arm Wrestling	%0	%100 (6 people)	When the frequency chart is examined, it can be seen that 100% of the athletes in the
Female	Ice Hockey	%0	%100 (13 people)	
Athletic	Curling	%0	%100 (5 people)	
Triad?	Soccer	%0	%100 (11 people)	
	Weightlifting	%50 (2 people)	%50 (2 people)	
	Taekwondo	%14 (1 people)	%85 (6 people)	
	Taekwondo P	%40 (2 people)	%60 (3 people)	
	Volleyball	%71 (2 people)	%28 (5 people)	
	Swimming	%0	%100 (7 people)	

Artistic Gymnastics branch have never heard of the Female Athletic Triad before.

When the frequency chart is examined, it can be seen that 60% of the Marathon runners in the Athletics branch have heard the term Female Athletic Triad before, however 40% of the athletes have never heard of it before.

When the frequency chart is examined, it can be seen that 8% of the League Badminton athletes have heard the term Female Athletic Triad before, however 91% of the athletes have never heard of it before.

When the frequency chart is examined, it can be seen that 11% of the M. Badminton athletes have heard the term Female Athletic Triad before, however 88% of the athletes have never heard of it before.

When the frequency chart is examined, it can be seen that 44% of the Basketball athletes have heard the term Female Athletic Triad before, however 55% of the athletes have never heard of it before.

When the frequency chart is examined, it can be seen that 100% of the athletes in the Artistic Arm Wrestling branch have never heard of the Female Athletic Triad before.

When the frequency chart is examined, it can be seen that 100% of the athletes in the Ice Hockey branch have never heard of the Female Athletic Triad before.

When the frequency chart is examined, it can be seen that 100% of the athletes in the Curling branch have never heard of the Female Athletic Triad before.

When the frequency chart is examined, it can be seen that 100% of the athletes in the Soccer branch have never heard of the Female Athletic Triad before.

When the frequency chart is examined, it can be seen that 50% of the Weightlifting athletes have heard the term Female Athletic Triad before, however 50% of the athletes have never heard of it before.

When the frequency chart is examined, it can be seen that 14% of the Taekwondo athletes have heard the term Female Athletic Triad before, however 85% of the athletes have never heard of it before.

When the frequency chart is examined, it can be seen that 40% of the Taekwondo-Poomsae athletes have heard the term Female Athletic Triad before, however 60% of the athletes have never heard of it before.

When the frequency chart is examined, it can be seen that 71% of the Volleyball athletes have heard the term Female Athletic Triad before, however 28% of the athletes have never heard of it before.

When the frequency chart is examined, it can be seen that 100% of the athletes in the Swimming branch have never heard of the Female Athletic Triad before.

Table 5. Regarding the Calorie Intake

	Branches	Yes	No	
Do you think you have sufficient calorie intake?	Art. Gymnastics	%100	%0	When the frequency chart is observed
	Atl. Marathon	%20 (2 people)	%80 (4 people)	
	Badminton L	%75 (18 people)	%25 (6 people)	
	Badminton M	%88 (8 people)	%11 (1 people)	
	Basketball	%88 (8 people)	%11 (1 people)	
	Arm Wrestling	%83 (5 people)	%16 (1 people)	
	Ice Hockey	%84 (11 people)	%15 (2 people)	
	Curling	%100 (5 people)	%0	
	Soccer	%90 (10 people)	%9 (1 people)	
	Weightlifting	%50 (2 people)	%50 (2 people)	
	Taekwondo	%85 (6 people)	%14 (1 people)	
	Taekwondo P	%100 (5 people)	%0	
	Volleyball	%100 (7 people)	%0	
Swimming	%0	%100 (7 people)		

ed, it is seen that to the question "Do you think you have sufficient calorie intake?" 100% of the athletes in the Artistic Gymnastics branch answered yes, while 0% of the athletes answered no.

When the frequency chart is observed, it is seen that to the question "Do you think you have sufficient calorie intake?" 20% of the athletes in the Athletics branch answered yes, while 80% of the athletes answered no.

When the frequency chart is observed, it is seen that to the question "Do you think you have sufficient calorie intake?" 75% of the athletes in the League Badminton branch answered yes, while 25% of the athletes answered no.

When the frequency chart is observed, it is seen that to the question "Do you think you have sufficient calorie intake?" 88% of the athletes in the M. Badminton branch answered yes, while 11% of the athletes answered no.

When the frequency chart is observed, it is seen that to the question "Do you think you have sufficient calorie intake?" 88% of the athletes in the Basketball branch answered yes, while 11% of the athletes answered no.

When the frequency chart is observed, it is seen that to the question "Do you think you have sufficient calorie intake?" 83% of the athletes in the Arm Wrestling branch answered yes, while 16% of the athletes answered no.

When the frequency chart is observed, it is seen that to the question "Do you think you have sufficient calorie intake?" 84% of the athletes in the Ice Hockey branch answered yes, while 15% of the athletes answered no.

When the frequency chart is observed, it is seen that to the question "Do you think you have sufficient calorie intake?" 100% of the athletes in the Curling branch answered yes, while 0% of the athletes answered no.

When the frequency chart is observed, it is seen that to the question "Do you think you have sufficient calorie intake?" 90% of the athletes in the Soccer branch answered yes, while 9% of the athletes answered no.

When the frequency chart is observed, it is seen that to the question "Do you think you have sufficient calorie intake?" 50% of the athletes in the Weightlifting branch answered yes, while 50% of the athletes answered no.

When the frequency chart is observed, it is seen that to the question "Do you think you have sufficient calorie intake?" 84% of the athletes in the Taekwondo branch answered yes, while 15% of the athletes answered no.

When the frequency chart is observed, it is seen that to the question "Do you think you have sufficient calorie intake?" 100% of the athletes in the Taekwondo-Poomsae branch answered yes, while 0% of the athletes answered no.

When the frequency chart is observed, it is seen that to the question "Do you think you have sufficient calorie intake?" 100% of the athletes in the Volleyball branch answered yes, while 0% of the athletes answered no.

When the frequency chart is observed, it is seen that to the question "Do you think you have sufficient calorie intake?" 0% of the athletes in the Swimming branch answered yes, while 100% of the athletes answered no.

Table 6. Do Athletes Feel Pressure to Maintain Weight?

	Branches	Yes	No	
Do you feel pressure to maintain your weight?	Art. Gymnastics	%33 (1 people)	%66 (2 people)	When the frequency chart is observed
	Atl. Marathon	%80 (4 people)	%20 (1 people)	
	Badminton L	%41 (10 people)	%58 (14 people)	
	Badminton M	%33 (3 people)	%66 (6 people)	
	Basketball	%33 (3 people)	%66 (6 people)	
	Arm Wrestling	%66 (4 people)	%33 (2 people)	
	Ice Hockey	%30 (4 people)	%69 (9 people)	
	Curling	%20 (1 people)	%80 (4 people)	
	Soccer	%27 (3 people)	%72 (8 people)	
	Weightlifting	%75 (3 people)	%25 (1 people)	
	Taekwondo	%71 (5 people)	%28 (2 people)	
	Taekwondo P	%60 (3 people)	%40 (2 people)	
	Volleyball	%14 (1 people)	%85 (6 people)	
	Swimming	%71 (5 people)	%28 (2 people)	

, it can be seen that to the question "Do you feel pressure to protect your weight?" 33% of the athletes in the Artistic Gymnastics branch answered yes, while 66% of the athletes answered no.

When the frequency chart is observed, it can be seen that to the question "Do you feel pressure to protect your weight?" 80% of the athletes in the Athletics branch answered yes, while 20% of the athletes answered no.

When the frequency chart is observed, it can be seen that to the question "Do you feel pressure to protect your weight?" 41% of the athletes in the League Badminton branch answered yes, while 58% of the athletes answered no.

When the frequency chart is observed, it can be seen that to the question "Do you feel pressure to protect your weight?" 33% of the athletes in the M. Badminton branch answered yes, while 66% of the athletes answered no.

When the frequency chart is observed, it can be seen that to the question "Do you feel pressure to protect your weight?" 33% of the athletes in the Basketball branch answered yes, while 66% of the athletes answered no.

When the frequency chart is observed, it can be seen that to the question "Do you feel pressure to protect your weight?" 66% of the athletes in the Arm Wrestling branch answered yes, while 33% of the athletes answered no.

When the frequency chart is observed, it can be seen that to the question "Do you feel pressure to protect your weight?" 30% of the athletes in the Ice Hockey branch answered yes, while 69% of the athletes answered no.

When the frequency chart is observed, it can be seen that to the question "Do you feel pressure to protect your weight?" 20% of the athletes in the Curling branch answered yes, while 80% of the athletes answered no.

When the frequency chart is observed, it can be seen that to the question "Do you feel pressure to protect your weight?" 27% of the athletes in the Soccer branch answered yes, while 72% of the athletes answered no.

When the frequency chart is observed, it can be seen that to the question "Do you feel pressure to protect your weight?" 75% of the athletes in the Weightlifting branch answered yes, while 25% of the athletes answered no.

When the frequency chart is observed, it can be seen that to the question "Do you feel pressure to protect your weight?" 71% of the athletes in the Taekwondo branch answered yes, while 28% of the athletes answered no.

When the frequency chart is observed, it can be seen that to the question "Do you feel pressure to protect your weight?" 60% of the athletes in the Taekwondo-Poomsae branch answered yes, while 40% of the athletes answered no.

When the frequency chart is observed, it can be seen that to the question "Do you feel pressure to protect your weight?" 14% of the athletes in the Volleyball branch answered yes, while 85% of the athletes answered no.

When the frequency chart is observed, it can be seen that to the question "Do you feel pressure to protect your weight?" 71% of the athletes in the Swimming branch answered yes, while 28% of the athletes answered no.

Table 7. Regarding Who the Pressure is Coming From

	Branches	Myself	My Coach	Peer	Family	Society	----
If you answered Yes to the previous question, who does this pressure come from?	Art. Gymnastics	%33(1 people)	%66(2 people)				
	Atl. Marathon	%40(2 people)	%40(2 people)				
	Badminton L	%41(10people)				%4 (1)	
	Badminton M	%33(3 people)					
	Basketball	%22 (2 people)				%11 (1)	
	Arm Wrestling	%33 (2 people)				%33(2)	
	Ice Hockey	%30 (4 people)					
	Curling	%20 (1 people)					
	Soccer	%27 (3 people)	%9 (1 people)				
	Weightlifting		%75 (3 people)				
	Taekwondo	%71 (5 people)					
Taekwondo P	%40 (2 people)	%20 (1 people)					
Volleyball	%14 (1 people)						
Swimming	%57 (4 people)					%14 (1)	

it is seen that to the question “If you answered Yes to the previous question, who does this pressure come from?” 33% of the athletes in the Artistic Gymnastics branch answered with “Myself” while 66% answered with “My Coach”.

When the frequency chart is observed, it is seen that to the question “If you answered Yes to the previous question, who does this pressure come from?” 40% of the athletes in the Athletics branch answered with “Myself” while 40% answered with “My Coach”.

When the frequency chart is observed, it is seen that to the question “If you answered Yes to the previous question, who does this pressure come from?” 41% of the athletes in the League Badminton branch answered with “Myself” while 4% answered with “Society”.

When the frequency chart is observed, it is seen that to the question “If you answered Yes to the previous question, who does this pressure come from?” 33% of the athletes in the M. Badminton branch answered with “Myself”.

When the frequency chart is observed, it is seen that to the question “If you answered Yes to the previous question, who does this pressure come from?” 22% of the athletes in the Basketball branch answered with “Myself” while 11% answered with “Society”.

When the frequency chart is observed, it is seen that to the question “If you answered Yes to the previous question, who does this pressure come from?” 33% of the athletes in the Arm Wrestling branch answered with “Myself” while 33% answered with “My Family”.

When the frequency chart is observed, it is seen that to the question “If you answered Yes to the previous question, who does this pressure come from?” 30% of the athletes in the Ice Hockey branch answered with “Myself”.

When the frequency chart is observed, it is seen that to the question “If you answered Yes to the previous question, who does this pressure come from?” 20% of the athletes in the Curling branch answered with “Myself”.

When the frequency chart is observed, it is seen that to the question “If you answered Yes to the previous question, who does this pressure come from?” 27% of the athletes in the Soccer branch answered with “Myself” while 9% answered with “My Coach”.

When the frequency chart is observed, it is seen that to the question “If you answered Yes to the previous question, who does this pressure come from?” 75% of the athletes in the Weightlifting branch answered with “My Coach”.

When the frequency chart is observed, it is seen that to the question “If you answered Yes to the previous question, who does this pressure come from?” 71% of the athletes in the Taekwondo branch answered with “Myself”.

When the frequency chart is observed, it is seen that to the question “If you answered Yes to the previous question, who does this pressure come from?” 40% of the athletes in the Taekwondo-Poomsae branch answered with “Myself” while 20% answered with “My Coach”.

When the frequency chart is observed, it is seen that to the question “If you answered Yes to the previous question, who does this pressure come from?” 14% of the athletes in the Volleyball branch answered with “Myself”.

When the frequency chart is observed, it is seen that to the question “If you answered Yes to the previous question, who does this pressure come from?” 57% of the athletes in the Swimming branch answered with “Myself” while 14% answered with “Society”.

Table 8. Regarding the Stress Fracture

Have you ever experienced stress fracture as a result of training or exhibition?	Branches	Yes	No	
	Art. Gymnastics		% 100 (3 people)	
	Atl. Marathon	% 80 (4 people)	% 20 (1 people)	
	Badminton L	% 16 (4 people)	% 83 (20 people)	
	Badminton M	% 66 (6 people)	% 33 (3 people)	
	Basketball	% 11 (1 people)	% 88 (8 people)	
	Arm Wrestling	% 33 (2 people)	% 66 (4 people)	
	Ice Hockey	% 46 (6 people)	% 53 (7 people)	
	Curling	% 20 (1 people)	% 80 (4 people)	
	Soccer	% 27 (3 people)	% 72 (8 people)	
	Weightlifting	% 75 (3 people)	% 25 (1 people)	
	Taekwondo	% 42 (3 people)	% 57 (4 people)	
	Taekwondo P	% 20 (1 people)	% 80 (4 people)	
	Volleyball	% 14 (1 people)	% 85 (6 people)	
	Swimming	% 14 (1 people)	% 85 (6 people)	

When the frequency chart is

observed, it can be seen that to the question "Have you ever experienced stress fracture as a result of training or exhibition?" 100% of the athletes in the Artistic Gymnastics branch answered no.

When the frequency chart is observed, it can be seen that to the question "Have you ever experienced stress fracture as a result of training or exhibition?" 80% of the athletes in the Athletics branch answered yes, while 20% of the athletes answered no.

When the frequency chart is observed, it can be seen that to the question "Have you ever experienced stress fracture as a result of training or exhibition?" 16% of the athletes in the League Badminton branch answered yes, while 83% of the athletes answered no.

When the frequency chart is observed, it can be seen that to the question "Have you ever experienced stress fracture as a result of training or exhibition?" 66% of the athletes in the M. Badminton branch answered yes, while 33% of the athletes answered no.

When the frequency chart is observed, it can be seen that to the question "Have you ever experienced stress fracture as a result of training or exhibition?" 11% of the athletes in the Basketball branch answered yes, while 88% of the athletes answered no.

When the frequency chart is observed, it can be seen that to the question "Have you ever experienced stress fracture as a result of training or exhibition?" 33% of the athletes in the Arm Wrestling branch answered yes, while 66% of the athletes answered no.

When the frequency chart is observed, it can be seen that to the question "Have you ever experienced stress fracture as a result of training or exhibition?" 46% of the athletes in the Ice Hockey branch answered yes, while 53% of the athletes answered no.

When the frequency chart is observed, it can be seen that to the question "Have you ever experienced stress fracture as a result of training or exhibition?" 20% of the athletes in the Curling branch answered yes, while 80% of the athletes answered no.

When the frequency chart is observed, it can be seen that to the question "Have you ever experienced stress fracture as a result of training or exhibition?" 27% of the athletes in the Soccer branch answered yes, while 72% of the athletes answered no.

When the frequency chart is observed, it can be seen that to the question "Have you ever experienced stress fracture as a result of training or exhibition?" 75% of the athletes in the Weightlifting branch answered yes, while 25% of the athletes answered no.

When the frequency chart is observed, it can be seen that to the question "Have you ever experienced stress fracture as a result of training or exhibition?" 42% of the athletes in the Taekwondo branch answered yes, while 57% of the athletes answered no.

When the frequency chart is observed, it can be seen that to the question "Have you ever experienced stress fracture as a result of training or exhibition?" 20% of the athletes in the Taekwondo-Poomsae branch answered yes, while 80% of the athletes answered no.

When the frequency chart is observed, it can be seen that to the question "Have you ever experienced stress fracture as a result of training or exhibition?" 14% of the athletes in the Volleyball branch answered yes, while 85% of the athletes answered no.

When the frequency chart is observed, it can be seen that to the question "Have you ever experienced stress fracture as a result of training or exhibition?" 14% of the athletes in the Swimming branch answered yes, while 85% of the athletes answered no.

Table 26. First Menstruation Age of Women

BRANCHES	10	11	12	13	14	15	16	17
Art. Gymnastics			%33 (1)	%33 (1)	%33 (1)			
Atl. Marathon				%40 (1)	%20 (1)	%20 (1)	%20 (1)	
Badminton L			%16 (4)	%12 (3)	%37 (9)	%33 (8)		
Badminton M				%11 (1)		%66 (6)	%11 (1)	%11 (1)
Basketball		%11 (1)	%33 (3)	%22 (2)	%22 (2)	%11 (1)		
Arm Wrestling		%16 (1)	%16 (1)	%50 (3)		%16 (1)		
Ice Hockey			%15 (2)	%23 (3)	%38 (5)	%23 (3)		
Curling			%60 (3)	%20 (1)		%20 (1)		
Soccer	%9 (1)	%9 (1)	%18 (2)	%27 (3)	%9 (1)	%27 (3)		
Weightlifting			%75 (3)	%25 (1)				
Taekwondo			%42 (3)	%28 (2)	%14 (1)	%14 (1)		
Taekwondo P			%60 (3)	%20 (1)		%20 (1)		
Volleyball	%14 (1)	%18 (2)	%42 (3)	%14 (1)				
Swimming		%14 (1)	%28 (2)	%14 (1)	%14 (1)	%28 (2)		

When the frequency chart is examined, it is seen that to

the question "How old were you when you first experienced Menstruation?" 33% of the athletes in the Artistic Gymnastics branch answered with 12 years old, while 33% answered with 13 years old and 33% answered with 14 years old.

When the frequency chart is examined, it is seen that to the question “How old were you when you first experienced Menstruation?” 40% of the athletes in the Athletics branch answered with 13 years old, while 20% answered with 14 years old and 20% answered with 15 years old.

When the frequency chart is examined, it is seen that to the question “How old were you when you first experienced Menstruation?” 16% of the athletes in the League Badminton branch answered with 12 years old, while 12% answered with 13 years old, 37% answered with 14 years old and 33% answered with 15 years old.

When the frequency chart is examined, it is seen that to the question “How old were you when you first experienced Menstruation?” 11% of the athletes in the M. Badminton branch answered with 13 years old, while 66% answered with 15 years old, 11% answered with 16 years old and 11% answered with 17 years old.

When the frequency chart is examined, it is seen that to the question “How old were you when you first experienced Menstruation?” 11% of the athletes in the Basketball branch answered with 11 years old, while 33% answered with 12 years old, 22% answered with 14 years old and 11% answered with 15 years old.

When the frequency chart is examined, it is seen that to the question “How old were you when you first experienced Menstruation?” 16% of the athletes in the Arm Wrestling branch answered with 11 years old, while 16% answered with 12 years old, 50% answered with 13 years old and 16% answered with 15 years old.

When the frequency chart is examined, it is seen that to the question “How old were you when you first experienced Menstruation?” 15% of the athletes in the Ice Hockey branch answered with 12 years old, while 23% answered with 13 years old, 38% answered with 14 years old and 23% answered with 15 years old.

When the frequency chart is examined, it is seen that to the question “How old were you when you first experienced Menstruation?” 60% of the athletes in the Curling branch answered with 12 years old, while 20% answered with 13 years old and 20% answered with 15 years old.

When the frequency chart is examined, it is seen that to the question “How old were you when you first experienced Menstruation?” 9% of the athletes in the Soccer branch answered with 10 years old, while 9% answered with 11 years old, 18% answered with 12 years old, 27% answered with 13 years old, 9% answered with 14 years old and 27% answered with 15 years old.

When the frequency chart is examined, it is seen that to the question “How old were you when you first experienced Menstruation?” 75% of the athletes in the Weightlifting branch answered with 12 years old and 25% answered with 13 years old.

When the frequency chart is examined, it is seen that to the question “How old were you when you first experienced Menstruation?” 42% of the athletes in the Taekwondo branch answered with 12 years old, while 28% answered with 13 years old, 14% answered with 14 years old and 14% answered with 15 years old.

When the frequency chart is examined, it is seen that to the question “How old were you when you first experienced Menstruation?” 60% of the athletes in the Taekwondo-Poomsae branch answered with 12 years old, while 20% answered with 13 years old and 20% answered with 15 years old.

When the frequency chart is examined, it is seen that to the question “How old were you when you first experienced Menstruation?” 14% of the athletes in the Volleyball branch answered with 10 years old, while 18% answered with 11 years old, 42% answered with 12 years old and 14% answered with 13 years old.

When the frequency chart is examined, it is seen that to the question “How old were you when you first experienced Menstruation?” 14% of the athletes in the Swimming branch answered with 11 years old, while 28% answered with 12 years old, 14% answered with 13 years old, 14% answered with 14 years old and 28% answered with 15 years old.

Table 27. Menstruation Frequency of the Athletes During the Year

Branches	2	5	7	8	9	10	11	12	13	14	15
Art.						%6	%3				
Gymnastics						6	3				
Atl. Marathon						%2		%6			
How many menstruation cycles have you experienced during 1 year?					%2 0	0		0			
Badminton L		%4					%1	%7			%4
Badminton M			%1	%1	%1			2	9		
Basketball	%1 1		1	1	1		%2	%6			
Arm Wrestling				%1 6			%1	%5			
Ice Hockey					%1 5			%5	%7	%	
Curling						%2 0		%8			
Soccer						%9	%2	%3	%9	%	%9
Weightlifting					%5 0	%2 5		%2			
Taekwondo					%1 4	%1 4	%2	%4			
Taekwondo P				%2 0			%2	%6			
Volleyball								%7	%28		
Swimming							%1 4	%8 5			

When the frequency chart is examined, it is seen that to the question “How many menstruation cycles have you experienced during 1 year?” 66% of the athletes in the Artistic Gymnastics branch answered with 10 times and 33% answered with 11 times.

When the frequency chart is examined, it is seen that to the question “How many menstruation cycles have you experienced during 1 year?” 20% of the athletes in the Athletics branch answered with 9 times while 20% answered with 10 times, and 60% answered with 12 times.

When the frequency chart is examined, it is seen that to the question “How many menstruation cycles have you experienced during 1 year?” 4% of the athletes in the League Badminton branch answered with 5 times while 12% answered with 11 times, and 79% answered with 12 times.

When the frequency chart is examined, it is seen that to the question “How many menstruation cycles have you experienced during 1 year?” 11% of the athletes in the Badminton branch answered with 7 times while 11% answered with 8 times, 11% answered with 9 times and 55% answered with 12 times.

When the frequency chart is examined, it is seen that to the question “How many menstruation cycles have you experienced during 1 year?” 11% of the athletes in the Basketball branch answered with 2 times while 22% answered with 11 times, and 66% answered with 12 times.

When the frequency chart is examined, it is seen that to the question “How many menstruation cycles have you experienced during 1 year?” 16% of the athletes in the Arm Wrestling branch answered with 8 times while 16% answered with 11 times and 50% answered with 12 times.

When the frequency chart is examined, it is seen that to the question “How many menstruation cycles have you experienced during 1 year?” 15% of the athletes in the Ice Hockey branch answered with 9 times while 53% answered with 12 times, 7% answered with 13 times and 23% answered with 14 times.

When the frequency chart is examined, it is seen that to the question “How many menstruation cycles have you experienced during 1 year?” 20% of the athletes in the Curling branch answered with 10 times while 80% answered with 12 times.

When the frequency chart is examined, it is seen that to the question “How many menstruation cycles have you experienced during 1 year?” 9% of the athletes in the Soccer branch answered with 10 times while 27% answered with 11 times, 36% answered with 12 times, 9% answered with 13 times, 9% answered with 14 times and 9% answered with 15 times.

When the frequency chart is examined, it is seen that to the question “How many menstruation cycles have you experienced during 1 year?” 50% of the athletes in the Weightlifting branch answered with 9 times while 25% answered with 10 times, and 25% answered with 12 times.

When the frequency chart is examined, it is seen that to the question “How many menstruation cycles have you experienced during 1 year?” 14% of the athletes in the Taekwondo branch answered with 9 times while 14% answered with 10 times, 28% answered with 11 times and 42% answered with 12 times.

When the frequency chart is examined, it is seen that to the question “How many menstruation cycles have you experienced during 1 year?” 20% of the athletes in the Taekwondo-Poomsae branch answered with 8 times while 20% answered with 11 times and 60% answered with 12 times.

When the frequency chart is examined, it is seen that to the question “How many menstruation cycles have you experienced during 1 year?” 71% of the athletes in the Volleyball branch answered with 12 times while 28% answered with 13 times.

When the frequency chart is examined, it is seen that to the question “How many menstruation cycles have you experienced during 1 year?” 14% of the athletes in the Swimming branch answered with 11 times while 85% answered with 12 times.

DISCUSSION

Upon literature review, it was established that in Brown, Wengreen and Beals’ study in 2014, in which they studied with high school athletes along with their trainers, the athletes and trainers lacked sufficient information regarding Female Athletic Triad. In the same vein, in the present study 98% of the participating athletes stated that they had never heard of the athletic triad before. Therefore, the results overlap with the literature.

When the answers given to the question “Do you have enough calorie intake?” especially Athletes, Weightlifters and Swimmers stated “No” at higher rates. Sleight et al., in their 2015 study underlined the importance of the eating disorder diagnosis and emphasized that the fact that generally athletes who have eating disorders see it as a reason for shame and hide it effects the clinical diagnosis process drastically. In the light of this point along with the serious amount of the “no” answers, it is recommended that the clinical check-ups of the athletes are carried out.

Athletes from the Athletics, Arm Wrestling, Weightlifting, Taekwondo, Taekwondo-Poomsae and Swimming have mostly answered the question “Do you feel pressure to maintain your body-weight” with “Yes”. In the literature, Coelho et al., in their 2014 study state that the branches that are at high risk are generally branches in which the body fat percentage is important. They also argued that the most important step to take in order to prevent the athletes develop Female Athletic Triad is to diagnose eating disorder and prevent it from continuing. Athletes who answered “Yes” to this question are observed to be generally from branches where the body fat percentage is important or heft sports which divide the athletes into weight categories and this situation overlaps with the literature.

Over 50% of the athletes who answered “Yes” to the above “Do you feel pressure to maintain your body-weight?” question also stated that this pressure comes from their coaches. However, when the literature is reviewed it was not possible to find a suitable source for this situation.

It was revealed that to the question “Have you ever experienced stress fracture before?” the most athletes who answered with “Yes” belonged to the Athletics, Badminton and Weightlifting branches. In the literature review however, Warden et al., in 2015 stated that not only are the long-distance athletes have high rates of catching this sickness, they are also quite prone to catch it again. On the other hand, due to the fact that no other studies related to the stress fracture in Badminton and Weightlifting branches were found in the literature, a supplementary comparison was not possible.

The most serious fractures are observed to be occurring in athletes competing in Athletics, League Badminton, Arm Wrestling, Ice Hockey and Weightlifting, however, due to the fact that there is no study yet in Turkey and

the World regarding the Female Athletic Triad which compares participants from all the elite branches, a related comparison could not be found.

Two athletes from Athletics answered the question “When did you first menstruate?” that it was around when they were 15-16 years old while the majority of participants from the League Badminton branch stated that they were 14-15 years old, while athletes from the Basketball branch answered that they were 14-15 years old, the participants who are National Badminton players stated that they were around 15-16 years’ old and 1 student first menstruated when she was 17 years old. In all the other branches, the menstrual cycle was observed to have started around the normal age period which is 10-12 years old. In the literature however, in the study of Dadgostar et al., conducted in 2009 in which they compared many elite branches, 788 participating athletes were identified to be having late menarche age problems.

Athletes competing in Athletics, League Badminton, Badminton, Basketball, Arm Wrestling, Weightlifting, Taekwondo and Taekwondo-Poomsae answered the question “How many times a year did you menstruate?” with “9 and less”. When the literature is examined, it is seen that in the study of Dadgostar et al., in 2009 which was conducted with the participation of 34 sports federations, athletes below the age of 20 were under the risk of oligomenore and amenore. The risk of amenore and oligomenore was observed especially in sports which are based on weight and endurance.

Athletes from the League Badminton, National Badminton, Basketball, Arm Wrestling, Ice Hockey and Taekwondo-Poomsae answered the question “How would you describe your menstrual cycle” with more irregular than 50%. Due to the fact that there were no studies regarding these branches, an argument was not possible. However, in the light of other studies and sources, it can be said that in sports branches where the athletes are loaded heavily they either lose their menstrual cycle or it becomes irregular. Therefore, the athletes in these branches developing oligomenore are associated with the heavy training they conduct.

SUGGESTIONS

First of all, as a result of the study, informing the athletes who are under the risk of Female Athletic Triad through seminars prepared with the support taken from the Sports Education Department of the Youth and Sports Ministry along with the field experts of the sports federations and later spreading these seminars to all of the other branches can be suggested.

On the other hand, the health team of the national team can regularly inform the athletes regarding the Female Athletic Triad in the camps they participate, along with routine check-ups and the initiation of laboratory work regarding the subject in Turkey can be suggested.

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DEVELOPMENT OF DIGITAL INSTRUCTION FOR ENVIRONMENT FOR GLOBAL WARMING ALLEVIATION

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Technological education and instruction are widely used in the present education trend. Using of digital instruction for environmental subject can encourage students in learning and raise their awareness and attitude on environmental issues. The purposes of this research were: 1) to construct and develop the digital instruction for environment for global warming alleviation, 2) to compare the difference of the student' achievement scores earned before and after using the digital instruction, and 3) to study the students' satisfaction towards the digital instruction for environment for global warming alleviation. The research samples consisted of 40 students in grade 6 collected by purposive sampling technique. The instruments used in this research were the digital instruction for environment for global warming alleviation and satisfied evaluated questionnaire. The frequency, percentage, mean, standard deviation, and t-test were used to analyze the data. The findings indicated that: 1) the digital instruction for environment for global warming alleviation comprised of five environmental topics, 2) the students' achievement scores after using the digital instruction increased with statistical significance ($p < 0.01$), and 3) students' satisfaction in knowledge receiving was at good level and the overall satisfaction of students in digital instruction was at high level.

DEVELOPMENT OF ENGLISH COURSEWARE FOR COMPUTER AND NETWORKING TECHNOLOGY (CNT)

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This quasi-experimental study, which employed the pretest-post-test method, aimed to develop an English courseware for Grade 10 Computer and Networking Technology (CNT) students, and assess its effectiveness in listening, grammar and vocabulary, and reading competencies. The ADDIE (Analysis, Design, Development, Implementation, Evaluation) instructional model design was adopted in developing the courseware. The Analysis stage evaluated the Grade 10 English competencies for second quarter set by the Department of Education (DepEd). Course requirements and students' needs in their TLE specialization were also analyzed. In the Design stage, planning the syllabus, selecting materials, designing the structure, and scheming the navigation, interface and interactivity were considered. This was followed by actual Development of English for CNT courseware. Four teacher-evaluators were designated to evaluate the principles, approaches and strategies in the courseware. In the Implementation stage, the courseware was field and pilot tested to Grade 10 CNT students of Abellana National School. The final stage was the evaluation that assessed the students' learning. TOEFL Junior Standard test was used to measure whether the students' performance had been improved after using the courseware. . In the interim, students' comments on the courseware were also solicited through focus group discussion (FGD).

In succession, the English for CNT courseware had positive reception both from the teacher-evaluators and students. Findings showed that students' performance had improved; hence they yielded a significant result after the intervention. Therefore, it may imply that the English for CNT courseware enhanced the language proficiency of the students especially on listening, grammar and vocabulary, and reading skills. Based on the results, the following are recommended: (1) Teachers are encouraged to create their own courseware in learning English for Specific Purposes especially in other macro skills such as viewing, speaking and writing utilizing the ADDIE Instructional Design Model; (2) Seminar- workshops about the creation of courseware and learning materials to teach macro skills must be provided to embolden teachers as instructional materials or course engineers; (3) A follow-up of this study may be done to check effectiveness before and after the implementation of the courseware with a longer period of time and; (4) Researchers are encouraged to continue the study by dividing the students into two groups: the experimental group and the control group. The experimental group has to interact with the English for CNT courseware as part of the learning activities while the control group uses the conventional learning methods. This is to further attest the effectiveness of courseware in improving students' language proficiency.

DEVELOPMENT OF PRINTED MEDIA WITH AUGMENTED REALITY TECHNOLOGY FOR THE FARMERS IN RURAL AREAS NAKHON NAYOK PROVINCES, THAILAND

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ABSTRACT

The printed media is quickly developing, but they are also giving birth to the newer printed media using the internet, smart devices, and applications. Internet networks are often used together with smart devices and applications for easy portability of applications at all times and all places, particularly the use of agricultural field and far away in rural areas. The purpose of this research was to development of printed media by using Zapppar Augmented Reality (AR) Technology in the title of "Watermelon" for farmers in the " Nakhon Nayok " provinces , located in the center part of Thailand , and to study the use of printed media , reviews the benefits and problems of the use of print media in each category . The sample of the sampling using stratified random with a total of 66 farmer households. The results showed that development of printed media with Augmented Reality (PMAR) quality is a good level. The farmers choose to use a printed media type as a poster satisfaction with very good level, brochure satisfaction in the good level and flash card satisfaction in good level. The benefits of new printed media with augmented reality technology simplifies rather than reading from the traditional printing media. The farmers can use mobile phones with Zapppar application to scan through new printing media for watching videos, presentation, soundtrack, and data links from external sources and also watch as many times as needed, however, there are problems with using smart devices and the internet in some countryside.

Keyword: Printed media, Augmented Reality, AR, Zapppar, Smart Devices, Mobile phone, Application, Rural Area

INTRODUCTION

Thailand is located in the tropical, can farm all year around. Most of the area is used for agriculture approximately 15% of the vegetable area is planted with watermelon, which is the most popular plant in Thailand. The problem is watermelon plantation is still using traditional planting methods that can only be grown seasonally and cannot increase productivity. It is, therefore, necessary to promote and educate farmers through new printed media. Recent advances in hardware and software for mobile computing have enabled a new breed of mobile Augmented Reality (AR) systems and applications. A new breed of computing called augmented ubiquitous has resulted from the convergence of wearable computing, wireless networking, and mobile AR interfaces (Papagiannakis, G, 2008). AR technology contributes to increasing engagement, invites participation and develops the appreciation of the context, proposed to incentivize curiosity, facilitate the interpretation of text and illustrations and provide a learning tool that relates to the reader (Garcia-Sanchez, J.C., 2017). AR helps to concretize abstract concepts and enhances the sense of reality which in turn is a huge contribution to learning (Özdemir, Muzaffer, 2017). AR-based video telephony service can allow mobile users a better user experience since it allows participants to place and transmit augmented objects on video frames to a peer (Jang, S.B., 2017). Normally, there is no interaction with the traditional printed media such as having only data and images users will not have access to the information detailed, but the new modern printed media combined with AR Technology can make a moving picture like a video and easy to understand, keep up to date. Therefore, it is urgent to improve and transform the process of developing traditional media into new printed

STUDY

This research study aims to (1) Develop interactive printed media for Watermelon by using augmented reality (AR) technology. (2) Study what the appropriate printed media is used for watermelon rural farmers areas in Nakhon Nayok Province, Thailand. (3) Reviews the benefits and problems of using AR printed media. The research methodology is a qualitative research study by using participant observations, questionnaires and documents. The sample of sampling using stratified random with a total of 66 farmer households. In this research the definitions of Printed Media with Augmented Reality (PMAR) Technology are using smart devices and Zappar technology. There are varieties of equipment such as mobile phone both iOS and android Operating System, internet, networking, application and printed media with augmented reality (PMAR) are focused to: Poster, Brochure, and Flash Cards. (Fig. 1, 2, 3) For the PMAR graphics design using Photoshop, Illustrator and After Effect Programs. The user process is simple to download free Zappar app which opens up a camera view in "scanning" mode, when using an AR browsing app on to browse augmented content the distance users preferred to stand from poster content was 129 cm and that standing further from the poster enabled a browsing task to be completed more quickly (Colley, A. 2016). Once the app detects something that's Zappar powered it assembles all the content and brings that thing to life on-screen.



Fig. 1 Types of PMAR: Poster size 29.7 cm x 42 cm

The farmer's samplings can use mobile phones with the installed Zappar application and scan point of the Zappar Code to access and get the more information on videos (Fig. 1.1) about: –Where is watermelon come from? (Video1) - Planting preparation. (Video2) -Watermelon seeds preparation. (Video3) -Planting and maintenance. (Video4) and -Watermelon harvest. (Video5)

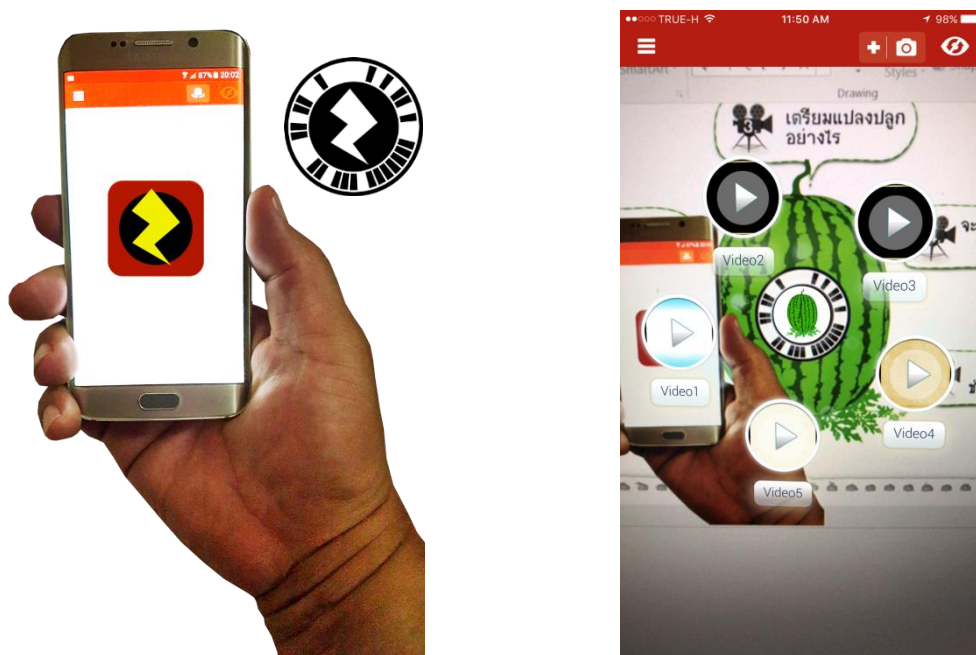


Fig. 1.1 Using Zappar app to scan Zappar Code



(Brochure Front size)



(Brochure Back size)

Fig. 2 Types of PMAR: Brochure size 21 cm x 42 cm



Fig.3 Types of PMAR: Flash Card size 5.5 cm x 9 cm

The Zappar has augmented reality application that can see and recognize code, images, and objects. Ever wondered how you know what to zap? Then wonder no more. Now, whenever you see a Zappar Code (Fig. 3.1) you know there's exciting hidden content to discover can appear on about video and a whole bundle of mind-blowing fun to mobile phones.

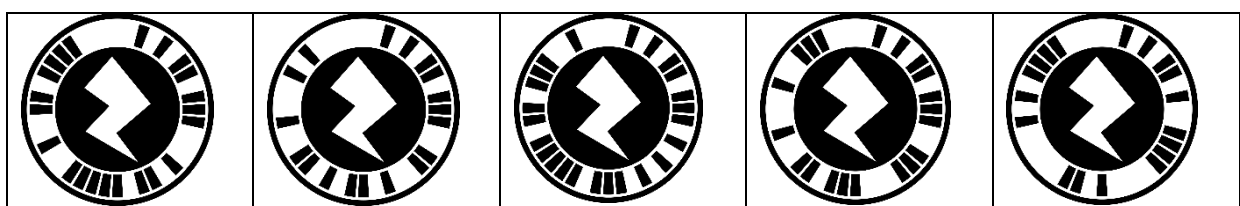


Fig. 3.1 Zappar code for each Flash Card (1-5)

FINDINGS

The results showed that development of printed media with AR quality are a good level. The farmers choose to use a printed media type as a poster satisfaction with very good level, brochure satisfaction in good level and flash card satisfaction in good level. The benefits of new printed media with Augmented Reality Technology simplify rather than reading from the traditional printing media. The farmers like and love to use poster the most of all, because of big visualize with data, including graphics and video clips, continues with brochure and flash card. The brochure included information consisting of text and images, non-interactive and if updated, the brochure will be obsolete with the advent of augmented reality technology, Mobile Augmented Reality has been introduced to facilitate human in their daily lives (Zulkifli, A.N. 2016). The flash card introduces the interaction of learning therefore it could create the joyful learning. However, the potential for the flash card could be further enhanced through the use of AR technology. Therefore, introducing the use of AR could encompass fun learning since AR offered rich media learning (Rambli, D.R.A.,2013). The farmers know how to use modern technology better and get more information on the media. Be able to visualize and hear the voice description and follow step by step through a mobile phone. It is easy to use and can be used in everyday life. However, there are problems with using smart devices and internet in some countryside. The problem of using PMAR found that the farmers' lack of AR knowledge, experience, equipment for using in PMAR environments, internet networks in the rural areas and have not the new printed media to use.

CONCLUSIONS

To study the development of Printed Media with Augmented Reality Technology (PMAR) is the new ways of life for the farmers in rural areas. This is the new activities for sharing the exclusive knowledge and educated for them to upgrade ways of life about planting melon and the other plants in Thailand. Augmented Reality is changing the ways to interact with the world. However, the farmer must have a good attitude towards using the new technologies; provide equipment's and knowledge resources as well as the new modern farming. The urgent priority is the government should support and provide internet access in all areas of the country.

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DIFFICULTIES EXPERIENCED BY PRESCHOOL TEACHERS WHO WORK WITH CHILDREN WITH MULTIPLE DISABILITIES

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ABSTRACT

The importance of preschool education for children with disabilities is revealed by both with the legislations and the results of various studies. Children with multiple disabilities (MD) have combination of the problems such as neurological disorders, sensory loss, physical disabilities, medical issues and the other developmental and/or behavioral problems and the preschool teachers who work with these children are experiencing lots of difficulties. In this case study, semi-structured interviews were conducted to determine the difficulties experienced by four preschool teachers working with children with multiple disabilities, and the data were analyzed with descriptive analysis. Four major and 13 sub-themes emerged out of the participants' statements. The findings showed that the preschool teachers who work with children with MD have parents related, teacher related, the children with MD related and the educational system related difficulties.

Key Words: Preschool education, preschool teachers, multiple disabilities, semi-structured interview.

INTRODUCTION

Multiple disabilities (MD) refer the several disabilities, health and/or developmental problems and the number of children who have MD are increasing day by day (Ayyıldız, 2012; Chaudhari, Otiv, Chitale, Pandit and Hoge, 2003, Gresnight, 2007). These children have many limitations due to the combination, severity and the types of their conditions (Ayyıldız, Akçin and Güven, 2016; Thuppall and Sobsey 2006; Vlaskamp and Cuppen-Fontaine 2007). Most of these children have the combination of sensory loss (e.g. blindness/visual impairment, deafness/hearing impairment), intellectual disabilities, physical disabilities, autism spectrum disorders or autism like behaviors, epilepsy, chronic diseases (e.g. asthma, cancer, diabetes, anemia), metabolic problems, rare syndromes, behavioral issues and feeding and sleeping problems (Ayyıldız, 2007; Bahçivancioğlu-Yazıcı and Akçin, 2014; Best and Bigge, 2001; Thuppall and Sobsey 2006). With all these issues, the education of children with MD, become a very important and challenging topic especially for the teachers who work with them. The study which is conducted with the special education teachers who work with children with MD, revealed that the teachers need in-services trainings and seek collaboration opportunities. Results also suggested that the special education undergraduate and graduate programs about MD should be started. The study of Bahçivancioğlu-Yazıcı and Akçin (2014) pointed out that the parents also requested the qualified teachers for their children.

Although the importance of the special education training of preschool teachers is quite obvious (Başal, 2005), the studies revealed that the preschool teachers may have negative perceptions about children with disabilities. The study results, which assessed the preschool teachers' attitudes towards children with disabilities, showed that the negative thoughts and attitudes are related to the children's potential behavior problems and the type of disability (Gal, Schreur and Engel-Yeger, 2010). Another study noted that the preschool teacher candidates have negative thoughts about the special education. The preschool teacher candidates found special education as a difficult field to work (Uçuş, 2016). Considering the importance of preschool education, it is necessary to support teachers, especially who work with challenging children such as children with MD. However, it is first necessary to know the difficulties experienced by these teachers in order to determine what kind of supports that they need. So this study aimed to examine the difficulties experienced by the preschool teachers who work with children with MD.

THE STUDY

Case study approach was used in this study in order to determine the difficulties experienced by preschool teachers who work with MD children. Semi-structured interviews conducted with four preschool teachers who have experiences on working with MD children. The participants were determined by intensity sampling, which is a type of purposeful sampling method, in order to obtain in-depth information from the rich cases. The rationale of using intensity sampling is to gather information from the rich cases which are demonstrated the population intensely (Patton, 2002). Thus the participants selected purposely, cause they were aware the fact that they have been working or worked with MD children. The characteristics of the participants were given in Table 1 below.

Table 1: The Characteristics of the Participants

	Gender	Age	Graduation	Experience with MD children	Workplace of working with MD children
Participant 1	Female	35	Undergraduate	11 years	Public school+Special Education and Rehabilitation Center
Participant 2	Female	33	Undergraduate	16 years	Public school+Special Education and Rehabilitation Center
Participant 3	Female	27	Undergraduate	4 years	Special Education and Rehabilitation Center
Participant 4	Female	29	Graduate (MA on Special Ed.)	6 years	Special Education and Rehabilitation Center

Appointments with the participants made through by phone calls and interviews were held in the participants' work place or home. All participants were informed about the purpose of the study and signed the consent form. The interviews were audiotyped and transcribed verbatim. The duration of the interviews were 14 to 41 minutes. The data analyzed descriptively. From the important statements of the participants, the categories are identified. Then the categories are grouped to create the themes. After the revision of a specialist who is expert on qualitative studies the themes and sub-themes were finally identified.

FINDINGS

Four significant themes and 13 sub-themes emerged from the interviews' transcriptions. The major themes were 'Parents related difficulties', 'Teacher related difficulties', 'Children with MD related difficulties' and 'Educational system related difficulties'. In below the major and sub-themes were explained in detail and the some example statements were given in order to reveal the findings more clearly.

Theme 1: Parents related difficulties

This theme was covered the statements of the parents' negative mood and feelings about the education of their children and the society's point of view, mostly high and rarely low expectancy level of the parents, the communication problems that the participants faced while they try to collaborate with the parents and the fact of the lack of awareness and knowledge of the parents in terms of their child's situation. It has four sub-themes as "the moods and feelings", "the expectancy level", "lack of support and consulting" and "the lack of awareness/knowledge. Some of the examples of participants' statements according to these sub-themes are below:

The mood/feelings

P 1. *"In families are exhausted because of the society and the people's pity, repellent eyes. It caused them to get into the psychological collapse".*

P 2. *"...motivation of the families reduced because the child didn't achieve the goals while the years fly. So they are looking at the education like 'ok, do it, let's see how it will be going', but it is actually their fatigue and the motivation problem".*

Expectancy level

P 4. *"I mean the families would have high expectancy sometimes. I mean they sometimes are not aware of their child or they trust the teacher too much. They wouldn't accept the condition of the child or have more expectancy from the teacher or sometimes it is opposite. They would have low expectancy. This is much rarer, but sometime as it is. ... and in this situation when I asked them to practice something at home, they said 'it doesn't matter if we practice or not, nothing will change'".*

Lack of support and consulting

P 1. *"I mean the most difficult thing for me is this. As much as I try to communicate with the families and tell them about their child's development, it is more, ... it little challenging for the family to feel insufficient about themselves. They are dealing with more than one disability, so they don't feel comfortable telling their problems to someone else but me, because I am their educator, a teacher. Of course it is so difficult for them to overcome this, but there should be some expert or some places for getting help about that. A parent should only ask the teacher for help in terms of the education, but instead of this sometimes she is telling you the problems, the fight with her husband or the other family related problems. Sometimes she is telling you the problems about her other child, the sister of the disabled child. ... and you don't know what to say or do. You are hesitating".*

Lack of awareness/knowledge

P 3. *"... awareness of the families is too low, I mean in terms of being aware of their child's situation".*

P 4. *"I mean sometimes things happen like, they are aware of their child, but they do not realize that education could change a lot of things".*

Theme 2: Teacher related difficulties

This theme has two sub-themes, ‘lack of special field knowledge and experience’ and ‘collaboration needs with the other professionals’ and it covers difficulties of preschool teachers in terms of the special field knowledge and the lack of experiences working with children with MD and the needs of working with the other professionals collaboratively. The examples of the participants’ statements according to these sub-themes are:

Lack of special field knowledge and experience

P 3. *“I am having great difficulty in terms of reducing behavior problems, because I do not have training for this”.*

Collaboration needs with the other professionals

P 1. *“...in this sense, it is better to maintain an educational setting by collaborating with a physiotherapist or neurologist, whoever the child needs. The medical assessment should not be independent from the educational one. The doctor and the educator should know about their evaluations of the child. So they give me more support according to support the child’s development. It is an deprivation for me for instance”.*

P 2. *“...in the needs... the Occupational Therapists are needed for example. The thing would be more easier for us if there are Occupational Therapists in Turkey. The MD child has difficulty sitting and holding the spoon. The adaptation is needed. So I wish I could reach an Occupational Therapist or physiotherapist. And I wish I could know how or where to start to work with the child’s intellectual disability”*

Theme 3: Children with MD related difficulties

‘Disability’, ‘communication difficulties’, and ‘developmental issues’ are the sub-themes of this theme. It includes the topics such as the severity, type and combination of the disabilities, the verbal communication and expressive language difficulties of the children with MD and the other developmental issues such as age of the child, developmental delays and problem behaviors. In below, some examples of participants' statements:

Disability

P 2. *“...visual impairment and additionally intellectual disabilities, visual impairment and intellectual disabilities, when they are together it is too hard to give the stimulants....Autism... Autism plus intellectual disabilities and visual impairment... When they are combined I am having serious difficulties”.*

Communication difficulties

P 4. *“Ok... For instance I have students who cannot talk. When the blindness and speech problems combined, I am getting only motor reactions and my practices with them could be limited. I mean the only way to evaluate something without vision is motor reactions. Some of my children do not speak at all, because of their disabilities and the oldest children I am working with, they are not speaking at all”.*

Developmental issues

P 2. *“If the child with MD is older, he could have behavioral problems and aggression. It is difficult to control that, sometimes. But if the children with MD come to us in early ages, the trainings are more effective and the outcomes are much better and it is also enjoyable to work with that age”.*

P 3. *“They mostly are having problems in self-care skills, daily living skills and mostly toilet training and feeding themselves”.*

P 4. *“With the child who has only one disability, visual impairment for instance, we can teach him everything. He could have some kind of developmental delays but we can teach everything. But if the child has MD, if he has two or three disabilities, learning is much slower and takes too much time”.*

Theme 4: Educational system related difficulties

This theme has four sub-themes and they are ‘lack of schools, curriculum, educational materials, resources, practical training, supervision’, ‘lack of early intervention system’, ‘lack of educational opportunities and experienced staff’ and ‘differences between the school for MD and the special education and rehabilitation centers’. This theme covers the issues such as lack of schools, appropriate curriculum, educational materials, Turkish resources such as books, handbooks in terms of children with MD, video trainings with the real cases, practical trainings and supervision opportunities, the early intervention system, the educational opportunities other than the schools, experienced staff and the differences between the schools and the Special Education and Rehabilitation Centers in terms of the length of the special education sessions and the effectiveness of the learning. The statement examples are in below:

Lack of schools, curriculum, educational materials, resources, practical training, supervision

P 1. *“As the society, we are just internalizing the term MD. So it is a problem itself. No resources, no Turkish resources available, it is a problem and the children with MD have no opportunities for getting education. It is an huge disadvantage, ... because as far as I know, there is only one school for the children with MD in our country. Every child is a different, unique person. So they need different educational goals as well as the common ones. There should be a database which includes short term-long term goals for these children and not only the database, books and the videos also needed. We have plenty of cases actually. So we can get permission*

from the families and work on that cases for practical training purposes”.

P 3. “... I mean, the lack of materials are great difficulty. Especially because we are working with visual impairment plus, intellectual disabilities, plus autism...”.

Lack of early intervention system

P 1. “The early intervention centers should be started as soon as possible. Generally the lack of these centers, the lack of support that the parent can get from the different experts are the huge problems. Because the ages from 0 to 6 is a critical period by all means”.

Lack of educational opportunities and experienced staff

P 2. “Eee ... sometimes, in Turkey, the lack of the superior person or institutions to get support for such children is challenging. I mean where should I begin, which disability, which behavior should I choose first to work on ...”.

P 4. “...in terms of education, there are problems. I think that some children cannot get the sufficient education at the school setting, because there are no educated staff for them”.

Differences between the school for MD and the special education and rehabilitation centers

P 2. “I happened to feel more pleased while I was working with these children at the school setting... because the time we spent was much more. I mean seeing the child once a week, let's say twice at most ... I could be able to see the children 45 minutes once a week at the special education and rehabilitation center, but this is not enough for the children with MD”.

CONCLUSIONS

The results of the study showed that preschool teachers who work with children with MD are having problems in terms of,

- The conditions of children with MD (the combination, severity and degree of disabilities and the developmental and/or behavioral problems, communication difficulties experienced with nonverbal children),
- Educational system (The lack of early intervention services and school opportunities, appropriate education for the professionals, supervision and collaboration opportunities, resources and the non-recognition of MD as a special education category).
- Working with parents collaboratively and dealing with the issues related to the parents such as unstable emotional states and high or low expectancy level.
- The lack of knowledge and necessary training about children with MD.

There are also some other notable results emerged from the participants statements. These are:

- All participants referred children with MD as ‘the children who have more than one disability/condition but they mostly mentioned about two to three disabilities/conditions. However, there is no limit for the number of disabilities/conditions that children with MD may have.
- One participant used the term ‘doubled disability’, but it is actually not the convenient term.
- Two participants referred the combined blindness/visual impairment and deafness/hearing impairment as MD, but it is deafblindness.

RECOMMENDATIONS

Based on the results of the study, the following recommendations can be specified:

- In order the Ministry of Education to recognize MD as a formal special education category, academicians and non-governmental organizations need to work together and advocate the topic.
- The early intervention programs should be prepared and implemented to support the development of MD children starting from early ages.
- With the undergraduate and graduate programs and the specific training courses, the academicians and the teachers should be trained.
- Cooperation between parents and institutions, such as universities, schools, Special Education and Rehabilitation Centers, should be strengthened.
- All professionals who are working with children with MD should be encouraged to collaborate with the transdisciplinary understanding.
- Trainings about MD for both for the parents and the teachers should be provided.

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DIGITAL GAME BASED LEARNING'S (GBL) IMPACT ON FOREIGN LANGUAGE (FL) VOCABULARY ACQUISITION

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Abstract

This study investigated the integration of the foreign language vocabulary learning app, Lingo Arcade, into a global learning instructional unit given to two first grade classes at XYZ school located in the Mid-Atlantic region of the United States. The Global Learning Lab needed to find a way to integrate more Spanish vocabulary into the curriculum. The study intended to answer how Lingo Arcade would impact foreign language vocabulary acquisition and what were students' perceptions of the app. This Mixed-Methods Action Research study incorporated a quasi-experimental design including one teacher and 24 students. Each group's mean was calculated and applied to a *t*-Test. The qualitative data was coded and triangulated. Lingo Group made a significant impact noting an average improvement on the posttest of 48%. However, the Traditional Group's gains were greater with an average posttest improvement of 64%. Further, according to the qualitative data analysis, Traditional Group's engagement scores were significantly higher. The results indicated that the Traditional methods are still superior to solely using the technology, but both methods will provide an efficient way to deliver new Spanish vocabulary in the Global Learning Lab.

Key Words: Game Based Learning, Global Languages, Spanish, Gamification, Lingo Arcade, Foreign Language Learning

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Entire Research Study: <https://www.scribd.com/document/359144940/Digital-Game-Based-Learning-s-Impact-on-Foreign-Language-Vocabulary-Acquisition>

Topic

The importance of learning a foreign language increases as new technology and innovation link our countries, businesses, industries and classrooms in ways unimaginable in the past. Companies can easily launch a satellite operation in India, Hong Kong, or Brazil for countless types of commercializations. Industries can now establish manufacturing in other countries to reduce the costs of shipping and logistics and depend on Skype, FaceTime and other communication software programs so team members can collaborate regardless of location. All levels of schools can now connect and collaborate with any other school in the world that has internet access. Students can also benefit from the technology through learning at any institution around the world. A student can live in Pittsburgh, Pennsylvania but have access to courses in Amsterdam, Holland. Students on one side of the world can even attain their degrees from universities on the other side of the world without ever using a passport. The world is becoming smaller by the minute. With the advent of this technology and innovation, learning a foreign language doesn't just open up doors for jobs and education, it's becoming a requirement.

The most opportune time for a person to learn a foreign language is in their primary years before and during elementary school. Linguists traditionally gave several windows of opportunity to acquire a foreign language. The first window was from ages 0-3; the second window ages 4-7 and the final window of acquisition ended at puberty (Birdsong, 1992). Further, by the time students typically start to study foreign languages in the United States (7th and 8th grade), the students have already developed an ethnocentric attitude and resist learning a different language (Knutson, 2006). Every year after puberty, it gets increasingly difficult to reach students. Recent studies now show that window starts to close quickly around the age of five years old emphasizing the need to start learning a second language even younger than previously thought (Meisel, 2009). Time is of the essence.

These windows of foreign language learning are critical. In the United States, it is uncommon for elementary schools to offer comprehensive foreign language programs. Most public elementary schools in the United States, particularly in the Midwest and rural regions do not offer a second language, and those that do are extremely limited in time and resources. Not introducing foreign languages to students when they are most eager and adaptable to new languages puts American children at a huge disadvantage in the emerging global workforce compared to other countries where students speak two, three, four and more languages. This phenomenon was the impetus for a company called Little Linguists, Inc. which was founded 15 years ago in Pittsburgh, Pa (Little Linguists, Inc., 2017). The owner established the company, because she could not find second language acquisition programs for her young children.

Being an international marketing manager for a major chemical company, she knew how important speaking foreign languages was in this new global community. She started her own children in seven languages and they each gravitated to a different one (Little Linguists, Inc., 2017). Unfortunately, 15 years ago, there was very little published material for teaching foreign languages to young children, and there was no technology that could be integrated into the curriculum. In fact, there were no curricula or lesson plans for elementary aged foreign language learning. Further, very little research had been done on bilingualism in America. The owner started developing materials, lessons, and curriculum and created a format based on research from leading linguists in the United States (Little Linguists, Inc., 2017). The program spread throughout Pennsylvania and was implemented in 40 schools as before or after school enrichment programs (Little Linguists, Inc., 2017). The classes were ten weeks long and met once a week for one hour. Students were able to get a taste for the language and could at least communicate with simple greetings and everyday conversational exchanges in the target language. They also were able to attain very good pronunciation for future, formal language training.

Five years ago Little Linguists instituted a program called the Global Learning Lab which focuses more on exposing students to many languages and cultures and trains them to adapt and pick up on several languages at one time. One school in the Mid-Atlantic region has adapted this Global Learning Lab and is going on its fifth year of conducting the class as a special in which grades kindergarten through sixth meet once a week for one hour. The students learn a little bit of Spanish every week because of its practicality, but after the 10-15 minute Spanish conversation segment, the students virtually travel to another country for the remainder of the class. Every 10 weeks or so the country changes. Regardless of the country of focus, Global Learning Lab continues with the Spanish language the first 10-15 minutes of every class, so by the time the students get to middle school and take Spanish everyday, they will have a solid, communicative foundation. They will be comfortable and uninhibited to ask and answer questions in Spanish.

Unfortunately, 15 minutes a week is very limiting in terms of how much Spanish students can learn and retain. The students can ask and respond to, “How are you?”, “What’s your name?”, “How old are you?”, “What is the weather like?”, “What day is it?”, and they can introduce one another. It would be extremely beneficial to take advantage of these small linguistic windows by teaching more vocabulary, so the students would have a much stronger foundation going into the junior high and high school.

Problem Statement

Communication is one of the five pillars of Global Language Learning according to ACTFL (American Council for Teaching Foreign Languages) (ACTFL, 2017). The other four include Culture, Connections, Community, and Comparisons. The current format in the Global Learning Lab at XYZ school does not allow for the first grade students to efficiently and effectively add new Spanish vocabulary to their repertoire. According to the end of the year verbal assessment, students are limited to only a handful of scripted conversations and have not acquired any new vocabulary. This greatly inhibits their advancement towards more complex conversations in Spanish, which limits their potential and the school’s objectives of nurturing global citizens.

Problem Background and Causes

Learning new foreign language vocabulary for the first time can be a tedious and long process. It is a process that requires rote and contextual learning. There is a constant loop in foreign language vocabulary acquisition between the short term working memory and long term memory (Wen, Borges, & McNeill, 2015). Connecting this loop is an arduous process. In the classroom, there is a certain amount of rote learning that needs to

occur for the student to gain a foundation with which s/he can build his/her foreign language vocabulary into this loop of pre-learning, learning and reinforcement into long term memory. Little Linguists, Inc. incorporates a combination of multisensory techniques when teaching new foreign language vocabulary (Little Linguists, Inc., 2017). Limited English is used when introducing new vocabulary and Krashen's natural model of vocabulary acquisition is adhered to the majority of the time (Krashen, 1983). The goal is for the student to identify the Spanish code for the picture and the visual (Communicative Approach) rather than directly translate from the English to the Spanish and then attach the visual which is the Direct Translation Method (Richards & Renandya, 2002). The Direct Translation method is inefficient, ineffective, and it is no longer recognized in foreign language classrooms as the premier method to teach foreign language (Krashen, 1982). Students retain more when engaging with the vocabulary word in its natural context.

Although these methods have been proven to be more effective in teaching foreign language vocabulary, they can also cause confusion and boredom to the student in which case the learner completely shuts down to any new foreign language words being introduced because of overstimulation (Dacian & Dolghi, 2016). Consequently, students will often let their minds wander when learning new vocabulary and completely disengage from lessons that use these generally accepted methods of teaching foreign language vocabulary. This phenomenon can also be attributed to the elementary aged child's attention span. It is extremely difficult to teach foreign language vocabulary to students with a limited attention span, because it takes time to connect the visual, auditory and tactile requirements of learning new foreign language vocabulary. Students in elementary school are easily distracted and have limited attention in learning this new vocabulary (Matusz et. al., 2015).

Most of the research on Krashen's foreign language learning approach and the naturalistic methods of teaching vocabulary was done using secondary school participants, and did not include elementary learners (Dacian & Dolghi, 2016). Since the research did not include elementary aged learners, no one truly knows how students of this age can most efficiently learn foreign language vocabulary. Given the young learner's shorter attention span, the most efficient way to teach foreign language vocabulary to elementary school aged students is ambiguous.

The Global Learning Lab tries to adapt all of the language and culture units to the learners' age and learning styles. The units are sensitive to short attention spans and potential confusion caused when using these traditional methods (best practices). One of the goals of the Global Learning Lab is to nurture future global citizens by opening the students' minds to new languages, cultures and belief systems. Another goal is to give the students enough of a Spanish foundation in order to communicate in simple, everyday conversation by the time they enter middle school. Often, these two objectives are in conflict because students have very little time in Global Learning Lab to accomplish such massive objectives. It takes a great deal of time and repetitions to learn new vocabulary needed to hold a simple, everyday conversation in Spanish. Given the format of Global Learning Lab, it is extremely difficult to efficiently integrate this meaningful Spanish vocabulary learning. Each year Global Learning Lab virtually visits four foreign countries. The Global Learning Lab rotates three non-Spanish speaking countries and one Spanish speaking country. Refining Spanish conversation and learning new vocabulary is critical when the rotation is on the Spanish speaking country. Time is of the essence, and extending the time in Global Learning Lab is not an option. There is only this ten week period during the year when the entire instructional hour is devoted to Spanish. It is critical to engage the students in meaningful vocabulary activities to maximize the amount of vocabulary they learn and retain.

In summary, the problem of introducing and acquiring new Spanish vocabulary into the Global Learning Lab to learners of this age is complex. There are many obstacles to consider including the multifaceted process of acquiring new foreign language vocabulary, short attention spans these learners have in elementary school, the format of the Global Learning Lab, and the fact that all of the FL learning must take place in school in a very short amount of time.

Research Questions

The following research questions will be answered upon completion of the research study:

1. What is the impact of adding the Spanish vocabulary app, Lingo Arcade, on first grade student's Spanish vocabulary acquisition at XYZ school?

2. What are the first grade learners' perceptions of integrating the Lingo Arcade app into the Global Learning Lab?

Topic and Problem Conclusion

There is no doubt that our world is increasingly becoming smaller every year through air travel, technology, and immigration. The United States is only beginning to feel the impact of a global workforce. In generations to come, students will be competing not only with other American students, but students from across the globe that are far better equipped in communicating in different languages. If schools had a way to simply and efficiently introduce new languages at a young age, our American students would not be at such a disadvantage. We need empirical evidence to demonstrate how we can teach these languages more efficiently given the time and resource constraints schools have.

Particularly in XYZ school, if the students do not add to their vocabulary, their communication skills in Spanish will become static. They will not be able to create their own sentences in later units nor will they be able to have meaningful conversations with Spanish speakers when opportunities present themselves. Many of these students continue on with mission work overseas, many of them in Mexico.

Chapter 2 - Review of the Literature

Technology Integration in the Foreign Language Classroom

The amount of technology available today is vast and growing exponentially. There are some outstanding apps and software programs that can assist students with vocabulary learning in the foreign language classroom. The problem is finding empirical evidence that supports the claims that this technology boasts. There is plenty of anecdotal evidence, but there are only a handful of experimental studies done on these language apps (deHaan, 2010). Additionally, the empirical evidence that does exist on these apps is from a laboratory experiment and is somewhat flawed. No research has been conducted in a classroom setting and combined with instruction from a live teacher (Ahmed, 2016).

This literature review reveals several themes within the integration of technology into the foreign language classroom. The most promising method of integrating technology in the classroom emerged as a theme in this literature review. Game Based Learning shows great potential in assisting foreign language teachers in delivering basic vocabulary learning in a contextual manner using visuals. Finally, the only app that researchers have analyzed using quantitative, experimental based research is Duo Lingo, and even this research is flawed and questionable. Overall, there is very little empirical evidence foreign language instructors can depend on when selecting technology to use in the foreign language classroom.

CALL- Computer Assisted Language Learning. CALL, Computer Assisted Language Learning, is the inclusion of technology to assist and enrich foreign language learning. Many applications fall under the umbrella of CALL including ITS (Intelligent Tutoring Systems), GBL (Game Based Learning) and ASR (Automatic Speech Recognition). Specifically defined, CALL is “any process in which the learner uses a computer to improve foreign language competence.” (Scott & Beadle, 2014, p. 19). Fundamentally, CALL provides a way for the learner to interact with technology, but it is learner led. There are three types of interactions with the computer: The learner interacts with three different subjects- content, instructor and another learner (Scott, Beadle, 2014).

CALL can be integrated into many platforms including but not limited to the PC, Chrome books, PDA's, smart phones, electronic dictionaries and any other electronic device that supports programs for language learning. Learners can use a variety of applications online either synchronously or asynchronously. Offline applications include CD Roms, DVD's and software loaded onto a PC. One of the advantages of CALL is it is flexible and available at any time. It also promotes self-guided learning. Learners can move forward as they master skills, but they can also review as much as needed until they obtain competence in the specific area. The applications of CALL are vast.

CALL's most promising applications are Chat and (ITS) Intelligent Tutoring Systems (Golonka, 2014). There is empirical evidence that shows Chat is a good alternative to in-person interaction in the foreign language. It enhances the phonological working memory (Golonka, 2014). This is particularly important in vocabulary learning where it is critical to loop the short term working memory with long term memory equipping the student to form more complex language. Chat also is shown to lower foreign language learning anxiety and results in more words

produced with more complex sentence structures (Golonka, 2014). One of Krashen's significant findings in the best practices of foreign language learning is minimizing this affective filter (Krashen, 1983). The affective filter is the anxiety that naturally occurs when one is learning a new language. It is a type of fear that learners experience when trying to speak a new language in which they are not confident. Krashen's idea of lowering this affective filter by giving learners confidence through positive reinforcement, encouragement, and accepting natural mistakes that occur when using a new language is part of today's best practices in foreign language learning (Krashen, 1983). Finally, there are significant gains in speaking, self-correction, and "focus on form" method of foreign language learning (Scott & Beadle, 2014). This, also, corresponds with today's best practices of lowering the affective filter and adhering to the Communicative Approach to language learning.

Intelligent Tutoring Systems (ITS) also look promising according to the solid research studies. ITS includes gamification apps and software also referred to as GBL or Game Based Learning programs. The most significant advantage to using Intelligent Tutoring Systems over a traditional method of foreign language learning is that the feedback is instantaneous and repetitive (Golonka, 2014). This instant feedback adheres to best practices in foreign language learning in a way that a live instructor cannot. A live instructor in a classroom setting cannot always give instant feedback especially in a larger classroom. Intelligent Tutoring Systems also benefit students in vocabulary learning and practice. Unfortunately, most Intelligent Tutoring Systems lack cultural learning, authentic experiences, human engagement, and collaboration. They often contain incorrect content, provide inadequate screen graphics, and the overall whole language learning (Jašková, 2014). Excluding cultural aspects of the language fails to adhere to best practices of foreign language learning. Best practices in foreign language learning include the "5 C's"- communication, culture, connection, comparisons, and community (Alley & Heusinkveld, 1998).

Another limitation to Intelligent Tutoring Systems is that it can create teacher dependence and limit other teaching methods. Many teachers fall into a trap thinking that the learners are so engaged in a computer program they must be learning. Beware. "It is easy to blindly accept something as valuable for language learning simply because it involves language and problem solving and students enjoy it... (but) selection should be done on the basis of whether it really promotes language learning." (deHaan, 2010). Other restrictions to CALL include limited access to technology, teacher resistance to using CALL, lack of training and professional development on emerging technologies (Scott, Beadle, 2014).

DGBL- Digital Game Based Learning. DGBL is the use of computer or digital games in the classroom. DGBL shows the most promise out of all the applications in technology and foreign language learning. The language apps available today include many simple memory games, flashcard apps, storybook apps and counting and coloring apps for basic language acquisition. However, the more interesting language apps are those that are intuitive and teach the language in a holistic way. From a linguistics standpoint, apps that do not translate into English are better than those that simply do a direct translation with no visual input. These types of apps adhere to the best practices in foreign language learning according to the Communicative Approach. Direct Translation is no longer the accepted approach to learning a foreign language, and apps that simply use the Direct Translation method are not up to standard (Krashen, 1983). The visual based apps, however, do adhere to best practices in the rote learning segment of foreign language acquisition. These intuitive and visual apps include Rosetta Stone, Lingo Arcade and Chungaboo. Their prices vary from hundreds of dollars (Rosetta Stone) to free, which Lingo Arcade and Chungaboo all offer the primary skills for free.

There are many advantages to using DGBL in the foreign language classroom. These advantages include its "JIT" or "Just In Time" nature of bringing learning to learners whenever and wherever it becomes needed. Game Based Learning can individualize learning, and its use can be designed as an individual or collaborative learning experience. These apps are adaptable, provide immediate feedback and focus on repetition and recall of prior knowledge. Each of these attributes adheres to best practices in foreign language acquisition.

These apps are shown to improve problem solving, critical thinking, and retention while increasing immediate feedback and motivation to the learner (Scott & Beadle, 2014). Another key feature of DGBL includes self-directed learning and spaced repetition which derives from algorithms that are detected when user forget words or phrases (Munday, 2016). The games are intuitive and go at the learner's pace. Students have the option to learn autonomously which serves many students (Ahmed, 2016). This minimizes the stress and anxiety students often

feel when learning a foreign language thus reducing Krashen's affective filter (Krashen, 1983). This is also advantageous for the recall process. If a student forgets a vocabulary word after a couple of weeks, the program will help the student relearn that word. The algorithm is constantly adding new material, but reinforcing the old material in an intuitive way that doesn't draw attention to the error which makes the learner feel like s/he failed (Crombie, 2013).

All the literature reviewed touted that CALL (Computer Assisted Language Learning) apps significantly increased attitude and motivation. Students seem particularly motivated when iPads come off the carts or if a teacher announces part of the day will be spent on a new software application (Crombie, 2013). These apps have a captive audience, and they motivate the students to learn while having fun. These apps boost a student's confidence with built in rewards. This is particularly important in reducing the affective filter. The settings on the apps can also accommodate specific needs of each individual student which is particularly helpful in differentiated instruction and/or an inclusive classroom which integrates students with special needs. The background music and sounds can be turned off. This background music and sounds are meant to be a small distraction to make it more authentic and challenging for the student. However, this can frustrate a student with language deficiencies. It is quite simple to just turn off the background noises or music. The instructor can also adjust the speed, repetitions, amount of time spent on each set of cards and the number of cards clustered together at one time. These adjustments make the environment more inclusive for learners with special needs without making a big fuss or drawing attention to their challenges.

There are several limitations to DGBL including lack of productive knowledge generation, cognitive overload, teacher dependence, accuracy, authenticity, availability, teacher training, teacher dependence, implementation, and its limitations in delivering all of the standard "5 C's" (Communication, Culture, Connections, Comparisons, Community) in foreign language learning (Alley & Heusinkveld, 1998).

One significant criticism of DGBL is that students' focus is on receptive knowledge, and productive knowledge is not emphasized (Lu, 2008). This is significant when trying to build new vocabulary into working memory and then connecting it to long term memory. Another criticism of DGBL is the cognitive overload that can inhibit learning. A significant finding in two studies showed a difference in vocabulary learning between watchers and players of the digital foreign language games (Lin, 2015; deHaan et al., 2010). Players recalled fewer vocabulary words than the watchers of digital foreign language learning games. The reason is cognitive overload (deHaan et al., 2010). It takes so much cognitive energy for a player to manipulate the game, remember the vocabulary and translate that into another manipulation that the focus is more on the play rather than the learning. The players had a very difficult time multitasking when learning the foreign language through the interactive games. This is something to consider when establishing any type of app into the classroom, especially a classroom with students who have dyslexia or other language learning deficiencies. The model of every student having his/her own iPad or device may be counterproductive. These studies show that students in groups of two, three and even four players taking turns learned more effectively with less stress. Lin's study demonstrated that "watchers" yielded better vocabulary recall immediately after treatment and on the delayed posttest, and the multiplayer group outperformed the individual group in the vocabulary section of the assessments (Lin, 2015). deHaan found that this "hyper-engagement" is counterproductive and that foreign language needs to be "comprehended, integrated with prior knowledge, and used purposefully" which to date, Game Based Learning does not provide for (deHaan et. al, 2010, p. 85). Further, deHaan declared that "more explicit instruction may support a more complete acquisition of vocabulary" (deHaan et. al, 2010, p. 86). This is significant evidence supporting collaborative and explicit learning when implementing technology into the classroom.

Duolingo. Duolingo is the premier app being used in secondary language classes across the globe. As of 2016, there were more than 100 million Duolingo users in the world (Ahmed, 2016). Luis von Ahn, founder and creator of Duolingo, calls Game Based Learning, Games with a Purpose or "GWAP". Duolingo is based on an earlier approach to foreign language called the Grammar Translation Approach which was popular from the 1920's until the 1960's when Stephen Krashen introduced his Communicative Approach to foreign language learning (Krashen, 1982). The fact that von Ahn has regressed, in many eyes, to an approach that is highly criticized in linguistic circles presents a fundamental problem in Duolingo's efficacy. Can a program based on an outdated

foreign language method be effective? The studies, albeit limited and criticized, state that it is effective. The pros of using Duolingo are that it is self-directed, user friendly, multicultural, collaborative, learner controlled and that it provides instant feedback and motivation for beginning learners (Garcia, 2013). However, the app counters today's best practices which supports the Communicative Approach to foreign language acquisition.

Duolingo commissioned research team Roumen Vesselionov, PhD of Queens College and John Grego, PhD of the University of South Carolina to conduct empirical evidence based study on the effectiveness of Duolingo program in Spanish in 2012 (Vesselionov & Grego, 2012). The study was conducted over an eight week period on a random sampling of 196 people who were non-Hispanic, English speakers, not advanced in Spanish (Vesselionov & Grego, 2012). The research was a quantitative method of study consisting of pretest and posttest data, a reliable instrument called WebCAPE (Web based computer adaptive placement exam) conducted by Brigham Young University and the Perpetual Technology Group with a validity correlation coefficient of .91 and a reliability (test-retest) value of .81, both of which are quite high (Vesselionov & Grego, 2012). The main limitation of the study was the amount of time students spent using Duolingo which ranged from 2-30 hours, the average being 22 hours. The researchers accounted for this limitation by integrating the time variable into the equation measuring improvement using Duolingo (Vesselionov & Grego, 2012). The results showed significant improvement in vocabulary recall, pronunciation, grammar learning, motivation, and independent learning on the positive side, but also showed some confusion with translations. Overall, Vesselionov and Grego claimed that using Duolingo 34 hours is the equivalent of a college level I Spanish course (Krashen, 2014). Krashen claims the study exaggerates its effectiveness and questions the research methodology, the participants' background, age, and education level (Krashen, 2014). Krashen believes in the living language and is a huge proponent of the Communicative Approach to foreign language learning (Krashen, 1982). It is understandable that Krashen would be very skeptical of any evidence supporting the use of an approach that runs counter to the Communicative Approach he developed. This is short-sighted. No one is suggesting that these apps replace the Communicative Approach to foreign language learning. What is being suggested in most studies is that these types of apps be integrated into the foreign language classroom for enrichment or to be used as tools to enhance lower level skills acquisition.

Summary

After careful review of the current literature on technology in the foreign language classroom, and considering the accepted model for the most effective way to learn foreign languages (Communicative Approach), DGBL shows the most promise in assisting the foreign language instructor in delivering new vocabulary in an efficient and effective manner. Potentially, educational apps that make rote learning vocabulary visually stimulating and engaging could hold younger students' attention longer. There are countless foreign language learning and game based learning apps, but the one app that is most suitable for young elementary students is called "Lingo Arcade". This app includes the recommended visual with the foreign language word and deemphasizes Direct Translation fitting the Krashen model of foreign language learning (Krashen, 1983). It offers 175 levels and 3000 of the most common Spanish words in usage. The photos are striking, accurate and descriptive. There is one "teaching" or "review" session and then five games integrated into the app for addictive and game-based educational fun. The app allows for multiple users which is ideal for a classroom environment and collaborative learning. The game boasts an intuitive learning algorithm which was developed by a Stanford graduate student (Alligator Apps, 2017). The algorithm allows for the app to go at the learner's pace. The game progresses as the learner progresses.

Although these apps look promising, they are still lacking in the fundamental "5 C's" of foreign language learning as universally accepted as best practices in the foreign language community (Alley & Heusinkveld, 1998). These games are not meant to replace an entire curriculum or instructor. They are merely a tool that can be used for enrichment, and can assist in one component of foreign language learning- new vocabulary acquisition.

Chapter 3 - Research Methodology

Research Design

This study is based on the Action Research model, methodology and design. Step by step, this study carefully employs each aspect of Action Research's purpose, research questions, philosophy and assumptions, sampling methods, data collection methods, research methods, quality criteria, data analysis, and report writing.

Participants

Students participating in this intervention were first graders between the ages of six and eight. They come from middle to upper middle class Christian families where the majority comes from two parent homes. The school is a small, private, and Christian school located in the Mid-Atlantic region of the United States and hosts grades Pre-K through sixth. The school's enrollment is 230 students, and the average student to teacher ratio is one to 12. The first grade classes have 12 students each with an even distribution of boys and girls. All 24 students will be participating in the study. For the most part, students are well behaved, motivated and have a supportive home and family. None of the students have an IEP (Individualized Educational Plan). The classroom is an inclusive classroom and incorporates differentiated instructional techniques when required.

All students have had conversational Spanish since Kindergarten and have learned the colors, numbers and basic greetings. Their affective filters have been minimized through constant positive reinforcement and the use of natural language acquisition (Krashen, 1982). Students seem to love attending Global Learning Lab and look forward to the activities.

Sampling Techniques

This study used convenience sampling model, with a homogenous sample set. The study was limited to using participants in one school in the first grade. The roster is preset. However, to strengthen the study, the control and treatment classes were selected randomly. There were two classes with 12 students each. One of these classes in each grade was chosen randomly to receive the treatment (Lingo Arcade) and the other class in that grade continued with the traditional methods of foreign language instruction.

Intervention

Students at XYZ school have Global Learning Lab (GLL) once a week at the same time for one hour. Over an eight week period, students will start the class with 10-15 minutes of Spanish conversation. After the conversation segment of the class, the unit will introduce vocabulary from the first two levels of the Lingo Arcade app to both the intervention and control group. The remainder of the Global Learning Period will be spent exploring the cultural and geographic aspects of the language while integrating new vocabulary when appropriate.

Conversation segment of class. The conversation segment consumes roughly 15 minutes of the class time. In the first grade, the students regularly use five conversational exchanges during the conversation segment of the class. The students can ask and respond to in Spanish: "How are you?"; "What is your name?"; "How old are you?"; "What is the weather like?"; and, "What day is it?".

Vocabulary segment. After the conversation segment, there will be two different procedures and language learning methods used to introduce and practice new Spanish vocabulary (Group Lingo and Group Trad). The vocabulary is representative of the most commonly used nouns and verbs in the Spanish language. The unit will cover two levels on the Lingo Arcade app which includes 31 vocabulary words, 16 nouns and 15 verbs (Appendix A). The nouns include the singular and plural, so there are only eight main nouns plus their plural. Neither the app nor the unit will include articles. The verbs are all in infinitive form. No conjugation will take place in this instructional unit. These 31 new Spanish vocabulary words will be introduced to both groups (Appendix A). For 15 minutes a session, at the same time each week according to the students' class schedule, students will be introduced to and practice the new Spanish vocabulary. "Group Lingo" will use the app, Lingo Arcade, to learn the vocabulary while the control group called "Group Trad" will learn the vocabulary using traditional foreign language vocabulary learning strategies.

Treatment group. The students in the treatment group (Group Lingo) will secure an iPad with his/her corresponding number from the iPad cart. iPads should be numbered 1 – 12. Each student's iPad number needs to

be recorded in the class list in the excel spreadsheet, and the student should always log in on that iPad. The app, Lingo Arcade, should also be preloaded onto all of the iPads. Additionally, each student has their own login and user ID on that iPad. None of the users preloaded within the app have any personally identifiable information. The user names are the student's alias per this study. Progress is automatically tracked by alias.

The procedures for the treatment group simply include the play on the app itself and making adjustments to the settings when needed. Lingo Arcade can be adjusted according to learner's needs. The teacher must document any adjustments in the settings and explain the reason for the adjustment.

The app itself has one review segment and then five games that need to be unlocked as students get right answers. As students get correct answers, a hexagon is filled in next to the picture in the student's "score card". Once all eight hexagons are filled in, the learner receives a trophy meaning the learner has semi-mastered this word and can move onto new words. If student answers incorrectly, hexagons will be erased. Once a learner receives a trophy, that doesn't mean the learner will never see this word again. It simply means the word will be shown less frequently. If the learner forgets this word in future games, the algorithm will force the word to appear more frequently again and the learner will lose his/her trophy until the word is successfully relearned.

Control group. The control group (Group Trad) will be learning the same vocabulary as the intervention group at the same time, however there will be no use of the DGBL app, Lingo Arcade. This group will be learning the same vocabulary with the same visual prompts as the Lingo treatment group, however the delivery of the vocabulary will be using traditional foreign language learning methods. The instructor will introduce eight vocabulary words each week using the chunking and repetition methods. The instructor will introduce two-three words at a time using the slide show on a big screen having students repeat each word at least three times. When all eight words have been displayed and repeated at least three times each, instructor should randomly display each vocabulary word and have the class as a group try to remember the name of the word. This procedure should be repeated each session until all of the vocabulary has been introduced (if the instructional unit is on time, which would be session four of the study). Every consecutive session the teacher needs to review the previous vocabulary and then introduce another eight pictures and words.

After vocabulary has been introduced, the teacher can choose one of the traditional reinforcement games used in the traditional foreign language classroom. These include "Go Fish", "Snap", "Around the World", "Memory", "Jeopardy", "Fly Swatter" and "Bingo". Total time for introduction, repetition and play with the vocabulary words is 15 minutes per session. The remainder of the class, just like the intervention group, will be the cultural part of the lesson integrating vocabulary where appropriate.

Cultural segment. As with all sessions in the Global Learning Lab, the final segment of the class is a unit which delves into the cultural aspects of the various countries the students visit. In this case, the students will be visiting a Spanish speaking country so that they can maximize their time in the Spanish language and the Spanish and culture will parallel each other. The students will be learning the geography, music, food and demographic information on Mexico City.

Summary of Research Methodology

This study parallels the Action Research design and incorporates both quantitative and qualitative research techniques. It employs a quasi-experimental design by using quantitative instruments in the form of an objectives assessment for the pretest and posttest. The mean of the two will be calculated and inserted into a *t*-Test equation to determine if the results of adding the treatment of Lingo Arcade are significant. Further, in order to gain insights into the learners' perceptions, their engagement (positive and negative) will be documented in an observation checklist. Those results will be corroborated with observation notes that the researcher/teacher will be documenting every session.

Chapter 4 - Results

Results Overview

Data in this investigation was collected from four different sources using both qualitative and quantitative instruments. Quantitative data was collected from a pretest, posttest, and observation checklist. Qualitative data was collected from an instructor's observation journal kept during the unit of instruction. The pretest and posttest were the same instrument with two segments which measured the student's recall of a visual when given a Spanish prompt and the Spanish word when given a visual prompt. The observation checklist included items that measured the engagement of the students in both groups. Finally, the journal contained more detailed information about logistics and events during the classes.

Table 1

	Pretest-Posttest Mean		
	Spa-Vis	Vis-Spa	Overall
Lingo	0.36	0.62	0.48
Trad	0.6	0.71	0.64

Figure 1: Mean Pretest-Posttest Improvement Lingo Versus Traditional

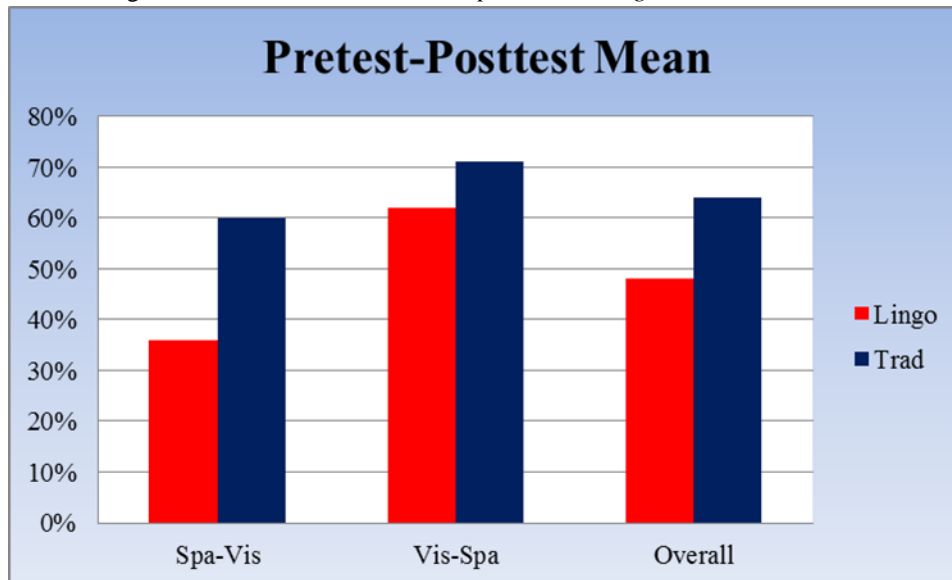


Figure 1 summarizes the mean pretest-posttest scores in the Lingo and Traditional Groups. The overall mean pretest-posttest scores indicate that the Traditional Group presented more significant improvement over the Lingo Group. The Traditional Group's mean score was 64% while the Lingo Group's mean score was 48%. That is a 16% differential in favor of the Traditional Group. When looking at the engagement scores and the instructor's observation journal, this difference is not surprising. The students in the Traditional Group were more engaged, motivated and excited about learning the new vocabulary. They worked collaboratively in small groups and teams embracing the Constructivist model of learning. The Lingo Group displayed signs of boredom, distraction and disengagement. The novelty of using the iPads quickly wore off, and the games became tedious and monotonous. Additionally, the Lingo Group pretest scores were 10% higher than the Traditional Group pretest scores. However, when accounting for this 10% differential, the overall Traditional Group's pretest-posttest improvement was still 6% higher than the Lingo Group's scores. This demonstrates that the Traditional Group's instruction was more beneficial and effective than the Lingo Arcade app instruction.

Engagement data.**Table 2: Observation Template- Engagement Results- Group Lingo**

Class #	Lingo Group-Engagement										
	1	2	3	4	5	6	7	8	9	10	
Repeats all required vocabulary											
Repetitions	Pretest	0	0	0	0	0	0	0	0	Posttest	0
Accepts pronunciation corrections by repeating with better pronunciation	Pretest	0	0	0	0	0	0	0	0	Posttest	0
On task	Pretest	2	2	1	1	1	1	1	1	Posttest	10
Participates fully	Pretest	0	0	0	0	0	0	0	0	Posttest	0
Responds correctly in game	Pretest	0	0	0	2	1	1	1	1	Posttest	6
Distracted	Pretest	2	2	1	1	0	0	0	0	Posttest	6
Bored	Pretest	2	2	1	1	0	0	0	0	Posttest	6
Confused	Pretest	2	2	1	1	2	2	0	0	Posttest	10
Cooperates with others	Pretest	0	0	0	0	0	0	0	0	Posttest	0
		8	8	4	6	4	4	2	2		38

Table 2 is the Student Engagement table for Group Lingo. This table breaks down by class specific behaviors that represent students' engagement in the foreign language vocabulary acquisition. Group Lingo did not receive a score for two of these behaviors, because the iPad app, Lingo Arcade, did not allow for collaboration or pronunciation. All students received "0" points for these behaviors. This is a significant deficit in these apps for foreign language learning which was why it was important to document when comparing to a group that would have collaboration and pronunciation corrections. Overall, the Lingo Group received an engagement score of 38 out of 144 possible points. Each positive behavior when consistently exhibited was worth 2 points. Each negative behavior (distracted, bored, confused) was worth 2 points when it was not consistently displayed. It is interesting to note that as the classes continued, the engagement levels dropped. They started out at 8 and ended up at 2. This is consistent with journal entries stating the students, after a few sessions, were asking how much longer they had to be on the iPads. The novelty in the beginning of using the iPads and the excitement of using them had dissipated by the sixth session. Not all of the students were disengaged, but enough to shift the scores. These results are in direct conflict with the results Crombie posted in her research on students' perceptions of using iPads in foreign language learning classrooms (Crombie, 2013).

Table 3: Observation Template- Engagement Results- Group Traditional

Class #	Traditional Group-Engagement										
	1	2	3	4	5	6	7	8	9	10	
Repeats all required vocabulary											
Repetitions	Pretest	2	2	2	2	2	2	2	2	Posttest	16
Accepts pronunciation corrections by repeating with better pronunciation	Pretest	2	2	2	2	2	2	2	2	Posttest	16
On task	Pretest	2	2	2	2	2	2	1	1	Posttest	14
Participates fully	Pretest	0	0	0	0	2	2	1	1	Posttest	6
Responds correctly in game	Pretest	0	0	0	2	1	1	1	1	Posttest	6
Distracted	Pretest	2	2	2	2	2	2	1	1	Posttest	14
Bored	Pretest	2	2	2	2	2	2	2	2	Posttest	16
Confused	Pretest	2	2	2	2	2	2	2	2	Posttest	16
Cooperates with others	Pretest	1	1	1	1	2	2	1	1	Posttest	10
		13	13	13	15	17	17	13	13		114

Table 3 shows the results of the Traditional Group's engagement in each class and overall. Out of total possible points of 144, the Traditional Group scored 114 points. There was no significant drop of in engagement toward the end of the classes.

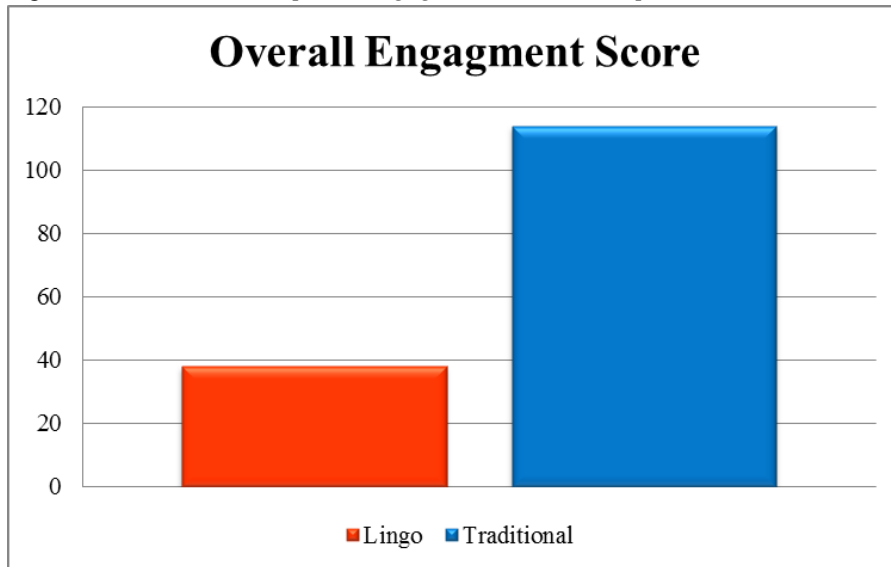
Figure: 2 *Observation Template- Engagement Results Comparison*

Figure 2 visually represents the significant difference in each group's engagement. Overall, the Traditional Group displayed significantly higher engagement scores over the Lingo Group. As would be expected, the Traditional Group's classes were more engaging and collaborative and embraced the constructionist ideal of collaborative learning while the Group Lingo was extremely individualistic and in no way relied on collaborative working and learning. One can deduce that the Lingo Group's perceptions based on their levels of engagement were negative, especially as the sessions continued. The negative perceptions increased with the number of hours spent using the app.

Figure: 3 *Emergent Themes from Observation Journal*

Theme	Lingo	Traditional
Doesn't follow directions/instructions	N, N	B, Z, G, G
Distracted or Distracting	N, N	B, G, G, Z, E
Not on task	N, V, N, V, N	B, G, G, G, E
Bored	✓	
Absent	W	E, D
Will not participate		B
Anxiety	V, V, N, V	
Excited	✓	✓✓✓
Engaged	✓	✓✓✓
Frustrated	V, N, V, ✓, V	
Defiant/Non-compliant	N, N	

“✓” represents entire class. Letter represents student alias.

Figure 3 represents themes that emerged from the observation journal kept for each class during this study.

Each letter represents the student alias. On 11 occasions, Student *N* in the Lingo Group consistently demonstrated negative engagement behaviors including not following directions, getting distracted or distracting others, not on task, exhibiting anxiety, frustrated and defiant/non-compliant. The following journal entry in Appendix B explained: “*N* not on task. Distracting other students with inappropriate questions. Does not participate in the group. Prefers to distract and gain their attention. Difficult and time consuming to return the students’ attention.”. All positive methods of discipline were incorporated with Student *N* who sometimes responded to the positive discipline and at other times did not care and did not respond positively. Student *N*’s overall results paralleled his engagement scores. He scored in the lowest percentile on the posttest.

Student *V* experienced a tremendous amount of anxiety during the classes. This student was terrified of getting an answer wrong as noted in the following journal entry from class #2-3:

“*V*: Crying/sobbing b/c he was getting wrong answers. Would not play b/c he didn’t want to get any answers wrong. I explained that this is how we often learn, by making mistakes. He responded, “It’s too hard. It’s too hard.” He continued to sob and refused to play. I told him to return to the “review” segment and play the games sections when he felt more comfortable. He liked that idea and played on the flashcard/rote segment for the entire period. He does not like to take risks and is terrified of being wrong in everything we do, not just this game. It could have been classroom bingo or duck duck goose and he would react the same way. If he isn’t 100% sure an answer is right he won’t play.”

The instructor used several methods to calm the anxiety and get this student engaged. She explained to him that in this app we learn through making mistakes. This seemed to make him more anxious so she advised him to review the vocabulary in the first segment of the app before attempting the games. She showed him how he could stay on the flashcard segment of the app until he was comfortable to move on. Once he realized this was an option he calmed down and was content to simply review the flash cards for the entire class on the app.

Student *V*’s scores were not reflective of his engagement scores. He did play on the app, but he never left the review/flashcard section of the app. Consequently, he did not finish the two levels on Lingo Arcade. Regardless, he had the second highest overall score on the posttest. This is attributed to the student’s overall academic prowess.

As a whole, the Lingo group received more negative behaviors of engagement than the Traditional Group. They received a check mark (✓) on two occasions for displaying boredom and frustration. Conversely, the group received two check marks (✓’s) for being excited and engaged. This occurred during the fourth class when all of the students had achieved trophies for all of the vocabulary words in the first level of play. They were all quite excited and became motivated to play more after receiving their trophies and attaining the second level. These results were in line with Crombie’s research on students’ perceptions using iPads in the foreign language classroom (Crombie, 2013). The students most likely in her study were not saturated with their use. As time went on, the Lingo Group’s perceptions became more negative. Overall, Group Lingo received two positive checks as a whole and two negative checks. The Traditional Group received six positive checkmarks and no negative checkmarks. On an individual student basis, there were 19 occasions when students were specifically identified as displaying negative engagement behaviors. The Traditional Group displayed 15 individual incidents of negative engagement behavior. This phenomenon parallels the pretest – posttest differentials. In the Visual – Spanish segment, the pretest – posttest differentials were significantly lower in the Lingo group than the Traditional Group, as were the overall word pretest – posttest improvement scores. Although this group ended up in the same place as the Traditional Group, their percent improvement plateaued. This is a direct result of their lack of positive engagement as a whole.

The Traditional Group as a whole demonstrated many more instances of positive behaviors. There were six instances when the instructor gave the entire class marks for being excited and engaged. Student *G* displayed seven instances of negative engagement. Student *B* exhibited four instances of negative engagement, but that was early on. Once she understood what was expected in the unit, she was much more responsive and engaged (Appendix B). Student *G*, although exhibited negative engagement, was extremely positive and good natured about learning the new vocabulary. His issue was getting overly excited, not following the directions and distracting others during the games. He wanted to learn. It was just difficult for him to focus on the instructions. The following journal entry

explains the nature of this behavior:

“The memory game was challenging for Traditional Group 1 because Z and G would not follow the directions. They were more interested in the competition than following the instructions of flipping the card over slowly and allowing all of the players to see the card as they repeated Spanish name for the picture. The game got so competitive they just wanted to match the cards instead of integrating the verbal aspects of the game. It took a lot of supervision to insure they followed the procedures. I needed to balance their excitement of the game, because they loved the game and I didn’t want to squash their spirit, but if they didn’t incorporate the verbal aspect of the game, the activity would be in vain. It’s a fine balance.”

Answers to the Research Questions

The quantitative data and qualitative answer the original research questions:

1. What is the impact of adding the Spanish vocabulary app, Lingo Arcade, on first grade student’s Spanish vocabulary acquisition at XYZ school?
2. What are the first grade learners’ perceptions of integrating the Lingo Arcade app into the Global Learning Lab?

The data revealed that Lingo Arcade did not have as significant of an impact on the first grade students’ vocabulary acquisition as the group that exclusively used traditional foreign language vocabulary acquisition methods. In fact, the students who relied solely on traditional methods for vocabulary acquisition showed greater gains than the group who only used Lingo Arcade. In general, using Lingo Arcade significantly improved pretest – posttest scores on the two levels of foreign language vocabulary proficiency, but the Lingo Arcade improvements were less than the improvements made by the Traditional Group.

The second question regarding the first grade learners’ perceptions of integrating the Lingo Arcade app were measured by levels of engagement during the instruction. Observations showed that the first graders in the Lingo Group were significantly less engaged and interested during instruction compared to the Traditional Group. This signifies that the students’ perceptions, as a whole, were negative toward the use of the iPad app for part of the time. Not all of the students were disengaged all of the time, but the majority of the students in the class experienced boredom, distraction and/or confusion at least part of the time on the iPads. Their negative perceptions were directly proportional to the time spent on the iPads. The longer the students spent on the iPads, the more negative their impressions of the game became.

Chapter 5 - Discussion and Conclusion

Overview

This study investigated the integration of Lingo Arcade, a foreign language vocabulary learning app, into the instructional unit of one group and the integration of traditional foreign language vocabulary learning methods into the same instructional unit of the second group. Each method was integrated into a typical GLL instructional unit and followed the GLL class format. Both groups consisted of first graders at XYZ school. The results showed that the group exclusively using Lingo Arcade showed significant improvements in their Spanish vocabulary repertoire; however their engagement levels dropped with the longer use of the Lingo Arcade app. Students became disinterested and bored. Additionally, the investigation discovered that the integration of traditional methods of learning foreign language vocabulary, such as flash cards and group games including memory, snap, “Around the World” and “Jeopardy” made a greater impact in the students’ Spanish vocabulary learning than the group that exclusively used Lingo Arcade. Also, the engagement scores within the Traditional Group were significantly higher than those of the Lingo Group.

These conclusions are not conveying that Lingo Arcade was ineffective. It was very effective, simply not as effective as the traditional methods. Overall, Lingo Arcade is engaging and has educational value. Each group

boasted the exact same posttest score after the instructional units were completed. Both methods should be incorporated into the classroom, but the instructor should gingerly use the Lingo Arcade app and be careful not to over-use it. It will not replace traditional instruction. Lingo Arcade should be used in the following situations:

- An add-on to traditional vocabulary teaching methods
- A tool for substitutes who don't speak the foreign language
- Extra class time
- When students finish work and are waiting for other students to finish
- A gap between instruction

Lingo Arcade should not be used exclusively to instruct foreign language vocabulary. This study provided significant evidence demonstrating that living the language just as Krashen noted in his research is the best way to learn foreign language vocabulary (Krashen, 1983). Living the language is the most natural and effective way to acquire language. Lingo Arcade can be a *part* of the learning process, but not all of it.

Problem Solutions

The use of either method, Lingo Arcade or the Traditional Method of foreign language vocabulary learning, will benefit the Global Learning Lab's issue of time. Time needs to be maximized so students can build upon their current Spanish vocabulary, but still experience other languages and cultures without losing their Spanish capacity and building upon their Spanish foundations. Both Lingo Arcade and the Traditional Methods are effective means of teaching foreign language vocabulary and offer the student ample review of the words. Even though both methods produce significant benefits, the traditional method of teaching foreign language vocabulary has a greater impact than the Lingo Arcade. The global learning lab should use a variety of methods to deliver vocabulary instruction with an emphasis on the collective, group learning environment as endorsed by the Constructivist model. The global learning lab should offer a balance of learning opportunities which include all three learning styles of visual, auditory and tactile. Lingo Arcade offers all three of these styles, however, it is in an individualistic format. The global learning lab could incorporate the Lingo Arcade app into a Constructivist, classroom learning activity by having the students play the app together at the front of the room on a screen divided by two teams, or the app could be played in small groups. This would promote more collective learning among the students.

In order for the Global Learning Lab to maximize time, it should use the Lingo Arcade app and similar apps when students finish activities or classwork early. The app could also be used in differentiated instruction to keep all students on par with the learning objectives. Students in their homerooms could also take advantage of extra class time by signing onto the Lingo Arcade app. If a student finishes a project, activity, test, reading or whatever it is, s/he can spend the little bit of extra time on Lingo Arcade instead of coloring, reading or whatever activity is given. At the very least, it could be an option for them to improve their skills.

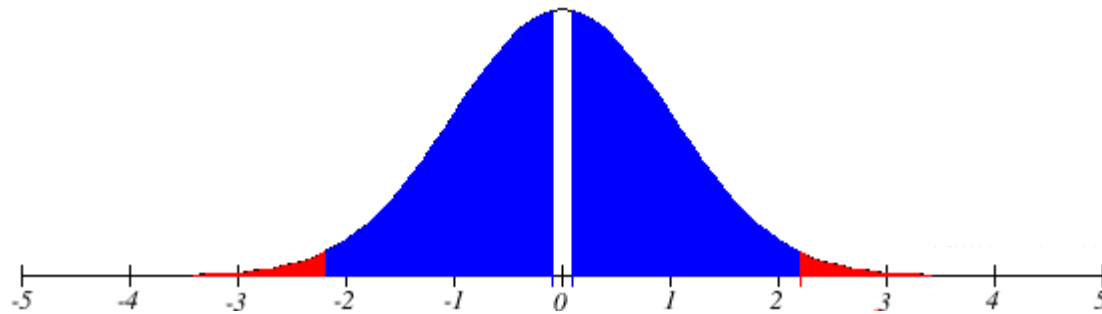
Strengths and Weaknesses

Table 4 Mean Deviation Pretest-Posttest Scores

	Mean Deviation											
Lingo	-0.34	0.35	0.00	-0.42	0.06	-0.23	0.49	0.27	0.20	-0.27	-0.11	
Traditional	0.09	-0.80	0.29	-0.10	-0.10	0.02	0.20	0.26	0.20	-0.34	0.28	0.01

Table 5 t-Test Data

	t-Test Data			
	Mean	SD	SEM	N
Lingo	0.4818	1.01454	0.0438	11
Trad	0.6433	0.1983	0.0572	12

Figure 4 *t*-Distribution Curve

In Figure 4, the unpaired *t* Test results show that the two-tailed *P* value equals 0.0384. By convention, this difference is considered to be statistically significant. To obtain the confidence interval, the mean of the Traditional Group is subtracted from the mean of the Lingo Group. That difference was -0.1615. There is a 95% confidence interval of this difference from -0.3135 to -0.0095.

The intermediate values used in calculations were:

- $t = 2.0896$
- $df = 21$
- standard error of difference = 0.073

Further Investigation

This investigation demonstrated that using Lingo Arcade app in the foreign language classroom positively impacts foreign language vocabulary learning. However, the impact of Lingo Arcade is not as vigorous as using Traditional foreign language vocabulary learning methods. Now that we know this app does have a positive influence, however, it would be interesting to find out if a traditional foreign language classroom *adding* Lingo Arcade to traditional instruction would have a more significant impact than not incorporating it into the instructional unit. In other words, instead of looking at it on its own, it would be interesting to see what synergy potentially exists between combining it with traditional instruction.

It would also be curious to know the number of repetitions a student gets from using the Lingo Arcade app versus the number of repetitions s/he receives in a traditional foreign language classroom. It would be interesting to know the impact of these repetitions in learning and retaining the foreign language vocabulary. In the same light, a study that examined the retention of vocabulary would be interesting. It would be productive to know if a student retains the vocabulary after a period of time and compare it to each instructional method.

Students with special needs could benefit from this type of study. It would be helpful to them if a study was done on the effectiveness of this or other apps within populations of students with dyslexia or Asperger's. These students are often excluded from foreign language classrooms. Could an app like Lingo Arcade assist them in learning a foreign language and help differentiate instruction?

Finally, this study would be a great springboard to a generalizable study. Research of this nature would be significant to all foreign language instructors in their development of curriculum and lessons. It would help them understand how much of the technology should be integrated with an understanding of saturation points. In other words, what is the point in which the student becomes bored with the app? Are there other apps that could dissipate this monotony? Which language apps have the most educational value?

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DIGITAL GAME-BASED TEXTBOOK VS. TRADITIONAL PRINT-BASED TEXTBOOK: THE EFFECT OF TEXTBOOK FORMAT ON COLLEGE STUDENTS' ENGAGEMENT WITH TEXTBOOK CONTENT OUTSIDE OF THE CLASSROOM

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The relatively little amount of time that some college students spend reading their textbooks outside of the classroom presents a significant threat to their academic success. Using Prenksy's digital game-based learning (DGBL) principles and Astin's student involvement theory as frameworks, the purpose of this true experiment was to determine whether a significant difference in engagement, as indicated by mental effort and time on task, existed between college students who used a digital game-based textbook and students who used a traditional print-based textbook. A customizable digital game-based textbook designed using DGBL principles in a popular gaming genre embedded with textbook content identical to content in a traditional print-based textbook was used. Fifty-four undergraduate college students were randomly assigned to experimental and control groups. The results showed a statistically significant, Hotelling's $T^2(2, 52) = 25.11, p < .001, D^2=1.86$ difference in engagement between participants in the experimental and control groups and a large effect size. Post hoc analyses indicated the experimental group, the digital game-based textbook group, exerted significantly greater mental effort ($t = 2.38, p < .001$) and spent significantly more time on task ($t = 4.61, p < .05$) than the control group, the traditional print-based textbook group.

Keywords: Digital Games, Game-Based Learning, Mental Effort, Student Engagement

DIGITAL TEACHER COMPETENCE

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ABSTRACT

The acquisition and updating of digital teacher competence is a requirement in the knowledge society. There are many possibilities offered by ICT for teacher training. A typology of web resources is presented based on information (general video channels, ...), collaboration (blog, wiki, ...) and learning (ePortfolio, PLE, educational video channels, ...) categories, that can help to plan the teaching practice. Several proposals have been made to systematize the levels of acquisition of digital teacher competences: ICT Competency Standards for Teachers (ICT-CST) (UNESCO, 2008), and ICT Competencies' Pentagon (MEN, 2013). In addition, teachers have at their disposal a variety of technopedagogical models for the technology integration in educational contexts, like for example: Technical, Pedagogical and Content Knowledge Model (TPACK) (Mishra & Koehler, 2006), and Substitution, Augmentation, Modification and Redefinition Model (SAMR) (Puentedura, 2014). Finally, some strategies with ICT Resources are proposed to be implemented in distance learning contexts.

INTRODUCTION

Digital competence has been defined by Ala-Mutka (2011, p. 3) as the “confident, critical and creative use of ICT to achieve goals related to work, employability, learning, leisure, inclusion and/or participation in society”. The digital competence can be developed through five underlying concepts (Cobo, 2009, p. 20): *E-awareness* (user's awareness of ICT and appreciation of the relevance of these ICT in the information based society), *Technological literacy* (critical use of electronic media for study, work, leisure and communication), *Informational literacy* (ability to understand, assess and interpret information from all kinds of sources), *Digital literacy* (proficiency to build new knowledge, based on the strategic employment of ICT for search, access, management, creation and communication) and *Media literacy* (understanding how the traditional mass media and the digital media are merging).

Some of the skills related to digital literacy (Cobo, 2009, p. 22) are: *definition* (using ICT tools to search, find, identify and recognize the information need); *access* (knowing how to collect and/or retrieve information in digital environments and the ability to develop a search strategy to locate information from different sources); *management* (organizing information into one or more classification schemes); *creation* (generating new information and knowledge by adapting, designing, editing, inventing, or representing information in ICT environments) and *communication* (conveying information and knowledge to various individuals and/or groups).

Digital teacher competence is defined throughout the domain of the different areas: Information processing, Communication, Content creation, Problem solving and Security (Ferrari, 2013, and Vuorikari, Punie, Carretero & Van den Brande, 2016) [Figure 1].

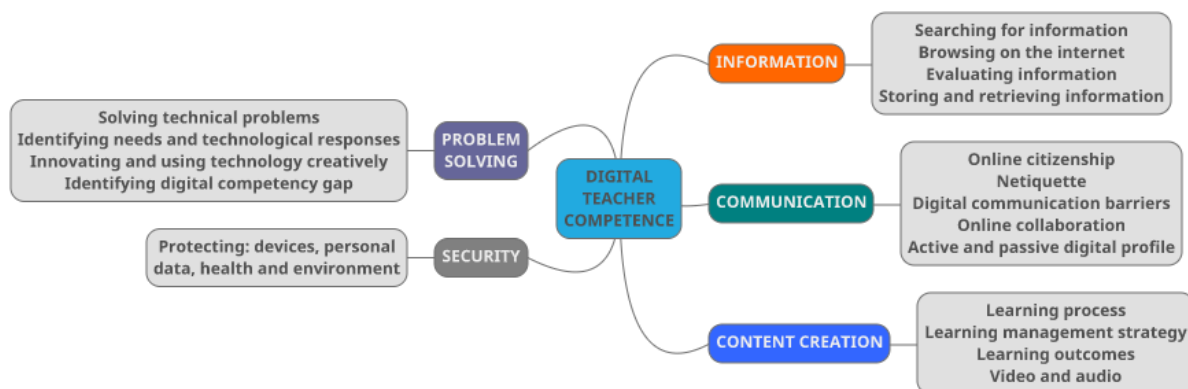


Figure 1: Digital Competences for Teachers (based on Vuorikari et al, 2016)

The different components of the digital teacher competence can be developed through an online course on Moodle platform created under the DigiComp project offering the opportunity to complete all the tasks in the five competences to obtain a certificate.

After that select with which competence you would like to start. Complete all the tasks in the five competences and submit and grade your final coursework and earn your DIGICOMP certificate.

Some items to self-assessment of the digital teacher competence for a proficient user are presented as follows [Table 1].

Table 1: Digital competences - Self-assessment grid - Proficient user (item examples)

Competence area	Description
Information processing	I can assess the validity and credibility of information using a range of criteria. I can save information found on the internet in different formats. I can use cloud information storage services.
Communication	I actively use a wide range of communication tools (e-mail, chat, SMS, instant messaging, blogs, micro-blogs, social networks) for online communication. I actively participate in online spaces and use several online services (e.g. public services, e-banking, online shopping). I can use advanced features of communication tools (e.g. video conferencing, data sharing, application sharing).
Content creation	I can produce or modify complex, multimedia content in different formats, using a variety of digital platforms, tools and environments. I can use advanced formatting functions of different tools (e.g. merging documents of different formats, using advanced formulas, macros). I know how to apply licenses and copyrights.
Problem solving	I am aware of new technological developments. I understand how new tools work. I frequently update my digital skills.
Safety	I frequently check the security configuration and systems of my devices and/or of the applications I use. I can configure or modify the firewall and security settings of my digital devices. I can apply filters to spam e-mails. I make reasonable use of information and communication technology.

Source : <http://europass.cedefop.europa.eu/resources/digital-competences>

The acquisition and updating of digital teacher competence is a requirement in the knowledge society. Students for education major consider the intensive use of digital technologies as one of the necessary skills for them and their teachers (Campos & Solano, 2017).

The ICT Competences and Standards Model from the pedagogical dimension (Valencia et al, 2016) presents three levels of appropriation of ICT: Integration, Re-orientation and Evolution, which are broken down into three elements: Know, Use and Transform. This model proposes a training route that consists on five phases: (1) Assessment of the level of appropriation of ICT in educational practices, (2) Reflection and instruction in the use of ICT for the promotion of (3) Guided use of ICT-supported educational practices; (4) Review of the results of the implementation of ICT-supported educational practice; and (5) Systematization of educational practices supported by successful ICT.

Different typologies, standards, and models for digital teacher competence has been select to allow teachers to

design and evaluate didactic strategies according to their educational context. These theoretical proposals orient the teachers in the approach from different levels, from educational policies, through the guidelines for ICT initial and continuing training plans.

1. WEB RESOURCES TYPOLOGY

There are many possibilities offered by ICT for teacher training. We outline a proposal for classifying web resources on information, collaboration and learning, although in practice we will find educational hybrid configurations [Figure 2].

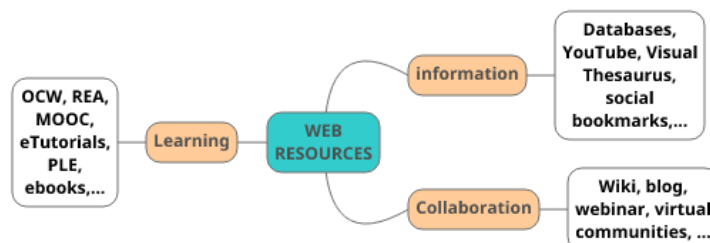


Figure 2: Web resources typology (Cacheiro, 2011)

This classification enables instructional designers to develop exemplifications, while the same resource can be used for different purposes and therefore can be included in more than one category.

1.1. Web Information Resources

Web resources provide additional information to address a topic from basic to advanced levels. Some Web Information Resources include: webgraphy, virtual encyclopedias, online databases, or web 2.0 tools. Web 2.0 tools enable the user to browse, create and share documents containing information on a subject through resources in various formats, including texts, videos, and graphic presentations.

Some tools that facilitate this task are social bookmarks such as del.icio.us, that allow the creation and sharing of resources indexed by labels or tags. Video repositories such as YouTube, allow the upload of videos or audio recordings on various topics. Graphic presentations as prezi, which facilitates the consultation of presentations of different subjects of congresses or workshops.

1.2. Web Collaboration Resources

Web resources for collaboration offer users the opportunity to participate in professional networks and co-create resources. Collaborative work allows the assessment of existing resources and their creative use in collaborative learning contexts. Some collaborative web resources are discussion groups and collaboration web 2.0 tools such as wikis and blogs. Webinar is a widely-used tool for organizing online seminars. Distribution lists allow the receipt of regular information through email about events, articles, links based on the theme of the lists to which the user has subscribed. Collaborative groups offer a web space where those interested in a particular topic are able to reflect through thematic forums and share documents. Wikis and blogs are two examples of web 2.0 collaborative tools that offer an intuitive way to create content and shared thoughts on each subject area of interest. Seminars on the web (Webinar) afford the opportunity to participate in real-time seminars on the network and to view them later offline.

1.3. Web Learning Resources

Web resources for learning offer various forms of work with content and activities. An integrated design of learning resources is an important part of the instructional process that helps achieve the expected learning outcomes. Some web learning resources are repositories of educational resources, interactive tutorials, web 2.0 tools (e.g., eBooks, podcasts) and open online courses (OCW, OER, MOOC). Repositories of educational resources offer a variety of teaching materials created by educators, researchers, students, and educational institutions (e.g., Merlot, Agregga) composed of content units with activities and evaluation tests. Interactive tutorials allow one to process guided presentations using text, graphics and audio. Some web 2.0 tools facilitate the use of educational electronic books (eBooks) or audio classes on the Internet [podcast] on the subject that is being addressed, enabling users to create their own productions. OCW (Open Course Ware) is a source of online courses, offers content resources that have been used in classroom. This type of course is consistent with the OER (Open Educational Resources) initiative to provide freely available educational resources on the Web through Creative Common licenses, a resource for authors wishing to protect their intellectual property. MOOC (Massive Open Online Courses) offer the opportunity to update knowledge for teachers in a broad content areas.

1.4. Teaching and Learning with ICT Resources Proposal

As a working proposal for the teacher, we present a conceptual map for teaching and learning with ICT

resources, integrating information, collaboration and learning web tools [Figure 3].

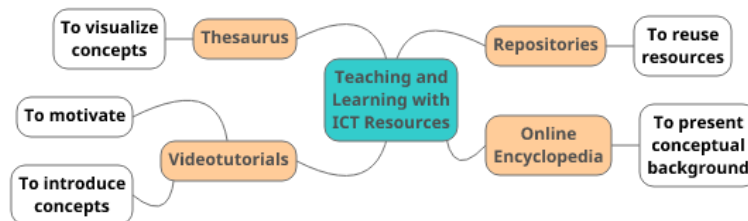


Figure 3: Teaching and Learning with ICT Resources (Own elaboration)

ICT resources can be useful for different purposes throughout the teaching-learning process: to visualize concepts (thesaurus), present conceptual background (online encyclopedia), to motivate (videotutorial), etc.

ICT resources can also favor teaching-learning processes at different times: at the beginning, during and at the end of the training sessions.

2. ICT STANDARDS FOR TEACHERS

Several proposals have been made to systematize the levels of acquisition of ICT competences by teachers: ICT-CST UNESCO (2008) or ICT Competencies' Pentagon (MEN, 2013).

2.1. ICT Competency Standards for Teachers (UNESCO, 2008)

The ICT Competency Framework Standards for Teachers (UNESCO, 2008) offer an opportunity to plan different levels to implement digital teacher competences: Technology literacy, Knowledge Deepening, and Knowledge Creation [Figure 4].

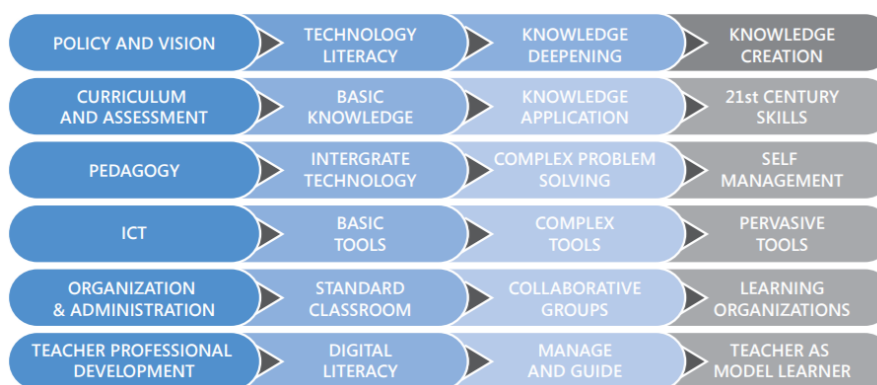


Figure 4: ICT Competency Framework for Teachers (UNESCO, 2008).

This framework is based on previous studies as the International Society for Technology in Education (ISTE) and includes three modules which offer an opportunity to plan different strategies to implement ICT Competences for Teachers:

- *Technology literacy*. Teachers should be able to identify the components of education reform programs that correspond to the policy goals.
- *knowledge deepening*. Teachers should be able to design classroom activities that advance the policy goals.
- *Knowledge creation*. Teachers should be able to develop programs within their school that advance the policy goals.

These three strategies are applied in different modules: (1) understanding ICT in education, (2) curriculum and assessment, (3) pedagogy, (4) ICT, (5) organization and administration, and (6) teacher professional learning. Following this standard, a teacher who wants to develop the “knowledge creation” strategy apply to their “teacher professional learning” will be able, among other competences “to design ICT-based learning resources and environments (...); support students’ continuous reflective learning; and create knowledge communities for student and colleagues” (UNESCO 2011, p.14).

This framework tries to represent the complexity of the educational context including the key components (curriculum, pedagogy, and technology), from different educational perspectives (academic and organizational), offering a framework to introduce educational technology in training institutions. A matrix of 18 different configurations can be adopted by stakeholders. This European proposal has been complemented by researcher initiatives as Churches (2009) who present a selection of web resources to help for the implementation of each

configuration of the different modules of the standar.

2.2. ICT Competencies' Pentagon (MEN, 2013)

The ICT Competences for Professional Teacher Development can be classified in: technological, communicative, pedagogical, management and research (MEN, 2013) [Figure 5].

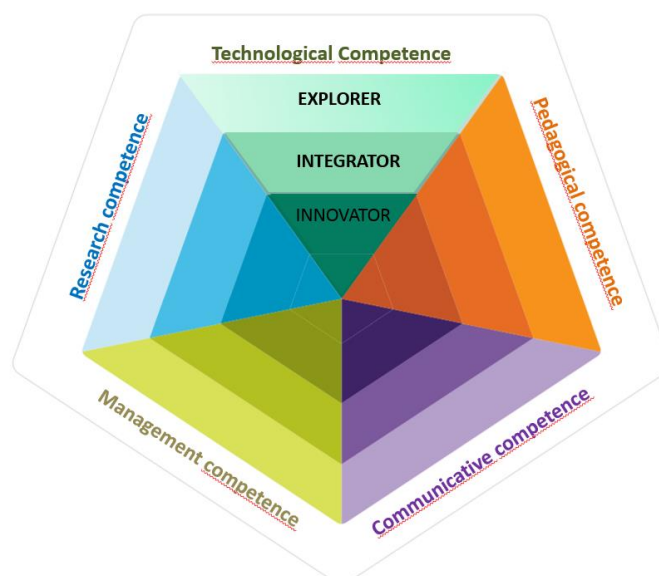


Figure 5: ICT Competencies' Pentagon (MEN, 2013)

These competences are developed in different levels or moments of complexity: (1) *exploration* (allows the approach to a set of knowledge that is constituted in the possibility to access states of greater conceptual elaboration), (2) *integration* of knowledge already appropriate for solving problems in different contexts), and (3) *innovation* (emphasis is placed on the exercises of creation, which allows to go beyond the knowledge learned and to imagine new possibilities of action or explanation).

Pedagogical Competence is the ability to use ICT to strengthen teaching and learning processes, recognizing the scope and limitations of incorporating these technologies into the integral training of students and their own professional development. Descriptors of ICT Pedagogical Competence are presented [Table 2].

Table 2: Descriptors of ICT Pedagogical Competence Moments (MEN, 2013)

<i>Explorer</i>	<i>Integrator</i>	<i>Innovator</i>
I use ICT to learn by personal initiative and to update the knowledge and practices of my discipline.	I encourage in my students the autonomous learning and the collaborative learning supported by ICT.	Design ICT-mediated learning environments in accordance with the cognitive, physical, psychological, and social development of my students to promote the development of their competences.
I identify educational problems in my teaching practice and the opportunities, implications and risks of using ICT to attend them.	I use ICT with my students to meet their needs and interests and propose solutions to learning problems.	I propose ICT-mediated educational projects that allow reflection on one's own learning and knowledge production.
I know a variety of strategies and methodologies supported by ICT, to plan and follow up on my teaching work.	Implementing didactic strategies mediated by ICT, to strengthen in my students learning to solve real-life problems.	I evaluate the results obtained with the implementation of strategies that make use of ICT and promote a culture of monitoring, feedback and permanent improvement.

Each competence can be developed independently, which implies that a teacher can be in different moments of development in each one of these competences and the pentagon allows to identify his profile and offers guidelines for designing and implementing professional development programs for teachers. The guidelines are designed to recognize the individual or collective needs, formulate interventions aligned with the principles

presented and follow the professional development processes to achieve the objectives.

3. TECHNO-PEDAGOGICAL MODELS

Teachers have at their disposal some techno-pedagogical models for the curricular integration of technology in the classroom, like for example: TPACK (Mishra & Koehler, 2006) or SAMR (Puentedura, 2014).

3.1. TPCK Model

The TPCK model focuses on the importance of knowledge (K) in Content (C), Pedagogy (P) and Technology (T) and the possible relationships between them [Figure 6].

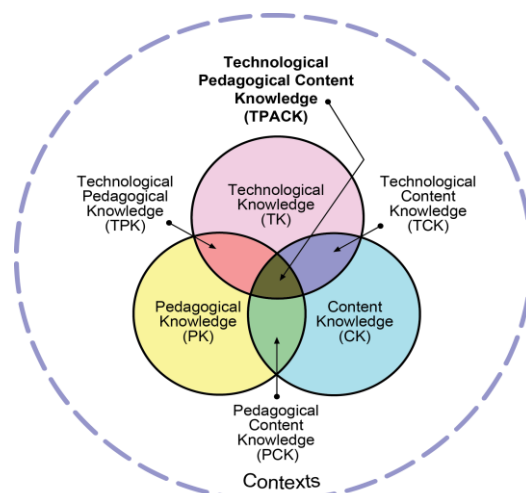


Figure 6: TPACK Model (Mishra & Koehler, 2006)

This model allows us to incorporate resources among different types of knowledge involved in the design of digital educational resources: content, pedagogy and technology. Some exemplifications are presented integrating the model during the design process of resources.

- Tools to improve the presentation of content, such as graphic editors, publishers and multimedia (TK-technological knowledge).
- Tools to facilitate reflection on learning can be blogs or social forums (PK-pedagogical knowledge).
- Resources for further knowledge of the subject area can be online databases and online encyclopedias (e.g., Wikipedia, WikiEducator) (CK-content knowledge).

Each situation requires from teachers a combination of these factors, there is no single solution or standard practice for all teachers. Each type of knowledge included in the TPACK model and their interrelationships is described by Mishra and Koehler (2006), and Koehler and Mishra (2009) (Table 3).

Table 3: TPACK model types of knowledge (Based on Mishra & Koehler 2006, and Koehler & Mishra, 2009)

Type of Knowledge	Description
CK-Content knowledge	Teacher knowledge on curriculum content (concepts, theories, ideas, organizational frameworks, etc.) at different stages or modalities. Teachers must master and understand the depth of foundations of knowledge of the disciplines to teach their subjects.
PK- Pedagogical knowledge	Teacher knowledge about the variety of teaching and learning methods, teaching strategies, dynamics, practices or activities that allow interaction and collaboration by students. In this kind of knowledge is taken into account the styles of teaching and learning, classroom management, planning of teaching units, student assessment, etc. Includes objectives, development of key competencies and application of methodological strategies. The teacher tries to understand how students learn, leading classroom management skills, planning and student assessment.
TK-Technology knowledge	Teacher knowledge about traditional and ICT-based technologies that can be integrated into the curriculum, and the importance of its permanent update for an educational use. It implies a fluidity and management of technologies that go beyond computer literacy. Teachers are required to have a mastery of technology to apply it productively for information processing, communication and problem solving.

PCK-Pedagogical Knowledge	Content	Teacher knowledge about pedagogy applied to the teaching content of a specific knowledge area. Professor finds many ways to represent the contents and adapting educational materials based on prior knowledge, interests, and abilities of students.
TCK-Technological Knowledge	Content	Teacher knowledge to understand which technologies are best suited for a learning content. At the same time, the type of content requires technological changes to curriculum integration.
TPK-Technological Pedagogical Knowledge		Teacher knowledge to understand how the teaching-learning process can change when a technology resource with a teaching strategy is used.
TPACK-Technological Pedagogical Knowledge	Content	Teacher knowledge to implement teaching strategies appropriate to the specific context. It refers to effective teaching and learning through technology to facilitate learning based on the characteristics of students and context.

The different types of knowledge of the TPACK model (TK, CK, PK, TCK, PCK, TPK, TPACK) can be to be applied to specific educational purposes and contexts. This model has been applied to know the level of competence on ICT by teachers and to propose a pathway to their professional training process. The challenge lies in the ability to integrate knowledge of the three elements -technology, pedagogy and content knowledge - depending on the variables in each educational setting.

3.2. SAMR (Puentedura, 2014)

The SAMR Model by Puentedura (2014) offers different levels of the role of technology, from *enhancement* (substitution and augmentation) to *transformation* (modification and redefinition) [Figure 7].

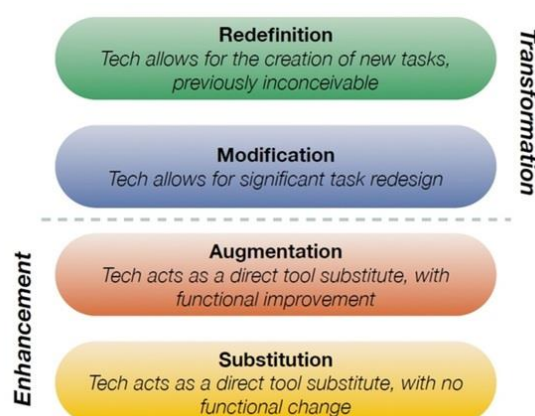


Figure 7: SAMR Model (Puentedura, 2014)

Following Puentedura (2014) the use of technology in education goes through different levels in an increasing order: substitution, increase, modification and redefinition. These levels can be characterized in terms of the role of technology as follow:

- *Substitution*. The technology acts as a substitute, a direct tool with no functional change.
- *Augmentation*. The technology acts as a direct replacement with a functional improvement.
- *Modification*. The technology allows an important task redesign.
- *Redefinition*. The technology allows the creation of new tasks, previously inconceivable.

SAMR Model offers an itinerary of continuous ICT training of teachers from basic to advanced levels: (1) ICT <without> functional change; (2) ICT <with> functional change; (3) ICT <with> redesigned activities; and (4) ICT <with> new activities.

The SAMR proposal contributes to understand the *Teachnology* concept, defined by his author as the beliefs about how technology can and should be used in teaching practices. This model has inspired other researchers as Roberts (2013) who propose for novel teachers to focus more on the role of teachers and students than in tasks. To do this, it proposes the following steps: *traditional* (traditional pedagogy with technology support), *enhanced* (integration of multiple tools to create an enhanced learning experience), *choice* (selected tasks using a specified range of tools) and *handoff* (flexible choice of tools to achieve an authentic product from the students' interests). In this same line are expressed McKnight, O'Malley, Ruzic, Horsley, Franey & Bassett (2016) identifying different roles that technology plays in enhancing teaching and learning: Access, Communication and Feedback, Teacher Time, Student Work.

4. RESOURCES IN A B-LEARNING DISTANCE EDUCATION CONTEXT: UNED CASE STUDY

Teachers should integrate traditional and ICT resources to take advantage of institutional media and services and at the same time to take advantage of the favorable environment in which students are digital natives. We describe the resources used in a b-Learning distance education context.

Teachers who develop their subjects in distance learning contexts can create conceptual epistemological frameworks for her subject, in which the students can learn within a complementary set of educational resources. The UNED methodology is based on b-Learning modality, combining face-to-face tutorship in training centers, traditional media (print, audiovisual, etc.), web tools (LMS, webconference, etc.) and in-person exams [Figure 8].

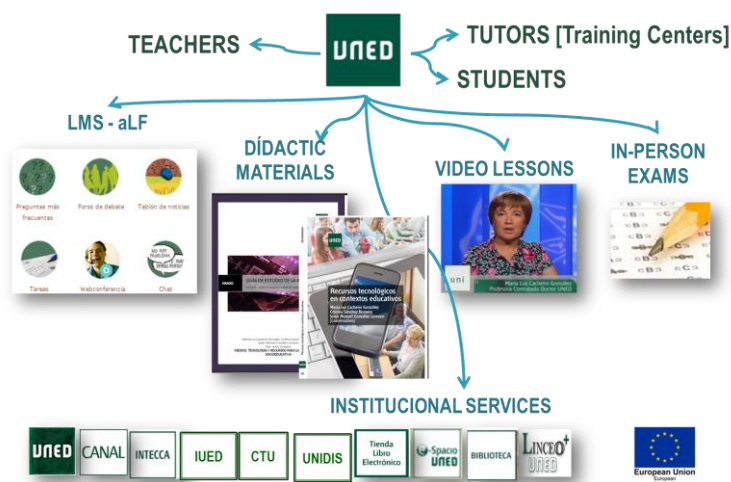


Figure 8: Resources in a b-Learning Distance Education Context (Own elaboration)

The b-Learning system at the UNED use an own LMS platform (aLF) in which occurs the different types of interaction among students, teachers and tutors. Institutional resources are available to complement the platform: documents repository (eSpacio), video lessons (Canal UNED), ebooks (ebrary, linceo+), etc. In addition to the digital components, students have traditional media at their disposal as the study guide and the basic text book.

We present the results of several studies carried out with undergraduate and graduate students of the School of Education at the UNED.

Posgraduates students who answer to a questionnaire on the use of the training platform (n=115) say they use *quite* and *a lot* (62.6%) classic materials (books, articles, ...) in addition to the training platform. Appropriate use of the training platform “*opens a new world of opportunities both classroom training, and distance. It also contributes to the new teaching models to promote active student participation in their training*”. [Student_27]. A disadvantage in the use of the platform is “*Too much informative noise in the forum messages*”. [Student_43]. Graduate students of Education School at UNED who answer to a questionnaire on the ICT Competence as users and creators (n=49) believe that have a *high* and *advanced* ICT competence as user (48,3%), however they consider that have a *low* and *medium* as creator (75,9%). Among the advantages provided as a user of technological resources in the training process are: “*the speed with which I can obtain information on any subject, the ease of developing training and the possibility of conducting training courses (formal education / non-formal education) Through an online platform*” [Student_14]. The main advantage as a creator is “*that when you create a tool you adapt it to the use you want to give it*” [Student_13]. Among the difficulties identified as users and as creators highlights that “*not all sources are reliables*” [Student_14 & Student_5].

CONCLUSIONS

Teachers need to acquire skills that allow integration of web resources for information, collaboration and learning purposes. For Bates (2015), many media are better than one, because “this allows learners with different preferences for learning to be accommodated and to allow subject matter to be taught in different ways through different media” (p. 206). In this line of recommendations, Adams et al (2017) consider that «Educators are increasingly expected to employ a variety of technology based tools, such as digital learning resources and courseware, and engage in online discussions and collaborative authoring” (p. 23).

Teachers have standards in ICT skills developed by institutions at an international level to deal with the planning of teaching sequences, which can be enriched with the institutional repositories of resources developed by both designers and teachers, and Taxonomies of criteria to evaluate the technological and pedagogical quality of web resources. The innovation in teaching needs in-depth knowledge of media design to make the appropriate and

creative decisions to select and apply ICT resources and virtual scenarios to solve the most important challenges in the training process (Medina & Domínguez, 2015).

The International Telecommunication Union (ITU-UNESCO, 2014) analysis presents different stages to introduce ICT in education depending on the penetration level in education: *e-readiness* (trained teachers through basic ICT infrastructure), *e-intensity* (ICT-enhanced content development and innovative pedagogy management through distance education resources), and *e-impact* (ICT for lifelong learning through podcasting, videoconferencing, etc. resources). This ICT integration requires following Hibbitts & Travin (2015) a combination of a stablish sequence of steps from Learning and Technology point of view: Assess learners needs, Define and Conceptualize, Assess technology fit, Design, Evaluate, Implement and Deliver.

Digital Teacher Competence requires: (1) to know the available resource repositories to respond the specific educational needs, (2) to apply technological and pedagogical models that provide a framework for the integration of ICT in educational contexts, (3) to evaluate the adequacy of didactic strategies with ICT through exemplifications.

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DIGITAL TOOLS: ENHANCING PAINTING SKILLS AMONG MALAYSIAN SECONDARY SCHOOL STUDENTS

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ABSTRACT

Digital tools refer to software applications in the production of artworks particularly in painting. Digital art work is materialized by using computers, software and a combination of computer peripherals such as tablet support. With the aid of electronic equipment, digital artists manipulate pixels or coloring with light to compose the work and traditional artists manipulate paint or ink as a medium for the same purpose. This study seeks to explore the construction of painting using digital media in four aspects of productive dimension, namely: composition, color manipulation, interpretation and creativity. Moreover, this study aims at examining to what extent digital tools can assist in building painting skills among secondary school students in Malaysia. The group's production of two painting types, digital and conventional was analyzed to determine the effects of treatments on students' skills. Findings show that students construct better paintings, both digital and conventional paintings, upon their mastery of the digital media. This implies that digital media may be an effective means to help students improve their skills in both conventional and digital painting.

DIGITIZATION OF LECTURE CONTENT: ARE WE SETTING UP STUDENTS TO FAIL?

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ABSTRACT

As more educators decide to make content available digitally students may lose the incentive to regularly attend their weekly scheduled lecture-based classes. A study was undertaken in a second-year undergraduate course that covers the experiments and techniques required to advance in the fields of molecular biology, biochemistry and microbiology. In this lecture course, which also requires students to attend a 3-hour per week laboratory component, the lecture notes were provided as pdf's in advance, and the lectures were also video recorded and posted within a day. In addition, digital whiteboards were used within the PowerPoint presentation to ensure that no content was presented in a format which was not digitized. The post-lecture, digitally-annotated notes were also posted for students to access once the lecture was complete. To encourage student attendance a student-response system was used to keep track of attendance and provide a minimal participation mark worth 5% of the final grade. A retrospective, multi-year study of attendance, course performance, and digital-content usage shows that while there was wide variability in student performance and the accessing of digital content there remains a positive correlation between class attendance and course success. This study can inform best-practices of the growing trend of digitized lecture content.

DISCIPLINE PRACTICES IN SELECTED URBAN SCHOOLS

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The study investigated the different discipline problems involving students of the selected schools, the measures these schools employed to deal with the issues, and the factors affecting the implementation of the said measures. The study utilized a qualitative design. There were 5 discipline officers from private schools and 2 discipline officers from public schools who participated in the study. All the schools were located in the National Capital Region. The instrument used for this study was a researcher-made interview questionnaire composed of 12 open-ended questions. The participants were interviewed in their respective schools. The interview sessions on an average lasted for 49 minutes. Interview responses were transcribed, coded, and categorized into themes. Results revealed that the discipline problems encountered by the schools were violations of the student conduct process, peer factor, grave misconduct, and boredom-related problems. With regard to the measures undertaken for the cited problems, the schools' practices were notifying the students and their parents, employing sanctions that retain relationship among students and the enforcer, and lastly immediate corrective action for students' grave misconduct. For factors affecting the discipline practices in school, the study found out that low level of cooperation among students, teachers, and parents as well as unfocused students served as barriers for the strict compliance to the rules set by the school. Implications to education are discussed in this paper.

EDEBİYAT DERSLERİNDE EDEBİ BİR KİŞİLİĞİN TANITIMI “MİTHAT CEMAL KUNTAY ÖRNEĞİ”

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ABSTRACT

Writers have an important role in the enrichment of a culture and the transfer of cultural products to future generations. Through, writers and poets, literary Works reflect the emotional world of the society. In addition, men of letters contribute to the enlightenment of the society and to the development of social consciousness. In the respect in literature lessons, besides the introduction of literary knowledge the introduction of literary figures who have contributed to this work, are performed. In this work, an important writer of Turkish literature Mithat Cemal Kuntay will be discussed and the way of introducing an artist to the students in literature course will be presented.

Keywords: Writer Identity, Literature courses, Mithat Cemal Kuntay.

ÖZET

Edebiyatçıların bir kültürün zenginleşmesinde ve kültür ürünlerinin gelecek kuşaklara aktarılmasında önemli bir yeri vardır. Edebi eserler, yazarlar veya şairler aracılığıyla toplumun duygu dünyasını yansıtır. Ayrıca edebiyatçılar, toplumun aydınlanmasına, sosyal bilincin gelişmesine katkıda bulunurlar. Bu açıdan, edebiyat derslerinde edebi bilgilerin verilmesinin yanında, bu alanda eserler vermiş olan edebiyatçıların tanıtılması da gereklidir. Bu çalışmada, Türk edebiyatı için önemli bir kişi olan Mithat Cemal Kuntay ele alınacak ve Edebiyat dersi içinde bu konunun nasıl işlenebileceği anlatılacaktır.

Anahtar kelimeler: Edebi kişilik, Edebiyat dersleri, Mithat Cemal Kuntay.

GİRİŞ

Edebiyatın ve edebiyatçının yazılı ve sözlü kültür ürünlerinin gelecek kuşaklara aktarılmasında önemli yeri vardır. Bu anlamda değerlendirdiğimizde edebiyatın ve edebiyatçıların uygarlık tarihine yaptığı katkı önemlidir. Edebiyat eğitimi açısından baktığımız zaman, edebiyat derslerinde edebi eserlerin incelenmesi; genç kuşakların, bir milletin kültür dünyasını tanıması ve bu konuda bir bilinç oluşturması, estetik zevkinin geliştirilmesi amaçlanmaktadır. Dil kültürün taşıyıcısıdır; dil edebiyatın da ana malzemesidir. Edebiyatçı bu malzemeye şekil veren kişidir. Edebi eser ne kadar önemliyse, onu meydana getiren kişi de o kadar önemlidir. Eser ve eser sahibi arasında var olan bağ, sanatçının kişisel tarihi, bağlı olduğu zihniyet yapısı, psikolojik bütünlüğü ve sanatsal eğilimleriyle şekillenmektedir. Bu bağlamda, eseri sanatçıdan ayırmak mümkün değildir. Yapısalcı inceleme esaslarına göre her eser, bağımsız bir bütün, tamamlanmış bir halka ve değiştirilemez bir yapıdır. Eleştirebilimin temelini oluşturan hermeneutik inceleme ise, halen ortadan kalkmış değildir. Modern hermeneutikte, yazar ve eser, bağımlı birbirinden koparmamaktadır. Bu nedenle, bir edebi eserin tanıtımında öncelikle yer verilmesi gereken, eser sahibinin hayatı ve mümkünse ruhsal çözümlemesidir. Böylece, eser sahibi ve okur arasında bir bağ kurulabilecek, edebiyat derslerinin kağıt ve mürekkeple sınırlı kalması sorunu aşılabilecektir. Edebiyat derslerinde yazarın tanıtılması, yazarın evreni görme biçimi ile yakınlık kurulabilmesi, hatta yazarın üslubunun değerlendirilip, bu üsluba benzer üretim çalışmaları yapılmasıyla birlikte; eser de daha açık bir bilinçle gözlemlenebilecektir.

ÇALIŞMA

Milli Eğitim Bakanlığı, Talim ve Terbiye Kurulu Başkanlığı'nın yayınladığı 9,10,11 ve 12. sınıflar öğretim programına göre Türk edebiyatı derslerinde amaç; öğrencilerin metinleri önce zihniyet ve yapı bakımından çözümlemeleri; tema, dil-anlatım, anlam bakımlarından incelemeleri; sonra da yorumlamalarını sağlamak üzere hazırlanmıştır. Yapı-Tema-Zihniyet-Dil ve Anlatım incelemesi, bir edebi eserin incelenmesinde kullanılan en yaygın temel yöntemdir. Bu yöntemin doğru biçimde kullanılmasıyla, eserin matematiksel bütünlüğü ortaya çıkarılabilmektedir. Edebi eser, her şeyden önce bir yapıdır. Bu yapının gezegenler ve uydular olarak adlandırılan temel ve yardımcı kesitlerinin tespit edilmesi ile, eserin zenginliği ortaya koyulur. Tema ve zihniyet

özellikleri ise doğrudan yazarla ilgili özelliklerdir. Edebi eserin teması, yazarın üzerinde düşündüğü, eseri meydana getirirken sınırlarını bulmaya çalıştığı, bazen üzerinde yıllarca kafa yordığı temel bir kavramdır. Zihniyet ise, bizzat yazarın yansıttığı evren algısıdır. Bu demek değildir ki korku romanları yazan bir yazarın psikolojik bütünlüğünde sorunlar vardır. Korku romanı yazan bir yazar, korku kavramının kendisi ile uğraşmaktadır. Kişisel tarihini, okumalarını, araştırmalarını, şahitliklerini ve her şeyden önemlisi, hayallerini kullanarak korku olgusunu yazıya dökmektedir. Bu bağlamda, yazarın bütünlüğünü oluşturan ögeler, eserin bütünlüğü üzerinde etki sahibi olduklarını kabul etmek gerekecektir. Öğrencilerin Türk edebiyatı derslerinde işlevini bilmeden ezberledikleri edebiyat tarihi ve edebî kişilikler hakkındaki bilgiler yerine metni çözümleme, anlama ve yorumlama becerilerini kazanmaları ve bunlardan yararlanarak estetik yaşantının zevkine varmaları amaçlanmalıdır.

Milli Eğitim Bakanlığının Türk Edebiyatı dersinin amaçları arasında da belirtildiği gibi edebiyat dersleri daha çok metin odaklı yürütülmekte ve dersin işlenişinde edebî metinlerin çeşitli yönlerden incelenmesi esas alınmaktadır. Ayrıca yine amaçlar kısmında bahsi geçen “öğrencilerin Türk edebiyatı derslerinde işlevini bilmeden ezberledikleri edebiyat tarihi ve edebî kişilikler hakkındaki bilgiler yerine...” ifadesi bize sanatçıların tanıtılması konusunun ele alınışı hakkında ipucu vermekte, edebiyat tarihi ve edebî kişiliklerin ezber bilgiye dayalı işlendiğine dikkat çekmektedir. Halbuki aynı programın yöntem ve teknikler kısmında sanatçıya yönelik, üzerinde durulması gereken hususlar konusu ayrıntılı bir şekilde verilmektedir.

Edebiyat eğitimi ve hazırlanan programdan kaynaklanan hususlar özel olarak ifade edildikten sonra yöntem ve teknikler konusunda dikkat edilmesi gerekenler maddeler hâlinde şöyle sıralanabilir:

1. Edebiyat, sanat ve kültürle ilgili hususlar metinlerden hareketle kavratılmalı, sanatçıyla metin arasında ilişki kurulmalıdır.

2. Programda her metnin sonunda: “Şair ve yazarla ilgili çıkarımlarda bulunur.”, ifadesine bağlı olarak aşağıdaki hususlar gerçekleştirilecektir.

- * Şair ve yazarın hayat hikâyesi ile metin arasında ilişki kurma
- * Şair ve yazarın ortak temalara getirdiği farklı yorumları açıklama
- * Şair ve yazarın beslendiği kültür kaynaklarını açıklama
- * Şair ve yazarın toplumsal düşüncelerden etkilenip etkilenmediğini belirleme
- * Şair ve yazarın, dönemindeki ve geçmişteki diğer yazarlardan etkilenip etkilenmediği belirleme
- * Şair ve yazarın, dönemindeki yazarları ve şairleri etkileyip etkilemediğini belirleme
- * Şair ve yazarın sanata getirdiği yenilikleri belirleme
- * Şair ve yazarın edebî grup içindeki ve edebiyat tarihindeki yerini açıklama
- * Şair ve yazarın önemli eserleri hakkında bilgi edinme.”

Bu program doğrultusunda giderek, edebî kişiliklerin tanıtılması konusunda öğretmen, ders kitaplarındaki kısa özgeçmişle yetinmeyip, anlarından ve edebiyatçının dikkat çekici özelliklerinden bahsederek sanatçıyla ilgili farkındalık yaratacak bilgiler verebilir. Eseri anlamak için önce sanatçıyı anlamak gereklidir. Bir yazı türü olarak biyografi, “Yurtlarına, insanlığa büyük hizmetleri dokunmuş önemli kişilerin çalışmalarını, hayatlarını anlatan yazılardır.”¹ şeklinde tanımlanmaktadır. Bir yazarın ya da şairin hayatını anlatmakla, önemli herhangi bir kişinin hayatını anlatmak arasında bir fark olmalıdır. Berna Moran bu konuyla ilgili olarak şöyle der: “‘yazara dönük’ biyografik eleştiri ise sanatçının kişiliği ile eserleri arasında sıkı bir bağ olduğu ilkesine dayanır. Bu ilke başlıca iki amaçla kullanılabilir.

1. Eserleri aydınlatmak için sanatçının hayatını, kişiliğini incelemek.
2. Sanatçının psikolojisini, kişiliğini aydınlatmak için eserlerini bir belge gibi kullanmak.”²

Bu demektir ki sanatçının kişiliğini ve yaşadığı dönemin özelliklerini incelediğimizde sanat eserini yorumlamak daha kolay olmaktadır. Bu yüzden ezber yapılacak biyografik bir bilgi, öğrencinin kültür dünyasına herhangi bir katkı sağlamayacaktır. Bir sanatçıyı sevdirmekle, o sanatçının diğer eserlerini de okumak için öğrencide merak uyandıracak ve onlara okuma alışkanlığı kazandıracaktır. Bu sorun, her şeyden önce bir estetik ölçütünün kabulü aşamasında karşımıza çıkmaktadır. Sanat yapıtı, durağan ve kolay açıklanabilir bir olgu değildir. Sanatçı da durağan bir psişe değildir. O, inişleri ve çıkışları olan sıradan bir ruhtur. Çok klasik görünen bir metnin içerisinde, çok zor tespit edilebilen ve ironiye dayanan bir metinlerarası ilişki bulunabilir. Veya yazar, “sanat

¹ Karaalioglu, Seyit Kemal, Kompozisyon Sanatı, İnkılap Kitabevi, s.295, İstanbul 1985

² Moran, Berna, Edebiyat Kuramları ve Eleştiri, Cem Yayınevi, s.118, İstanbul 1991

yapıtına sanata yabancı bir unsur yerleştir[ebilir]”.³ Bu bağlamda, sanatçının kimliği ve hikayesi, eserin incelenmesi ortamında büyük önem taşımaktadır.

Bu çalışmada Mithat Cemal Kuntay örneği üzerinden, bir edebiyatçıyı nasıl tanıttığımızı işlenecektir. Kısa bir özgeçmişin ardından bu sanatçının dönemindeki edebiyat dünyasına göre ayırt edici özelliklerinden ve gerçekleştirdiği ilklerden bahsedeceğiz. Öğrencinin ilgisini çekeceği düşüncesiyle özellikle anılardan da faydalanarak, dönemin sanatçılarıyla ve çevresiyle olan ilişkilerine değineceğiz. Böylece, kurmaca karakterin özünün dayandığı bilgi kümesi olan sanatçı hakkında az bilinir bilgilere sahip olmanın, çalışmacı/öğrenci üzerinde yaratacağı değişim izlenebilecektir. Eser ve yazar, bir iç-dış ilişkisine sahiptir: *“Öyleyse tüm hikayenin nesnel ya da dış hikaye olmasına karşın, iç hikaye içindeki hikayedir: İçselleştirdiğim ya da sindirdiğim şekilde hayatımın hikayesi, ‘gerçek, en içindeki hikaye’dir., sadece kendimin anlatabileceği özel bir hikayedir. İç hikaye, dış hikayeden çıkardıklarımızdır.; aslında dış hikayeden çıkarabileceğim ne varsa odur. İç hikaye, dış hikayeye dayalıdır -yani (naif bir biçimde) dış hikayenin hayli doğru bir temsili olduğunu varsayabilirim- ama ikisi arasındaki ilişki sorunsaldır.”*⁴

BULGULAR

Mithat Cemal Kuntay, Türk edebiyatının önemli bir sanatçısı olmasına rağmen hakkında çok fazla araştırılma yapılmamıştır. Bu yüzden onunla ilgili çok fazla bilgi edebiyatseverlere ulaştırılmamış ve edebiyat tarihimiz içinde hak ettiği yere konumlandırılmamıştır.

1885 yılında İstanbul’da doğan yazar, sadece edebiyatçı yönüyle değil, bir hukuk adamı olması yönüyle de başarılı bir kişidir. Yüksek öğrenimini Mekteb-i Hukuk’ta pekiyi derece ile tamamlamıştır. 1908’de, Hukuk Mektebi’nde doktora sınavını vererek ilk hukuk doktoru olmuştur. Çeşitli yerlerde hukukçu olarak çalıştıktan sonra , kendi isteğiyle Beyoğlu Dördüncü Noterliği’ne tayin edilmiştir. “Mithat Cemal Türkiye’nin en uzun süre noterlik yapan bir hukukçusuydu. Noterlik dairesi, Edebiyat-ı Cedîde’den başlayarak, Fecr-i Âtî, Beş Hececiler ve Millî Edebiyat gibi akımların temsilcilerinin sık sık uğradıkları bir sohbet yeri idi. Öte yandan buraya, İstanbul’un büyük tacirleriyle, sanayicileri, ünlü avukatlar, zengin levantenler, yabancı şirketlerin temsilcileri, müdürleri uğrarlardı. Bunlar hem tüm noterlik işlerini Mithat Cemal’e yaptırırlar, hem de onun zevkli sohbetinden yararlanırlardı.”⁵

Mithat Cemal Kuntay’ın edebiyatımızda tanınması 1908’den sonra, özellikle de şiirleriyle olmuştur. Henüz öğrencilik yıllarında Vefa İdadîsi’nde iken, şiirle ilgilenmeye başlamıştır. 1908 Meşrutiyetinin ilk aylarında, Tahran’da Millet Meclisini topa tutan Mehmet Ali Şâh’a hitaben, Mehmet Âkif’le beraber yazdıkları « Acem Şâhına » isimli manzûmesi, Âkif’in Birinci Safahat’ına alınmıştır .

Şöhreti, “Vatan Hisleri” adını taşıyan şiirinin :

Ölmez bu vatan, farz-ı muhâl ölse de hattâ,
Çekmez kürenin sırtı o tâbût-ı cesîmi.

beytinin Millî mücadele sırasında (1 Aralık 1921) Türkiye Büyük Millet Meclisi kürsüsünde Gâzi Mustafa Kemal Paşa (Atatürk) tarafından okunmasından sonra büsbütün artmıştır .⁶

Mithat Cemal’in öyle mısraları vardır ki, insanların belleğinde güçlü bir yer edinmişlerdir. Atatürk’ün mecliste okuduğu dizeler gibi... Ya da derin bir duyuşla yazılan şu beyit gibi :

Bayrakları bayrak yapan üstündeki kandır;
Toprak, eğer uğruna ölen varsa vatandır.

Tarihimizde isim yapan önemli kişiler için veya milleti etkileyen önemli olaylar için duygularını dizeler dökmek, onun önemli özelliğidir. Atatürk için, Fâtih için, Cumhuriyet için, Çanakkale için yazdığı şiirler gibi...

Mithat Cemal’in sanatında, Mehmet Âkif, Abdülhak Hâmit ve Namık Kemal’in büyük etkileri vardır. Bu etkiyi eserlerinde dâima hissederiz. İşlediği konular ve kullandığı üslûp bakımından bu sanatçıları hatırlatır.

³ Kula, O. B. Brecht, Lucacs, Bloch, Sanat ve Edebiyat, İstanbul: Türkiye İş Bankası Yayınları, 131.

⁴ Randall, W. R., Bizi Biz Yapan Hikayeler, İstanbul: Ayrıntı Yayınları, 58.

⁵ Taha Toros, M.C.K. , Milliyet Gazetesi, 8 Şubat 1984

⁶ Faruk Kadri Timurtaş, , Türkün Şehnamesi’nden Seçmeler, M.E.B. Devlet Kitapları, Milli Eğitim Basımevi, s.2 İstanbul 1971

Mithat Cemal şairliği yanında nesirde de başarılı bir sanatçıdır. Hattâ edebiyat târihçileri tarafından, nesirde daha başarılı bulunmaktadır. Türk nesrinin ustalarından sayılan Mithat Cemal'in Resimli Kitab, Güneş, Çınaraltı, Servet-i Fünûn, Harb Mecmuası gibi dergilerde yazı ve şiirleri, Son Posta gazetesinde de, ölümünden bir hafta öncesine kadar "Köşe Penceresi" başlığıyla her gün yazdığı köşesinde, günlük fıkraları ve makaleleri bulunmaktadır. Özellikle Son Posta gazetesinde yazdığı "Benim Diksiyonerim" adlı köşe farklı bir sözlük çalışması olması ve onun mizah ve yergi yönünü açığa çıkarması açısından dikkat çekicidir. Bu sözlük çalışmasından birkaç örnek şöyle verebiliriz:

Kafiye: Başarılı ise mısraların iskaripini, başarılı değilse nalını, çok fena değilse nalı.

Ahlaksız: Başarılı olursa tarihe, başarılı olmazsa hapishaneye giren adam.

Horultu: Uykunun bestesi.

Hırılı: Ölümün bestesi.

Dedikodu: Kültür fikarasıyla, para fikarasının tesellisi.

Sanatçının edebiyat târihimiz açısından önem taşıyan monografi çalışmaları da vardır. Monografileriyle, büyük saydığı adamları tanıtmayı görev saymıştır. Geçmişini unutmamak, büyük adamların hayatlarından ders almak, onun târih anlayışında da önemli yer tutar. Bu düşüncelerini şiirlerinde işlemenin yanı sıra, monografilerle de pekiştirmiş, gelecek kuşaklara, geçmişimizden izler bırakacak eserler ortaya koymuştur. Mehmet Âkif, Namık Kemal ve Ali Suâvî hakkında yazılmış eserlerinin dışında, Tevfik Fikret hakkında bir çalışma yapmak istemiş, fakat belgelerini topladığı halde, yazmaya ömrü yetmemiştir. Bu belgeler, bugün İstanbul Büyükşehir Belediyesi tarafından düzenlettilerinde edebiyatımıza kazandırılmıştır. Onun bir özelliği de arşivci olması, bir çok belge toplayıp, onlardan olabildiğince faydalanmasıdır. Belge toplamak, belki de mesleğinden gelen bir alışkanlıkla, eserini sağlam temellere oturtmak açısından, ona göre çok önemlidir.

Mithat Cemal Kuntay'm, şiir, araştırma, çeviri ve fikir yazılarının dışında iki tiyatro eseri vardır : I. Meşrutiyet ve II. Abdülhamit dönemini (1876-1878) anlattığı, Kemal. (Mensur) ile Çanakkale Savaşını konu edinen Yirmisekiz Kânûn-ı Evvel (Manzum) .

Edebî hayatı boyunca bir tek roman yazmıştır: Üç İstanbul. Abdülhamit dönemi , II. Meşrutiyet ve Mütareke yıllarının İstanbul'unu anlatan roman, onun şaheseridir ve günümüzde daha çok bu eseriyle tanınır.

ANILARLA MİTHAT CEMAL KUNTAY

Mithat Cemal dostluğa inanan bir insandır. Bu yüzden dostları onun için çok değerlidir. Onlara verdiği armağanlarda da sanatını konuşturur. Bu konuda Yusuf Ziya, şu anıyı aktarır: « Sevdiklerine yazdığı mezar taşları, dostlarına verdiği fotoğraflara yazdığı mısralar içinde de sahiden güzelleri vardır. Bir gün, Galata'daki Dördüncü Noterlik Dairesi'nde, Nihat Erim'e:

— Baş katibim, baş arkadaşım, baş belam !, diye takdim ettiği» Süreyya Ormancı'ya armağanı olan fotoğrafın üstünde bu özelliğinin bir yansımına tanık oluruz:

“Sen gıyaben de huzurundasın Ey mihr-i zekâ

Seni, zannetme gözüm sadece gördükte arar.

Yerin üstündeki yıldızları bilmezse adam,

Yedi kandilli Süreyya'yı, gider gökte arar!”⁷

Münevver Ayaşlı onun evliliğiyle ilgili şöyle bir anısını aktarır : “Mithat Cemal Bey, İstanbul'un çok kibar ailelerinden birinin kızı Nâile Hanımefendi ile evli idi. Mithat Cemal Bey haremini çok sever, çok beğenir ve çok sayardı. Üstelik, Nâile Hanımefendi kuvvetli bir ressamdı.

Allah rahmet eylesin, çok nüktedân ve çok alaycı Leyla Vâhid Hanım anlatmıştı, ondan naklen yazıyorum :

— Nâile'yi hepimiz çok sever, çok beğenirdik. Bir şair ve hukukçu ile evleniyor, dediler ve bizi nikâhına davet ettiler. (o zamanlar malûm nikâhlar evlerde olurdu.) Bütün İstanbul, Nâile'nin nikâhına gitti, fakat hepsi Nâile için gelmiş ve Nâile'nin ailesinin dostları idi. Davetli olarak Mithat Cemal Bey'e ise, bir tek kişi gelmişti, zavallı mı zavallı, fakara mı fakara bir Ermeni emlak komisyoncusu, ev simsarı bu adamcağızı da hepimiz tanıyorduk, zirâ işimiz düştüğü zaman eline bir kaç kuruş sıkıştırır ve

⁷ Yusuf Ziya Ortaç, Bir Varmış, Bir Yokmuş, Portreler, Akbaba Yayınları, Yeni Matbaa, İstanbul 1960, s. 89-90.

hizmetimizi görürdü. Mithat Cemal Bey'in tek dostu ve tek davetlisi olarak, yalnız bu adamı görünce, bütün İstanbul kibarları şaşmış kalmışlardı.”⁸

Yine yazar Münevver Ayaşlı, onu dış görünüş itibariyle biraz garip bulmaktadır. Anılarında şöyle bahseder : “Bu kalabalığın içinde, bir bey nazar-ı dikkatimi çekmişti. Hem şık, hem değil. Hem kibar, hem değil. Hem eşyadan anlıyor, hem anlamıyor...”

Meselâ, deve tüyü gâyet pahalı bir palto vardı sırtında, palto güzel ve şık, lâkin kendisine bol ve büyüktü. Boynuna gâyet güzel ve pahalı bir “kaşkol” takmış, fakat kaşkolun bir ucu sarkıyordu. Elinde bir baston, ama şehir bastonu olmak için çok çok kalındı. Bu kalın bastonla, herkesi rahatsız ederek, eşyaları gösteriyor ve çok zayıf bir Fransızca ile eşyalar hakkında izahat veriyordu.”⁹

Çok titiz bir insan olan ve sağlığına çok dikkat eden Mithat Cemal'in ölüm haberini aldığı anda, babasıyla arkadaş oldukları için onu yakından tanıyan Münîs Fâik Ozansoy, üzüntüyle karışık şaşkınlığını şöyle ifade eder: “Mithat Cemal ölebilir miydi ? Bunca gayret, hastalığı yanına yaklaştırmamak için bu kadar îfina, kışın kapalı yerde de çok defa paltoyu, yazın yün yeleği terk etmemek ...”¹⁰

Onun bu titizliği hakkında Yusuf Ziya ise şunları söyler: “Bir akşam, yemek salonunda, baktım, masasından alevler yükseliyor. Tutuşmuş bir meyva tabağıydı bu: Kayısılar, şeftaliler, erikler yangını!...

Yarım saat sonra, bahçede kahvelerimizi içerken öğrendim: Tifo'yu yakıyormuş”¹¹

Mithat Cemal, sağlığına olduğu gibi dış görünüşüne de özen gösteren bir kişidir. Halit Fahri Ozansoy bu konuda şöyle der: “Ben onda, Batı ile Doğu arasında, iki cephenin karıştığı bir özellik bulmaktan da kendimi alamazdım. Giyinişi, zârâfeti Batıdan, duyuş ve nükteleri Doğudan eserdî. En ziyâde bu ikinci rüzgarından hoşlanırdım. Geniş bir alnı vardı ve saçları – eski şâirler gibi benzetme yaparsam - sanki ay ışığı ile gümüşlenmişti ! Bu saçlar, kır saçların en göz okşayanı idi. Kravatı daima kelebek kravatı ve elbisesi en usta bir makastarın elinden çıkma!”¹²

Faruk Nafiz Çamlıbel onunla ilk tanıştığındaki izlenimlerini şu şekilde aktarır : “Şâiri ilk tanıdığım gün hiç yabancı bulmamıştım: Mevzûları kadar vakûr bir vücut, üslûbu kadar muntazam bir yüz... Şiirindeki heyecanla sesinin âhengi, iki damla su kadar birbirine yakındı. Şiirle şâir arasındaki bu asil benzerliğe nâdir tesâdüf olunur...”¹³

Sanatçıların birbirleriyle çekişmeleri; onların ilginç kişiliklerini ortaya koyan anekdotlarda görüldüğü üzere, edebiyat ve sanat çevrelerinde olağan karşılanan olaylardandır. Mithat Cemal'le ilgili şu hicivler, onun özel yaşamı hakkında bize ipucu verebilir:

“Ünlü ozanımız Faruk Nafiz Çamlıbel şöyle der bir şiirinde:

Bir sırrın varsa anlat şair Yahya Kemal'e
Saklat onu bulmazsan noter Mithat Cemal'e
Birincisi esasen kulak vermez sözüne
İkincisi kilitler çekmecenin gözüne.

Ya üstâd Yahya Kemal ne döktürmüş içki sofrasında:

İdmanlı dalkavuklara hayli döktürdü ter

Hepsinden üstün oldu bizim dalkavuk noter.

Yahya Kemal niye mi kızmış noter arkadaşına ? Mehmet Âkif'i mi övmüş noter ve de akşam sofraya da mı gelmemiş?”¹⁴

Mithat Cemal, târihe duyduğu sevgi ve eskiye bağlılıkla sanatını beslerken, aynı zamanda yenilik taraftarı devrimci bir insandır. Bunun en önemli göstergesi, Atatürk ve Cumhuriyet için yazdığı yazılar, şiirlerdir. Ömrünün son demlerinde Cumhuriyet'e hizmetini politika alanına kaydırmak istemiş fakat talihsiz bir kaza buna engel olmuştur. (30 Nisan 1950).

⁸ Münevver Ayaşlı, İştiklerim... Gördüklerim... Bildiklerim... , Güryay Matbaacılık, İstanbul 1973, s.151

⁹ Münevver Ayaşlı, a.g.e., s.145

¹⁰ Halit Fahri Ozansoy, Edebiyatçılar Geçiyor, Türkiye Yayınevi, İstanbul 1967, s. 223

¹¹ Yusuf Ziya, a.g.e., s. 187

¹² Halit Fahri Ozansoy, Edebiyatçılar Geçiyor, Türkiye Yayınevi, İstanbul 1967, s. 223

¹³ Faruk Nafiz Çamlıbel, Mithat Cemal'i Nasıl Tanıdım, Yedigün Dergisi, 3 İkinci teşrin 1941, Sene. 9, Cilt 18, No. 452

¹⁴ Ş. Kerempeli Ersöz, Noterlik Mesleğinde Dügümler, Türkiye Noterler Birliği Hukuk Dergisi, 15 Şubat 1983, Sayı. 37, s. 35-36

“Bütün ümitlerini yeni başlayan ve kendisini görevlendiren Cumhuriyet yönetimine bağlamıştı. Mithat Cemal ne bir arzu, istek gösterdi, ne de bir önemli kişiyi araya soktu... Parti genel merkezi ile hiç bir yoldan bağlantı kurmadı. Halk kitlelerinin önüne çıkıp kendini seçmenlerine kabul ettirmek gerekiyordu. O amaçla Kuntay da emekliliğini isteyerek 1950 seçimlerine aday gösterildi: Çorum’dan... Peyami Safa ile bu kampanyaya katılmak üzere Genel Merkez’den gerekli tâlimâtı aldılar. Ankara’dan Çorum’a seçim nutukları atmak üzere yola çıkmışlardı ki, kör talih birden önüne çıkmıştı.... Ona siyâset kapısından giriş nasibi yoktu....Bindikleri otomobil bir trafik kazası yaptığı için nutuk kürsülerine ulaşmadan hastane yataklarına serildi.”¹⁵

Mithat Cemal Kuntay, noterlik görevini sürdürürken, 30 Mart 1956 günü akciğer kanserinden ölmüştür.¹⁶ Ölümü ve hastalık günlerini Yusuf Ziya anılarından şöyle aktarır: “Kışa doğru yatağa düştü. Önce soğuk alınlığı sandı, sonra astım, daha sonra da verem... Asıl hastalığı, kanser, aklına gelmiyordu bir türlü!... Vefâlı dostu, büyük doktorumuz Ekrem Şerif’in göğsünden kalkan geniş alınına hayranlıkla bakıyor: — Başu kafasına sığmıyor, diyordu.

Bir gün, on yıldır kapısını açmadığı eşinin yatak odasına geçmek istedi. Onun hayata gözlerini yumduğu yatağa uzandı ve bir daha uyanmamak üzere uyudu. Mezar taşını kendisi yazmıştır:

“Yolcu ! Burada bir karı, koca yatıyor. İkisine bir Fâtıha yeter!”¹⁷ 30 Mart 1956 günü, hayata gözlerini yumduğunda, gelecek nesillere, şiir, roman, araştırma, makale gibi edebiyatın değişik sahalarda, çok kıymetli eserler bırakmıştır.

SONUÇ

Edebiyat derslerinin amacı; öğrencinin edebiyata ilgi duyurmak, ana dilinin tüm imkanlarını kullanma becerisini vermek ve bu kullanımı eserleriyle zenginleştiren edebiyatçılarla yakınlaşmasını sağlayarak okuma alışkanlığı kazandırmaktır. Bu yüzden klişeleşmiş bilgilerin verilmesi yerine öğrencinin ilgisini çekeceği düşünülen noktalara değinmek gerekir. Bu bağlamda kitaplarda olmayan bilgilere yer vermek, yazarla ilgili anılardan bahsetmek bir yol gösterici olabilir. Böylece yazar veya şair, kitap satırlarında kalmış, durağan bir varlık olarak değil, yaşayan bir varlık olarak öğrencinin karşısına çıkacaktır. Böylece öğrenci, edebiyatçıyı kendine yakın hissedebilecek, onun yaşadığı döneme ilgi duyacak, bilgiler edinecek, kültür ve düşünce dünyası zenginleşecek, estetik zevki gelişecektir. Bu nedenle edebiyat derslerinde biyografi ve anı türünü kullanmak dersin hedefine ulaşmak için faydalı olacaktır.

Yazarın bütünlüğü ve eserin parçalılığı arasında bir ilişki olduğunu öğrenciye aktarabilmek için en uygun yöntem, biyografinin sınırsız gerçekliğinden yararlanmaktır. Otobiyografi ve özellikle monografi gibi türler de bu alanda kullanılabilir kaynaklardır. Sanatçının ruhsal varlığının en büyük yansıma eylemi, eser üzerinden gerçekleştirilmektedir. Yukarıda alınan örneklerde de görüleceği üzere, sanatçının kişisel tarihi, seyircinin tahmin edemeyeceği incelikler içerebilmektedir. Lisans öncesi eğitimde, sanatçının ruh hali ve hayatı ile eserleri arasındaki bağlantının akademik boyutta incelemelere ihtiyaç duyulduğunu söylemek, yanlış olacaktır. Ancak seyircinin, eser ve eser sahibi arasındaki temel bağlantıları bilmesinin gerekliliği, tartışılmaz bir gerçektir. Bu nedenle, edebiyat derslerinde yazarla ilgili daha ayrıntılı bilgiler verilmelidir. İnsan ruhu, günlük dil sürçmeleri yaşadığı gibi, “kalem sürçmeleri”¹⁸ de yaşayabilen bir olgudur. Edebiyatın da psikoloji, sosyoloji, tarih, mitoloji, antropoloji gibi temel alanlarla olan ilişkisinin sağlıklı biçimde öğretilmesiyle; eserin soyut ve “olasılık dışı” kimliğinden arındırılabilmesi, her şeyden önce de matematiksel gerçekliğinin incelenmesi mümkün olacaktır.

¹⁵ Halil İbrahim Göktürk, Mithat Cemal Kuntay, Kültür ve Turizm Bakanlığı Yayınları: 844, Türk Büyükleri Dizisi: 67, Ankara 1987, s. 89-90

¹⁶ Diğer Kaynakların aksine S.N. Özerdim, noterlikten emekli olduğunu yazar. Halil İbrahim Göktürk, 1950 yılında, siyasete atılmak için, emekliliğini istediğini belirtir

¹⁷ Yusuf Ziya Ortaç, a.g.e., s.92

¹⁸ Freud, S., (2015). Günlük Yaşamın Psikopatolojisi. İstanbul: İthaki Yayınları, 165.

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EDUCATIONAL ROBOTICS: FORMING SCIENTIFIC COMMUNITIES IN THE CLASSROOM

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ABSTRACT

The fact of involving the scientific method in educational institutions of secondary level has a significant weight in the scientific vocation of the high school graduate. Therefore, the current study analyzes as a didactic proposal, the use of the scientific method (to observe and to formulate a question, to investigate theoretically, to construct a hypothesis, to experiment, to collect data, to observe, to conclude, and communicate results), during the teaching of programming in Technician Computing Baccalaureate. The study was carried out in two high schools, in which programming teaching performed with Lego EV3 robots is being taught. A pre-post-test design was carried out with experimental groups (n = 25, with scientific method) and control (n = 26, without scientific method) to find out whether or not the scientific method improves programming learning. The results show a slight-significant difference in learning outcomes of systems programming in the experimental group, compared to the control group.

Keywords: educational robotics, scientific method, programming

INTRODUCTION

In the current global economy, knowledge as human capital has especially relevance. Knowledge societies are consolidated in function of the scientific research that are produced in university centers; In this sense, some studies show the benefits of initiating the scientist's training before entering to superior education (Cheung, Slavin, Kim, & Lake, 2017). Once high school students, understand the scientific method, begin to make choices on their scientific vocation, and are encouraged to continue on this path, when their university career has been selected.

In recent years, Ecuadorian professionals, have demonstrated interest in scientific production, due to the low level evidenced in the university environment. One of the less productive areas in this sense has been computer science, although there is a technical baccalaureate and university degrees in the area. It is necessary to look for alternatives that favor the process of training the scientist in computational disciplines. The search should start with an emphasis on the approaches made in the previous paragraph. The integral formation of the scientist begins before to access the university. So, within the area of computational sciences, what educational strategy can be used to initiate the formation of scientific communities in high schools in Ecuador?

Initiative that stands out as educational innovation in the area of computational sciences

The world community has begun to focus greatly on educational robotics in computer science learning (Slavkovic & Savic, 2016). Robots of different types have been widely used as educational resources at the primary, secondary and higher levels (Merkouris & Chorianopoulos, 2015; Umbleja, 2016; Rodriguez Perez, Gold-Veerkamp, Abke, & Borgeest, 2015; Grandi, Falconi, & Melchiorri); mainly, in teaching-learning processes of programming languages. The motivation for learning programming language, is one of the most worked aspects in classrooms with educational robotics (Curto & Moreno, 2013; Wong & Hsieh, 2016); consequently, favorable learning outcomes are obtained in programming systems. Educational robotics has

consolidated in the scientific community of the area of Computer science as object of study by the benefits that its didactic use offers. Educational robotics is an environment of learning in which robots are used to favor the understanding of the subjects of study. But, it is convenient to establish the difference between Teaching Robotics (TR) and Teaching With Robots (TWR). These two ways of working with robots in the classroom are represented in figure 1.

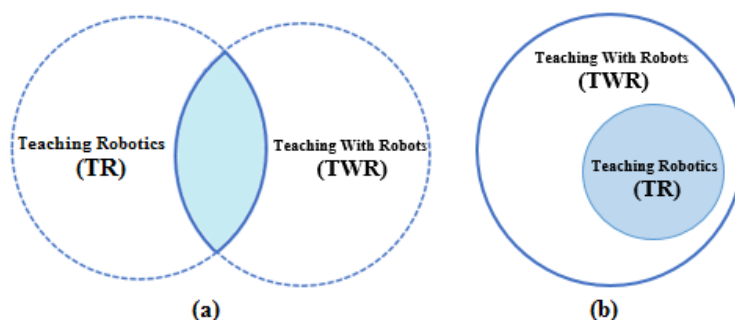


Figure 1.- TR and TWR: Two Representations of Teaching with Robots (Source: Catlin, 2012).

In the context of this research, robotics was used as shown in Figure 1 (a). Since the main object was not to learn to build robots, but to work with educational robotics to learn to program computer systems. According to this, the Lego Mindstorms kit was used, specifically the EV3 model. The choice of this kit was done due to the review of scientific literature in which it was observed that in various parts of the world, the LEGO Mindstorms educational robotic kit is widely used in primary and secondary education (Kee, 2011), and in superior education (Danahy et al., 2014). This is due to their learning curve, this system hides the complexity of electronic circuits and the student focuses mainly on robot assembly and programming learning. Then, educational robotics kits seem to have found a place in the classroom for system programming and algorithm resolution. Which is favorable, since programming is a key element in the area of computational and related sciences.

Scientific production in the area of computational sciences, in Latin America

Despite the educational innovations spread in the field of computer science both in secondary and higher education. These have not promoted the scientific production in the area. Among the evidences found, the descriptive statistics shows that in Latin America does not exist sufficient evidence on the scientific articles published on computational sciences in high impact journals (see Figure 2). Ecuador with just 530 articles, is a clear sign of the poor scientific production in this area, whereas Brazil, the country which produced the most articles that is 49,296 of published articles. Ecuadorian production is really low, which might occur due to the fact that from the technical baccalaureate until the university careers; the disciplines related to the computational sciences are visualized just like technical careers, however, all the engineering process managed in the educational praxis of this area, is appropriate for the scientific production.

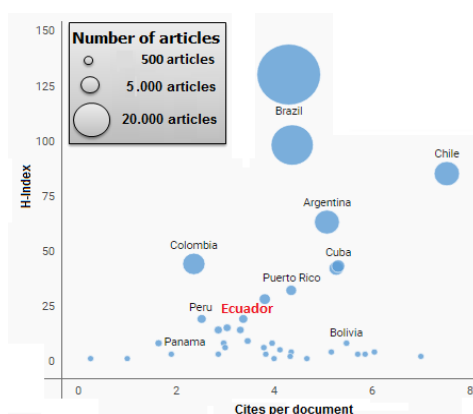


Figure 2.- production of scientific articles in computing sciences area in Latin America 2015-2016 (SCIImago, 2016)

Conformation of scientific communities in technical baccalaureate.

Based on this background, it is considered that one of the elementary subjects in the area of computer science is computer programming, in addition, Ecuadorian high schools have begun to incorporate educational robotics within their learning environments, due to the good results in student academic performance. In the present study, educational robotics was combined with the cycle of the scientific method to see the effect they cause as

an educational resource in the learning achievements of a specific field of Informatics. So, the research question which guided the study was raised: What effect does the combination of educational robotics with scientific method have on programming learning?

Objectives of the study:

To combine educational robotics (Lego EV3) with the scientific method to use them as an educational resource in the teaching of computer programming.

To analyze the impact of the educational resource (Lego EV3 + scientific method) on the learning achievements in programming of computational systems.

Hypothesis of the study

According to the central research question and the objectives of this study, the following hypotheses were designed:

H1: There are significant statistical differences between students who use scientific methodology in their programming classes (Lego EV3, with scientific method) and students who do not use it (Lego EV3, without scientific method) with regards to programming knowledge of computing systems, Before starting the educational intervention.

H2: There are significant statistical differences between students who use scientific methodology in their programming classes (Lego EV3, with scientific method) and students who do not use it (Lego EV3, without scientific method) with regards to programming knowledge of computing systems; Once the educational intervention is completed.

RESEARCH METHODOLOGY

Design of the study and participants

The research was quantitative and a quasi-experimental design was used with control group (Creswell, 2009; Hernández, Fernández and Baptista, 2010). The groups (control and experimental) were made up of students from third high school class of two high schools. Both groups were using Lego EV3 in their schools educational robots during programming teaching. The experimental group was incorporated the scientific method to its programming teaching process, for the purpose of the present study. The experimental group had 25 students and the control group had 26 students. In the total sample, 30 men and 21 women were counted, with an average age of 18 years old. In addition, to initiate the study, ethical norms of researching with human beings were taken into account by which written consent was obtained.

Procedure

Within the framework of the involvement project with the community that the Technical University of Machala had. The researchers of the present study, carried out the research in two schools of the Province of El Oro. In this sense, before the investigation process, in both schools (Control and experimental) an induction was carried out in which teachers and students were involved. Only the experimental group was trained during induction on scientific method. Students and teachers were then asked to sign a consent and collaboration form, all participants voluntarily expressed their agreement.

The study took place during the academic year 2016, from May to September. With the collaboration of the teachers of the subject, before starting classes in the month of April, standard micro-curricular planning was designed for both groups of students, in this way both control and experimental group received equivalent training. The unique difference was that the experimental group in its planning had the scientific method incorporated.

In order to set up the micro-curricular planning of the experimental group (Lego EV3 + scientific method), the researchers along with the teacher of the subject, searched correspondence between each phase of the scientific method of the design, construction and programming of the Lego EV3 robot (see figure 2).

Framework of educational robotics with scientific method.

The experimental group's lesson plan design was produced accordingly based on guidelines, which should be followed by students; this ensured the correspondence of the scientific method with educational robotics, the details of these guidelines are listed below:

Observation & ask question: for the observation stage and question formulation of the research, students were asked to think of: what kind of robot they wanted to design? And what challenges would the robot have to face? For this, students were invited to see some videos of LEGO EV3 robots already built and in operation.

Background research: In this phase, students were asked to review the LEGO EV3 robot, manuals for the requirements to assemble the robot they had in mind, and were also told about some selected links of the Internet for their search. This theoretical review would guarantee that the robot can be assemble.

Hypothesis: according to the selected robot for assembling, students were requested to set challenges, for the robot to try to achieve them. These challenges constitute the research hypothesis.

Experiment: at this stage the student performed all the tests to see if the robot managed to carry out the challenge.

Collecting data: data from the tests carried to the LEGO EV3 robot were collected for further analysis.

Analyze data: Students with the support of both researchers and teacher, placed their data in the SPSS statistical software for further analysis.

Conclusions: according to the data analysis performed in SPSS, the student with the support of both, the researchers and the teacher of the subject; made conclusions about the tests performed with the robot and the challenge proposed.

Report of results: finally, the stages of the design, construction and programming of the robot were placed in a scientific poster with the support of the teacher of the subject.

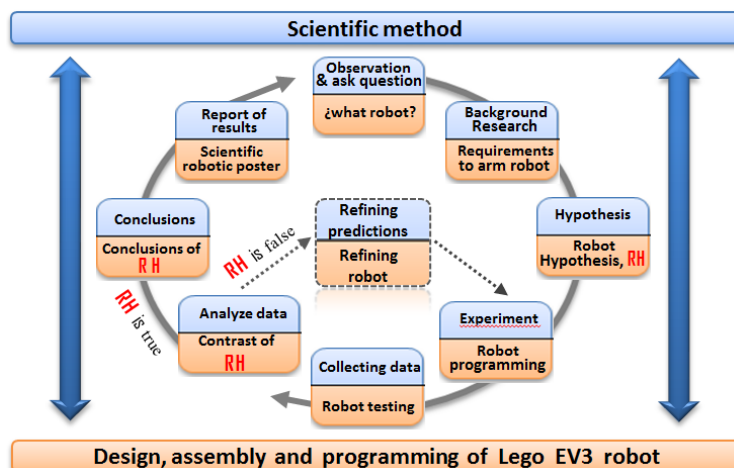


Figure 2.- Scientific method corresponding and construction of robot Lego EV3

During the months that the study lasted, programming classes were done by setting up Lego EV3 robots and programming them. For the month of September / 2016, the study ended, the data of official student scores in the subject, in both groups, were collected for analysis. Also, as part of the completion of the research project, the high school considered as an experimental group held a science and technology fair with the robots and scientific posters which were developed during the study.

Data Analysis

After obtaining the data of the students' scores of both groups (control and experimental), first Shapiro-Wilk test (due to sample size) was used in order to determine the normality of samples from the experimental and control groups. Then, to check for significant differences between groups in both pre-test and post-test, Mann-Whitney U-test was used. Finally, after the comparison between groups, the non-parametric statistical method was used to analyze the size of the effect for two independent groups (Grissom & Kim, 2012); In addition, to categorize the resulting sizes of the effect, it was stated what Cohen mentioned (1992; cited in Rienties et al., 2013): 2, which is considered as a small effect; 5, medium effect; 8, big effect. .

RESULTS

Tests of normality in the experimental group generated the value $p = 0.008$, with which it was determined that the sample was not normally distributed. In the control group; the value $p = 0.004$ determined that the sample was neither normally distributed.

Contrasting hypotheses 1: in table 1, regarding to the pre-test, no statistically significant differences were observed between control and experimental group ($U = 306.00$; $Z = -0.36$; $p = 0.72$). This indicated that in both groups, students before starting treatment, had the same skills in system programming. In addition, the size of the effect for the difference between the groups was, relatively small. Consequently, H_1 was rejected.

Table 1. Comparison of the scores gotten before the treatment, by using Mann-Whitney's U test

Group	N	Mean rank	Sum of rank	Mann-Whitney U	Z	p	Effect size
Experimental	25	25,24	631,00	306,00	-0,36	0,72	0,47
Control	26	26,73	695,00				

Contrasting hypotheses 2: in table 2, regarding to post-test statistically significant differences were observed between the control and experimental groups ($U = 146.50$, $Z = -3.38$, $p = 0.00$), in which difference the Experimental group had an average range higher than the control group. In addition, the effect size for the difference between groups was relatively moderate. Therefore, h_2 was accepted.

Table 2. Comparison of the scores gotten after the treatment, by using Mann-Whitney's U test

Group	N	Mean rank	Sum of rank	Mann-Whitney U	Z	p	Effect size
Experimental	25	33,14	828,50	146,50	-3,38	0,00	0,23
Control	26	19,13	497,50				

CONCLUSIONS

First of all, the scientific method combined with educational robotic learning environments, favors the learning achievements in programming in the area of Informatics. In addition, the design, assembly and programming of robots benefit from the structure of the scientific method, since each phase of the robot's construction; a phase of the scientific method can be selected. This is the key of the lesson plans design for teaching-learning of computer programming in baccalaureate.

These findings suggest that scientific method combined with educational robotics are an approximation to the conformation of scientific communities in the area of computational sciences in secondary schools. Students participate in studies framed in the structure of the scientific method and expose their results through a scientific poster at fairs. In order to start some training with students as a scientist in the schools, which help setting new challenges in the scientific production of the area of Computer Science in Universities.

The quasi-experimental character of this study is a contribution to the educational reality of Ecuador, and it is supposed to be a key piece to go forth within the scientific objectives of higher education. In addition, the proposal reflects the need to raise and develop more initiatives of this type in the secondary field, due to the positive collaboration of teachers and students.

The linking projects of the universities with the community open a range of possibilities to propose alternatives that favor the formation of scientific communities at the secondary level, especially in high school baccalaureate, where students are about to choosing their university majoring. The initial formation of the scientist as an approximation is liable to the efforts that are made in the last years of high-school.

FUTURE WORK

The present research is a pilot project that is part of a larger and more comprehensive program that searches for connect high school students with scientific method. In this context, a longitudinal study will be carried out with the framework of figure 2 to analyze the Secondary school students' perceptions about scientific method.

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EDUCATIONAL TOURISM: VALUATION AND CONSERVATION OF THE NATURAL RESOURCES IN CHILLA AND PASAJE

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ABSTRACT

This work is based on educational contributions from the tourism perspective and the natural resources conservation. The academy is the fundamental part to discuss Educational Tourism since all the related activities are part of the teaching-learning processes that transmits traditions, customs and the natural resources valuation of a specific region. The study was conducted in the districts of Chilla and Pasaje in the Oro Province. This is a descriptive analytic no experimental research with a mixed methodology. A survey was applied to 401 participants randomly chosen from two districts. The V of Crammer established the effect magnitude and/or the dependency strength, and the OR recognized the risk factor and the Ch2 for the validation of the null hypothesis. The results indicate that there is a direct relationship between the survey respondent instruction levels versus the natural resources valuation. It was revealed that in the secondary level the average 88,8% of moderate importance to low resulted extremely high against 11,20% of medium to high importance. Similar studies concluded that the Educational Tourism model can ease this low valuation since the students function in an environment that allows them to understand how the ecosystem operates.

Keywords: educational tourism, natural resources, conservation, learning

INTRODUCTION

The tourism industry grows fast and has a close relationship with the development and competitiveness of the countries. It is a generated source of direct and indirect employment and it is linked with different economic, social and cultural sectors. It also represents the voluntary journey and free time enjoyment in recreational and relaxing activities.

The present study was based on the educational contributions of the tourist field and the conservation of the natural resources. From the academic point of view, it is important to recognize that the key idea of the Educational Tourism is to link the activities with the teaching-learning processes and to help transmit traditions, costumes and the valuations of the natural resources of a specific area. In this sense, Alcántara Boza (2010) maintains that the link between education and the terrestrial space has been scarce and for this reason, there is an inadequate use of natural resources, consequently, there is a valuation need of them. The particularity in the Educational Tourism Development is shown in its cross-functionality since it incorporates educators specifically related to the environment. Furthermore, it allows the development of natural resources conservation activities and manages programs that are socially and environmentally related (Bonilla, 2011). According to Silva (2013), Educational Tourism is an extensive and interesting issue that allows developing the culture and the potential of

tourism in an area based on own and unaware experiences and includes educational tourism products, programs of formal and informal education for the tourism sector and educational activities in tourism. It is important to mention that natural resources according to Morrello (2000) are the goods and services that the human beings find available in nature and serve to satisfy men needs. Similarly, a resource is related to the elements that represent the richness of a country which is removed by individuals to obtain benefits and meet their needs (Sánchez y Gándara, 2011; Chediack, 2009).

Just as human beings needs and the societies in which they function have been changing, the natural resources have been exploiting in different ways and intensities. The current society demands and consumes each day more and more natural resources for subsistence. The uncontrollable demographic expansion is causing an accelerated damage of natural resources; the actions taken for the environmental conservation are considered limited and with low results due to the population's lack of consciousness from the areas of Chilla and Pasaje. The educational institutions should raise awareness to the population about natural resources and its conservation, that all the ecological systems develop its own regeneration processes and that many times men due to lack of knowledge interrupt that dynamic, causing instability and the majority of times the loss of this regeneration (Batlori Guerrero, 2005). According to Neiman, Barbosa and Pereira (2012) environment Education proposes to improve the relation human-nature by having a much broader perspective than the formal and informal education of schools. In other words, it must be cross-disciplinary and act in this way. Educational tourism must act to rescue values that formal education has forgotten through activities that generate contact with nature, life experiences and learn to value and conserve the natural resources. For this reason, Carvalho (2004) considers necessary to have a dynamic with realistic scenarios that stimulate knowledge of different areas and new learning spheres. Dealing with teaching-learning processes, Rogers's pedagogy contemplates that the relationship between student and teacher must center on the self-discovery, this means that on his own the student generates knowledge using abilities, feelings and experiences that guaranty the permanent self-learning (Casanova, 1989). In this sense, Puig (2007) indicates that the educational system is concerned on teaching, but not on learning, and consequently students function in an authoritative educational model.

THE STUDY

The aim of this study is to find relevant data that leads to taking decisions in relation to the valuation and conservation of the natural resources in Chilla and Pasaje located in El Oro Province in Ecuador. For this purpose, it is applied an Analytic descriptive no experimental research, with a mixed methodology. A survey was applied to 401 participants randomly chosen from the two districts. The IBM SPSS Statistics 23 data analysis tool is used to analyze the data and validate the research questions raised at the beginning with a 95% confidence interval. With a universe of 85,559 habitants according to projection 2016 census, the formula of Pita Fernández is applied to the calculation of the sample. It is also applied the Frequency Statistics, Pearson Chi-square test and P-value to establish the statistical significance, then the V of Crammer to establish the effect magnitude and/or the dependency strength, and the Odds Ratio (OR) to establish if the dependent and independent variables were risk factors, protective or indifferent. It was necessary to transform the variables polytomous to dichotomous to be able to determine the existing relationship. It was determined from the obtained answers in the tabulation the adding and later the calculation of the cut points that will allow us to codify the transformed answers. To determine the relationship between the variables, it was used besides the Chi², the value of "p", which allows accepting or denying the potential hypothesis or research question.

RESULTS

As it is observed in figure (1) the CrossTab between the importance range and the level of instruction of the survey respondent indicate high percentages in the moderate range of importance to low percentages in the importance range from medium to high. In the level of elementary instruction, the moderate to low importance has a 79, 5 % and the median to high importance has a 20 %. In the technical level, there is an 84, 2 from moderate to low and a 15, 8% from median to high. The undergraduate level presents a 71, 7% from moderate to low and a 28, 3% from median to high.

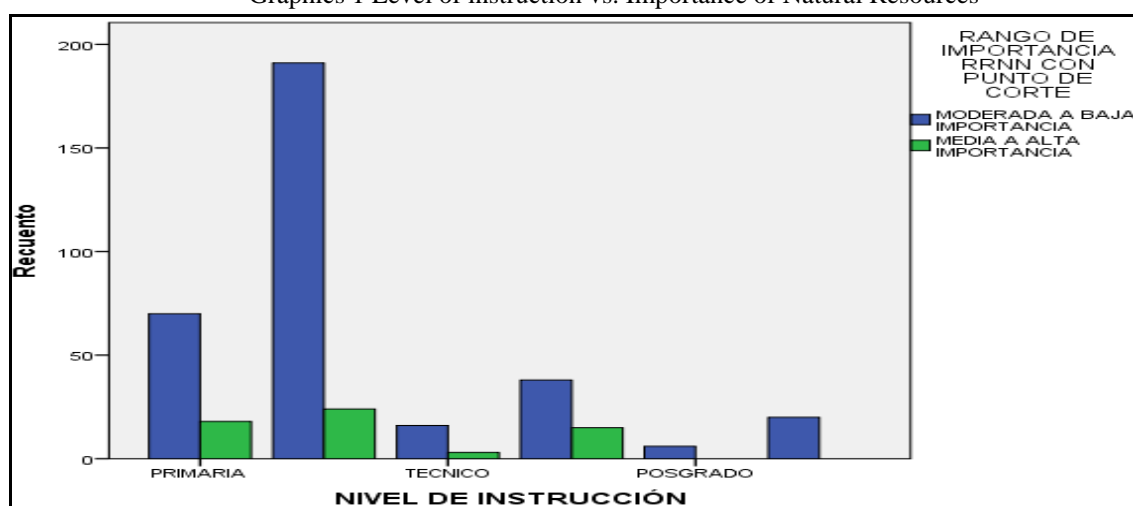
Table 1 CrossTabs: Natural Resources and instruction level

		RANGE OF IMPORTANCE RRNN WITH CUT POINT		Total
		FROM LOW TO MODERATE IMPORTANCE	FROM MIDDLE TO HIGH IMPORTANCE	
INSTRUCTION LEVEL	Primary	79.5%	20.5%	100.0%
	Secondary	88.8%	11.2%	100.0%
	Technical	84.2%	15.8%	100,0%
	Undergraduate	71.7%	28.3%	100.0%
	Postgraduate	100.0%		100.0%
	None	100.0%		100,0%
Total		85.0%	15.0%	100.0%

Source: survey
 Elaborated by the authors

We focus in the most relevant data: in the case of the secondary instruction level, the average is 88, 8% of the importance range from moderate to low which is extremely high compared to 11, 20% which is the range of middle and high importance. (Table 1, illustration 1)

Graphics 1 Level of instruction vs. Importance of Natural Resources



Source: Survey
 Elaborated by: Authors, SPSS

The results indicate that there is a direct relationship between the survey respondent’s level of instruction versus the natural resources’ valuation.

As it was mentioned in the previous paragraphs, it was applied the Pearson’s Chi-squared test. The data were processed with a 95% interval of confidence. In the next table according to the results, we can infer that there is a relationship between two variables: instruction level and valuation of the natural resources. The significance value is 0,006 considered less than 0, 5.

Table 2 Pearson's Chi-squared test

	Value	Df	Asymp Sig. (2- sided)	Sig. Monte Carlo (2-sided)			Sig. Monte Carlo (1-sided)		
				Exact Sig. (2-sided)	Interval confidence 95%		Sig.	Interval confidence 95%	
					Lower	Upper		Lower	Upper
Pearson Chi-squared	16,523 ^a	5	,006	,000 ^b	,000	,007			
Likelihood ratio	19,137	5	,002	,000 ^b	,000	,007			
Fisher exact test	15,388			,002 ^b	,000	,007			
Linear by linear association	,327 ^c	1	,567	,566 ^b	,518	,615	,314 ^b	,269	,360
N valid cases	401								
a. 3rd square (25,0%) has expected a re-counting less than 5. The minimum re-counting is,90.									
b. It is based on 401 sample tables with an initial seed of 110194448.									
c. The standardized statistic is -,572.									

Source: Survey

Elaborated by the Authors

Table 3 corresponds to the application of Phi and Cramer's V. The data is similar to Table 2 which keeps the tendency of the statistical significance between the variables of instruction level and the natural resources valuation, similarly, it has been considered a confidence interval of 95%, phi 0,006 and Cramer's V 0,006.

Table 3 Symmetric Measures

		Value	Approx. Sig.	Sig. Monte Carlo		
				Sig.	Confidence Interval 95%	
					Lower	Upper
Nominal by Nominal	Phi	,203	,006	,000 ^c	,000	,007
	Cramer's V	,203	,006	,000 ^c	,000	,007
N valid cases		401				
c. It is based on 401 sample tables with an initial seed of 110194448.						

Source: Survey

Elaborated by the authors

CONCLUSIONS

The results indicate that there is a direct relationship between the levels of instruction of the survey respondent versus the natural resources valuation. In theory people with this instruction level value natural resources with more intensity, but this does not happen.

Other studies of this type conclude that the educational tourism modality can ease this low valuation since the learning level is higher, being a different experience and completely out of the routine, the student functions in an environment that allows him to understand how an ecosystem works.

A study conducted by Pitman, Broomhall, Majocho, & McEwan (2010) found that educational tourism is characterized by intentional and structured learning experiences that provide opportunities for the teacher to go in depth in experiences that have the potential to challenge beliefs and bias previously sustained. Furthermore, the typical educational tourist is a student well educated and critical, and therefore the challenges the teacher in ways that cannot happen in the classroom.

In general, there is a great potential for the educational tourism to create learning, transforming experiences for professionals who organize trips and use them as a different classroom.

In almost all the manifestations of educational tourism, it is important to determine that the objective to follow is education. In this way it can be included learning about a specific topic and also values of social harmony, respect, and teamwork; consequently, if the trip objective is an education in all its forms, tourism is the method. It is a very singular and attractive way to obtain educational objectives effectively. However, Llonch (2012) considers the following recommendations:

- 1) The educational tourism and/or schooling must be the base from which we teach children, adolescents and youth to behave, relate, observe and deduce.
- 2) It must always have a clear educational objective that in our case will be to value the natural resources for its conservation.
- 3) It must be clear that educational tourism is an important and irreplaceable method, but it is not the objective of the educator.
- 4) The ones who organize or are intermediaries of the educational tourism must know the objectives of these trips. In other words, they need to be specialized.
- 5) The educational tourism must be conceived as an additional activity of the world discovery.

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EFFECT OF TEACHING POSITIVE PARENTING PROGRAM TO MOTHERS ON REDUCING BEHAVIORAL PROBLEMS IN CHILDREN WITH OPPOSITIONAL DEFIANT DISORDER

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ABSTRACT

Positive Parenting Program (Triple-P) is one of the most significant methods to treat mental disorders and behavioral problems in children and adolescences. This study was conducted to examine effect of teaching triple-p to mothers on reducing behavioral problems in children suffering from oppositional defiant disorder (ODD). this is a quasi-experimental study with pretest-posttest plan and consisting of control group. Statistical population of study consists of all mothers who have children at age range of 5-11 with ODD referring to counseling and psychotherapy centers of Bandar Abbas, Iran during 2015. Of those who had inclusion criteria, 30 members were selected randomly and assigned to two experimental and control groups. Comprehensive Behavior Rating Scale-Parent Assessment Report (Conners CBRS-P) and Eberge's Children Behavior Questionnaire were filled out at baseline and after intervention; the obtained data were analyzed using ANCOVA and Independent t Test through SPSS22 Software. results showed that teaching triple-p to mothers could effect on reducing behavioral problems at posttest step. According to comparison between means controlling their pretest scores, children of mothers who had received triple-p (experimental group) significantly obtained lower scores in behavioral problems questionnaires at posttest step compared with control group members ($P \leq 0.01$). findings implied that teaching positive parenting program to mothers led to reduced behavioral problems in children with oppositional defiant disorder.

INTRODUCTION

ODD is a pattern of hostile, disobedient, and defiant behaviors directing at adults or other authority figures (Barkley, 2009). ODD is also one of the most common clinical disorders among children and adolescences (Steiner & Remsing, 2012). This disorder is categorized as disruptive behaviors that are the most important disorders referring to children mental health clinics (Costin et al., 2011). Various factors such as age and gender are related to this disorder and about half of children population that are diagnosed with ODD are indeed suffering from another types of psychological disorders (Helfinger & Humphreys, 2008) so that its prevalence among pre-school children has been estimated to 4-16% (Ager & Angold, 2006). This disorder usually occurs between age of 8 and 12 and is more common between boys compared to girls (Nock et al., 2009). Therapeutic treatments for children were often concentrated on children in past while there have been a high tendency toward treating behavioral problems of children using parents' participation recently (Urquiza & Timmer, 2012). According to conducted studies in this field, intimate and supportive relationships in family are predictors of positive adaption of children and adolescences as well as protective factors for behavioral problems among youth (Sanders & Wooly, 2005). Behavioral interventions in family that are based on social learning principles are the most strongest types of interventions to help children who suffer from behavioral and mood problems (Turner & Sanders, 2006). Antecedents indicate that parents; behavioral training programs are the first preventive strategies to treat children with behavioral problems and this strategy is increasingly used (Self-Brown, 2011).

Triple-P is a kind of family behavioral interventions that is designed based on social learning principles; it is also recognized as one the strongest interventions to help children suffering from mood and behavioral problems (Sanders, 1999). The objective of this program is proper use of expert people to increase competency of parents and improve these teachings at a wide scale of society. This program is presented at 5 different levels based on the dysfunction of child and family as well as their various needs. Triple-P-based interventions in different populations have led to reduced disruptive behaviors among children (Sanders, 1999).

According to the studies conducted on effect of this training method in groups, these interventions have led to significant reduction in behavioral problems in children (Turner & Sanders, 2006). Whittingham (2014) conducted a study and showed that teaching triple-p to parents could reduce behavioral disorders in children with autism. In addition, Au (2014) conducted an experimental study to examine effectiveness of triple-p-base group therapy in Chinese mothers of children with Attention Deficit Hyperactivity Disorder (ADHD). Results showed that triple-p could effect on reducing behavioral problems in children and increasing self-efficacy of mothers; this achievement continued within a 3-months follow-up.

Mohareri et al. (2012) conducted a study entitled effect of teaching triple-p to mother on improving relationships with teenagers; they found that educational interventions of positive parenting could improve parenting methods, increase their competency, improve relationships between parents and children, and reduce children's behavioral problems. Another study was conducted by Azemnia and Ghahari (2016) on children suffering from ADHD and results showed that teaching behavioral strategies to mothers could reduce anxiety symptoms and mood problems in such children. Since teaching triple-p to parents in an important parameter to prevent from behavioral problems and treat children with such problems, this study was conducted to examine effect of teaching triple-p to mothers on reducing behavioral problems in children with ODD.

METHODOLOGY

This is a quasi-experimental study that was conducted with pretest-posttest plan and control group. Statistical population consisted of mothers of children at age range of 5-11 suffering from ODD and referring to counseling and psychotherapy centers in Bandar Abbas, Iran during summer 2015. 2 centers were selected randomly within sampling process from counseling and psychotherapy centers in Bandar Abbas then those mothers whose children were diagnosed with ODD based on psychologist diagnosis, statistical and diagnostic guideline criteria of mental disorders version DSM-V were selected as sample members. There were 43 mothers that 30 members of them were elected randomly and assigned to experimental (15 members) and control (15 members) groups. All participants signed the consent before intervention. Mothers in experimental group were trained within 8 sessions and control group remained in waiting list. The data obtained from baseline were analyzed after treating with statistical method of ANCOVA and Independent t test through SPSS22 Software.

Content of Training Package

Triple-P training package- parent version was used in this research. Triple-P was designed by Sanders et al. (2005) in University of Queensland in Australia and its implementation license was obtained based on the contract between Cognitive Science University, Iran Psychiatry Association for Children and Adolescence, and mentioned university in Australia (Tehranidoost et al. 2008). This program is presented at 5 levels that a level of it is allocated to group training of parents to strengthen parenting skills. This training program is hold through 2-hours 8 sessions. This program is based on the social learning model of parent-child interaction determining bilateral nature of parent-child interactions. The content of triple-p sessions was as follows:

Session 1 (group positive parenting): participants became familiar with each other and the content and objectives of the program in this session; group rules were discussed and reasons for behavioral problems were explained to mothers. In addition, mothers were encouraged to follow and monitor behavior of their children and ascertain some goals to change their behaviors.

Session 2 (Child growth promotion 1): some strategies are taught in this session to create positive relationships with children such as talking to child, having emotional kind relationship, and spending time with child then parent were asked to play such roles in small groups.

Session 3 (Child growth promotion 2): some strategies were taught to parents in order to increase positive behaviors such as descriptive admiration, and preparing amazing activities, etc. in this regard, parents are taught when and how use these teachings.

Session 4 (Child growth promotion 3): some strategies such as accidental training, questioning technic, responding, doing, etc. to parents in this session in order to teach child new behaviors and skills.

Session 5 (Inefficient Behavior Management 1): some negative implications of punishment were explained to mothers in this session and then some strategies were taught to cope with inefficient behaviors of child. The mentioned methods consisted of setting rules, direct negotiation, direct and explicit order, and ignoring.

Session 6 (Inefficient Behavior Management 2): punishment is replaced with some strategies at this step using some advanced methods such as logical implication, depriving and silence time to cope with inappropriate behaviors of children.

Session 7 (Inefficient Behavior Management 3): since the introduced methods in previous sessions are not enough, they should be combined with each other. Three applied programs including daily program of obedience, behavior correction program and behavioral chart were taught to parents to manage inefficient behaviors of their children.

Session 8 (Preplanning): parents were taught in this session to identify risky situations and introduced methods in previous sessions in framework of planned activities within risky situations inside and outside of home. Some instructions were proposed to mothers to create comfort in family.

Instrument

Eberge’s Children Behavior Questionnaire: this instrument was made by Eberge and Pinkas (1999). This questionnaire evaluates behavioral problems, disobedience, and mood problems in home. There are 36 questions in this questionnaire and examine two subscales of intensity and problem among children and adolescences at age range of 6-12. Scoring method was based on two scales; one scale is intensity that indicates frequency of considered behaviors of child and the other scale evaluates the problem whether parents consider that behavior as a problem in child or not. Each item of questionnaire was scored at Likert scale from 1 (never) to 5 (always) that total score indicates scale score. Correlation between scores of ECBI and total score of child behavioral checklist (CBCL) was significant and indicated validity of questionnaire. In addition, differential validity of ECBI was successful to distinguish normal groups from groups with mood disorder. Internal consistency obtained to 0.88 using Cronbach’s alphas. Retest rate of intensity obtained to 0.86 within 3 weeks and to 0.88 for problem subscale (Eberge&Pinkas, 1999). A study was conducted by Haji SeyyedRazi et al. (2012) in which, alpha coefficient obtained to 0.93 and 0.92 for intensity and problem, respectively; moreover, questionnaire retest rate obtained to 0.74 and 0.58 for intensity and problem, respectively.

Results

Education level of mothers, age of mother and child in two experimental and control groups are described in table 1. According to table 1, mean of mothers’ age in control group and experimental group was 34.27 and 35.47, respectively. In addition, mean of children’s age in control and experimental groups was 6.34 and 6.05, respectively. Majority of participants had diploma degree.

Table 1. Mean and standard deviation of mother age and child age in control and experimental groups

Group				Variable
Experimental		Control		
(SD)	Mean (M)	(SD)	Mean (M)	
6.28	35.47	9.38	34.27	mother’s age
1.59	6.05	1.96	6.34	child’s age

Table 2. Frequency and percent of education level of mothers in control and experimental groups

Group				Variable
Experimental		Control		
Percent	Frequency	Percent	Frequency	
26.7	4	20	3	Elementary
20	3	13.3	2	Secondary
33.3	5	46.7	7	Diploma
20	3	20	3	BA
100	15	100	15	Total

Following tables show mean and standard deviation of variables scores obtained by two experimental and control groups.

Table 3. Mean and standard deviation of variables scores in two experimental and control groups

Group				step	Variable
Experimental		Control			
SD	Mean	SD	Mean		
17.89	134.40	21.33	134.93	retest	Behavioral (mood)problems
14.99	128.87	16.98	136.27	posttest	

According to table 3, there are differences between scores obtained by experimental group within pretest and posttest steps.

Main Hypothesis: “Triple-P training for mother can effect on reduction in behavioral problems in children with ODD”.

Table 4. Results of ANCOVA for effect of group membership on behavioral-mood problems at posttest step

significance (P)	F	mean squares	df	sum of squares	changes source	step	Variables
0.001	241.16	6461.27	1	6461.27	pretest	posttest	Behavioral-mood problems
0.001	13.37	366.21	1	366.21	groups		
		26.79	27	723.39	error		

According to table 4, teaching triple-p to mother can effect on reducing behavioral problems and oppositional defiant at posttest ($F(1,27)=13.37, P \leq 0.01$). The obtained means ($M=128.97$) show that mothers who received triple-p in experimental group based on controlling pretest scores of behavioral-mood problems had significant lower scores at posttest step compared to mothers who did not receive triple-p in test group ($M=136.27$) ($P \leq 0.01$).

DISCUSSION AND CONCLUSION

This study was conducted to examine effect of teaching triple-p to mothers on reducing behavioral problems in children suffering from ODD and the obtained results showed effectiveness of teaching triple-p to mothers on reducing behavioral problems in children with ODD. This finding is in line with results study conducted by Sanders et al. (2012) that examined effectiveness of triple-p on parents with 2-7 years old children with ODD. This study showed that mothers who had received triple-p obtained good scores in scales of children behavioral problems, inefficient parenting styles, trust of parents in their own parental role and parents' anger; it should be mentioned that these results were fixed after 6-months follow-up and increased performance was observed in some cases. Results of present study are matched with findings obtained by Islami et al. (2012) that conducted a study to examine effect of training package of positive parenting on improving parenting styles, reducing behavioral problems in adolescences and improving their relationships with their parents. Results obtained in mentioned study indicated that training interventions of positive parenting could improve parenting styles, increase competency of parents, improve relationships between parents and adolescences, and decrease their behavioral problems. Results obtained in present study are also in line with findings of following studies: Moharieriet al. (2010) that conducted a study entitled “effect of teaching triple-p to mothers on improving relationships with adolescences” and concluded that training interventions of positive parenting could improve parental methods, increase parents' competency, improve relationships between parents and adolescences and reduce their behavioral problems; the study of Khodabakhshi (2012) conducted on effect of teaching triple-p on pre-school children with ADHD so that 22 mothers received interventions and results showed a significant reduction in behavioral problems of children; studies conducted by Whittingham et al. (2014) concluding that teaching triple-p to parents can reduce behavioral disorders in children with autism; study of Au et al. (2014) that examined triple-p-based group therapy for mothers of children with ADHD and indicated after 3-months follow up that triple-p could effectively reduce behavioral problems and increase self-efficacy of mothers.

CONCLUSION: it is possible to reduce anxiety and mood behaviors in children with ODD and Hyperactivity disorder through teaching triple-p to their mothers.

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EFFECT OF THE USE OF INSTRUCTIONAL RESOURCES ON STUDENTS' PERFORMANCE IN ELECTRICITY AND MAGNETISM

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ABSTRACT

The purpose of this study was to investigate the effectiveness of the use of instructional resources on the academic performance of students and also how these materials can motivate learners to learn Physics. The study was a quasi- experimental research design that employed pre-test, post-test, interview and observational technique. The population of the study comprised all Senior High School science students in the Nkwanta South District of the Volta Region of Ghana. Purposive and convenience sampling techniques were employed to select the sample for the study. Form three (3B) science class which consisted of thirty-seven (37) boys and three (3) girls was selected for the study. The total sample for the study was forty (40) form three (3B) science students of Nkwanta SHS (37 boys and three 3 girls). The data obtained was analysed using SPSS to find achievement mean scores. To see the treatment effect, the mean scores were computed to determine the average achievement on the variable of the pre-test and post-test. In addition, the significance difference between the mean scores was tested at 0.05 level by applying t-test based on the pre-test and the post-test. It was observed that the mean score of the post-intervention test (Mean = 16.70, Sd = 1.977) is much higher than the mean score of the pre-intervention test (Mean = 7.22, Sd = 3.068). Hence, statistically there was a significance difference between the performance of students when taught with instructional materials and when not taught with instructional materials. It was recommended that stakeholders should ensure regular provision of instructional materials to the SHSs to enhance teaching and learning of Physics.

Keywords: Instructional resources, academic performance, effectiveness, Ghana

INTRODUCTION

Science as an agent of development plays an important role in bringing about changes through technological advancement, national wealth enhancement, health improvement and industrialization (Validya, 2003). This is why scientific and technological breakthrough is usually the goal of any developing nation like Ghana. Wenham (1984) opined that Physics is and will remain the fundamental science.

Despite the importance of Physics to the scientific and technological development of our nation, understanding of the subject had dwindled over the years and performance of the enrolled students had not been encouraging. Ho and Boo (2007) discussed that in many countries, there has been a decline in the number of students wishing to continue with Physics. Ogunleye (2000) and Umeh (2002) were all of the opinion that students' performances in the science subjects were poor. Also, previous study had shown that students who hold negative stereotype images of scientists, science and technology in society are easily discouraged from pursuing scientific disciplines and usually performed poorly in science subjects (Changeiywo, 2000). This situation does not favour Ghana's move towards developing a scientific and technological nation.

The influence of instructional materials in promoting students' academic performance and teaching and learning in educational development is indisputable. The teaching of Physics topics such as Electricity and Magnetism in Ghanaian secondary schools needs to be properly handled. The materials used by teachers to teach and drive home their subject at the primary and secondary school levels of our educational system is incontrovertibly a paramount and important issue in practical classroom interaction and successful transfer of knowledge from the teacher to the students. Instructional resources are materials which assist teachers to make their lessons explicit to learners. They are also used to transmit information, ideas and notes to learners. Instructional materials include both visuals and audio-visuals such as pictures, flashcards, posters, charts, tape recorder, radio, video, television, computers, and projectors among others. These materials serve as supplement resources to the normal processes of instruction. Visual aids make lesson come alive and help students to learn better. The importance and technicality of Physics as a subject makes it necessary that relevant instructional materials should be used to teach it to the learners.

In this study, instructional resources will be used to design instructions in Electricity and Magnetism on final year SHS students in Nkwanta Senior High School after a traditional lecture approach has been used in teaching the students with the same topic. Pre-test data will be gathered and compared with the post-test data after the treatment to see the effect of the use of instructional resources on students' achievement in Electricity and Magnetism.

STATEMENT OF THE PROBLEM

The act of teaching is fundamentally concerned with passing ideas, skills and attitude from the teacher to the learner. In Ghana, for example experience has shown that spoken words alone in the communication of ideas are grossly ineffective and inefficient in producing desired learning outcomes. Every year, when the results of public examination are released, there have always been mass failures in Physics (Chief Examiner- WAEC, 2014). The reason for this could be ascribed to the fact that there are topics in Physics that pose serious problems of comprehension to students. Most especially Electricity and Magnetism. These topics cannot be taught effectively without the use of relevant instructional materials to make the learning practical. Adebajo (2007) affirmed that the use of instructional materials in teaching and learning of Physics makes students learn more and retain better what they have been taught and that it also promotes and sustains students' interest. It also allows the learners to discover themselves and their abilities. Students learn more when they see what they are being taught. Indeed little research work has been done on the use of instructional materials on students' academic achievement in Ghana. Poor academic achievement in Physics could be attributed to many factors among which teacher's strategy itself is considered as an important factor. This implies that the mastery of Physics concepts might not be fully achieved without the use of instructional materials. The teaching of Physics without instructional materials may certainly result in poor academic achievement. Franzer, Okebukola and Jegede (1992) stressed that a professionally qualified science teacher no matter how well trained, would not be able to put his ideas into practice if the school setting lacks the equipment and materials necessary for him or her to translate his competence into reality.

It is in this regard that makes this research pertinent. The major problem is that students' academic achievement in Electricity and Magnetism is very poor, and it is against this background that this study attempts to examine the extent to which the utilization of instructional materials could advance Senior High School students' performance in Physics.

Purpose of the study

The purpose of this study was to investigate whether learners will be motivated to learn when instructional materials are used during the teaching and learning process and also to examine the effectiveness of the use of instructional resources on learners' performance in some selected topics in Electricity and Magnetism during science lessons.

Objectives of the study

The objectives of this study are to:

1. determine whether there will be any difference in the academic performance of Nkwanta Senior High schools students in Electricity and Magnetism due to the use of instructional materials.
2. To find out if the use of instructional resources will motivate students to learn Electricity and Magnetism.

Research Questions

In order to achieve the objectives of this study, the following research questions were raised to guide the investigation:

1. To what extent will the use of instructional materials influence the academic performance of Nkwanta Senior High School students in Electricity and Magnetism?
2. How will the use of instructional resources motivate students to learn Electricity and Magnetism in Nkwanta Senior High School?

Review of related literature

Teaching at any level requires that the students be exposed to some form of simulation. Physics as a science subject is activity oriented (National Teachers Institute-NTI, 2007). This suggests that the mastery of Physics concepts cannot be fully achieved without the use of instructional learning materials. The teaching of Physics without learning materials will certainly result in poor performance in the course.

Franzer, Okebukola and Jegede (1992) stressed that a professionally qualified science teacher no matter how well trained would be unable to put his ideas into practice if the school setting lacks the equipment and materials necessary for him or her to translate his competence into reality. This suggests that for teaching and learning of Physics to be fully materialized, there would be the need of the use of instructional resources or materials. This can be achieved through the use of computer simulations or computer assisted instructions, charts, overhead projectors, videos and properly organized practical activities.

Meaning of Instructional Materials

Instructional materials are didactic materials which are supposed to make learning and teaching possible. Instructional materials include all materials including instruments and resources that aid the teacher in realizing his/her objectives in the teaching-learning process. These include textbooks, charts, improvised workbook and so on (Ifeoma, 2013).

Instructional resource materials are all teaching assisting materials either imported or locally made that aid in teaching. They are resources which the teachers use to enhance learning, understand and facilitate the acquisition of concepts, principles and skills by students. Isola (2010) also referred to them as objects or devices, which help the teacher to make lesson much clearer to the learner. Instructional materials are also described as concrete or physical objects which provide sound, visual or both to the sense organs during teaching (Agina-Obu, 2005). Instructional materials are materials which assist teachers to make their lessons explicit to learners, they are devices which present a complete body of information and largely self-supporting rather than supplementary in teaching and learning.

Importance of Instructional Resources (materials)

Teaching is not complete until knowledge has been successfully transferred which in most cases may not just be tied to teacher effectiveness or teaching skill but the instructional materials used in the learning process (Clinton & Kohlmeyer, 2005; Cardoso, Cristiano, & Aren, 2009). According to Jimoh (2009), ordinary words or verbalization has been found to be inadequate for effective teaching. Instructional materials serve as a channel through which message, information, ideas and knowledge are disseminated more easily. They can therefore be manipulated, seen, heard, felt or talked about. These materials facilitate activities and they are anything or anybody the teacher turns to for help in learning process.

Adekunle (2008) as cited in Okobia (2011) noted that teaching resources means anything that can assist the teacher in promoting teaching and learning. When the students are given the chance to learn through more senses than one, they can learn faster and easier. The use of instructional materials provides the teacher with interesting and compelling platforms for conveying information since they motivate learners to learn more. Furthermore the teacher is assisted in overcoming physical difficulties that could have hindered his effective presentation of a given topic. Larson (2001) quoted Lane (1994) who noted that the use of electronically mediated instruction to duplicate the traditional face to face classroom has resulted in a shift from teacher to student-centred classes. In this situation the responsibility for learning is shifted to the students. The teacher facilitates the learning by acting as a coach, resource guide and companion in learning. The use of instructional materials does not only encourage teachers and students to work collaboratively but also results in more cooperative learning activities among the students.

Instructional Materials and Students' Academic Achievement

There have been several studies on instructional materials and academic achievement. For instance, Adeogun (2001) and Fadeiye (2005) discovered a very strong positive significant relationship between instructional resources and academic performance. According to them, schools endowed with more materials performed better than schools that are less endowed.

Lyons (2012) states that learning is a complex activity that involves interplay of students' motivation, physical facilities, teaching resources, skills of teaching and curriculum demands. Availability of Teaching Learning Resources (TLR) therefore enhances the effectiveness of schools as they are the basic resources that bring about good academic performance in the students.

Studies done in the past on the relationship between TLR and performance include, Likoko, Mutsotso and Nasongo (2013) on adequacy of instructional materials and physical facilities and their effect on quality of teacher preparation in colleges in Bungoma county and a study done by Mbaria (2006) on the relationship between learning resources and performance in secondary schools in Ndaragwa district. All the above studies indicated that TLR were higher in higher performing schools than in low performing schools and that there is a significant difference in resource availability in the higher performing schools and low performing schools. Also the studies indicated that most institutions are faced with challenges such as lack of adequate facilities like libraries and inadequate instructional materials and these factors tend to have a negative effect on the quality of graduates produced.

TLR help improve access and educational outcomes since students are less likely to be absent from schools that provide interesting, meaningful and relevant experiences to them. These resources should be provided in quality and quantity in schools for effective teaching-learning process.

Again, according to Phyllis (2011) as cited in Wambui (2013), instructional materials possess some inherent advantages that make them unique in teaching. For one thing, they provide the teacher with interesting and compelling platforms for conveying information since they motivate learners who want to learn more and more. Also, by providing opportunities for private study, the learner's interest and curiosity are increasingly stimulated (Likoko, Mutsotso, & Nasongo, 2013). Additionally, the teacher is assisted in overcoming physical difficulties that could have hindered his effective presentation of a given topic.

They generally make teaching and learning easier and less stressful. They are equally indispensable catalysts of social and intellectual development of the learners. Bolick, Berson, Coutts and Heinecke (2003) pointed to a good relationship between effective teachings and using of instructional materials. He argued that while some educators have been fascinated by the potential of instructional materials to enhance teaching and learning, teachers lagged behind in using instructional materials during teaching and learning. Others expressed doubts that instructional materials will ever incite teaching reform on "participation". Instructional materials are integral components of teaching-learning situations; it is not just to supplement learning but to complement its process. It then shows that, if there must be an effective teaching-learning activity, utilization of instructional materials will be necessary (Kibe, 2011 as cited in Wambui, 2013).

METHODOLOGY

Research Design

The study adopted quasi experimental design with mixed approach that is, quantitative and qualitative approach, because the study include both statistical data and analytical or descriptive information. Denscombe (2007) argued that a mixed approach strategy is one that uses both qualitative and quantitative methods.

The researchers found the pre-test-post-test quasi experimental design to be most appropriate for this study (Gribbons & Herman, 1997). Pre-test-post-test design was employed for the study. Twenty (20) multiple choice test items on selected topics in Electricity and Magnetism were used.

Population

Population refers to entire group of individuals, events or objects having common observable characteristics. A population refers to the entire spectrum of a system of interest (Panneerselvam, 2004). The population of this study comprised all students in the Senior High Schools in Nkwanta South District. The targeted population used for the study however, was all Form Three (A and B) students of Nkwanta Senior High School studying science as an elective subject as well as core.

Sample and Sampling Technique

Mouton (1996) defines a sample as elements selected with the intention of finding out something about the total population from which they are taken. Considering factors such as time, finances and accessibility, it is however, practically impossible to access information from all the targeted population. Form Three (3B) Science class which consists of thirty-seven (37) boys and three (3) girls was selected for the study. The class was selected on purpose and convenience. It was purposive and convenience due to the fact that it is the class with many of its students having conceptual difficulties in Electricity and Magnetism and as a result affecting their performance in Physics, and also one of the researchers happened to be a class teacher to that class. Students of Nkwanta Senior High School negative attitudes such as laziness, lack of interest, truancy, and lack of motivation towards Physics lessons, made the researchers deem it important to find out if the use of instructional resources will have any effect on their academic performance and also arouse their interest and motivate them to learn Physics.

Research Instruments

Due to the objectives of the study, there was the need to gather data on students learning outcomes and attitudes towards Physics. The research instruments used consisted of a pre-test and a post-test taken by the research participants in order to obtain data. The purpose of the tests was to measure the achievement of students constituting the sample for the study. The test items were based on some selected topics in Electricity and Magnetism and were treated during the study period. Among the topics treated were; the principles of the electric motor and generator, electromagnetic induction, the principles of transformers, resistor in series and in parallel, the magnetic effect of currents and Flemings left and right hand rules. Both the pre-test and the post-test items were based on these topics under Electricity and Magnetism which was treated during the study. Also, group interview was used to determine the students' perception on the use of instructional materials in the teaching of Electricity and Magnetism. Observation checklist was used to determine how the use of instructional materials has motivated students' interest to learn the topic.

Validity of the Instrument

Validity in quantitative research determines whether the research truly measures what it was designated to measure or what it was set out to measure; how truthfully the research results are. In order to ensure that the test items for the study were valid it was given to experts in Physics for a thorough examination to ensure that it measures the total content area (content validity) of the study.

Reliability of the Instrument

Reliability refers to the extent to which research findings can be replicated. A reliability test was performed to ensure accurate measurement of the instrument. Test-retest method was used to determine the reliability of the instrument. To ensure the reliability of the instrument, a pilot testing was done on a similar pre-treatment test. This was done with Form Three (3) Physics students in Kadjebi Asato Senior High School in the Volta Region who was not part of the sample for the study. The students were made to answer the questions for the first time and re-answered the questions in a week's time to see whether their answers would be different. Their answers in both cases were almost the same and that made the reliability of the instrument to be quite high.

Data Collection Procedure

The data collection was divided into three stages: Pre- Treatment, Treatment and Post-Treatment stages.

Pre-Treatment

Before the use of instructional resources to teach, a Physics teacher who was not part of the the study was made to teach the Form Three (3B) science class of Nkwanta Senior High School some selected topics in Electricity and Magnetism without the use of instructional resources. Thus, the students were taught using traditional lecture approach. After four (4) weeks, a pre-test was conducted and marks of each sampled student were recorded against their serial numbers.

Treatment

The researchers arranged the form three science students for another four (4) weeks instruction. This time round, the lesson was taught with PowerPoint presentation using projector together with other instructional materials such as science laboratory equipment, electromagnetic kit, computer simulations (sun-flower) which was supplied to most of the Senior High Schools in the country by Itec Ghana Limited. The sun-flower programme contains simulation on all the concepts in Physics, Chemistry and Biology. At the end of this interactive session in which the researchers used the various scientific models and both improvised and standardised instructional resources to teach the students, test items similar to the questions used in the pre-test were administered to the students as post-test.

Treatment Activities

In order to produce good results, the researchers selected instructional resource materials they deemed appropriate to design lessons that would help the learning needs of the students. Some of the selected topics treated under Electricity and Magnetism are discussed in details here.

Week 1

Activity 1: Electromagnetic Induction

Materials: bars of magnet, electric wires, electric bulb, rubber bands, insulating tape armature, steel yoke, split pins, knitting needles, rivets and a base. All from the electromagnetic kit.

Procedure: The setup is shown in Figure 3. The Frame was rotated in a uniform magnetic field. The ends of the frame were supported by two rings which were connected to a small electric bulb. As the students rotate the frame, the bulb lights. This is because of the phenomena of electromagnetic induction. Electromagnetic induction is the phenomenon of production of potential difference across the ends of a conductor moving in a magnetic field.

This activity was also used to confirm Fleming's right hand rule as students track the directions of current, the magnetic field and the rotation of the frame using their right hand as shown in Figure 4.

Fleming's right hand rule: The first finger points in the direction of the field, the thumb in the direction of the motion of the conductor and the second finger points in the direction of the induced current in the conductor.

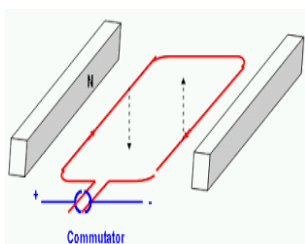


Figure 3: Electromagnetic induction

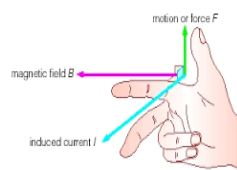


Figure 4: Fleming's right hand rule

Week 2

Activity 2: Construction of Electric Motor

Materials: Electromagnetic kit, magnets, wires, rubber bands, insulating tape batteries, armature, steel yoke, split pins, knitting needles, rivets and a base.

Procedure: The set-up for construction of electric motor is as shown in Figure 5. The wire was wound round a cuboid shaped plastic material with long nail/metal rod piers through its centre as the pivot of rotation to form the armature. When the wire brushes connected to a battery was brought in contact with the ends of the wounds on the opposite side of the nail/metal bar in a magnetic field, the coil with the cuboid started rotating. This activity was also used to confirm Fleming's left hand rule as the students use their left hands to trace the directions of the current, magnetic field and the force.

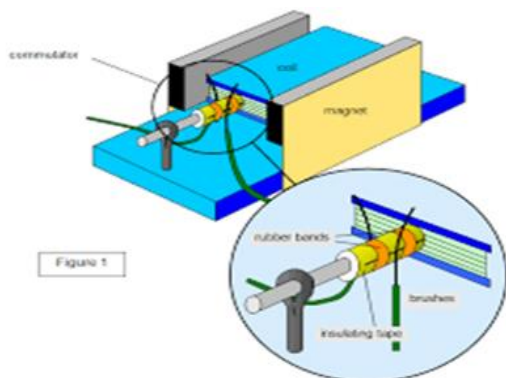


Figure 5: Electric Motor

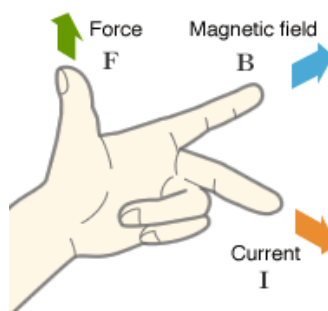


Figure 6: Fleming's left hand rule

Week 3

Activity 3: The Magnetic Effect of Electric Current

Materials used: Iron nail, electric wire, batteries, paper clips.

Procedure: In this activity, the students were guided to verify the phenomenon of magnetic field being generated when current flows through a conductor using a simple circuit as shown in Figure 7. An electric wire was wound around an iron nail and the two together brought near a paper clip but there was no attraction. When the students connect a battery to the ends of the wire and the set-up brought to the paper clips they were attracted by it. This proves that magnetic field is really generated when current passes through a conductor.

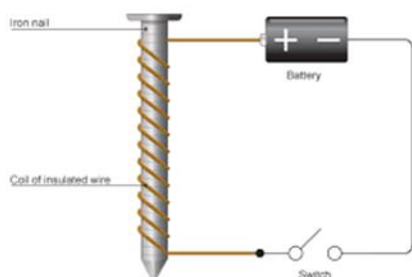


Figure 7: The Magnetic Effect of Electric Current

Week 4

Activity 4: The Effective Resistances of Resistors Connected in Series and in Parallel

Materials: Resistors, electric wires, breadboard and digital multimeter.

Procedure: Students were guided to connect resistors in series and then in parallel on breadboard and in each case a digital multimeter was used to measure the effective resistances across the ends of the two connections as shown in Figure 8. The measured values were compared to the already calculated values.

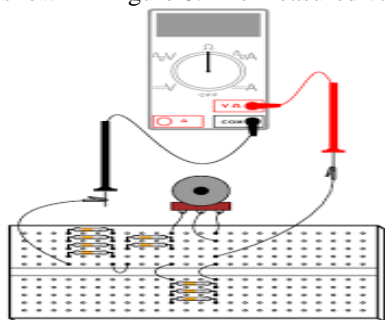


Figure 8: Components on a breadboard

Analysis of Data

The data collected from the students' pre-treatment and post-treatment test results were analysed based on the research questions for this study.

Analysis with respect to Research Question Two

Research Question 1: To what extent will the use of instructional materials influence the academic performance of Nkwanta Senior High School students in Electricity and Magnetism?

Marks of Students at Pre-Treatment Test

Tables 1 and 2 present the scores of the samples and their corresponding converted percentage scores on West African Examination Council (WAEC) and Ghana Education Service (GES) standards with its frequencies and percentage frequencies after the pre-treatment test.

Table 1: Frequency and Percentage scores of students' Pre-Treatment test

Score	Percentage Score	Frequency	Percentage frequency
4	20	9	22.5
5	25	4	10
6	30	3	7.5
7	35	6	15
8	40	11	27.5
9	45	2	5
10	50	1	2.5
11	55	1	2.5
12	60	1	2.5
17	85	2	5
Total		40	100

From Table 1, each raw score was giving a weight of 5% which indicates that a total score of 20 is a 100% on the percentage score. The raw scores obtained ranged from 4 to 17 which were converted from 20% to 85% on the percentage scale. From Table 1, the percentage score of 20 was obtained by 9 students representing 22.5% of the respondents. Also 2 students obtained the highest percentage score of 85 representing 5% of the sample. The percentage score of 40 was recorded as the highest frequency mark for 11 students representing 27.5% of the sample obtained.

Grades of the students after the Pre-Treatment Test

Table 2 presents the pre-treatment test marks of the students during the traditional method of teaching based on the West African Examinations Council (WAEC) and Ghana Education Service (GES) grading system. This shows how the subject had performed on the WAEC and GES grading standard.

Table 2: Grades of students during the Pre-Treatment test

Expected performance	Grade	Remarks	Frequency	Percentages
0-39	F9	Fail	22	55
40-54	D7-E8	Pass	14	35
55-69	C4-C6	Credit	2	5
80-100	A1	Excellent	2	5
Total			40	100

From Table 2, the best grade was A1 which had a frequency of 2 thus representing 5% followed by grade C4 to C6 with frequency of 2 representing 5% then grade D7 to E8 with frequency of 14 representing 35% and finally grade F9 representing 55% of the sample obtained. These data suggest that the best grade obtained during the pre-treatment test was A1 and the least was F9 while the grade obtained by majority of the students (22 students) was F9 which represented 55%. The results showed that majority of the students had failed remark according to the WAEC and GES grading system. This implies that more than one-third of the sample failed because on the WAEC grading system F9 was rated as a very poor remark. In this study, the data collected on the pre-treatment test was in support of Clinton and Kohlmeyer (2005) study that showed no change in the students' results of the concept taught during the traditional method of instruction.

Students Marks at Post-Treatment Test

Tables 3 and 4 present the scores of the samples and their corresponding converted percentage scores on WAEC and GES standards with its frequencies and percentage frequencies.

Table 3: Frequency and Percentage scores of students' Post-Treatment test

Score	Percentage score	Frequency	Percentage frequency
11	55	1	2.5
12	60	1	2.5
13	65	1	2.5
14	70	1	2.5
15	75	4	10
16	80	9	22.5
17	85	9	22.5
18	90	7	17.5
19	95	5	12.5
20	100	2	5
Total		40	100

From Table 3, each raw score was giving a weight of 5% which implies that a total score of 20 is a 100% on the percentage score. The raw scores obtained ranged from 11 to 20 which were converted from 55% to 100% on the percentage scale during the post-treatment test. Table 3 therefore presents the percentage score of 55 which was obtained by 1 student representing 2.5% of the respondents. Also 2 students obtained the highest percentage score of 100 representing 5% of the sample. The percentage scores of 80 and 85 were recorded as the highest frequency mark for 9 students each representing 22.5% each of the sample obtained.

Grades of the students after Post-Treatment Test

Table 4 presents the post-treatment test marks of the students during the instructional material based teaching on the WAEC and GES grading system. This showed how the subject had performed on the WAEC and GES grading standard.

Table 4: Grades students made during the post-intervention test

Expected performance	Grade	Remarks	Frequency	Percentages
55–69	C4–C6	Credit	3	7.5
70–74	B3	Good	1	2.5
75–79	B2	Very Good	4	10
80–100	A1	Excellent	32	80
Total			40	100

From Table 4 the best grade was A1 which had a frequency of 32 thus representing 80% followed by grade B2 with a frequency of 4 representing 10%. Then grade B3 with frequency of 1 representing 2.5% and finally grade C4 to C6 with frequency of 3 representing 7.5%. These data suggest the best grade obtained during the post-treatment test was A1 and the least was C4 to C6 while the grade obtained by majority of the students was A1 which represents 80% and the least was a B3. The results showed that majority of the students had excellent remarks according to the WAEC and GES grading system. In this study, the data collected on the post-treatment test was in support of Cardoso, Cristiano and Arent (2009) study which recommended the need for the development and implementation of new educational practices to make classrooms more interesting and interactive and also to increase the performance of students.

Analysis using single paired sample t-test

With the administration of the test items, the researchers were interested in finding out whether the use of laboratory equipment, computer simulations and electromagnetic kit in teaching electricity and magnetism had any effect on the performance of the students as against the traditional method of teaching. Therefore paired sample t-test analysis was performed on the mean scores for pre-treatment test and post-treatment test. This was done to determine whether significant difference exists between the mean scores.

Table 5: t-test Analysis of Pre-Treatment and Post-Treatment test

Test	N	Mean	Sd	t-value	Mean difference	p-value
Pre-Intervention	40	7.22	3.068	32.576	9.48	0.000
Post-Intervention	40	16.70	1.977			

*p<0.05, N-Number of Students

Table 5 presents the mean score for pre-treatment test of students taught through the traditional method of teaching and the mean score for post-treatment test of students taught through the use of laboratory equipment, computer simulations and electromagnetic kit in teaching and learning of electricity and magnetism. It is observed that the mean score of the post-treatment test (Mean = 16.70, Sd = 1.977) is much higher than the mean score of the pre-intervention test (Mean = 7.22, Sd = 3.068). Also the total performance scores of the entire sample put together on the post-treatment test (668) was higher than the total scores at the pre-treatment test (289). This implies that there was an improvement in performance of 39.6% during the post-treatment test. A paired sample t-test conducted to evaluate whether a significant change occurred between the pre-treatment test and post-treatment test results showed that the difference between the mean scores was significant at p-value of 0.000 which the significant was set at alpha (α) value of 0.05; hence there was a significant difference. The researchers therefore conclude with 95% confidence that the samples performed better at the post-treatment test. The researchers therefore had sufficient information to conclude that there was a significant difference between the use of laboratory equipment, computer simulations and electromagnetic kit in teaching electricity and magnetism and the traditional method of teaching. Difference in the mean values of the pre-treatment test (7.22) and post-treatment test (16.70) was 9.48 indicating that there was an appreciable effect. This implies that there was an appreciable improvement in the post-treatment test as compared to the pre-treatment test.

Analysis with respect to Research Question Three

Research Question 3: How will the use of instructional resources motivate students to learn Electricity and Magnetism in Nkwanta Senior High School?

This question sought to establish the researchers' observation on how motivated the students have become after the intervention was used. It covers the perception of students about the use of instructional resources as compared to the traditional method of teaching. As indicated earlier, group interview was conducted to gather the views of the students on their perception of the use of laboratory equipment, computer simulations and

electromagnetic kit in teaching and learning of Electricity and Magnetism and traditional method of teaching. The questions covered the assimilation of the concept and their preference in terms of the teaching strategies they were exposed to.

Assimilation of concept and preference with the use of laboratory equipment, computer simulations and electromagnetic kit in teaching and learning

- Majority of the sample used for the study said they perceived the laboratory equipment, computer simulations and electromagnetic kit in teaching and learning of Electricity and Magnetism to be illustrative, quick and practical as it relates familiar objects and learners' environment to abstract concepts.
- Further, majority of the sample also said that the use of instructional resources allowed them with different learning skills to communicate with the lesson at their own best ways.
- The entire sample said that the instructional resources guided them to understand better the concepts in Electricity and Magnetism. They were of the view that when the traditional method was employed there were no such clarity and understanding of some of the concepts.

Assimilation

The students said they absorbed more during the use of instructional resources in teaching than the traditional method of teaching since the instructional materials aided them to understand better the concepts in Electricity and Magnetism. They indicated that the use of instructional materials helped them built up a mental picture on their brains on the concepts taught as compared to the traditional method of teaching. Therefore they found it interesting and that motivated them to learn.

Preference

The students said they preferred the use of instructional materials method of teaching to the traditional lecture approach since they could remember what was taught and could narrate enough of what they observed and viewed than that of the traditional method.

Attitude of students towards Physics lessons

The researchers studied the attitude of the students towards Physics during the use of the traditional lecture method and the use of the instructional materials in teaching using observation checklist. The outcome of their observations is presented in Table 6.

Table 6: Students' attitude towards Physics using Observation Checklist

Attitude	Traditional Lecture Method			Using Instructional Materials		
	More	Less	Not at all	Not at all	Less	More
Curiosity			✓			✓
Ready to ask questions		✓				✓
Working on their own			✓			✓

It was observed that the students have become more curious, and were always ready to ask questions both during classes and outside the classroom settings when the instructional materials were used in the teaching of Electricity and Magnetism. They started to work on their own by building electric motors using local materials. These attitudes were not the case when the traditional lecture method was used in teaching the same topic. For that reason, the researchers can then conclude that the use of instructional resources arouses students' interest and therefore motivate them to learn.

This implies that the teaching of physics without the use of instructional materials may certainly result in poor academic performance. Students get motivated when they are actively involved in the teaching learning process and this will minimize teaching of Physics in abstraction.

Discussions of results

The findings of this study revealed that collaboration of computer simulations with didactical science activities will help learners in creative and critical thinking, acquire skills for processing and presentation of information, and also offers educators alternative suggestions for teaching/learning, and how issues concerning physical phenomena should be approached. Teaching and Learning in this way will complete the knowledge of the students and make lessons more attractive to motivate learners. This is in line with the research findings of Fadeiye (2005), who posited that instructional materials are essential and significant tools needed for teaching and learning of school subjects to promote teachers' efficiency and improve students' performance. They make learning more interesting, practical, realistic and appealing. They also enable both the teachers and students to

participate actively and effectively in lesson sessions. They give room for acquisition of skills and knowledge and development of self- confidence and self- actualization

The findings also revealed that the mean score of the post-treatment test (Mean = 16.70, Sd = 1.977) was much higher than the mean score of the pre-treatment test (Mean = 7.22, Sd = 3.068). Also the total performance scores of the entire sample put together on the post- treatment test (668) was higher than the total scores at the pre- treatment test (289). This implies that there was an improvement in performance of 39.6% during the post-treatment test. A paired sample t-test conducted to evaluate whether a significant change occurred between the pre- treatment test and post- treatment test shows that there was a significant difference between the mean scores at p-value of 0.000 in which the significant was set at alpha (α) value of 0.05. These findings are also in line with findings of Oladejo, Olosunde, Ojebisi and Isola (2011) who also asserted that there is a significant difference in the academic performance of students taught in Physics using standard instructional materials and those in the conventional instruction. Where those taught using standard instructional materials performed better than those taught using conventional instruction.

In addition, this study revealed that the use of instructional resource such as audios and videos make abstract concepts real to students since they will help them to observe, feel, practice and draw better conclusions. Instructional materials also help learners connect teaching and learning to everyday life since teaching and learning materials enhances students' curiosity and interest. Thus, they contribute to students' systematic knowledge and maturity, thereby motivating them to learn. This also affirms the research findings of Likoko, Mutsotso and Nasongo (2013) and Bolick, Berson, Coutts and Heinecke (2003) in their studies on adequacy of instructional materials and physical facilities and their effect on quality of teacher preparation and students' motivation in colleges. All the above studies indicate that TLR help improve access and educational outcomes since students are less likely to be absent from schools that provide interesting, meaningful and relevant experiences to them. These resources should be provided in quality and quantity in schools for effective teaching-learning process.

CONCLUSION

In conclusion, instructional resources and materials are very powerful tools in Physics education, if achievement or performance is an objective. The use of instructional materials in instructional activities such as science laboratory experiments, computer models and simulations and power-point presentations makes lessons more interactive thereby making learners more active than being passive during lessons.

In addition, the use of instructional resource such as audios and videos make abstract concepts real to students since they will help them to observe, feel, practice and draw better conclusions. Instructional materials also help learners connect teaching and learning to everyday life since teaching and learning materials enhance students' curiosity and interest. Thus, they contribute to students' systematic knowledge and maturity.

LIMITATIONS

Ideally the researchers should have targeted a large number of Senior High Schools (SHS) in this study. However, due to proximity, accessibility, financial constraints and limited time the study concentrated on the Form Three Science Students at Nkwanta Senior High School.

In researches of this nature, where direct contact with the respondents is made, there is bound to be psychological and emotional imbalances which can make the respondents artificial and would not reflect normal classroom situations.

Recommendations

Based on the findings of this research, the following recommendations are put forward:

- Ministry of Education and Ghana Education Service should ensure frequent supply of instructional resources for use by teachers for effective teaching and learning. Such resources could include locally produced materials produced by teachers and resource experts for better lesson delivery.
- Ministry of Education and Ghana Education Service should provide funds to support local production of instructional materials by the teachers and encourage more teachers to produce and use them.

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EFFECTIVE AFFECTIVE COMMUNICATION IN ONLINE LEARNING ENVIRONMENTS: SOCIAL PRESENCE

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ABSTRACT

The purpose of this paper is to report the findings of a scoping review of the construct social presence as applied to the practices and guidelines for building, initiating, and maintaining social presence in an online learning environment. The methodology developed follows the design for scoping reviews as advocated by Arksey and O'Malley. A scoping study is desirable because by synthesizing the research literature on social presence the opportunity to identifying practical guidelines for the development of social presence is facilitated. Results from the manuscripts screened for inclusion and synthesized from the data extracted in the scoping review, provide strategies for the structuring of social presence in online environs. Within this context, instructors need be conscious of those recommendations offered as guidance to best practices in the building, initiating and maintaining social presence in an online learning environment.

Keywords: online learning, social presence, knowledge synthesis, scoping study

INTRODUCTION

People are social creatures and increasingly the Internet is used in a variety ways to bring people together. In education, the Internet has facilitated the development of online learning, which has grown in popularity in post-secondary institutions because of its ability to provide a flexible and accessible learning environment for students. How people interact socially in an online learning environment is described as social presence. As education is a social event it is important to understand the relationship between social presence and online learning. This is because social presence is considered the critical affective (i.e. social and interpersonal) component to communication in an online learning environment. It is one of the more important concepts used to determine the level of interaction (Cui, Lockee, & Meng, 2013; Danchak, Walther, & Swan, 2001) and cognitive engagement (Garrison, Anderson, & Archer, 2000; Garrison, Cleveland-Innes, & Fung, 2010) in an online learning environment. And has been found to impact grade attainment; student retention (Bowers & Kumar, 2015; Robb & Sutton, 2014); and student satisfaction (Gunawardena & Zittle, 1997; Moallem, 2015; So & Brush, 2008).

Social presence was originally defined by social psychologists in reference to face-to-face communication. The theoretical underpinnings of the construct were thought to comprise two dimensions. They were immediacy (Weiner & Mehrabian, 1968) and intimacy (Argyle & Dean, 1965). Intimacy is the degree of closeness one experiences and feels in an interpersonal relationship through verbal and non-verbal behaviors (Argyle & Dean, 1965). Immediacy behaviors are related to the psychological distance between individuals (Weiner & Mehrabian, 1968) and are thought to maintain immediacy type behaviors (Rettie, 2003). When applied to computer mediated communication (CMC) Short, Williams, and Christie (1976) defined social presence as the “degree of salience of the other person in the communication and the consequent salience of the interpersonal relationships” (p. 65).

Based on these early conceptualizations, Rafaeli (1988, 1990) advanced the notion of a third dimensional aspect to the construct, interactivity. Accordingly, interactivity can be viewed as enhancing the quality of the communicative context. It is subjective in nature as it influences the degree to which communication occurs between individuals and groups (Rafaeli, 1988, 1990). To help understand the relationship between these dimensions, Gunawardena (1995) in her study on social presence theory, concluded that immediacy behaviors enhance and maintain social presence and that those who moderate CMC need to promote a sense of online community so that interaction in collaborative learning environments can occur. In doing so, the degree to which an individual in an online learning environment is perceived as a real person is enhanced. As thinking changed on how we perceive interpersonal and social communication, a re-conceptualization of social presence theory from a strictly technologically determined event to one that is co-determined by social and interpersonal interactions as applied to online learning occurred

(Gunawardena & Zittle, 1997; Tu & McIsaac, 2002).

Garrison et al. (2000) then went on to define the construct as the ability of participants in a community of inquiry to project themselves socially and emotionally as ‘real’ people through the medium of communication. Subsequently, Rourke, Anderson, Garrison and Archer (2001) using qualitative content analysis analyzed the transcripts derived from online courses to determine how social presence was represented. Rourke et al. (2001) found that affective indicators (i.e., values, beliefs, feelings, and emotions); cohesive indicators (i.e., group presence and commitment); and interactive indicators (i.e., attending in a socially meaningful way) were found to exist.

Incorporating social learning theory, Tu and McIsaac (2002) described social presence as the “degree of feeling, perception, and reaction of being connected via CMC to another intellectual entity”(p.140). Tu and McIsaac (2002) initially presented the construct in three dimensions stating there are a social context, a communication context, and an interactivity context. Using factor analysis, Tu (2005) developed and validated the computer-mediated communication questionnaire (CMCQ). In the initial validation study a five-factor solution comprised of the social form of communication, privacy, intimacy, social context, and interactivity factors were found to exist (Tu & Yen; 2006; Yen & Tu, 2008).

Garrison (2009) then further expanded on social presence within the Community of Inquiry (CoI) model describing it as “the ability of participants to identify with the community, communicate purposefully in a trusting environment, and develop inter-personal relationships by way of projecting their individual personalities” (p.352). Social presence in this model refers to the extent people can present themselves emotionally and socially in an online environment as a real person. However, Garrison’s (2009) model has come under increased scrutiny leading to a recasting of social presence within the CoI model into a two dimensional construct (Kreijns, Van Acker, Vermeulen, & Van Buuren, 2014). Within this context Kreijns et al. (2014) argue that only aspects of social space are articulated within the CoI model and not the psychological realness of individuals communicating within an online environment.

As demonstrated by the above-mentioned brief review, the definition of what constitutes social presence was conceived over forty years ago when communication on the computer through the Internet was relatively basic. As a result, social presence lacks clarity making it challenging to establish what is or is not working, socially and interpersonally, in an online learning environment. In turn, this has led researchers to conclude that definitions for the social presence construct exist along a continuum making it difficult to aggregate findings (Chen, Fang, & Lockee 2015; Kreijns et al., 2014; Lowenthal, 2010) and how best to structure, develop, and facilitate online learning environments that engage and retain learners (Kreijns, Kirschner, & Vermeulen 2013). To address this problem, the purpose of this study is to conduct a scoping review of the research literature to help determine in what way social presence has been developed and applied within the online learning environment. Using this rapid review of the literature, the main objective of the study is to identify some practical guidelines for instructors and course developers in how to create and use social presence to strengthen student’s learning in quality online learning environments.

METHODOLOGY

The scoping review integrated the original scoping study design of Arksey and O’Malley (2005), with enhancements by Levac, Colquhoun, and O’Brien (2010). The decision to use a scoping study was based on the literature available to review. Rather than a systematic review, which has well-defined research questions and very specific criteria focusing on randomized controlled trials while assessing for bias, scoping studies are considered more rapid reviews of the literature, ask broad questions, can have post hoc inclusion/exclusion criteria, do not assess for bias, and examine a wide range of evidence (Levac et al., 2010). The scoping review involved; identifying relevant studies; selecting studies; charting the data; collating and summarizing; and reporting results. Working in consultation with the research librarian a series of search terms was constructed representative of social presence allowing for the searching of the ERIC, PsychINFO, ProQuest, ProQuest Dissertation and Thesis, and JSTOR databases. A two stage screening process was employed whereby studies were initially selected through a title, abstract, and keyword screen. Of those studies identified for inclusion a full text read was conducted with a data extraction form completed. The data extraction form was modeled after Peters et al.’s (2015) recommendations for the conducting of systematic scoping reviews. The form was then piloted with modification occurring until there was an 80% agreement between reviewers as to its completeness and ease of use. The data was then entered into word and excel files with a numerical analysis of the selected studies descriptive characteristics and a content analysis

(Hsieh & Shannon, 2005) pertinent to the objective outlined conducted. In total using the aforementioned protocol over one hundred studies were included for analysis.

RESULTS

The results reported are specific to one aspect of the scoping review; the practices and guidelines for building, initiating, and maintaining social presence in an online learning environment. Further content analysis related to the operationalization of the construct and the outcomes of the construct are ongoing but not reported in this study. Nevertheless, a brief overview of the data garnered from the numerical analysis will be reported so as to provide a demographic description of those studies extracted for analysis in the scoping review.

In this respect, the numerical analysis of the studies selected indicates that research on social presence is conducted worldwide. Although the vast majority (>50%) has been conducted in the United States there is a growing body of research into the construct occurring in Asia (14%), Europe (18%), Canada (12%), Australia/New Zealand (6%) and the Mid East (4%). The vast number of studies relate to asynchronous online learning; however recent trends in social presence research indicate that virtual learning networks, MOOCs, virtual 3D environments and multi-media online learning are gaining traction in the research literature. In terms of study design, sample sizes typically are small in nature with the exception of a few experimental designs. Nevertheless, there are increasingly more sophisticated multivariate designs being conducted that include instrument and scale development and study replication is also being occurring more frequently.

Although there are a number of mixed methods studies, the research design is less rigorous. In terms of qualitative research, more is occurring and some are using Rourke et al.'s (2001) methods regarding social presence indicators (i.e. affective, interactive, and cohesive indicators) for coding purposes. This is also found in quantitative studies and is being used as a basis to group and examine differences between variables. Finally, a large number of studies tend to use surveys and examine between group differences and/or correlations between variables

Findings from the content analysis reported, focus on strategies synthesized from the scoping review, which enhance student perceptions of social presence and the building, initiating, and maintaining social presence in the online learning environment. Building course content conducive to social presence in the design of the course (Aragon, 2003) is essential when conceptualizing a socially constructivist learning environment (Rovai, 2007). It was found instructors and course designers need be aware that more social presence is not always desired or necessary. Sometimes a low level of social presence will suffice while more social presence could also result, in some situations unsatisfactory outcomes (Biocca, Harms, & Burgoon, 2003). Ostlund (2008) points out those courses with low degrees of structure result in highly individualistic learning experiences while courses with a high degree of structure are generally more cooperative. Thus, instructors interested in designing collaborative and socio-affective learning environments should carefully consider how they structure and balance several course components.

Social presence in online environments can be created through the development and use of a learning management system (LMS), controlled through class size and enhanced by properly training instructors for facilitating social presence (Cui et al., 2013; Plante & Asselin, 2014; So & Brush, 2008). Well-constructed course activities form the basis of building social presence and can enhance or limit social presence depending on how they are implemented. A balance of individual assignments, authentic problem based group tasks (Aragon, 2003; So & Brush, 2008), discussion groups, as well as enhanced media integration (Kim, Kwon, & Chow, 2011) and a clear plan for ongoing assessment and evaluation all contributed to building social presence throughout the course.

Additional qualities that serve online instructors well is the ability to be flexible and to manage diversity, ambiguity, and conflict (Billings & Halstead, 2009) while still having a positive regard for students and their comments (Rovai, 2007). Course instructors need be trained in online course delivery and be actively present throughout the course especially during introductory activities. In turn, a sense of connectedness and community among students and with the instructor can be created (Cui et al., 2013). Active participation by the instructor also models the skills required to interact in an online environment for novice students (Rovai, 2001). As discussed, specific attention needs to take place in the development of an online course to identify the amount of social presence desired and the resultant strategies and learning activities. A list of strategies by type and author for building social presence as extracted from the scoping review are presented in Appendix A.

After course design, initiating social presence becomes critical as it serves as a departure for building an online community of learners and marks the beginning of the transactional relationships in that community (Garrison et al., 2000). These initial activities allow facilitators and learners to begin to project themselves emotionally and socially as real people in the online learning environment (Gunawardena, 1995; Garrison et al., 2000) by acquiring the skills needed to succeed (Rovai, 2007). Many researchers have highlighted ways to introduce learners to the online environment. It should be noted that although initially interactions may be superficial, over time interactions can be coached toward greater complexity and depth.

Welcome activities are pervasive in the literature and are a valid way to attract students' interest and to begin to build a sense of community in the online environment. The most prevalent activities are welcoming messages from the instructor (audio or visual) coupled with course orientation (self-guided or tutorials) and introduction of the syllabus (Aragon, 2003; Dow, 2008; Mayne & Wu, 2011). Biographies are also another way for instructors to introduce themselves and often include a photo, a summary of interests, personal information, and inclusion of a video (Plante & Asselin, 2014). Similarly, participants in online courses are asked to introduce themselves with instructors modeling and scaffolding social presence activities (So & Brush, 2008).

Lowenthal and Dunlap (2010) suggest use of both a syllabus scavenger hunt and digital storytelling to pique learner's interest. The syllabus scavenger hunt serves as an orientation to the course while providing a scaffold to course expectations and materials. Digital story telling (Lowenthal & Dunlap, 2010) is incorporated to serve as a unique way to introduce oneself to the course participants as well as set up expectations for future assignments by providing experience with a creative method. Plante and Asselin (2014) suggest that a course preview prior to the start date can provide students with the opportunity to become familiar with course expectations and structure before interacting with peers. Previews can also serve as a way for students to have questions clarified prior to beginning the course and could potentially provide feedback to the instructor regarding the course design and expectations.

There are a variety of icebreaker type activities mentioned in the literature. These strategies initiate social presence by allowing participants to begin to engage in online transactional relationships. Icebreakers (Dixon, Crooks, & Henry, 2006) also assist participants in establishing norms for participation and collaboration. Icebreakers can be a stand-alone activity or they can integrate course content serving as a survey of knowledge individuals bring to the course. Mayne and Wu (2001) deliver an ungraded pre-lesson with feedback as a low stakes way for students to engage with material and learn the expectations of the course. A list of strategies by type and author for initiating social presence as extracted from the scoping review are presented in Appendix B.

As reported in the numerical analysis, the majority of online courses are asynchronous in nature and discussion forums are the typical method for engaging students in course participation. As such, there are specific behaviors and interaction patterns that the instructor should facilitate in order to increase immediacy and intimacy within an online learning environment. According to Ming-Shang, Wei-Hung, Chang, and Mei-Huei, (2012):

Even when using an effective system or function, students will not enjoy good interaction if the teacher does not express his or her views or participate at appropriate times. Particularly in distance learning environments, maintenance of student-teacher relationships depends entirely upon the teacher, who should strive to lessen the distance with students (p. 103-104).

As well, Aragon (2003) notes that students are inclined to participate more fully if there is an extrinsic reward for maintaining participation. Rovai (2007) suggests that between 10 to 20 percent serves as enough of a motivator and even when offered a higher percentage participation doesn't increase.

Much of the research from the scoping review highlighted the benefits of small group discussion. When groups were composed of eight or less participants it was found that student perception of social presence was higher (Ostlund, 2008). One important benefit of having smaller asynchronous discussion groups is the volume of messages become easier to navigate. By having a reduced number of posts, participants can potentially respond in greater depth to the message threads and thereby increase the quality of the discussion occurring.

There are a variety of discursive strategies a facilitator can use to create engaging discussions. It is important no matter the strategy employed to offer discussion protocols to alleviate boredom that can occur in asynchronous discussion. MacKnight (2000) goes on to note, that structured discussions offer the best opportunity to enhance

student engagement. Another way is to employ constructivist-learning principles by assigning roles to the learners (Gulati, 2004). This empowers participants to bring their skills and knowledge into the forum to design and lead the weekly discussions based on the course content being covered. Rourke and Anderson (2002) found that peer teams had the potential to be more salient than instructor led discussions because of the increased preparation time spent. As well, Kanuka and Garrison (2004) found that an instructor with moderating skills can provide opportunities to support reason, discourse, and sustained critical dialogue in online learning environments, whether in teacher centered prompts for discussion or peer led groups.

With the limitations of CMC and the resultant lack of visual cues, it is important to compensate in the online environment. Rovai (2007) identified elements for both the facilitator and participants that are essential to include when participating in asynchronous discussions through the initiation and maintenance phase. First, the use of appropriate names and titles is essential. Using names is a simple way to build personal connection in discussion posts and to assist students in feeling that their contributions are valued (Rovai, 2007; Plante & Asselin, 2014). Second, is the importance of using personal phrases (e.g. hello or good morning participants) to show care and attention (Tu, 2000). Additionally, the use of inclusive language, paralinguistic, and emoticons (Tu, 2000) can make the learner feel more connected and part of the group because there is a real person behind the formality of the text they are viewing. It is important to note, that perceived privacy is also a concern for many. Thus, instructors must tactfully and sensitively consider how to deal with personal information, feedback, and assessment of learners.

Instructor immediacy has an impact on student learning and how feedback is communicated to students contributes to overall satisfaction and course success (Fisher, Frey, & Hattie, 2016). Some simple guidelines are to keep the feedback related to the assignments and academic progress (Aragon, 2003). Another is to consider what type of feedback is appropriate for the group and what should be directed in private to the individuals (Tu & McIsaac, 2002). Providing the learner with expectations in advance and an opportunity to feel like the instructor knows their work and ideas, honors their thoughts, feelings, and contributions, as well as addressing their concerns within a reasonable time frame (Tu, 2000).

Along with asynchronous discussion, an instructor may employ synchronous discussion options to increase social presence and potentially reduce isolation for participants and provide feedback to learners (Aragon, 2003; Mayne & Wu, 2001; Tucker, 2012). These meetings may take the form of phone calls, small group chat/video, or coffee shop style conversations, which may or may not be off limit to the instructor. As learners often choose distance courses because of the flexibility they offer, it is important not to rely on synchronous tools for the bulk of the course. Hosting scheduled monthly, optional meetings or holding meetings by request are suggested ways to engage learners. As well, synchronous video chats can convey personality and emotion. In addition, Borup, West, and Graham (2004) noted the importance of video feedback as this can alleviate misunderstandings and be perceived as more conversational. Finally, group coaching as method of feedback, can develop trust, improve knowledge acquisition, and transfer while enhancing commitment to the course and fellow students (Brown & Grant, 2010). Coaching and the resultant feedback can also increase social presence by enhancing interpersonal connections and motivation (Fluckiger, Vigil, Pasco, & Danielson, 2010). A list of strategies by type and author for maintaining social presence as extracted from the scoping review are presented in Appendix C.

LIMITATIONS

This study is limited by the data extracted and the manuscripts screened for inclusion, as it is specific to the parameters of the scoping review and therefore may not be exhaustive in nature.

CONCLUSION

Having a broad understanding of the definitions of social presence and how social presence affects online learning are crucial to building, initiating, and maintaining the construct for learners. Students in online learning environments want to feel they are connected to the group, they want their contributions recognized and valued by the group, and they want to participate in contextually relevant learning opportunities. In this respect, it is important to ensure that students' affective needs are not inhibited by the communication medium they have chosen. Recommendations for best practices in the building, initiating, and maintaining social presence, as garnered from the scoping review, are offered. Instructors need be cognizant of how best to effectively apply social presence to their courses and in turn model those practices, which strengthen student's learning in quality online learning environments. Future research should investigate the reconstitution of the social presence construct so that empirical

validation of best practice guidelines offered for the creation and use of social presence in online learning environs can occur.

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Appendix A

Building Social Presence	Author (s)	Recommendations/Benefits
Facilitator Competencies	Hughes et al. (2007, p. 19) Plante (2014, p. 221) Cui 2013, p. 678.	-feedback, structure the learning process, -need for faculty to be flexible and manage diversity, ambiguity, and conflict. -significant training for OL instructors - ADDIE – model of instructional design
Safe Environment	Mayne & Wu (2011, p. 113) Gallagher-Lepak et al. as in Plante (2014, p. 220)	- setting boundaries for confidentiality and professionalism online and creating a safe environment built on trust - respectful, positive, encouraging, constructive, timely, empathetic, understanding, sensitivity,
Limit Class Size	Aragon (2003, p. 62)	-Lurking possible with large numbers, -large class size decreases social presence
Course Information and Expectations in Advance	Mayne & Wu (2011, p. 113)	- announcements “begin here; help links” -Inclusive syllabus; timelines, due dates, course expectations, learner/teacher role, rubrics for evaluation of assignments, self-evaluation rubrics (all in advance) -contingency plans for problems and issues -links to common sites, librarian. -resources section
Ongoing Evaluation of SP in OLE Feedback to the teacher	Vrasidas & McIsaac (2000); as in Cui 2013, p. 678	-without access to facial expressions, voice intonation, or body language, online evaluation methods are varied including gathered information from students’ weekly assignment, students’ moderations of online discussions, students’ postings in online conferences, their final papers, and presentations, and so on. A thorough [ongoing] evaluation will help to find out whether the desired level of social presence has been achieved under the current situation.
Structured Collaborative Activities (Asynchronous discussions & Assignments)	Ostlund (2008, 48); Tu (2002 p. 1665) Mayne & Wu (2011, p. 113) So, H. & Brush, T (2008)	-limit discussion group size -discussion becomes too dense limits SP -small group discussion limit at 8. -medium perceived as less public = higher SP (varies with # of participants) -asynchronous seating charts groups formed based on student-submitted info on interests and experience; used for asynchronous interactions. (pre-course questionnaire, pre-assessment questions) -periodically throughout the course -feedback on perceptions of SP. What teacher could do to enhance. -questions on learning.
Choice (Androgogy)	Cunnin et al. (2011, p. 43)	-engagement in content, review more than post. Provide opinion and consider values, beliefs, and opinions rather than prescribed answers.
Time	Ostlund (2008, p. 54)	-active participation and/or flexibility

Appendix B

Initiating Social Presence	Author (s)	Recommendations/Benefits
Safe Environment	Gunawardena (1995)	-cultural background should be honored and considered when tying and time spent to explain idioms and colloquial language if necessary. -build a safe and friendly environment
		-course preview: an invitation to look around and have questions answered. Increases familiarity with expectations, materials, and structures before interacting with peers, lessons, and content. -course & Syllabus Scavenger Hunt; use quiz features in LMS to complete by the end of the first week as an orientation.
Welcome Messages Audio/Video	Aragon (2003, p. 62) Dow (2008, p. 238) Mayne & Wu (2011, p. 113) Plante & Asselin (2014, p. 220) Gunawardena (1995) Lowenthal (2010)	-course orientation, basic online social skills training, etiquette for OL discussion, expectations
		-instructor biography, photo, video, personal information.
		-digital story telling Digital Story Telling
		-variety of activities at the beginning of the course to assist participants in forming a community of learners. Establishes norms for participation and collaboration. Can be related to content or serve to build social capital.
Icebreakers	Dixon et al. (2006)	-pre-Course Activities- Introductions, personal interests/experience.
		-announcements with “begin here” links and/or links to tutorials on how to use the cite and the resources. -orientations – with videos.
Tutorials	Mayne & Wu (2011, p. 13) Lowenthal (date, n.p.)	-modelling and scaffolding social presence behaviours for participants in the distance learning environment.
Modelling	So & Brush (2008)	-5-minute conversations at the beginning of a course reduces isolation.
Audio/Video	Lowenthal & Dunlap, (2010)	-expectations established when designing the course, facilitators can begin to analyze posts to see who is contributing, who needs prompting, and if students need support. -contribute to discussion boards, promptly answer e-mails, enter in conversations.
Participant Responsibilities	Aragon (2003, p. 66)	-ungraded pre-lesson with feedback: low stakes way to enable participant to learn what is expected for posts and receive valuable feedback to guide him/her through the course and increases performance. -personalized, detailed feedback.
Feedback: Initial Assignment	Mayne & Wu (2011, p. 13) in Cui et al. (2013, p. 678) Lowenthal & Dunlap, (2010)	-actively involved (initiate, respond appropriately to discussions, debrief and close activities) assists with establishing a social connection with students. -acknowledge each post in first weeks to establish social presence and make learners feel part of the community.
Establish Facilitator Involvement and Communication Patterns	Aragon (2003, p. 62-64) Gunawardena (1995, p. 158). Lowenthal & Dunlap, (2010)	-timely responses on e-mail “valuable to the establishment of social presence”. Students feel questions are valid and eases anticipation of beginning a new course. -one to one and group e-mails.

Appendix C

Maintaining Social Presence	Author (s)	Recommendations/Benefits
Asynchronous Discussions	Ming-Shang, H., et al. (2012, p. 113-114) Aragon (2003, p. 63-64) Mayne & Wu (2011, p. 113) Tucker (2012, p. 180) Rovai (2007, p. 83) Rourke & Anderson (2002, p. 5) Ostlund (2008)	-facilitator and participant contributions establish and maintain social presence. Teacher responsibility to maintain student-teacher relationships, strive to lessen the distance. -groups > 8; social presence is greater in smaller groups. Extrinsic Reward 10-20 % of final grade allocated for participation. -peer Facilitated discussions- participants take on roles and plan and lead weekly discussions. -virtual seating charts with general personal information about participants (student posted bios) for the group to use in their interactions. Emphasis on student dialogue. Instructor facilitates discursive strategies. Focus on construction of knowledge. Provide closure or debrief discussion threads. -tactfully/private deal with dominating posters or conflict (e-mail or phone call).
Feedback	Aragon (2003, p. 64) Rovai (2007, p. 83)	-feedback related to assignments, participation, and academic progress. Individual personalized feedback establishes social presence by showing value for the student and his or her work. -positive and prompt feedback
	Aragon (2003, p. 64) Tu (2002, p. 1665)	-feeling like ideas, thoughts, questions, concerns & contributions matter -instructor immediacy has impact on student learning and satisfaction -any style of communication; unless time limit specified only allow 24-hour window for responses.
	Borup, West, Thomas & Graham (2004)	-visual cues in video feedback allowed for emotional expressions that are not possible in written form. Assists with avoiding misunderstandings and is more conversational.
Coaching	Stein et al. (2013, p. 79)	-a learning environment that incorporates continuous coaching helps students become more independent. e-coaching considered a developmental partnership enabled through CMC over e-mail, chat, or online discussion. group coaching seen as a way to develop trust and support within groups, improve communication, support greater commitment and improve knowledge transfer. (brown & grant, 2010)
Synchronous meetings (chat, audio, video)	Aragon (2003, p. 64) Mayne & Wu (2011, p. 113) Tucker (2012, p. 180)	-synchronous meetings increase social presence and reduce feelings of isolation. -periodic; tailor to needs of individual or group -option for a “coffee shop” style conversation; can be off limits to instructor.

Communication skills	Tu (2000, p. 5) Lowenthal (2012, p. 5)	-appropriate names/titles -personal stories -human phrases -emoticons -paralanguage –stimulating, sensitive and expressive
Perceived Privacy	Tu & McIsaac (2002)	-sensitivity and care must be taken within the CMC. Personal information should be shared privately with the individual and only general comments shared with groups.

EFFECTIVE STRATEGIES FOR TEACHING ONLINE IN THE 21ST CENTURY

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ABSTRACT

The focus of this paper is to shed light on the importance of effective strategies for teaching online in the 21st century. This century has been met with rapid technological advances that have taken the educational landscape by storm, causing a complete shift in how technology is utilized in education. Moreover, the millennial generation has grown up in an era of rapid technological advance whilst those teaching them belong to an entirely distinct generation comprised of a pre-internet era. Awareness of this crucial factor will help inform educational curricula and delivery. Nonetheless, education still commands sound pedagogical practices whether online or face-to-face delivery mechanisms. This paper examines the different generation of learners, offers effective strategies to minimize barriers to learning by stressing the importance of sound pedagogical approaches, and proposes best practices for teaching online.

EFFECTIVENESS OF COGNITIVE TECHNIQUES ON SELF-EFFICACY AND ACADEMIC ACHIEVEMENT OF HIGH SCHOOL GIRL'S STUDENTS IN AMOL CITY-IRAN

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ABSTRACT

Students with high self-efficacy achieve more advancement compared to those with weak self-efficacy. The main purpose of this study is to determine impact of cognitive techniques on self-efficacy and academic achievement of high school girl students. Method in this study has been experimental method using pretest-posttest with control group. Statistical population of the study consists of all high school's third grade girl students of Amol City during academic year 2015-2016. Firstly, cluster random sampling is applied and a school is selected and all third grade high school students with average below 15 (87 people) were tested by self-efficacy test. Students with mark below 57 in self-efficacy test were 49 students and 30 out of them were selected randomly and were placed in two 15-member control and experimental groups. Then, interventions in experimental group were applied for 8 sessions each session with 90 minutes and control group was in waiting list. Then at the end of 8 sessions, Both of experimental and control groups answered Sherer et al self-efficacy scale. Academic achievement, average of first and second semesters of students have been applied so. The data analyzed by multivariate covariance analysis by spss 22. The results from the study indicate that cognitive techniques have significant effect ($p=0.00$) on enhancing self-efficacy and academic achievement of students. Cognitive techniques have can promote self-efficacy and academic achievement of high school girl students

INTRODUCTION

Self-efficacy is one's belief in one's ability to succeed in specific situations or accomplish a task (Bandura, 1977; quoted from Sumers and Sumers, 2012). Self-efficacy was for the first time presented by Albert Bandura. Bandura has defined self-efficacy as the belief of individuals in this issue that they can do something successfully and gain positive outcomes of it. In framework of theory of self-efficacy of Bandura, it is mentioned that people with positive belief about their abilities indicate more effort in doing their tasks compared to those have doubt in their abilities. People with high self-efficacy use more learning strategies than those with low efficacy (Bandura, 1992; Velasquez et al, 2003).

Negative core beliefs are formed when interacting with parents during childhood. These core beliefs classified to several categories including belief about self, belief about others, and belief about life and world. Beliefs about self can be negative or positive. Negative core beliefs about self are classified to two categories loveless and inadequate beliefs. Negative core beliefs effect on information processing so that information are distorted (Judith Beck, 1995; Leahy, 2003).

Self-efficacy beliefs are those beliefs we have about our efficiency and competency in a task. These beliefs can effect on our performance and if these beliefs are negative, they will interfere with our performances in cognitive, motivational, and emotional functions (Benight& Bandura, 2004). Academic achievement is one of the important aspects affected by beliefs. Academic achievement associated with educational learning level among people that is evaluated by different tests (Gaddis, 2013). Academic achievement is not only related to learning but also is a multi-dimensional variable that encompasses mental, personality, social, and physical components in addition to learning level (Newcomb et al, 2008).

The results of Pang (2012) indicated that self-efficacy beliefs have a considerable effect on academic performance of students.

Cognitive approach introduced by Beck for challenging and changing dysfunctional beliefs and automatic thoughts and controlling cognitive distortions. Cognitive errors can effect on information processing and distort received information. It is possible to control cognitive distortions and negative beliefs in particular, negative beliefs about self-efficacy using methods, which are major cognitive methods for measuring loss and benefit of a belief, considering evidences, and examining outlook of a belief (Beck et al, 1979; Leahy, 2003; Burns, 1998). This is also true about adolescents. People with low-efficacy consider the tasks more difficult than others and this can enhance stress in them. On the contrary, high self-efficacy beliefs cause calmness and closeness to difficult tasks. Hence, it can be strong predictor for achievement and advancement of people (Psjares et al, 2002).

Moreover, sense of self-efficacy in students can help for adjustment in regard with doing educational tasks (Gian, Vittorio et al, 2006).

Scholars have found that when education is performed using cognitive-behavioral approach, it can be an effective method to work with negative thoughts and problematic behaviors in adolescents. In this method, people are supported to learn to evaluate their thoughts and cognitive distortion about unpleasant events explicitly. In other words, they can challenge them using explicit evidence, correct cognitive distortions and gain new and adaptable cognition about the world and the future and self. Moreover, the method includes declining evaluation of negative thoughts and manner of fighting them and training effective cognitive-behavioral strategies (Sapp, 1999).

In the cognitive-behavioral theory, people can be described in relation to their thoughts, emotions and behaviors. The main and primary goal of them is reconstruction of consciousness thoughts using positive self-efficacy techniques, in which people are helped to change innate negative thoughts to positive thoughts (Payne, 2005).

Cognitive techniques can improve negative attitude and beliefs about self and others and helps them to have new beliefs about their social and academic achievements (Kenedy and Dopke, 1999).

Using group cognitive-behavioral approaches is one of the most important advantages of this approach. The approach has some advantages including being supported by group members, learning succession and removing negative label and creating more safety for adolescents to express their problems (Kenerly, 1995, trans. Mobini, 2003).

The most important determinant factor of interestingness or lack of interest of students in lessons and tasks is learning successful experiences or their failure in acquisition of different lessons. It means that if students gain successful experiences during academic years, their interest in learning different lessons would be increased gradually. As a result, positive concept of self would be created in them. However, if the experiences are mostly along with failure, negative concept would be created gradually in their mind about their own and their abilities and as a result, they may face lack of interest in education and academic achievement (Seif, 2010).

In a study adopted by Abolghasemi, Beigi and Narimani (2011) under the title of assessing effectiveness of two methods of cognitive-behavioral education and emotion regulation skills in self-efficacy and academic adaptability of students with exam anxiety, the investigations are done on 60 students with exam anxiety. The students were divided to two control and experimental groups randomly. For experimental group, cognitive-behavioral approach and emotion regulation skills have been performed. Obtained results indicated that cognitive-behavioral method can affect reduction of anxiety and increase in self-efficacy and academic achievement of students significantly.

Einar and Sidsel (2009) have investigated the relationship of self-concept and self-efficacy with achievement motivation in field of mathematics. The results showed that both variables of self-efficacy and self-concept are important to predict educational success of students.

Givan Vittorio et al (2006) have also found in their study that sense of self-efficacy is in positive and significant correlation with accountability to do educational tasks and get high average in final exams, job satisfaction and academic achievement of students.

Winsler et al (2004) have conducted a study on high school students and have found that students with high self-efficacy have less behavioral problems and better social skills, they have more efficient interaction at school and group and gain high marks in class activities.

METHODOLOGY

In terms of subject and main goals of the study, it is applied research and in terms of data collection method, it is experimental study. Due to location of the study, it is a field research and is adopted using pre-test posttest pattern with experimental and control groups. Statistical population of the study consists of all high school girl students of third grade in Amol City. In this study, applied method is experimental method and its pattern is pretest-posttest with control group. Firstly, a school is selected using cluster random sampling method and all high school students of third grade with average below 15 (87 people) have taken self-efficacy test. Students with mark below 57 in self-efficacy test were 49 students and 30 out of them were selected randomly and were placed in two 15-member control and experimental groups. Then, interventions in experimental group were applied for 8 sessions each session with 90 minutes. No intervention was applied for control group. Then at the end of 8 sessions, posttest was performed for both experimental and control groups.

DATA COLLECTION INSTRUMENT

Self-efficacy questionnaire (SE): applied self-efficacy scale in this study has been Sherer et al (1982) self-efficacy scale. The original version of this test contains 36 items and according to adopted analyses, only those items were not excluded that had value of 40% in each social and general factor. Accordingly, 13 items without the specifications were excluded and the test was declined to 23 items. Scoring method of self-efficacy scale is to this manner that to each item, a score would be given from 1 to 5. Scores of items number 1, 2, 8, 9, 15 and 13 (right to left) have been increased and score of remained items (left to right) is increased. Total score of the questionnaire is equal to 85.

Reported reliability coefficient by Sherer et al (1982) is relatively high and satisfactory. Obtained Cronbach's alpha for subscale of self-efficacy in different countries is reported as follows: 88% in Canada; 84% in Spain; 81% in Costa Rica; 81% in Germany; 88% in Britain; 82% in Japan; 85% in Korea and 75% in India. Obtained coefficients indicate internal reliability of options of this scale among different people across the world.

Schwartz et al (1997) showed the internal consistency coefficient of self-efficacy scale for students in Germany to 84%; in china to 91% and in Spain to 81%. In order to investigate reliability of self-efficacy scale, split-half method is applied. Reliability coefficient of the test was obtained to 76% using Spearman-Brown method and split-half method of Gustman. Cronbach's alpha or total consistency of questions is also obtained to 79% that has been satisfactory (Rajabi, 2006). In order to measure validity of self-efficacy scale, obtained scores by it have been correlated to measures of several personality traits. The personality measures include Internal locus of control, interpersonal competence, my strength, self-esteem, assertiveness, male traits and emotional harmony (Sherer et al, 1982, Sherer and Adam, 1983; Rahmani, 2010).

Another research instrument is average of first and second semester of sample students used to measure their academic achievement (average of first semester is considered as pretest and average of second semester as posttest).

TRAINING PACKAGE

Training package is due to cognitive therapy approach (Beck et al, 1979). We trained students in 8 sessions for Identifying automatic thought and core beliefs especial self-efficacy belief and challenging them with Cognitive techniques. Both of experimental and control groups answered Sherer et al self-efficacy scale the end of intervention.

For data analysis purpose, descriptive statistical methods (mean value and SD) is used and inferential statistics of MANCOVA have been used to test hypotheses.

RESULTS

The results from adjusted mean value and covariance results for dependent variables are presented in tables 1 and 2.

Table 1: statistical features of self-efficacy and academic achievement components in two experimental and control groups

variable	experimental group		control group		covariance		
	mean	sd	mean	std. error	F (26.1)	P	ETA
self-efficacy	62.79	1.507	52.47	1.507	22.107	0.000	0.460
academic achievement	15.94	0.172	14.20	0.172	48.704	0.000	0.652

Table 2: MANCOVA analysis of F ratio for combined variable

Source	value	F (25.2)	sig	ETA
combined variable (group)	0.300	29.135	0.000	700

Note: multivariate F ratio is obtained from Wilkes-lambda approximate

In table 1, adjusted mean values of components of dependent variable can be observed. Effect of random variables of the mean values indicates that mean value of experimental group is lower than control group. Obtained results from tables indicate that there is significant difference between experimental group that is under effect of cognitive technique training and control group that is under no education method (Eta=0.700, P=0.000 and F (2,25)= 29.135). The difference is in benefit of trained group due to adjusted mean values.

DISCUSSION AND CONCLUSION

The present study is adopted to investigate effectiveness of cognitive techniques in self-efficacy and academic achievement of third grade high school girl students. As cognitive-behavioral treatment is focused on beliefs, emotions and feelings of individuals and is aimed in changing and modifying beliefs, it is suggested effectively to work with adolescents and to reconstruct disabling thoughts and their negative thoughts. Obtained results from the study indicate that cognitive techniques can affect general and positional self-efficacy of control group effectively and successfully. This result can be discriminated in this manner that learning new and suitable behavior to encounter anxiety can create dominance and ability in people. Moreover, it seems that responsible mechanism for success of cognitive-behavioral treatment is acquisition and application of new cognitive and behavioral coping skills. Gaining coping skills can result in success against internal or outside pressures and the successes can enhance self-efficacy belief in people.

Moreover, to discriminate the finding, it could be mentioned that people with higher academic achievement have higher self-concept and self-esteem than others. One of the reasons for this situation is that students with self-confidence have more courage to attempt and have strong motivation to achieve what they want and students with negative attitude to their own evaluate their ability and intelligence in low level and create bad situation for their education and work through the limitations (Kelinche, 1994; trans. Mohammadkhani, 2001). Obtained results from the study are in consistence with findings of Abolghasemi, Beigi and Narimani (2011). They have assessed effect of two methods of cognitive-behavioral education and emotion regulation skills on self-efficacy and academic achievement of students with exam anxiety on 60 students with exam anxiety. The students were placed in two experimental and control groups randomly. For experimental group, cognitive-behavioral technique and emotion regulation skills have been applied. Obtained results indicated that cognitive techniques are effective in reduction of anxiety and enhancement of self-efficacy and academic achievement of students significantly.

The findings have been also in consistence with the findings that cognitive-behavioral education can affect decrease in beliefs or inefficient academic feedbacks (Black and Hersen, 2006; trans. Izadi and Maher, 2005).

The result has been in consistence with findings of Judge and Bono (2001) that self-efficacy can affect strategies of emotion regulation skills as a cognitive structure and has basic ability to predict performance and academic achievement of individuals. They have found that the relationship between self-efficacy and emotional stability is positive and people who are able to regulate their emotions have higher self-efficacy than others. The study indicated that the focus point of individuals and self-efficacy beliefs are important determinant factors in regard with anxiety and cognitive orientations. According to the findings, it could be concluded that due to cognitive nature of self-efficacy variable, cognitive-behavioral education would be certainly effective.

Moreover, The results from the study have been in consistence with findings of Purdie &Hattie (1996). They have found in their study that students with high academic performance gain high points in metacognitive test. According to obtained results from the study, it could be mentioned that metacognition plays key role in cognitive activities and affects performance of individuals in different cognitive domains including academic achievement.

Obtained results from the study indicate that cognitive techniques can affect self-efficacy and academic achievement of students in third grade of high school significantly; although no change was observed in control group.

Conflict: There is no conflict

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EFFECTIVENESS OF DIALECTICAL BEHAVIOR THERAPY (DBT) IN REDUCTION OF AGGRESSION IN FEMALE STUDENTS IN TEHRAN

in

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ABSTRACT

dialectical behavior therapy techniques can be used as useful and effective method in reduction of many clinical symptoms. In this study, Efficacy of dialectical behavior therapy in reduction of aggression of female students in Tehran City is investigated.

This study is in kind of empirical study with pretest posttest design with control group. Statistical population in this study consists of all high school female students of Tehran (n=674) educating during academic year of 2015-2016. First, cluster sampling is used and 4 schools are selected from schools of Tehran and from each couple of schools, 2 classrooms were selected and the students with high score in Buss-Perry Aggression Questionnaire (AQ) were selected as sample. Then, 30 students were selected using random sampling method and were placed in two groups with 15 people in each group. At the end of intervention all the participants responded to post-test. Buss-Perry Aggression Questionnaire (AQ) was instrument in this study. Data were analyzed by covariance in SPSS-18. DBT could significantly reduced aggression in girl adolescents and there is a meaningful difference between 2 groups ($p<0.01$). DBT could significantly reduced aggression symptoms in girl adolescents.

INTRODUCTION

Adolescence is a high risk phase for the development of some symptoms and behavioral problems. Anxiety and aggression are of most frequent symptoms and behavioral problems in this phase throughout the world (Blake & Hamrin, 2007, Rapee , Kennedy, Ingram, Edwards & Sweeney, 2005, Barrett , Duffy, Dadds & Rapee, 2001) and in Iran (Sadeghi, Farajzadegan, Kelishadi & Heidari, 2014, Zarafshan , Mohammadi , Salmanian, 2015, Dodangi , Habibi Ashtiani ,, Valadbeigi,2014).

These two behavioral problems can impact adolescents' health and future in several ways. For example several studies have proved that adolescents with anxiety cannot be completely successful in school performance and also, they show greater fatigue and sleep disturbance, poorer physical health, global cognitive impairment and social disability (Mazzone, Ducci, Scoto, Passaniti, D'Arrigo Valentina, & Vitiello, 2007, Haller, Cramer, Lauche, Gass, & Dobos, 2014).

Studies that have examined the role of aggression in development of adolescents have concluded that it disrupts learning, and drains a significant proportion of mental health and family resources (Hawley, Johnson, Mize & McNamara, 2007). Besides, it has been cleared that aggression is important risk factors of smoking, substance abuse, second depression, other behavioral problems and academic failure (Khademalhosseini, Ahmadi, Khademalhosseini, 2015, Zinat Motlagh, Ataee, Jalilian, MirzaeiAlavijeh, Aghaei, KarimzadehShirazi, 2013, Pine, Cohen, Gurley, Gurley, Brook J, Ma, 1998, Woodward, & Fergusson, 2001, Keenan, & Hipwell, 2005, Chakraburty, 2005).

Given these negative effects, they should be seriously considered in mental health programs provided for adolescents. One of the novel treatment approaches is dialectic behavioral therapy (DBT) that has attracted many psychologists in several fields.

DBT is a cognitive-behavioral treatment that regulates various behavioral difficulties associated with severe and chronic emotion dysregulation (Fruzzetti & Levensky, 2000). Because of the DBT definition of problematic behavior as the result of one or more of the following: skills deficit, cued responding, reinforcement of maladaptive behavior or punishment of adaptive behavior, or cognitive factors, primary DBT interventions are skills, exposure, contingency management, and cognitive restructuring training. The primary dialectic that informs all aspects of DBT is change versus acceptance. Thus, interventions include both change- and acceptance oriented techniques and clients are taught skills for both changing and accepting themselves and reality as it is (Rizvi, 2011).

Although, DBT was first introduced by Marsha Linehan for borderline personality disorder (BPD) treatment (Linehan, 1991), but it has been accepted as a truly effective treatment for a variety of mental health conditions among diverse populations (DeVylder, 2010) including, individuals with BPD and substance use disorders (Linehan, Dimeff, Reynolds, Comtois, Welch, Heagerty, & Kivlahan, 2002, Renee, 2009, Stiglmayr, Stecher-Mohr, Wagner, Meißner, Spretz, Steffens, Roepke, Fydrich, Salbach-Andrae, Schulze & Renneberg, 2014), eating disorders (Telch, Agras, Linehan, 2000, Soleimani, Khodavirdi & Ghasemzadeh, 2014), depressed elderly clients with personality disorders (Lynch, Morse, Mendelson & Robins, 2003), DBT is effective for controlling self-destructive behaviors (Patrick, John, Omar, & Panos, 2014, Saffarinia, Nikoogoftal, & Damavandian, 2014, Priebe, Bhatti, Barnicot, Bremner, Gaglia, Katsakou, Molosankwe, McCrone, Zinkler, 2012), increase the quality of sleep and reduce anxiety in patients with irritable bowel syndrome (IBS) (Mohammadi, Gholamrezaei, & Azizi, 2015), female aggressive in a residential setting (Trupin, Stewart, Beach, & Boesky, 2002), emotion regulation and perceived social support in patients with coronary heart disease (Linehan, 1993), depression (Babaei, Fakhri, Jadidi, Salehi, 2015) and suicidal adolescents (Alavi, Modarres, Ghoravi, Amin Yazdi, & Salehi, 2015, Katz, Cox, Gunasekara, & Miller, 2004, Geddes, Dziurawiec & Williams, 2013). The effectiveness of DBT in reducing aggression has been confirmed in some studies in different populations (Linehan, Comtois, Murray, Brown, Gallop, Heard, Korslund, Tutek, Reynolds, Lindenboim, 2006 Jamilian, Malekirad, Farhadi, Habibi & Zamani, 2014, Clarkin, Leavy, Kernberg, Lenzenwenger, 2007, Oler, Pascual, Tiana, Barrachina, Campins, Gich, Alvarez, Pérez, 2009, Miller, Rathus, Linehan, 2007, Vanden Bosch, Verhuel, Schippers, Brink, 2002, Asmand P, Mami S, Valizadeh, 2015, Kroger, Schweiger, Valerija, Ruediger, Rudolf, Reinecker, 2006) but its efficacy in adolescents has not been sufficiently studied in Iran.

The present study evaluated the effectiveness of DBT techniques in reduction of aggression in adolescents. Because of lack of studies about students in Tehran, we focused on this population.

METHODOLOGY

Among 674 girl's high school students in 2 regional municipality in Tehran, Iran, two high schools and two classes selected randomly for this experimental study. The final sample number was 30 that randomly placed in two groups: case group and control group (fifteen in each of them). Pre-test was implemented in baseline for both groups. Then, case group took part in twelve (2 hours) Dialectical Behavior Therapy sessions while control group were in waiting list. Thereafter, both groups completed post-test. Participants in experimental group received DBT intervention in group twelve sessions (2 hours in every week): DBT techniques included: Mindfulness, emotion regulation, Distress tolerance and Effective communication (Linehan, ,1993).The content of sessions of included:

Mindful breathing, Mindful eating, Mindful walking and mindful awareness (2 session) .Emotion regulation skills included: Awareness of emotion, describe of emotion, reduction vulnerability to emotion and express of emotion (4 session). Distress tolerance skills included: self soothing techniques, distraction techniques, relaxation techniques and breathing techniques (4 session). Effective communication skills included: mindful communication, assertiveness, negotiation communication and conflict resolution communication (2 session). All of the participants were assessed in baseline and at the end of intervention. The instrument was used in this study was Buss-Perry Aggression Questionnaire (AQ):

INSTRUMENT

Buss-Perry Aggression Questionnaire (AQ): This is a self-reported and no bias scale that was published in 1992 by Buss and Perry and quickly became one of the most useful scales in the measuring aggression (Shelton, Kesten, & Zhang, 2011, Gerevich , Bácskai & Czobor , 2007, Abd-El-Fattah,2007). AQ reliability and validity has been confirmed in Iran. It includes four subscales: physical aggression, verbal aggression, anger and hostility (Alami, Shahghasemi, Davarinia Motlagh Ghochan , Baratpour, 2015).Data were analyzed using descriptive statistics (mean and standard deviation) and inferential statistics (Covariance analysis) in SPSS-18.

RESULTS

Mean and standard deviation of three groups scores in pre-test and post-test are shown in Table 1.

Levin test was used to determine the similarity of variances in aggression in participants. The results showed that the variances of both variables statistically were similar in both groups [Levin test results for aggression was (F= 12.419), (DF1 = 1), (DF2 = 28), (p = 0.001)]. With these results, the assumptions for the analysis of covariance were confirmed.

The results of covariance are demonstrated in tables 2. As you can see DBT was significantly effective in reduction of aggression in participants (p<0.001).

Table 1. Mean and standard deviation in pre-test and post-test

	Case group		Control group	
	Pre-test	Post-test	Pre-test	Post-test
aggression	131.66±7.006(SD)	60.73±6.04(SD)	131.2±6.93(SD)	130.4±7.66(SD)

Table 2. Results of covariance analysis of aggression

group		Sum of squares	d.f	Mean squares	F	P	Eta
	aggression	36251.401	1	36251.401	1384.976	0.000	0.982

DISCUSSION

The effectiveness of DBT in reduction of aggression in girl adolescents is confirmed in the present study. The effectiveness of DBT has been approved in several studies on clinical and non-clinical populations. Shelton and colleagues (2011) found that DBT- Corrections Modified (DBT-CM) was effective upon behaviorally challenged incarcerated male adolescents. Panos and colleagues (2014) emphasized on DBT efficacy in controlling self-destructive behavior and improving patient compliance explicitly with borderline personality disorder (BPD). Linehan and colleagues (2006) introduced DBT as a unique effective approach in reducing suicide attempts. A study in Germany found using outpatient DBT under routine health care conditions significantly effective in improvement of aggressive behaviours in borderline patients.

In some studies conducted in Iran DBT was effective in: enhancing quality of sleep and reducing anxiety in irritable bowel syndrome (IBS) patients (Mohammadi, Gholamrezaei, & Azizi, 2015), in emotion regulation and perceived social support in patients with coronary heart disease (Linehan, 1993), in reducing binge and depression among women with binge disorder (Soleimani, Khodavirdi, & Ghasemzadeh, 2014), in reducing explosive anger and impulsive behaviors in patients referred to Amir Kabir Hospital in Arak (a central province in Iran) (Linehan, Comtois, Murray, Brown, Gallop, Heard, Korslund, Tutek, Reynolds, Lindenboim, 2006), and in irrational beliefs treatment, depressed prisoners who had antisocial personality disorder in Ilam (a west province in Iran) (Vanden Bosch, Verhuel, Schippers, Brink, 2002).

Except above mentioned studies, some researches have confirmed DBT effectiveness in decreasing aggression for example Clarkin et al. (2007) concluded that DBT was an effective treatment in soothing anger in borderline personality disorder patients. Soler et al. (2009), Miller et al. (2007) and Vanden Bosch et al. (2002) showed that DBT was effective in reduction of impulsivity, dysregulating emotions, and improving behavioral/emotional problems such as depression, anxiety, anger and emotional instability. As it was told earlier, there were not many studies focusing on efficacy of DBT in reduction of aggression in Iranian adolescents. In any case, findings of present study can be explained in this way: it seems that four components of DBT (basic mindfulness and sustaining distress as acceptance elements and emotion regulation and interpersonal skills as change elements) helped girl adolescents to cope with stressful situations and to regulate their emotions. In addition, it helped participants to less experience negative emotions like anxiety and depression.

This study had some limitations: 1) lack of follow-up, 2) Failure to control of some confounding variables, and 3) small sample size. Given the effectiveness of DBT in reduction of aggression among girl adolescents, we propose integration this intervention with other psychological and life skills interventions for Iranian high school students, is recommended.

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EFFECTIVENESS OF TRANS-SMART PROGRAM TO THE PUPILS' READING INTEREST

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ABSTRACT

Nowadays, school administrators in the Elementary Public Schools in the Philippines are challenged to provide a project that will achieve the Department of Education's goal to have a zero non-reader in all levels. In this study, Silangan Elementary School developed the Trans-SMART program which aimed to determine the pupil-respondents' reading interest via Trans-SMART program using the Strategic Intervention Materials (SIM). TRANS-SMART Program (Transforming Learners through Science, Mathematics and Reading Time Program) is one of the pioneering innovative tools that was formulated by the institution to lessen the problems in relation to pupils who were non-readers. This new innovative tool is an example of remedial teaching. The one group pretest-posttest design was used to find out the effectiveness of the implementation of the program as intervention in enhancing the reading level of struggling readers. The findings revealed that Trans-SMART program was effective. Likewise, most of the pupils obtained high scores in the posttest. There were significant differences in the pretest and posttest results in English, Mathematics and Science after the implementation of the program using Strategic Intervention Materials.

Keywords: effectiveness, interest, innovative, Trans-SMART Program, intervention

INTRODUCTION

The ability to read has always been viewed as critical and a predictor to academic success (Grabe & Stoller, 2002). Thus, reading instruction should be given emphasis and must be prioritized by a responsible government. In this age of information where orality is not enough to communicate to the world anymore, quality reading instruction among public schools should be a top priority. (Hyldgaard, 2015). Moreover, reading, to second language learners of English, is the most important skill for foreign language learners because they have little exposure to the target language outside the classroom and most of the information in English comes through reading (Boss, 2002).

Reading literacy is the ability to understand and use those written language forms required by society and/or valued by the individual. Readers can construct meaning from texts in a variety of forms. They read to learn, to participate in communities of readers in school and everyday life, and for enjoyment. And because developing reading literacy ability is vital to every student's growth and maturation, the International Association for the Evaluation of Educational Achievement, more widely known as IEA, has been conducting regular international assessments of reading literacy and the factors associated with its acquisition in countries around the world for more than 50 years. PIRLS (Progress in International Reading Literacy Study) was inaugurated in 2001 as a follow-up to IEA's 1991 Reading Literacy Study. The target population for PIRLS is students in Grade 4, and the mean age at the time of testing is at least 9.5 years. This study is carried out under the auspices of the International Association for the Evaluation of Educational Achievement (IEA), a consortium of research institutions of 60 countries. (PIRLS 2016).

In the Philippines, the ability to read and write is a priority, so any effort to promote literacy by the government, organizations, or even private individuals is celebrated (Cristobal, 2015). Notably, however, is the alarming rate of the overall, simple literacy rate based from National Statistics Office of the entire country which fell by 0.5 percent from 1994 to 2003, that is, from 93.9 to 93.4 as pointed out by Hyldgaard (2015) and mentioned by Juan Miguel Luz (2007), a former education undersecretary in his article "*A Nation of non-readers.*" He also emphasized that with poor reading comes poor learning. In 2008, the Functional Literacy, Education and Mass Media Survey (FLEMMS) found out that the number of Filipinos, aged 10-64 years old, who do not understand what they read, has grown to 20.1 million (*20m Filipinos Can Read but Cannot Understand*). Surprisingly, in

2010, a report from the National Statistics Office Census of Population and Housing (CPH) show that of the 71.5 million individuals who are 10 years old and above, 97.5 percent or 69.8 million were literate or could read and write—an increase from the 2000 CPH record of 92.3%. It appears therefore that the literacy rate has risen compared to 10 years ago. (Desiderio, 2013).

The Department of Education (DepEd) and the Department of Science and Technology (DOST) identified the problem on poor reading comprehension as a principal factor in the miserable performance of students in the National Achievement Test (Rimando, 2006) and that DepEd regarded reading comprehension as the single factor which caused frustrations of students to perform better in school achievement tests as studied by Iman (2010) and concluded that reading comprehension is a factor to consider to elevate the academic performance of students. The Department of Education continues to implement the use of Phil-IRI (Philippine Informal Reading Inventory) as an initiative in its thrust to make every Filipino child a reader. It is anchored on the flagship program “*Every Child A Reader Program*” (ECARP), the goal of which is to enable every Filipino child to communicate both in English and Filipino through effective reading instruction. It assesses the reading proficiency levels including word recognition, comprehension and reading speed of elementary school pupils. The reading levels are frustration, instructional, independent, and non-reader.

Public schools in the Philippines like the Silangan Elementary School in Taguig City, was not exempted from this challenging situation of low comprehension level in reading. It was disheartening to see majority of student population to be in the frustration level. Realizing the urgency to address the students’ need to learn to read with comprehension, a program was conceptualized and eventually implemented and evaluated, this is the TRANS-SMART program. By the virtue of Republic Act No. 9155, the TRANS-SMART program came into being.

The Development of Trans-SMART Program

TRANS-SMART program which is one of the pioneering innovative tools meant to lessen the number of non-readers. This new innovative tool is an example of remedial teaching. The objective of the program is to develop students’ reading competence through English as medium of instruction with Math and Science as content. In the program, teachers were tasked to remedially teach these struggling readers once a week for two hours. Teachers were assigned to every grade level and were given two to five pupils to remedially teach for the whole school year.

Strategic Intervention Materials (SIM)

In the development of the reading materials, which is the Strategic Intervention Materials or SIM, collaboration among experts and teachers was observed. The expertise of the teachers were maximized, teachers extended their time to finish the materials, willingly extending time until quality circle time. Instead of having quality circle in three hours, it was extended to five hours. The SIM covered lessons/topics based on the Least Mastered Skills (LMS) of the National Achievement Test (NAT) with tests constructed and patterned with the NAT test items. In-service training was conducted for a month, while writing the lessons in modular form. Each teacher was assigned to make modules. Concepts like graphics/illustrations were based on the interest of the learners, while the topics covered in every module were based from the least mastered skills from the previous National Achievement Test. At the end, there were 50 lesson titles for English, 50 for Mathematics and 50 for Science respectively. These parallel skills were presented in stories and colorful pictures and illustrations which captivated the learners’ interest. Lessons were arranged from easy, average to difficult. After the completion of each module, it was checked and critiqued by the different school subject coordinators and validated by three district subject coordinators using the LRMS tools in validating printed materials.

The Implementation of Trans-SMART Program

After the SIM materials were tried and evaluated, the implementation of the program followed. The TRANS-SMART Program was launched on September of 2014. These involved pupils in the last two sections of grades 4 to 6, pupils with the lowest score in the comprehension part in the Phil-IRI and the most number of miscues obtained were selected to be part of the program which totaled to 90 pupils. During the remedial sessions, teachers noted the active participation of the pupils especially so that they received free snacks and other incentives in every improvement noticed by the teachers. The materials used with the eye-catching illustrations and captivating titles made by the teachers were easy to understand and were within the level of the pupils. On the other hand, parents were happy because of the improved academic performance of their children as evident in the children’s report card.

Philippine-Informal Reading Inventory (Phil-IRI)

The Philippine-Informal Reading Inventory (Phil-IRI) test is an oral test given to a pupil to measure reading ability. Five test questions are administered constituting the entire test. The reading levels are: *Independent reading level* – Pupil can read with ease and without the help or guidance of a teacher. In the Phil-IRI test, they can answer four or five correct answers (out of five test questions) and can read with rhythm, with a conversational tone, and can interpret punctuation correctly; *Instructional reading level* – Pupil can profit from instruction. In the Phil-IRI test, they answer three out of five test questions correctly; *Frustrated reading level* – Pupil gets two or below in the Phil-IRI test (out of five test questions). They show symptoms or behavior of withdrawing from reading situations and commit multiple types of errors in oral reading.

THE STUDY

Remedial education (also known as developmental education, basic skills education, compensatory education, preparatory education, and academic upgrading) is designed to assist students to achieve expected competencies in core academic skills such as literacy and numeracy (Babungo, 2012). According to him, it is a multifaceted approach, tailoring remedial intervention plans to a child's specific needs. It makes use of one-on-one instruction, small group instruction, written work, verbal work and computer-based work. The teacher teaches the lesson in order to help slow learners make up for what they lost in the course of learning. The teacher uses extra hours after school, weekends or holidays. He uses more resources and varies teaching methods. He helps the children to master, retain or remember what they have learned.

The problem lies on the idea that many students today cannot read nor write. There are students that were promoted to the next level that cannot utter a sentence or are able to read. That is the reason why many educators have been viewing the use of remediation in order to alleviate this problem. TRANS-SMART is one of the pioneering innovative tools that were formulated by the Silangan Elementary School to possibly lessen the problem in relation to pupils who were non-readers. TRANS-SMART Program (Transforming Learners through Science, Mathematics and Reading Time Program). This new innovative tool is an example of remedial teaching. The idea behind this program lies on the problem that there were pupils promoted but still struggling in reading English or understanding Mathematics and Science subjects whose medium of instruction is English. The idea in formulation the TRANS-SMART was the poor result of the National Achievement Test and other related examination. In order to alleviate this problem, teachers were task to remedially teach these struggling readers once a week for two hours. Teachers were assigned for every grade level and were given two (2) – five (5) pupils to remedially teach for the whole school year. This study aims to determine the use of TRANS-SMART Program as an effective intervention in promoting reading development among struggling readers.

CONCEPTUAL FRAMEWORK OF THE STUDY

This study is anchored on Republic Act 9155 also known as Governance of Basic Education Act of 2015. According to this Act, the school head shall form a team with the school teachers/learning facilitators for delivery of quality educational programs, projects and services. A core of non-teaching staff shall handle the school's administrative, fiscal and auxiliary services. Consistent with the national educational policies, plans and standards, the school heads shall have authority, accountability and responsibility for the following: 1) Setting the mission, vision, goals and objectives of the school; 2) Creating an environment within the school that is conducive to teaching and learning; 3) Implementing the school curriculum and being accountable for higher learning outcomes; 4) Developing the school education program and school improvement plan; 5) Offering educational programs, projects and services which provide equitable opportunities for all learners in the community; 6) Introducing new and innovative modes of instruction to achieve higher learning outcomes; 7) Administering and managing all personnel, physical and fiscal resources of the school; 8) Recommending the staffing complement of the school based on its needs; 9) Encouraging staff development; and 10) Establishing school and community networks and encouraging the active participation of teachers organizations, non-academic personnel of public schools and parents-teachers-community associations.

(<http://www.gov.ph/2001/08/11/republic-act-no-9155/>).

Following the Governance act, the school head/principal developed a school education program and school improvement plan by implementing the TRANS-SMART Program aimed at improving the pupils' reading

comprehension and consequently, the National Achievement Test and Phil-IRI result of Silangan Elementary School. Under the supervision of the principal, the TRANS-SMART program was planned, developed, implemented, and evaluated. The reading materials were developed by teachers and master teachers, while the supervisors for English, Math and Science validated the materials using the Evaluation Rating Sheet for Print Resources from the Department of Education. Research Paradigm is shown in Figure 1.

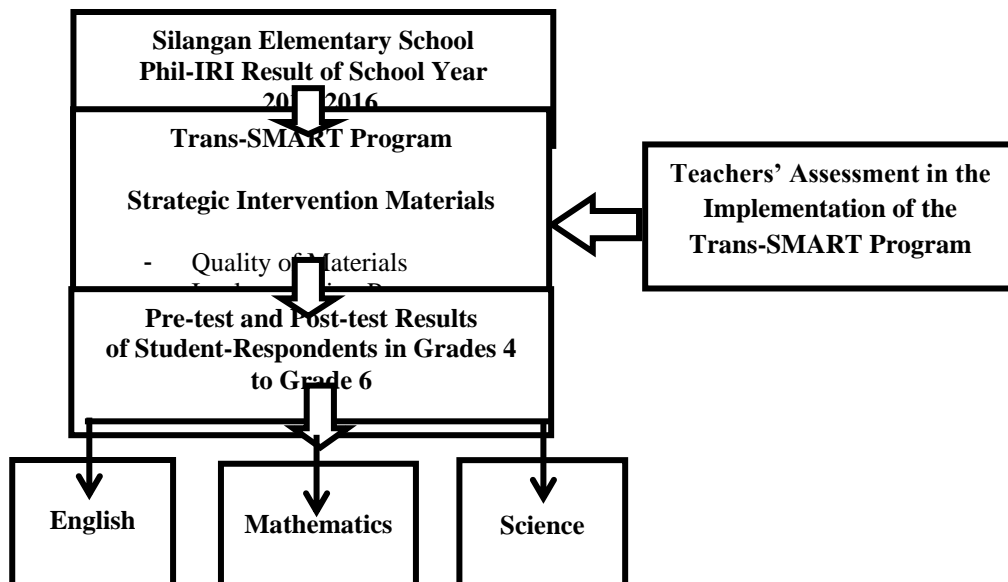


Figure 1: Research Paradigm

As reflected in Figure 1, the Phil-IRI result of Silangan Elementary School was the basis for the development and implementation of the TRANS-SMART program, a remedial reading program for pupils covering three subject areas namely English, Math and Science also called Strategic Intervention Materials (SIM). The effectiveness of the program was tested through a pre-test and post-test while the SIM was evaluated by the teachers using the three criteria which are: Quality of Materials, Implementation Process, and Support of Administration.

STATEMENT OF THE PROBLEMS

This study aimed to determine the student-respondents' reading interest via Trans-SMART program using the Strategic Intervention Materials (SIM). Specifically, it answered the following problems:

1. What is the pretest and posttest results of the pupil-respondents in the following subjects based on the Strategic Intervention Materials in:
 - 1.1. English;
 - 1.2. Mathematics; and
 - 1.3. Science?
2. Are there significant differences between the pretest and posttest results in English, Mathematics, and Science of Grades 4, 5, and 6?
3. What is the assessment of the teacher-respondents in the implementation of the Trans-SMART program in terms of:
 - 3.1. Quality of materials;
 - 3.2. Implementation process; and
 - 3.3. Support of the Administration to the Program?

METHODOLOGY

The study utilized descriptive-comparative since an intervention program called Trans-SMART Program was used to enhance the least mastered skills in Science, Math and Reading. These were tested using the one-group pretest-posttest design among the student-respondents. The Learning/instructional materials, pretest and posttest used in the study were developed and validated by the district supervisors and master teachers prior to its

administration. There were 300 participants in the TRANS-SMART program from grade one to grade 6. Out of these, 90 pupils were randomly selected from Grade 4 to Grade 6. The selection of the pupils were those recommended for remedial instruction and were enrolled during the school year 2015-2016.

FINDINGS

1. The pretest and posttest results of the pupil-respondents in English, Math and Science subjects

1.1 In English. Table 1 presents the pretest and posttest results of the pupil-respondents in English.

Table 1

Pre-Test and Post-Test Results of Pupil-Respondents in English

Grade Level	Pre-Test			Post-Test		
	Mean	SD	Interpretation	Mean	SD	Interpretation
Grade 4	21.6333	2.02541	Average	36.5333	4.50083	High
Grade 5	20.9667	3.38845	Low	39.6333	1.95613	High
Grade 6	23.0000	2.14958	Average	40.6000	2.02740	High
Composite	21.8667	2.52115	Average	38.9222	2.82812	High

Scale: 50-41=Very High; 40-31=High; 30-21=Average; 20-11=Low; 10-0=Very Low

It could be gleaned in Table 1 that the pretest and post test results of pupil-respondents in English subject revealed average and high results accordingly. This showed that posttest results obtained higher mean values compared to the pretest of pupils across Grades 4, 5 and 6. This means that the improvement is very evident after the treatment, that is, the intervention materials must have worked.

1.2 In Mathematics. Table 2 presents the pretest and posttest results of the pupil-respondents in Mathematics.

Table 2

Pre-Test and Post-Test Results of Pupil-Respondents in Mathematics

Grade Level	Pre-Test			Post-Test		
	Mean	SD	Interpretation	Mean	SD	Interpretation
Grade 4	19.9667	1.97368	Low	36.6000	4.86791	High
Grade 5	21.0000	2.71649	Average	37.5667	3.59773	High
Grade 6	23.5000	2.11318	Average	39.8000	2.04096	High
Composite	21.4889	2.26778	Average	37.9889	3.50220	High

Scale: 50-41=Very High; 40-31=High; 30-21=Average; 20-11=Low; 10-0=Very Low

It could be gleaned in Table 2 that the pretest and post test results of pupil-respondents in Mathematics subject revealed average and high results respectively. This showed that posttest results obtained higher mean values compared to the pretest of pupils across Grades 4, 5 and 6. Similar to Table 2, the result clearly indicate the positive effect of the intervention made in Mathematics. A remarkable increase from average to high means that the pupils' performance greatly improved.

1.3 In Science. Table 3 presents the pretest and posttest results of the pupil-respondents in Science.

Table 3
Pre-Test and Post-Test Results of Pupil-Respondents in Science

Grade Level	Pre-Test			Post-Test		
	Mean	SD	Interpretation	Mean	SD	Interpretation
Grade 4	21.2000	1.42393	Average	38.0000	3.78746	High
Grade 5	22.4333	2.48698	Average	40.6000	2.07780	High
Grade 6	21.0333	3.33718	Average	40.7667	1.63335	High
Composite	21.5555	2.41603	Average	39.7889	2.49954	High

Scale: 50-41=Very High; 40-31=High; 30-21=Average; 20-11=Low; 10-0=Very Low

It could be gleaned in Table 3 that the pretest and post test results of pupil-respondents in Science subject revealed average and high results correspondingly. This showed that posttest results obtained higher mean values compared to the pretest of pupils across Grades 4, 5 and 6. Similar to the results in English and Math, the higher mean value in the posttest must be because of the reading intervention program.

2. Differences in the pretest and posttest results in English, Mathematics and Science in Grades 4, 5 and 6

2.1 In English. Table 4 presents the differences between the pretest and posttest results of pupil-respondents in English.

Table 4
Differences in the Pre-Test and Post-Test Results of Pupil-Respondents in English

Grade Level	Pre-Test Mean	Post-Test Mean	T-Value	Sig Value	Interpretation
4	21.6333	36.5333	-15.649*	.000	<i>Significant</i>
5	20.9667	39.6333	-28.294*	.000	<i>Significant</i>
6	23.0000	40.6000	-44.320*	.000	<i>Significant</i>

*Significant at .05 level of significance

Using Paired T-Test, the pretest and post test results of the pupil respondents in English subject revealed significant differences at 5% level of significance to reject the null hypothesis. It could be concluded that effectiveness of TRANS-SMART program has been realized as form of intervention to raise the level of pupils' performances in English. Negative t-value implied that posttest showed higher mean values than the pretest.

2.2 In Mathematics. Table 5 presents the differences between the pretest and posttest results of pupil-respondents in Mathematics.

Table 5
Differences in the Pre-Test and Post-Test Results
of Pupil-Respondents in Mathematics

Grade Level	Pre-Test Mean	Post-Test Mean	T-Value	Sig Value	Interpretation
4	19.9667	36.6000	-18.664	.000	<i>Significant</i>
5	21.0000	37.5667	-18.321	.000	<i>Significant</i>
6	23.5000	39.8000	-33.971	.000	<i>Significant</i>

**Significant at .05 level of significance*

Using Paired T-Test, the pretest and post test results of the pupil respondents in Mathematics subject revealed significant differences at 5% level of significance to reject the null hypothesis. It could be deduced that effectiveness of TRANS-SMART program has been realized as form of intervention to raise the level of pupils' performances in Mathematics. Negative t-value implied that posttest showed higher mean values than the pretest.

2.3 In Science. Table 6 presents the differences between the pretest and posttest results of pupil-respondents in Science.

Table 6
Differences in the Pre-Test and Post-Test Results
of Pupil-Respondents in Science

Grade Level	Pre-Test Mean	Post-Test Mean	T-Value	Sig Value	Interpretation
4	21.2000	38.0000	-20.925	.000	<i>Significant</i>
5	22.4333	40.6000	-30.041	.000	<i>Significant</i>
6	21.0333	40.7667	-30.022	.000	<i>Significant</i>

**Significant at .05 level of significance*

Using Paired T-Test, the pretest and post test results of the pupil respondents in Science subject revealed significant differences at 5% level of significance to reject the null hypothesis. It could be inferred that effectiveness of TRANS-SMART program has been realized as form of intervention to raise the level of pupils' performances in Science. Negative t-value implied that posttest showed higher mean values than the pretest.

3. Assessment of the teachers in the implementation of the Trans-SMART program in terms of:

3.1 Quality of Materials. Table 7 presents the assessments of the teachers in the implementation of TRANS-SMART program in terms of quality of the materials.

Table 7
Teachers' Assessment in the Implementation of
TRANS-SMART Program in terms of
Quality of Materials

Indicators	Mean	SD	Interpretation
1. The materials used were easy to understand.	3.7667	.43018	Strongly Agree
2. The activities on the materials were sufficient to achieve the competencies needed.	3.8333	.37905	Strongly Agree
3. There were enough materials used during the tutorial sessions.	3.4667	.50742	Strongly Agree
4. The pretest and posttest questions were valid and reliable.	3.9333	.25371	Strongly Agree
Composite	3.7500	.39259	Strongly Agree

Scale: 4.00-3.26=Strongly Agree; 3.25-2.51=Agree; 2.50-1.76=Disagree; 1.75-1.00=Strongly Disagree

As shown in Table 7, the teachers involved in the implementation of the Trans-SMART were all in agreement strongly in their assessment of the quality of materials they used in the program. It was noteworthy that validity and reliability of the pretest and posttest obtained the highest mean value with homogeneous perceptions of teachers. This could mean that teachers are effective as materials developer of instructional materials; they can produce easy to use, appropriate, sufficient and comprehensive learning materials as evidenced by the mean result and its interpretation of “strongly agree.”

3.2 Implementation Process. Table 8 presents the assessments of the teachers in the implementation of TRANS-SMART program in terms of the implementation process.

Table 8
Teachers' Assessment in the Implementation of
TRANS-SMART Program in terms of
Implementation Process

Indicators	Mean	SD	Interpretation
1. Participants of the program were properly selected.	3.9333	.25371	Strongly Agree
2. Time allotted during the tutorial sessions was met.	3.9000	.30513	Strongly Agree
3. Participation of the pupils in the program was visible.	3.8667	.34575	Strongly Agree
4. The administration of the pretest and posttest were valid and reliable.	3.8667	.34575	Strongly Agree
Composite	3.8917	.31258	Strongly Agree

Scale: 4.00-3.26=Strongly Agree; 3.25-2.51=Agree; 2.50-1.76=Disagree; 1.75-1.00=Strongly Disagree

As shown in Table 8, the teachers revealed that they strongly agreed in their assessment to the implementation process of the program. Remarkably, the proper selection of participants showed the highest mean value with homogeneous perceptions of teacher-respondents.

3.3 Support of the Administration to the Program. Table 9 presents the assessments of the teachers in the implementation of TRANS-SMART program in terms of support of the administration to the program.

Table 9
Teachers' Assessment in the Implementation of
TRANS-SMART Program in terms of Support
of the Administration to the Program

Indicators	Mean	SD	Interpretation
1. The teachers supported the program.	4.0000	.00000	Strongly Agree
2. The teachers were given incentives in the implementation.	3.9000	.30513	Strongly Agree
3. The principal/department chair monitored the implementation of the program from the beginning to end.	4.0000	.00000	Strongly Agree
4. Challenges and problems were discussed and given actions at once.	3.8333	.37905	Strongly Agree
Composite	3.9333	.17104	Strongly Agree

Scale: 4.00-3.26=Strongly Agree; 3.25-2.51=Agree; 2.50-1.76=Disagree; 1.75-1.00=Strongly Disagree

As shown in Table 9, the teachers revealed that they strongly agreed in their assessment to the support of administration in implementing the program. Outstandingly, the teachers' support to the program and close monitoring of principal or department chair from the beginning to end had obtained perfect mean values among other indicators which showed that there were no deviations in the respondents' perceptions.

Table 10 presents the summary of teachers' assessment in the implementation of TRANS-SMART program.

Table 10
Summary of Teachers' Assessment in the Implementation
of TRANS-SMART Program

Variable	Composite Mean	SD	Interpretation
1. Quality of the Materials	3.7500	.39259	Strongly Agree
2. Implementation Process	3.8917	.31258	Strongly Agree
3. Support of the Administration to the Program	3.9333	.17104	Strongly Agree
Grand Mean	3.8583	.29207	Strongly Agree

Scale: 4.00-3.26=Strongly Agree; 3.25-2.51=Agree; 2.50-1.76=Disagree; 1.75-1.00=Strongly Disagree

As shown in Table 10, the overall assessment of teacher-respondents revealed that they strongly agreed in the implementation of TRANS-SMART Program. The support of the administration obtained the highest composite mean value among others. It also showed that respondents' perceptions were homogeneous as evident by the small value of standard deviation.

CONCLUSIONS

In the light of these findings, the following conclusions were drawn: The program developed and implemented at Silangan Elementary School was effective; the pupil's respondents were average in their pretest. Likewise, most of the pupils obtained high scores in the posttest; and there were significant differences in the pretest and posttest results in English, Mathematics, and Science after the implementation of the Trans-Smart Program through the use of the Strategic Intervention Materials.

RECOMMENDATIONS

In transforming pupils interest via trans-smart program at Silangan Elementary School the following measures are recommended: identify the weaknesses in both pretest and posttest which can serve as inputs in designing the remediation program to address these weaknesses; the use of Trans-Smart Program should be institutionalized at Silangan Elementary School; Explore the effect on influence of other factors of test performance in English,

Mathematics, and Science; Faculty training on the implementation of Trans-Smart Program and the materials development in English, Mathematics, and Science should be included in the faculty development program; It can serve as a springboard for teachers to explore new ways of facilitating and enhancing of students' learning; and a replicate study should be conducted in other schools using the same variables focused in this inquiry to lend credence to the significant findings of the study.

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EFFECTIVENESS OF USING STOP, THINK AND TALK ACTIVITIES ON THE PERFORMANCE OF STUDENTS IN READING COMPREHENSION IN JUNIOR SECONDARY SCHOOLS IN FEDERAL CAPITAL TERRITORY (FCT) ABUJA

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ABSTRACT

The study was carried out to determine the effect of stop, think and talk activities on the performance of students in reading comprehension in junior secondary schools in Federal Capital Territory (FCT) Abuja. The study was carried out using a quasi-experimental pretest-posttest research design. The target population of the study comprised of 16,925 JSII students. A sample size of 100 JSII students from two secondary schools in the Federal Capital Territory (FCT) Abuja, were purposely sampled in the study. Sixty five (65) students from Government Junior Secondary School, Apo and thirty five (35) from Government Junior Secondary School, Garki were used for the study. Both groups of students were taught for six (6) weeks. Government Junior Secondary School, Apowa was assigned as the experimental group while Government Junior Secondary School, Garki was assigned as the control school. Students were pre-tested to establish their homogeneity before the commencement of the treatment. They were taught for six (6) weeks and were tested using retelling test as an instrument. Data collected from students' test scores was analysed using mean and standard deviation, while t-test was used to test the formulated null hypothesis at 0.05 level of significance. Findings of the study revealed that "stop, think and talk" activities had significant effect on students' performance in reading comprehension. In fact, the experimental group which was exposed to stop, think and talk activities had better understanding of the reading comprehension passages given to them. The result further revealed that students in experimental group were more active, responsive and paid more attention to details concerning the main ideas in the passages read. Based on the findings, it was recommended that teachers should be encouraged to use "stop, think and talk" activities in reading comprehension lessons. Such activities should be provided before, during and after every reading comprehension passage to enhance and facilitate students' reading abilities. Curriculum planners should provide activities that would encourage students to "stop, think and talk" to make reading comprehension lesson more purposeful and meaningful.

Keywords: Reading, Comprehension, Performance, Activities, Effectiveness

INTRODUCTION

Comprehension is intentional thinking during which meaning is constructed through interactions between texts and readers. It is a process in which readers construct meaning by interacting with text through the combination of prior knowledge and previous experience (Pardo, 2004). Comprehending a text involves two phases, that is, construction and integration. In phase one of this process, the reader constructs meaning from text and in the second phase integrates this newly constructed knowledge into the existing prior knowledge network. Reading is a crucial form of communication through which the information required in teaching and learning situations and in everyday life can be acquired (Adeniji, & Omale, 2010). The teaching of reading needs to include a range of comprehension strategies. Although learning to translate letters into words is extremely important. Comprehension strategies involve the mental processes that good readers use to understand text (Yusuf, 2009).

There are various factors militating against the effective teaching and learning of reading comprehension in schools. Researchers (Yusuf 2016, 2013, Oyetunde 2009) have shown in their researches conducted in Nigeria, that poor methodology is one of the main causes of children's reading failure. According to them, children are failing to learn to read because they are not being taught reading in any meaningful way. Oyetunde and Unoh cited in Adeniji and Omale (2010) highlighted some impediments to positive reading habits and attitude. These include lack of materials, poor preparation of teachers, lack of interest, poor libraries or none at all, home background, poor method of teaching and lack of adult readers as models. Hence, teachers are always in search of enhanced methods of reading comprehension. Many children in Nigeria do not have the foundational skills such as word recognition, vocabulary development, and prior experiences that are considered necessary to connect text with meaning (Yusuf 2013, 2016). All of the foregoing have necessitated the need to constantly carry out

researches to find possible solutions to the perennial reading problems of children in Nigeria. It is against this background that this study was undertaken.

BACKGROUND TO THE STUDY

Stop, think and talk activities are time-tested. These teaching strategies have been used for years to help students learn how to monitor their own thinking (Wilhelm, 2001). The stop, think and talk strategy helps students monitor their thinking and understanding of the text. This helps to improve students' comprehension. As they think aloud, they internalize what they are saying, which helps them learn. To begin, the teacher must model this strategy by orally communicating what they are thinking as they read. As teacher reads the text, she/he stops at certain points that may be confusing or challenging for students. Allow time for students to practice asking questions to themselves as they read the text. This can be done individually, with a partner, or in a small group.

Stop, think and talk activities are practical and relatively easy for teachers to use within the classroom. Teachers are able to model the stop, think and talk activities and discuss how good readers often re-read a sentence, read ahead to clarify, and/or look for context clues to make sense of what they read. Stop, think and talk activities slow down the reading process and allow students to monitor their understanding of a text (Wilhelm, 2008). Stop, think and talk activities help students learn to monitor their thinking as they read an assigned passage (Ann & Friedman, 2017). Students are directed by a series of questions which they think about and answer aloud while reading. This process reveals how much they understand a text. As students become more adept at this technique they learn to generate their own questions to guide comprehension.

Teaching reading comprehension using the stop, think and talk activities start with the listening, following directions, asking for help, ignoring distractions, and dealing with teasing skills and then move to other skills that students need to master (Wilhelm, 2001). As students continue to learn and use the skills in the stop and think activities, they will be able to make more good choices, more easily and more independently. Over time, they will become more effective self-managers, which can promote their comprehension reading skill. Although the use of stop, think and talk activities is widespread, existing quantitative research evidence for its effectiveness is limited. In view of this, further investigation is needed to determine its effectiveness in teaching reading comprehension. Therefore, this study was carried out to determine the effect of stop, think and talk activities on students' performance in reading comprehension in junior secondary schools in Federal Capital Territory (FCT) Abuja.

Review of Related Literature

Teaching strategies are important only if they assist readers to comprehend and respond to text. In other words, stop, think and talk activities are a useful strategy when they help a reader through their zone of proximal development, assisting students to develop a particular strategy or set of strategies that student can yet use independently, and when these strategies help student to engage with a text important to their current purposes. Reading is more than just decoding, or sounding out words (Clum, 2005). Reading is also thinking about the words so as to understand them. A good reader for instance, think to understand what they are reading.

Comprehension is the understanding and interpretation of what is read. To be able to accurately understand written material, children need to be able to (1) decode what they read; (2) make connections between what they read and what they already know; and (3) think deeply about what they have read (Readingrockets.com, 2016). Reading comprehension according to Reading Study Group (2002) involves four components: (1) the reader, (2) the text, (3) the activity, and (4) the situational context. The first three essential components that is, the reader, the text, and the task occur within the fourth component of reading comprehension—the situational context. The reader is the one doing the comprehending, and the text is the reading material (such as, stories, nonfiction selections, and so forth). The activity refers to what kind of comprehension task, skill, strategy, or concept the reader is attempting to perform (such as, discovering the author's main idea, understanding a sequence of events, thinking about a character's intent in a story, and so forth).

The situational context of reading comprehension can be thought of in at least two ways. First, the actual setting where reading occurs at home, in a school classroom, the library, under a blanket at bedtime and so forth, affects how well one comprehends while reading. There is little doubt that children's reading comprehension is influenced by the setting in which they read (for instance, reading alone at home than if called on to read during a class activity could make children feel more focused and relaxed). Second, there is a social context associated

with reading comprehension. In some cases, reading comprehension occurs individually. In other cases, however, reading comprehension can be part of a vibrant social activity in which people, teachers, parents, and children, read a text together and jointly construct meaning through discussion. Lively interaction about a text in the company of others seems to be the optimal situational context to enhance students' reading comprehension (Beck, & McKeown, 2006).

The stop, think and talk process is simple as the teacher verbalizes what she/he is thinking then reads or figures out a problem. In turn, students get a glimpse into the mind of a skilled reader or problem solver. A classic study by Bereiter and Bird cited in Nell and Pearson (2000) showed that students who were asked to stop and think while reading had better comprehension than students who were not taught to stop and think according to a question and answer comprehension test. Effective teachers have been using this method for decades, as they model what they are thinking, so students can understand the process of how skilled readers can construct meaning from the text.

Initially, the teacher reads the selected passage as the students read the same text silently. At certain points the teacher stops and "thinks aloud" answers to some of the pre-selected questions (Howard, 2001; Ortlieb & Norris, 2012). Teachers should demonstrate how good readers monitor their understanding by re-reading a sentence, reading ahead to clarify, and/or looking for context clues. Students then learn to offer answers to the questions as the teacher leads the stop, think and talk activities, students become familiar with the stop, think and talk process, they may work individually or in small groups. Teachers may choose to have students write down responses to the stop, think and talk activities which provide a record of learning.

Objective of the Study

Therefore, the purpose of this study is to determine the effect of stop, think and talk activities on students' performance in reading comprehension in junior secondary schools in the Federal Capital Territory (FCT) Abuja, Nigeria

Research Question

What is the effect of stop, think and talk activities on students' performance in reading comprehension in junior secondary schools in Federal Capital Territory (FCT) Abuja?

Research Hypothesis

There is no significant difference in the effect of stop, think and talk activities on students' performance in reading comprehension in junior secondary schools in Federal Capital Territory (FCT) Abuja.

METHODOLOGY

The study was carried out using a quasi-experimental pretest-posttest research design. The target population of the study is sixteen thousand nine hundred and twenty five (16,925) JSII students. A sample size of one hundred (100) JSII students from two secondary schools in the Federal Capital Territory (FCT) Abuja, were purposely sampled in the study. Sixty five (65) students from Government Junior Secondary School, Apo and thirty five (35) from Government Junior Secondary School, Garki were used for the study. Government Junior Secondary School, Apo was assigned as the experimental group while Government Junior Secondary School, Garki was assigned as the control school. Students were pre-tested to establish their homogeneity before the commencement of the treatment. The experiment lasted for six (6) weeks before students were tested using retelling test as an instrument. Data collected from students' test scores were analysed using mean and standard deviation, while t-test was used to test the formulated null hypothesis at 0.05 level of significance.

Treatment

- Teacher encourages students to set a purpose for reading.
- Teacher motivates students to activate their background knowledge by asking relevant previous knowledge questions.
- Teacher guides students to stop, think and talk to their brains as they read the first paragraph of the reading comprehension passage.
- Teacher guides students by asking series of questions which they think about and answer aloud while reading.
- Teacher guide students to stop, think and talk to their brains as they read second, third and fourth paragraphs of the reading comprehension passage.

- Teacher encourages students to make themselves part of the story by visualizing and creating their own images in their brains as they engage in stop, think and talk activities.
- Teacher takes students back into the text to synthesize a coherent view of the text as a whole as they read through the passage from beginning to the end.
- Teacher guide students to make generalisations that goes beyond the text using stop, think and talk activities.
- Teacher encourages students to stop, think and talk to their brains as they read the passage all over again.

Data Analysis and Results

Descriptive statistics of mean and standard deviation was used to analyse the research question raised in the study. The analyses are presented as follows:

Research Question: What is the effect of stop, think and talk activities on students' performance in reading comprehension in junior secondary schools in Federal Capital Territory (FCT) Abuja?

Table 1: Descriptive statistics on the effect of stop, think and talk activities on students' performance in reading comprehension in junior secondary schools in Federal Capital Territory (FCT) Abuja

Method	N	Pre-test Scores		Post-test Scores	
		Mean	SD	Mean	SD
Experimental Group	65	31.47	9.02	51.33	10.35
Control Group	35	30.48	9.88	31.50	6.94

Table 1 shows the effect of stop, think and talk activities on students' performance in reading comprehension in junior secondary schools in Federal Capital Territory (FCT) Abuja. The mean scores as displayed shows that students taught reading comprehension using stop, think and talk activities had a better performance mean scores in their pre-test and post-test. For instance, the mean score of students taught reading comprehension using stop, think and talk activities increased from 31.47 to 51.33 with corresponding standard deviation of 9.02 and 10.35, while the mean score of students in control group increased from 30.48 to 31.50 with standard deviation of 9.88 and 6.94 respectively. This shows the pre-test mean scores difference of 0.99 and post-test mean scores difference of 19.83. It also shows the mean gain of 19.86 for students in experimental group and mean gain of 1.02 for students in control group. The standard deviation at each level indicates that students' performance varied widely from each other.

Hypothesis: There is no significant difference in the effect of stop, think and talk activities on students' performance in reading comprehension in junior secondary schools in Federal Capital Territory (FCT) Abuja. The post-test administered on students was marked, scored and tested using independent sample t-test. The summary of the analysis is presented in Table 2:

Table 2: Summary of Independent sample t-test on the effect of stop, think and talk activities on students' performance in reading comprehension in junior secondary schools in Federal Capital Territory (FCT) Abuja

Method	N	Mean	SD	Df	α	t-cal	t-crit	Sig. (2-tailed)	Decision
Experimental	65	51.33	10.35	98	0.05	5.96	1.96	.001	Rejected
Control	35	31.50	6.94						

Table 2 shows that the students taught reading comprehension using stop, think and talk activities performed far better than their counterparts in control group in junior secondary schools in Federal Capital Territory (FCT) Abuja. The table show that the t-calculated value of 5.96 is greater than the t-critical 1.96, while the p-value is .001 ($P < 0.005$). The null-hypothesis which states that there is no significant difference in the effect of stop, think and talk activities on students' performance in reading comprehension in junior secondary schools in Federal Capital Territory (FCT) Abuja was rejected. The implication of this result is that the students exposed to stop, think and talk activities had better understanding of the reading comprehension passages given to them. In fact,

students in the experimental group were more active, responsive and paid more attention to details concerning the main ideas in the passages read.

Discussion of Findings

This section briefly discussed the findings from the hypothesis tested in the study. Findings of the study revealed that the students taught reading comprehension using stop, think and talk activities performed far better than their counterparts in control group in junior secondary schools in Federal Capital Territory (FCT) Abuja. Therefore, the null-hypothesis which states that there is no significant difference in the effect of stop, think and talk activities on students' performance in reading comprehension in junior secondary schools in Federal Capital Territory (FCT) Abuja was rejected. This finding corroborates the findings of Ortlid and Norris (2012) that the use of think-aloud helps to enhance students' abilities of the thinking process thereby facilitating their comprehension of reading task. It also allows readers to connect meaning and understanding with written texts.

CONCLUSION

Comprehension is a consuming, continuous, and complex activity, but one that, for good readers, is both satisfying and productive. Teaching reading comprehension using stop, think and talk activities has been proven to be effective in this study. The use of stop, think and talk activities stimulates students thinking process, thereby, facilitating and enhancing their comprehension and thinking process. Based on the findings of this study, one can conclude that students exposed to stop, think and talk activities had better understanding of the reading comprehension passages given to them. Therefore, teachers can promote students' reading comprehension by engaging students in stop, think and talk activities.

Recommendations

Based on the findings of the study, the following recommendations were made:

1. Teachers should be encouraged to use "stop, think and talk" activities in reading comprehension lessons. Such activities should be provided before, during and after every reading task to enhance and facilitate students' comprehension.
2. Curriculum planners should provide activities that would encourage students to "stop, think and talk" to make reading comprehension lessons more purposeful and meaningful.

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EFFECTS OF HEALTH EDUCATION ON CIGARATTE SMOKING HABITS AMONG HEALTH PROFESSIONAL STUDENTS

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ABSTRACT

Introduction: In control of cigarette smoking, health professionals play a key role because of their professional responsibilities and knowledge. In this study, it was aimed to examine the effect of health education on the level of knowledge about smoking and dependence of cigarette smoking among first and last year students of different faculties in a health university.

Methods: This descriptive type of research was organized by participation of first and last year of a private university Dental, Pharmacy and Nursing Departments' students. 255 (82.5%) were reached out of total 309 enrolled students. Participant smoking status and smoking related college education were questioned and the Fagerstrom Nicotine Dependence Test was administered under observation. Pearson Chi Square, Binary Logistic Regression model and Spearman correlation were used for data analysis.

Results: The prevalence of smoking among students was 26.3% in total; 55.2% in males, 19.9% in females, 65.7% in first grade and 34.3% in last grade. In our study; significant relations were revealed between smoking and grade, gender, close friend's smoking status, use of alternative tobacco products, getting smoking related health education ($p < 0.05$).

Conclusion: As a result; it is observed that health education; given about the health effects and control of tobacco during college had a positive effect on awareness and reduction of frequency of smoking.

Key Words: Smoking, addiction, education, university, health professions student.

INTRODUCTION

Tobacco use is one of the biggest public health problems the world has ever faced, causing 6 million deaths a year. According to World Health Organization (WHO) data, from 6 millions deaths; more than 5 million deaths are caused by direct tobacco use, and more than 600 thousand deaths are caused by exposure to cigarette smoke (1,2). Ischemic heart disease, cerebrovascular disease, cancers and chronic respiratory system diseases are among the top 10 in 'the disability-adjusted life year (DALY)' and lead to the death of three out of every five people; and cigarette consumption is an important and only common factor affecting all of these diseases (3,4). Consequently; it has been estimated that about 55,000 deaths attributable to tobacco use in one year, can be avoided with tobacco control studies (5).

According to the World Health Organization's Tobacco Use Prevalence 2015 Global Report, the rate of tobacco use in Turkey is 26% (approximately 14 million 892 thousand) in 2015 (4). In the period of students' college years, which is defined as late adolescents (17-24 years) by WHO, one out of every five people use tobacco products and this period is defined as the most risky period for the development of smoking and similar addictions (6). According to the Centers for Disease Control and Prevention (CDC) statistics, in the US alone, everyday more than 3,200 people under the age of 18 are starting to smoke for the first time and more than 2100 adolescents become daily smokers from infrequent cigarette smoking (7).

Some studies report that smoking prevalence continues to increase among university students. There are many factors why this growing tendency among university students is seen; such as stress alleviation, feelings of loneliness, life problems, peer pressure, societal acceptance desire, low education level of parents and desire for self-assurance (8).

The Role of Health Professionals and Education in Smoking Control

Through their professional activities, health professionals, be able to guide the patients about tobacco use and its health effects, assume the role of educational position, can serve as a reference to educate the media and policy makers in this area, and play a national and international role for a better tobacco control policy. It is important that community-respected health professionals actively participate in the systematic implementation of tobacco control with a multi-sectoral structure (9).

As a result of a meta-analysis based on "Tobacco Use and Addiction Treatment Practice Guidelines", when a health care professional intervenes to quit tobacco use, the quit rate is 1.8 times higher than the uninvolved case. A tobacco quitting counseling by a health professional for at least 3 minutes is 1.3 times higher than no counseling; and consulting for more than 10 minutes has resulted in 2.3 times more tobacco quit rate (10). The education on smoking cessation will be an ideal opportunity to provide support to students who are also trying to quit smoking, while at the same time preparing them for their professions (11). Thus, healthcare professionals will play a role in reducing tobacco use of their future patients and ultimately reducing smoking-related deaths by gaining the ability to quit smoking (12).

MATERIAL AND METHODS

The study is a cross-sectional study of descriptive type. The universe consists of a total of 309 students who study in the first and last grade of dental medicine faculty, pharmacy faculty and health science faculty nursing department of a private university. After the objectives of the research were explained, the questionnaire was applied to all the students under observation who volunteered to participate. During the study, there were students who were absent or on leave, as a result a total of 255 (82.5%) students participated in the study.

The data were collected by a questionnaire consisting of 39 multiple-choice questions prepared by researchers in the light of current literature and via the Fagerstrom Nicotine Dependence Test (13).

In the first part of the questionnaire, socio-demographic characteristics such as gender, education and family status of all participants, in the second part; smoking and quitting status of only smokers, in the third part; knowledge level of smoking-illness relation and education about smoking in faculty of all students have been queried. Finally, Fagerstrom Nicotine Dependence Test was administered to smokers.

Fagerstrom Nicotine Dependence Test; is a test administered to determine nicotine addiction levels of smokers. The reliability and factor analysis of the Turkish version was made by Uysal et al. According to the Fagerstrom Nicotine Dependence Test results, levels of nicotine dependence are as follows: 0-2 points = Very low dependence / 3-4 points = Low dependence / 5 points = Moderate dependence / 6-7 points = High dependency / 8-10 points = Very high dependency "(13).

The greatest limitation of the study was that the surveys were only applicable during course hours and having small number of sample size because of the small number of enrolled senior students. The results of this study have limited generalization to their own universe.

The evaluation of the data was performed on a computer using the Statistical Package for Social Sciences (SPSS) for Windows 21.00 package program. In the study, the distribution and percentage tables were determined first and then the chi-square test was used to determine the significance level of the differences between the grouped variables. A statistical significance level of $p < 0.05$ was accepted.

Statistical evaluation was performed in two stages. Firstly, chi-square test was applied between 'no smokers-regular smokers and occasional smokers' and other independent variables. Occasional smokers referred to those who smoke at least one cigarette in last 30 days, while regular smokers referred to those who smoke almost every day in the last 30 days (14). The variables -monthly income, the amount of cigarettes consumed per day, and the duration of the smoking- which were found significant were analyzed by Spearman's Correlation Test. In the second phase; occasional smokers and regular smokers were categorized together as 'smokers'. Logistic regression were subjected for a further analysis between significant variables ($p < 0,05$) which were found after chi-square test result.

In the last phase of the study, the ratios of the participants' nicotine dependency levels were determined by the Fagerstrom Nicotine Dependency Test. Then, according to the dependency score results, chi-square analysis was performed between majors and grades variables.

RESULTS

A total of 255 students (82.5%) from three faculties participated in the study. Dental students regularly smoked the most and there was a significant difference between the smoking status and majors ($p < 0,05$). 47 (18.4%) male and 208 (81.6%) female students participated in the study. A statistically significant difference was found between the two groups. 189 students (74.1%) were from the first grade and 66 (25.9%) were from the last grade. There was no statistically significant result between grade and smoking status (Table-1).

The participants were asked to indicate 'the reasons of trying smoking' for the first time with 11 different reasons. The most emphasized reason of trying smoking was the 'curiosity' with the rate of 65.7%. The smokers were questioned for 'the reasons of smoking' with eight different factors, and the most emphasized causes were stated as 'to get pleasure (74.6%)', 'to reduce stress (43.3%)', 'to calm down (23.9%)', and 'friend effect (14.9%)'. The students were questioned about their smoking-related education during the faculty years. There was a significant difference between the groups in terms of grade and education status ($p < 0,05$) (Table-2). All of the participants were questioned about the relationship between smoking and illness, and the response rates are shown in Table-3.

Occasional smokers and regular smokers were categorized together as 'smokers'. Logistic regression were subjected for a further analysis between significant variables ($p < 0,05$) of smokers and nonsmokers which were found after chi-square test result.

The variables determined significantly after chi-square analysis were; major, grade, gender, mother-father social situation, father education, close friend's smoking habit, existence of another addiction.

Variables that were found significant in univariate analyzes, were analysed with the backward stepwise method of multivariate analysis and retain their significance (Table-4).

The dependency level ratios of the students are shown in Table-5. The levels of nicotine dependence was structured to be moderate (below 5 points) and above (5 points and above). Then, chi-square analysis was performed with the majors and grades variables according to the dependency score results. 52 students had moderate addiction (88.1%), and 7 students had above moderate addiction (11.9%). In the chi-square analysis of the students grade status, the first grade 'moderate dependency' ratio was 89.5%, 'the above moderate dependency' ratio was 10.5% In the last grade, 'moderate dependency' rate was determined as 85.8% and 'the above moderate dependency' rate as 11.9%. There was no significant difference between grade and dependency situations. In the chi-square analysis of the students majors according to their dependency status; 23 (44.2%) dentists, 13 (25.0%) pharmacy students, 16 (30.8%) nursing students were found with 'moderate dependence' and 6 (85.7%) dentistry and 1 (14.3%) nursing students were found with 'above moderate dependency'.

DISCUSSION

In the study, 255 (82.5%) were reached out of 309 students. Within these 255 participant; 33,7% were dentists, 24,7% were pharmacists and 41,6% were nursing students. Among the distributions according to smoking status, 16.1% ($n = 41$) were occasional smokers, 10.2% ($n = 26$) were regular smokers, and 73.7% ($n = 188$) were non-smokers. The total smoking rate was 26.3% that is total of occasional and regular smokers.

According to the results of different studies among university students in Turkey, the prevalence of smoking varies between 16% and 65% (15-17). It is stated in the literature that male gender is a risk factor for smoking (14,17). According to the CDC's "Global Adult Tobacco Survey"; the prevalence of smoking in males was found to be high in all countries where the study was conducted (14). According to WHO health statistics; males account for 80% of all smokers worldwide, and the rate of male smoking is 36% while rate of females is 8% (18). Smoking rates are found to be higher in males than in females, in our study (55.2% male, 19.7% female) and in other studies and that could be the effects of socioeconomic and cultural structure.

In our study, total smoking rates were 65.7% in first grade and 34.3% in last grade. In many studies, it has been observed that cigarette use increases with the increase of grade (19-21). In this study, it is thought that the decrease of cigarette use in the last grade may be due to more awareness and knowledge about the health risks of smoking and smoking cessation lessons in the last grade's education. In a study conducted at a university in Ethiopia in 2014, it was reported that the smoking rate decreased from the second year (8), and also according to the 'Canadian Tobacco Usage Report', the frequency of smoking in Canada decreased with age and education (22), and these studies support our findings.

In our study, it was noted that the stress factor was a common factor in attempting to smoke, continuing to smoke, increasing smoking desire and negatively affecting the desire to quit (23). It has been found in the researches; the cigarettes were used as a tool to cope with stress and sadness and the person tries to temporarily appease these feelings by applying to the cigarette during negative emotions such as tension and anger (24).

When controlling smoking, it is important to remove reminders. In this sense, especially for university students, studies should be carried out in order to improve compliance with the school, social activities and sports should be supported, ways of struggling with stress and responsibilities should be taught, students should be prevented from seeking different habits such as smoking and similar addiction (20,24). In our study, having a close friends who smokes was found to be 4.1 times the risk factor to smoke and In Dayi's study in 2013, this was found 2.77 times more (15). Many studies in the literature have indicated that friend influence is an important factor in cigarette use. These rates range from 30% to 87% (25-28).

Those who use different tobacco alternatives with cigarettes; they may perceive these products as less dangerous products used to reduce or quit smoking, or they may be seen as an alternative to cigarette smoking in areas where cigarette smoking is prohibited. These approaches, emerges today as a marketing techniques of the tobacco industry. In tobacco control it is important to follow the trends towards alternative tobacco products and reduce the accessibility of them by taking the necessary precautions and alert tobacco users and potential users about the health risks of these products (29,30).

CONCLUSION

The transition to university life creates a new cycle that affects tobacco initiation among young people. Health professionals have an important role to play in a tobacco-free life. This study showed that, giving health education about health effects and control of tobacco during faculty years, decreased smoking prevalence among students. Young people need to be carefully monitored and supported in order not to start smoking and to quit smoking. In this sense, tobacco use is more important for health professional students who are expected to struggle with smoking in the future.

From the first year of university education, further discussion of the causes of smoking and inclusion of theoretical and practical training about quitting smoking in curriculum will make an important contribution to the fight against smoking. University students should be further supported by social and sports activities, they should be prevented from aim of different habits such as smoking and the like. Following the trends of young people towards alternative tobacco products, the necessary precautions should be taken and the accessibility of these products should be reduced as much as possible. Students who want to quit smoking should be identified, and they should be directed to smoking cessation clinics and motivated in this regard. Students should be given practical skills in questioning and quitting tobacco use and should be taught tobacco control policies and the importance of these policies in terms of public health.

TABLES

Table-1: Distribution of students' smoking status by majors, grades and gender

Majors	Smoking Status						Total		Significancy
	No smoking		Occasionally		Regular		n	%	
	n	%	n	%	n	%	n	%	
Dentistry	53	61,6	20	23,2	13	15,1	86	100	X²=9,829 P=0,043
Pharmacy	50	79,4	8	12,7	5	7,9	63	100	
Nursing	85	80,2	13	12,3	8	7,5	106	100	
Total	188	73,7	41	16,1	26	10,2	255	100	
Male	21	44,7	13	27,6	13	27,6	47	100	X²=28,634 P=0,000
Female	167	80,3	28	13,5	13	6,2	208	100	
Total	188	73,7	41	16,1	26	10,2	255	100	
First Grade	145	77,1	27	65,9	17	65,4	189	74,1	X²=3,381 P=0,184
Last Grade	43	22,9	14	34,1	9	34,6	66	25,9	
Total	188	100	41	100	26	100	255	100	

		First Grade		Last Grade		Total		Significancy
		n	%	n	%	n	%	
Did you learn about smoking hazards in your courses?	Yes	38	20,1	58	87,9	96	37,6	$X^2=95,717$ $P=0,000$
	No	151	79,9	8	12,1	159	62,4	
Did you discuss the reasons for smoking in your courses?	Yes	44	23,3	35	53,0	79	31,0	$X^2=20,248$ $P=0,000$
	No	145	76,7	31	47	176	69,0	
Did you discuss the importance of getting a story from the patient about tobacco use?	Yes	71	37,6	58	87,9	129	50,6	$X^2=49,538$ $P=0,000$
	No	118	62,4	8	12,1	126	49,4	
Have practical or theoretical training been given on quitting approaches?	Yes	15	7,9	31	47,0	46	18,0	$X^2=50,409$ $P=0,000$
	No	174	92,1	35	53,0	209	82,0	
Has it been discussed that it is important to provide educational material that supports smoking cessation?	Yes	49	25,9	40	60,6	89	34,9	$X^2=25,895$ $P=0,000$
	No	140	74,1	26	39,4	166	65,1	

Table-2: The distribution of smoking status according to having tobacco related education

Table-3: Distribution of cigarette - disease relationship information status according to grade

		First Grade		Last Grade		Total	
		n	%	n	%	n	%
Smoking-Disease Relationship	Lung Cancer	184	97,4	65	98,5	249	97,6
	Throat Cancer	136	72	52	78,8	188	73,7
	Oral Cancer	123	65,1	55	83,3	178	69,8
	Cardivasular Diseases	123	65,1	48	72,7	171	67,1
	Chronic Bronchitis	117	61,9	41	62,1	158	62,0
	Cerebrovascular Diseases	104	55,0	40	60,6	144	56,5
	Newborn Death	85	45,1	32	48,5	117	45,9
	Bladder Cancer	59	31,2	29	43,9	88	34,5

Table-4: The variables that found significance after logistic regression analysis

	B coefficient	Standart Error	Odds Ratio	% 95 CI	P
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Another Addiction	2,264	,631	9,625	2,796-33,125	0,000
Close Friend Smoking Status	1,404	,396	4,070	1,872-8,849	0,000
Gender	1,179	,451	3,253	1,343-7,880	0,009
Grade	,929	,414	2,531	1,125-5,695	0,025

	Sayı	%
0-2: Very low dependence	42	71,3
3-4: Low dependence	10	17,0
5: Moderate dependence	1	1,7
6-7: High dependency	5	8,5
8-10: Very high dependency	1	1,7
Total	59	100

Table-5: Dependency distributions of smokers (n=59)

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EFFECTS OF MULTIMEDIA TASK-BASED TEACHING AND LEARNING APPROACH ON EFL LEARNERS' ACCURACY, FLUENCY AND COMPLEXITY OF ORAL PRODUCTION

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Albeit Task-Based Language Teaching (TBLT) has been extensively researched, there appears to be limited studies that focus on the effects of multimedia technology (MT) enhanced TBLT approach on EFL development. A study was conducted to examine the effects of a MT imbued TBLT, i.e. Multimedia Task-Based Teaching and Learning (MMTBLT) approach on EFL oral production. The Content Management System, a free web-based software program, was used as a platform to create the MMTBLT environment, where various instructional and supplementary materials and hyperlinks to other relevant web pages were incorporated to create a causal link between the real world language use and an EFL learning environment. Online lessons comprised tasks that were structured cluster of ideas to enable students to construct their own knowledge for oral production. Three broad thematic tasks, with four tasks at varying levels of complexity for each theme were carried out as treatment tasks. Upon completion of tasks under each theme, students carried out oral test tasks that were audio recorded for analysis. As a result of performing tasks of varying levels of complexity within a web-based multimedia platform setting, students' accuracy, fluency and complexity of oral EFL production improved significantly. Favourable outcomes suggest that EFL instructors could consider the MMTBLT approach and design web-based syllabus to complement language teaching.

EFFECTS OF READING CLASSIC BOOKS IN DEVELOPING STUDENTS' 21ST CENTURY SKILLS: THE CASE OF THE DEVELOPMENTAL READING CLASS

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This paper presents the effects of having a monthly book reading analysis on the classics in the Developmental Reading class among Education students. There were seventeen Bachelor of Elementary Education (BEED), eleven Bachelor in Elementary Education major in Special Education (BED-SpEd) and eighteen Bachelor of Secondary Education major in English students who comprised as subjects of the study. It was found out that among the forty-six students, twenty-five of them experienced for the first time reading their first classic book in class during the first month of the second semester academic year 2016-2017. After each month, students submit their story analysis using the guidelines that the teacher-researcher formulated. After these students finished reading their fifth book, there were notable differences on how the students respond to questions (critical thinking), express themselves in class both in their oral participation and written composition (communication), relate with their classmates (collaboration), and present their ideas (creativity) in class. Students expressed their enjoyment and gratitude in being required to read the classic books in class even if at first they find it a demanding task but it turned out to be a relevant and meaningful experience.

EFFECTS OF SCIENCE DEMONSTRATION EXPERIMENT AND THE OPINIONS OF PRE-SERVICE SCIENCE TEACHERS

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The purpose of that study carried out within the frame work of Bilmer project to enhance the love of science of the students by triggering their curiosity, was to introduce a science demonstration experiment integrated by a novel teaching approach to the preservice science teachers and collect their opinion about it. In this project 30 pre service teachers were shown interesting demonstrations involving acid base indicators without giving any pre information and they were asked to carry out the same experiments by a group study. The data were collected by pre/post-test results, video and audio records. The data results were discussed as a measure of increased conceptual understanding.

E-FSDP: A PROJECT-BASED DEVELOPMENT OF A DECISION SUPPORT SYSTEM FOR MONITORING THE SEMINARS AND TRAINING PROGRAMS OF FAITH'S FACULTY AND STAFF

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ABSTRACT

This paper presents a research project which aims to design and develop an institutional electronic portfolio with analytics to forecast the most needed training programs of employees to further help improve their performance and productivity in the organization. The developed tool helps managers to effectively supervise and monitor the faculty and staff development programs (FSDPs) at First Asia Institute of Technology and Humanities (FAITH); its processes of managing centralized repository of data which is particularly helpful to those who are into accreditation processes where they are managing voluminous paper documents. Furthermore, this tool aid the users to create a baseline information regarding the defined development programs, monitor its percentage of accomplishments, submit requests for training online, compare budget allocation and evaluate the relevance of faculty and staff skills as needed in the job. The study followed the phases of the prototyping method to develop the system. To gain insights on the institution's processes of FSDPs, descriptive method of research was used. It made use of PHP, Bootstrap and MySQL as core technologies. Six major users were identified and these are: Academic Heads, Vice-President for Academic and Research, Human Resource Manager, Faculty and Staff and the Managing Director of the institution. Each of them has its own rights and privileges to access the system. Based on the results, the tool effectively helped managers to create the lists of its must-attend seminars and training needs in a year, monitor training needs of all employees, submit requests of seminars online, upload post-activity reports in a centralized repository and generate needed reports on demand-basis to be used for decision-making or strategic planning. The concept of the system can be applied not only in the faculty and staff development programs but can further be enhanced or customized to accommodate other areas or department handling document management processes.

INTRODUCTION

The next big thing considered in higher education computing is said to be the Electronic Portfolios (e-portfolios) [1]. Numerous universities and colleges have started coming up with their own e-portfolio systems for students, faculty and the institution itself. A portfolio is defined as a collection of work that a learner has collected, selected, organized, reflected upon and presented to show understanding and growth overtime [1]. It is used in schools to maintain records of academic performances produced from the teaching and learning activities that happened throughout the learning process of the students. This is to better support a deeper level of engagement and self-awareness in the part of the students [1].

Comparing the traditional portfolio to e-portfolio, the latter uses technologies such as CDs, DVDs and the Web. This allows students or faculty members to collect and organize portfolio artifacts in many types of media such as audio, video, graphics and text [1]. Furthermore, e-portfolio is a digitized collection of artifacts which includes demonstrations, resources and accomplishments that an individual, group or institution have achieved [2]. E-Portfolio is more than a simple collection, it can also serve as an administrative tool to manage and organize work created with different applications and to control who can see the work [2]. Being not just a simple collection, e-portfolio has three types such as student e-portfolios, teaching e-portfolios and institutional e-portfolios [2]. The highlight of this paper is on developing a tool for institutional e-portfolio which supports the institutional faculty and staff development programs specifically the monitoring and analysis of employees' training needs.

To develop the tool, a need to better understand the analytics part is vital. Analytics is a field of data analysis. It often involves studying past historical data to research potential trends, to analyze the effects of certain decisions or events, or to evaluate the performance of a given tool or scenario. Its goal is to improve the business by gaining knowledge which can be used to make improvements or changes [3]. In addition, it is a scientific process of transforming data into insight for making better decisions [4]. The analytics part in the system will incorporate the generation of reports from the e-portfolios that will help the academic heads forecast the needed training programs of faculty and staff to further help improve their performance and productivity of employees in the organization.

In relation to employee's productivity, it is important that employees in any organization must be equipped with the right knowledge and skills needed to perform their job. Training is responsible for building skilled, qualified

and capable people, which helps organizations to improve their performance and adapt to any new change [5]. In higher educational institutions effective training or development programs depends on knowing what is required - for the individual, the department and the organization as a whole. Training Needs Analysis (TNA) enables organizations to channel resources into the areas where they will contribute the most to employee development, enhancing morale and organizational performance [5]. Effective TNA involves systematic planning, analysis and coordination across the organization, to ensure that organizational priorities are taken into account, that duplication of effort is avoided and economies of scale are achieved [5].

To contribute to the institution's goal of monitoring the employee's achievements and recognitions – making them available just-in-time” whenever needed by top management for strategic planning, institutional accreditations and training assessments, the utilization of current technologies and technology-driven processes play a major role in its realization.

These technologies can address major challenges faced by educational institutions with regards to management of these pertinent documents such as (1) slow and time-consuming processes in creating and submitting requirements for: Must-attend seminars (MAS), Training Needs (TN) and Off-campus seminar applications. These situation led to the rise of other concerns like difficulty in monitoring the submission of MAS and TN. Likewise, revisions are hard to be communicated in respective colleges, consolidation of data cannot be determined immediately as there is a need to wait for all the submissions before the final output can be generated, a need to perform manual calculations in the budget is required thus, cannot guarantee accurate results all the time, the office space had to be increased as more space was needed to store filing cabinets as the number of documents increased.

Another situation is that (2) minimal reports on accomplishments of MAS, TN and Off-campus Seminars/Training attended by Faculty and Staff were generated which resulted to: failure to accurately forecast budget demand and make comparative analysis, limited assessment and evaluation of the impact of the faculty and staff development programs of universities, unable to determine which trainings must be prioritized by the institution to make the faculty and staff more productive, ineffective and inefficient decision-making processes and lastly, (3) inability to monitor the percentage of accomplishment in relation to training needs and must-attend seminar. This is where the idea of the use of e-portfolios to support the day-to-day operations of the institutions in maintaining the records of its employee's achievements in relation to training and development programs ascended.

e-FSDP aims to monitor the faculty and staff development programs at First Asia Institute of Technology and Humanities (FAITH), its processes of managing centralized repository of data which is particularly helpful to those who are into accreditation processes where they are managing voluminous paper documents. Furthermore, this tool aid the users to create a baseline information regarding the defined development programs, monitor its percentage of accomplishments, submit requests for training online, compare budget allocation and evaluate the relevance of faculty and staff skills as needed in the job. The study followed the phases of the prototyping method to development the system. To gain insights on the institution's processes of faculty and staff development programs, descriptive method of research was used. It made used of PHP, Bootstrap and MySQL as core technologies.

There were six (6) main departments/units involved in the system. These are the Human Resource Department (HRD), Office of the President (Managing Director), Vice-President for Academics and Research (VPAR), Tertiary Schools' (TS) Academic Heads, Faculty and Staff. These departments/units will be working together to implement e-FSDP.

THE STUDY

The study utilized the prototyping method to develop the system. A prototype is a preliminary working model of a larger system [7]. Its initial stage begun with initial requirements phase where the descriptive method was performed through interview. This method was done to gain understanding on the processes involved in the monitoring of the faculty and staff development programs of FAITH particularly the seminars and trainings to be attended by its faculty and staff. Meetings and brainstorming with the project participants were also conducted to further solicit feedback on the various tasks to be integrated in the tool. After several interviews and meetings, the researchers were able to produce the system requirement report which contains the lists of requirements and proposed modules to be included in the system.

When the initial requirements were solicited, the initial design was created. This phase delivered to clients the design of the proposed graphical user interface through storyboards. From this phase, a prototype was developed to gain a clearer understanding of the user requirements. Prototype was presented to the users and they were allowed to enumerate their evaluation, comments and even suggestions [8]. These feedback were reviewed by the team if they were still valid and in the boundary and scope of the proposed system. A revision of the prototype was conducted and it then again be presented to the users incorporating the feedback and the additional

requirements that are not yet presented. Until the customer evaluation becomes successful, review and updation continued [9]. Figure 1 depicts the Prototyping model phases.

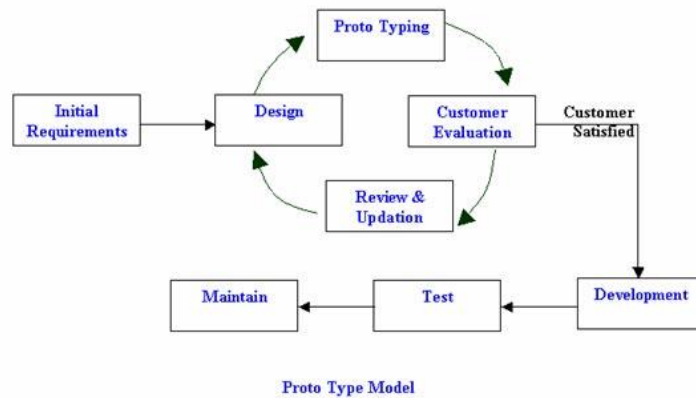


Figure 1: Prototyping Phases

FINDINGS

The developed system caters to six (6) main departments/units involved in the system namely: HRD, Managing Director, VPAR, Academic Heads (Dean and Chair), Faculty and Staff. Modules provided to major users are as follows: *Manage module* where the must-attend seminar and training needs are being created and the off-campus seminars are being requested. In this module also, the uploading of post-activity reports are being done. The *Track Module* where status of seminars/trainings attended are displayed. The *Report module* where the essential reports needed by a specific user can be generated. Figure 2 presents the architecture of the software:

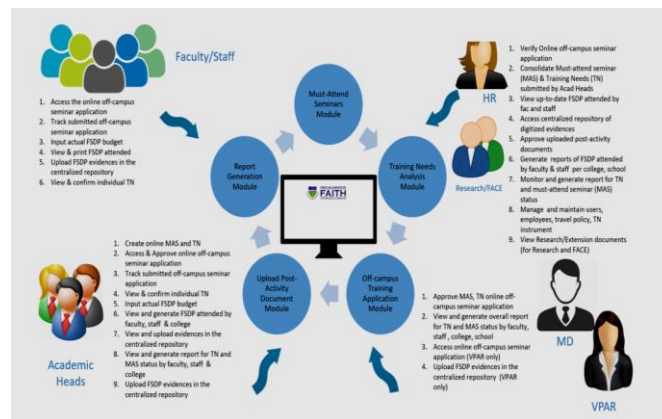


Figure 2: e-FSDP Software Architecture

The following are the modules included in the system. Reports generated by the system like TNA Summary, Comparative Analysis can be used by top level management to support the process of their decision making in relation to the continuous quality improvement of their faculty and staff development programs.

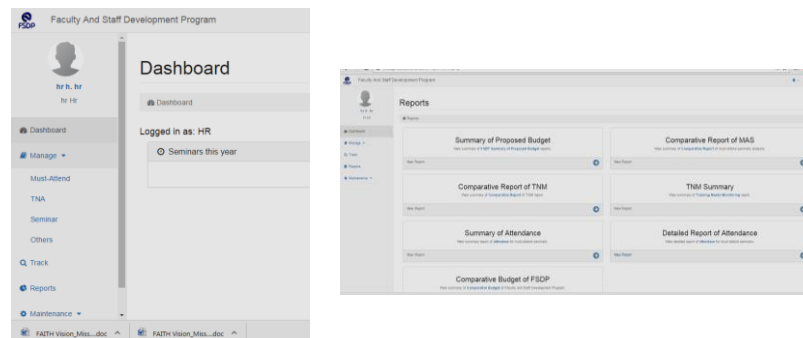


Figure 3: e-FSDP Sample User Interfaces

e-FSDP was able to perform the following functions:

1. **Forecast the most needed training programs of employees.** This function is available in the HR Account. This refers to the capability of the system to consolidate across all colleges all the training needs and rank it based on the number of employees who need the said training program.
2. **Monitor the faculty and staff development programs.** This functionality is available in the Chair Account. This pertains to the ability of the system to display the statuses of the must-attend seminars and training programs. The Program Chair is able to view the various seminars or training programs requested and approved by respective authorities.
3. **Manage centralized repository of data.** This function is available in the 5 major users namely: Faculty, Staff, Chair, Dean, Vice-President for Academics. This submodule is particularly helpful to those who are into accreditation processes where they are managing voluminous paper documents. This is the venue where the post-activity documents or reports are being uploaded and automatically submitted to the HR Manager. The HR Manager will be able to verify authenticity of such evidences online.
4. **Create a baseline information regarding the defined development programs.** In this sub-module, the creation of the list of must-attend seminars and training needs of the faculty and staff are being undertaken by the Chair. This is available in the Chair's account. The created file serves as the basis for all the seminars and training program which can be requested by faculty and staff. This is where the budget allocated for each seminar and training program are also being provided.
5. **Monitor FSDP's percentage of accomplishments.** This sub-module is available in all system users. The viewing of data or reports are based on the scope of the user's authority. Users are able to view the percentage of accomplishments of the seminars or trainings defined and attended by the employees. Accomplishments in this study refers to the number
6. **Submit requests for seminar or training online.** The major users of this module are the following: Faculty, Staff, Chair, Dean and VPAR. This is where these users are able to perform online the filing, submission and processing of requests for off-campus seminars or trainings. Approval stages are also captured in this module.
7. **Compare actual and proposed budget allocation.** This is the sub-module where the reports can easily be generated to determine comparative result of the actual and proposed budget pertaining to the must-attend seminars and training programs. Variances between the two values are also derived by the system.

CONCLUSIONS

Based on the results of the development and evaluation of the system or tool, the following statements were drawn: (1.) e-FSDP effectively aided in assisting academic heads to create the lists of its annual must-attend seminars, training needs and apply for off-campus seminar, thus forecasting the most needed employees' training programs; (2) e-FSDP enabled monitoring of the statuses and accomplishments of faculty and staff training programs; (3) e-FSDP provided a module for uploading of post-activity reports in a centralized repository thus, reports can be generated as the need arises as basis for decision-making or strategic planning. For future work, the concept of the system can be applied not only in the faculty and staff training needs analysis but can further be enhanced or customized to accommodate other areas such as student or teacher e-portfolios and other functional units of the organization which handles employees' pertinent documents used for assessments and decision making purposes.

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EĐİTİM FAKÜLTESİ ÖĐRETMEN ADAYLARININ TEMEL İSTATİSTİK KAVRAM BİLGİLERİ İLİŐKİLENDİRMELERİ

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Bu alıŐmada Eđitim Fakóltesi Yabancı Diller , Okul Öncesi Öđretmenliđi, ,Matematik Öđretmenliđi bölümü Öđretmen Adaylarının İstatistik dersine ait temel kavramları ilişkilendirme durumları Chi Square analizi ile test edilerek kavram bilgisi ilişkisi istatistiksel olarak deđerlendirilmiŐtir. Chi Square, Dependent Analysis, Statistical analysis

EMOTIONAL AND SOCIAL INTELLIGENCE AGAINST INERTIA

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ABSTRACT

Inertia means inaction. In other words, it means stasis, to be too lazy, not to move. Inertial behavior occurs as decrease in performance, procrastination, resistance to change, presenteeism, etc. Inertia also causes low performance, restlessness, reluctance, slowness and stress. Just as it is necessary to apply force to move an object, it is necessary to apply a kind of force to change people. Employees may not give themselves up to work due to distraction.

Emotional intelligence is the sense of one's own feelings and the feelings of other individuals. Emotional intelligence can provide a sense of emotions that lead to inertia. Because there are negative feelings like reluctance on the basis of inertia. Social intelligence is the part of intelligence that people use in relation to their social environment the concept of social intelligence and leadership have a positive relationship. Everyone can be a leader, but a privileged leader has high social intelligence. Leaders are the people who are farthest from inertia. As emotional and social intelligence increases, inertia diminishes.

INTRODUCTION

The notion of inertia or resistance to change has come up in many academic disciplines, including philosophy, sociology, psychology, political theory, economics and organizational studies. The term 'inertia' is often used to describe a kind of irrational resistance to change in individuals or institutions. Institutions, ideas and power structures appear to become entrenched over time, and may become ineffective or obsolete, even if they once played a legitimate or useful role. When used in a social, political or psychological context, the term inertia is often used to describe a kind of irrational or counterproductive resistance to a change which is considered to be necessary, desirable or unavoidable. Resistance to change is not always irrational or problematic; it is also necessary to allow stable personal identities and social structures to survive in a constantly changing world.

'Inertia' and 'resistance to change' are sometimes used interchangeably. More often, inertia is used in a negative way, to mean a 'bad' kind of resistance to a desirable or necessary change, while resistance to change can also be neutral or even positive. According to Freud, there is an 'inertia inherent in organic life' : the human organism is inherently conservative and will only change when forced by external circumstances. This kind of inertia, however, is not limited to the individual or psychological level.

INERTIA CONCEPT IN PHYSICS

Inertia was best explained by Sir Isaac Newton in his first law of motion. Basically, the law of motion is that an object at rest stays at rest and an object continues in motion until an external force acts on it.” The best place to test inertia is in Space. In outer space there is no air, or anything else to create friction. So moving objects will keep moving forever, and objects that aren't moving will stand still forever. Simple examples of moment of Inertia are the followings: If pulled quickly, a tablecloth can be removed from underneath of dishes. The dishes have the tendency to remain still as long as the friction from the movement of the tablecloth is not too great. If one drove a car directly into a brick wall, the car would stop because of the force exerted upon it by the wall. However, the driver requires a force to stop his body from moving, such as a seatbelt, otherwise inertia will cause his body to continue moving at the original speed until his body is acted upon by some force. When a car is abruptly accelerated, drivers and passengers may feel as though their bodies are moving backward. In reality, inertia is making the body want to stay in place as the car moves forward. Objects that establish orbit around the earth, like satellites, continue on their trajectory due to inertia. Inertia of rest is an object staying where it is placed and it will stay there until you or something else moves it.

INERTIA AS A BEHAVIOR TYPE

Inertia means inaction. The amount of inertia is resistance. In other words, it means stasis, to be too lazy, not to move. Inertial behavior occurs as decrease in performance, procrastination, resistance to change, presenteeism, etc. Inertia also causes low performance, restlessness, reluctance, slowness and stress. Just as it is necessary to apply force to move an object, it is necessary to apply a kind of force to change people. Employees may not give themselves up to work due to distraction.

Resistance is defined as a refusal to give in or to something that slows down or prevents something. The resistance is a response by the system, trying to maintain an implicit system goal. Overcoming change resistance has proven to be the crux of the sustainability problem. Typical reasons for resistance to change are followings:

- i. Poor communication: When it comes to change management there's no such thing as too much communication.
- ii. Changes to routines: When we talk about comfort zones we're really referring to routines. They make us secure. So, there's bound to be resistance whenever change requires us to do things differently.
- iii. Exhaustion: People who are overwhelmed by continuous change resign themselves to it.
- iv. Change in the status quo: Resistance can also stem from perceptions of the change that people hold. For example, people who feel they'll be worse off at the end of the change are unlikely to give it their full support. Similarly, if people believe the change favors another group/department/person there may be unspoken anger and resentment.
- v. Benefits and rewards: When the benefits and rewards for making the change are not seen as adequate for the trouble involved.

INTELLIGENCE

Intelligence is certainly one of the major constructs in management and other social sciences which is susceptible to rigorous analysis. Many scholars and leaders associate this construct with cognitive intelligence and they take it for granted that the Intelligence Quotient (IQ) is the measure for it. However, the literature on management shows that cognitive intelligence is inadequate to predict one's effective leadership or success throughout life (Judge et al, 2004). As a result of the inadequacy of cognitive intelligence in predicting a manager's success, scholars are now discussing other dimensions of intelligence: emotional intelligence, social intelligence or practical intelligence, and cultural intelligence (Rahim et al, 2015, 65).

WHAT IS EMOTIONAL INTELLIGENCE?

Goleman (1998) suggests that leaders in business organizations who are high on emotional intelligence display creativity in their decision making and performance. A study by Barczak, Lassk and Mulki (2010) found that emotional intelligence was indirectly related to creativity in teams. Emotional intelligence (EI) refers to a collection of skills such as self-control, determination, self-motivation and sensitivity to the feelings of others. Different scholars have defined and explained the concept of Emotional Intelligence in terms of models consisting of various emotional skills (Ranasinghe et al, 2017, 1). Gardner in his book “Frames of Mind” published in 1983 proposed that there was a wide spectrum of intelligences that was crucial for success in life. For example, interpersonal intelligence comprising of leadership, the ability to nurture relationships, the ability to resolve conflicts and the skills of social analysis, was one such intelligence described by Gardner. Yale University psychologist Peter Salovey defined Emotional Intelligence in 5 domains, namely, knowing one's emotions, managing emotions, motivating oneself, recognizing emotions in others and handling relationships. This new dimension of intelligence has received much attention as being more responsible for professional

success than the Intelligence Quotient (IQ), the traditionally used measure of intelligence. Emotional Intelligence involves skills such as motivation and determination, which plays an important role in achieving goals. A review by Mayer, et al found that higher Emotional Intelligence is correlated positively with, better social relationships in children and adults, higher academic achievement, better relationships during work performance and enhanced psychological well-being.

Environmental and environment-related behavior is closely associated with affective characteristics of individuals. To create environmental awareness, students should empathize with creatures and their habitat. Empathy is associated with the concept of emotional intelligence (Ercan et al, 2017, 80). According to Zayapragassarazan and Kumar (2011) Intelligence Quotient (IQ) is inadequate to evaluate someone, since people are academically brilliant but socially and interpersonally not appropriate. In their study, they mention that only IQ is not enough for professional success of medical professions. Professionals may be competent, but without social skills they are less successful. According to Mayer and Salovey (1995), Emotional Intelligence is the capacity to process emotional information accurately and efficiently and EI effects the person's relationship with the other people. Behnke and Greenan (2011) summarize Emotional Intelligence as one's ability of using learnt information in different situations, coping with different problems and abstract thinking.

The superior coping among emotionally intelligent athletes may be explained by their tendency to appraise events as challenges rather than threats, perceive greater control over the stressors they experience, and control their emotions better. Based on the link between EI and coping, some researchers have categorized trait EI within the broader ambit of the coping process.

Although the majority of research supports Emotional Intelligence theory, criticism rises generally from the social sciences. Theorists maintain that Emotional Intelligence has no objective quantity on which it can be based. On the other hand, evidence from the neurological sciences suggests that social and emotional intelligence is not only supported by research but also has a physiological basis. Social and emotional intelligence can be observed and measured using neuroimaging (Sigmar et al., 2012, 304).

SOCIAL INTELLIGENCE

Social intelligence first used by Sorendike for description of person's act and behavior. It means as skill to percept of others and intelligent behavior in relation with other people. The social intelligence is a comprehensive term that it includes the large collection of inner/ interpersonal behaviors. It concludes of components of social information processing, social knowledge and social skills (Saffarinia, 2015, 229). Social intelligence (SI) is different from emotional and cultural intelligence, but there are some overlaps among these constructs. Scholars generally agree that social intelligence is the ability to interact with the environment effectively to be successful in life or in an organization. Generally, social intelligence is considered as a different construct from cognitive intelligence.

Social Intelligence consists of four categories of abilities: Situational awareness, situational response, cognitive empathy, and social skills. Situational awareness refers to one's ability to collect information for the diagnosis and formulation of problems and situational response refers to one's ability to use this information to make effective decisions to obtain desired results. The other two abilities, cognitive empathy and social skills, refer to the abilities to understand the feelings and needs of people, to communicate with them effectively, and to build and maintain relationships (Rahim et al. 2015).

Situational Awareness is associated with one's competence or ability to comprehend or assess relevant social situational contexts. This ability enables them to formulate a problem correctly. Situational Awareness component should include, among others, the abilities to: 1. Formulate a problem correctly. 2. Read a complex situation quickly. 3. Understand the risks and gains present in a social situation. 4. Determine the root causes of a social problem. 5. Make realistic assessments of situations. 6. Understand the real issues involved in a situation.

Situational response is associated with one's competence or ability to adapt to or deal with any social situation effectively. This is essentially the decision-making competence of leaders, described by Bennis and Thomas (2002) as 'adaptive capacity'. Situational response component should include the abilities to: 1. Adapt appropriately to different situations. 2. Respond to a crisis situation effectively. 3. Know how to adapt to a new work environment. 4. Make a decision that will lead to problem solving. 5. Make quick decisions to deal with routine matters.

Empathy refers to one's ability to understand others and take active interest in them, recognizing and responding to changes in their emotional states and understanding their feelings. Several components of empathy are

cognitive, intellectual, affective and behavioral. Cognitive empathy is associated with one's ability to recognize the thinking, feelings, intentions, moods and impulses of people inside and outside the organization and is a component of SI. Kaukiainen et al. (1999, 83) suggest that 'the cognitive component of empathy forms an essential part of social intelligence'. This component should include the abilities to: 1. Know how an individual is feeling. 2. Know what an individual is thinking. 3. Understand the moods of people. 4. Understand people's feelings transmitted through nonverbal messages. 5. Know when people disguise their true feelings.

Most of the definitions of SI include social skills which is associated with one's ability or competence to speak in a clear and convincing manner that involves knowing what to say, when to say it and how to say it. Social skills also involve building and maintaining positive relationships, to act properly in human relations, to deal with problems without demeaning those who work with him or her, and to negotiate and manage conflict with tact and diplomacy. This component should include the abilities to: 1. Be comfortable among different people. 2. Manage with equal ability men, women and children. 3. Interact appropriately with a variety of people. 4. Negotiate well to reach an agreement. 5. Build and maintain positive relationships.

OPEN SYSTEM AGAINST INERTIA

Knowledge has been identified as an important factor in all fields of discipline. Organizations are often considered as living systems. These living systems are vulnerable to pathogens as humans. Organization might be quite ill and its condition may be pathological (Beer and Spector, 1994). Organizations do not exist by themselves in a vacuum; they are a part of an interactive and dynamic environment (Hassin, 2010). Today, organizations have become open systems due to the impact of the external environment in which they are functioning. The significance of any organization is to understand the environment in which it operates and respond effectively to attain its mission (Hawkins, 2011). Organizational diagnosis, which applies behavioral science to Knowledge Management Practices (KMP), supports organizations to make any changes to be more effective and competitive in the business operations (Sivakumar, 2017).

CONCLUSION

Emotional intelligence is the sense of one's own feelings and the feelings of other individuals. Emotional intelligence can provide a sense of emotions that lead to inertia. Because there are negative feelings like reluctance on the basis of inertia. Social intelligence is the part of intelligence that people use in relation to their social environment. The concept of social intelligence and leadership have a positive relationship. Everyone can be a leader, but a privileged leader has high social intelligence. Leaders are the people who are farthest from inertia. As emotional and social intelligence increases, inertia diminishes.

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EMOTIONAL INTELLIGENCE BASED PRACTICE, TECHNOLOGY AND CURRICULUM IN MALAYSIAN TEACHER EDUCATION INSTITUTE

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ABSTRACT

This paper discusses the concept of emotional intelligence indicators that constitute crucial elements for a teacher trainer at the Malaysian Teacher Education Institute (MTEI). Emotional intelligence is the ability of individuals to understand your feelings, empathize with the feelings of others and regulate emotions themselves. Emotional intelligence as a set of skills that are involved with the ability to monitor feelings themselves, the feelings of others, to distinguish them and use this information to help a person think and act. Teachers can use emotional intelligence in their daily lives in the MTEI. Teachers need to socialize with other peers, attend lectures, assignments either individually or collectively. Some researchers found that emotional intelligence affects academic achievement. In addition, high emotional intelligence can affect the appearance of teachers as more healthy, succeed academically, have a strong personal relationship with those around him, is more sensitive in assessing others, have empathy towards others and excel in interpersonal skills. Thus, emotional intelligence needed by teachers in MTEI to enjoy a better life. In addition, the trainees also get practical training such as School Based Experience (PBS), practicum and internship. This training provides trainees to actual experience as a teacher at the school. Students will be exposed to practical preparation of daily lesson plans, preparation of questions, marking students' work, performing administrative duties and clerical, control classes, various student and became a substitute teacher. If teachers lack emotional intelligence, some symptoms such as stress, emotional disturbances, rebellion and anger will occur. Therefore, only teachers with high emotional intelligence can through these challenges well. Findings showed that the elements of self-management, self-awareness, social skills and social awareness are elements of emotional intelligence needed by trainees from the perception of lecturers. This finding is in line with recommendations by some emotional intelligence experts (Goleman, 1998 & Brackett et al., 2010). Multiple regression analysis of technology, practice and curriculum was conducted to see the contribution of the variables to emotional intelligence. Findings showed that the element of curriculum needed by trainees from the perception of lecturers. Hipotesis also discuss in this analysis. Exercise significant element of the perception of lecturers needed to improve emotional intelligence is the curriculum meanwhile practical and technology is not significant for improving trainees emotional intelligence.

Keywords: Trainee Teacher, Emotional Intelligence and Training in MTEI

INTRODUCTION

Teachers with academic qualification is not enough to follow lessons and training at MTEI. Some researchers have suggested skills such as hard skills, soft skills, competitive skills and employability skills to produce workforce competent (Agbola & Lambert, 2010; Abd Hadi, 2008; Buntat, Saud & Ab Rahman, 2008; Ismail, 2008). However, the skills that otherwise must be accompanied by emotional intelligence to consolidate. Elements of emotional intelligence such as self-awareness, confidence, trust, be adaptable, committed, motivated, can control yourself, realize emotions, empathy, political awareness, communication, leadership, managing conflict need to be mastered before to master skills others (Brackett et al., 2010; Akerjordet & Severinsson, 2008). Thus emotional intelligence are vital to trainees before mastering the skills of the work of others. These facts point to elements of emotional intelligence is very important to be applied in teacher training at MTEI to produce teachers with high emotional intelligence. Disadvantages faced by trainees can be overcome during training at MTEI again. Nurturing emotional intelligence can form teachers who have social skills and personal skills is high (Marzuki & Don, 2007). Therefore, the role of emotional intelligence in the formation and training of trainee teachers is something that should be reviewed and expanded through research.

PROBLEM BACKGROUND

MTEI is a teacher training center that produces the bulk of the country's teachers. According to the statistics of national education in the higher education sector in 2013, a total of 12,621 graduates in the field of education have been produced in which 50 percent of graduates have been produced from 27 MTEI throughout Malaysia (Ministry of Education, 2014). The number of post-MTEI is immense and needs to be addressed in realizing the national aspirations as contained in the National Education Philosophy and Philosophy of Teacher Education. Past studies have found less emotional intelligence trainee teachers during their teacher training at MTEI. Asri Atjeng (2008), said the training program is being practiced in less successful teacher education institutions to educate teachers to excel. In addition, in some other aspects of emotional intelligence found teachers did not master the skills to resolve conflicts and listening skills, as opposed to face to face communication (Noordin, 2009). Razlan (2011) found that teachers lack social skills and leadership qualities. According to him, although there are elements of leadership in the subjects of management and leadership in the MTEI, most subjects are more theories. He proposed that the MTEI leadership practically implement the concept so that trainees can apply during teaching practice in schools. Abroad, there training programs in their curricula do not improve emotional intelligence coach produced. Cherniss et al., (1998) in the study found that most of the principal training center recognized the necessity of emotional intelligence in the work but did not act to include the measure of emotional intelligence in their training program. He added that this matter because the principal training center coaches felt that the training center has grown and emotional intelligence has been formed before entering the training center.

As a result, the training centers there just provide skilled trainers in the field of theory and practical but at the same time does not apply emotional intelligence increases during the training period that followed. This finding is in line with the views of principals in the study Cherniss et al., (1998), the coach who enters training center has had a good emotional intelligence. By contrast, in Malaysia, SPM school leavers applying for university courses available, especially in the aspect of emotional intelligence, self-awareness, self-management and social skills is simple. Next, when emotional intelligence is enhanced trainees at the institute, teachers are not brilliant emotional intelligence. Actually, the teacher trainers who have emotional intelligence can function as a teacher during the practicum. They do not have to be deployed, advised, guided and assisted in the performance of duties as directed by the teachers at the school (Abdullah, *et al.*, 2008; Ahmad 2008a). Teachers with emotional intelligence have to perform the role and tasks efficiently, independent, viable and capable of making the right decisions, especially in the process of teaching and learning in the classroom.

PROBLEM STATEMENT

Trainees who were lack emotional intelligence lead to less ability to monitor their sense of self, other people's feelings, distinguish between them and use this information to help a person think and act. It will cause bad effects on the character formation of teachers and in turn affect the work they will be doing. Teacher training is also less emphasis on emotional intelligence needs of trainees. Therefore, researchers wanted to identify whether there is a significant contribution of emotional intelligence training to teachers in MTEI. These findings will be used to develop and validate a framework of direct and indirect contribution of training (practice, technology and curriculum) to the emotional intelligence of teachers in the MTEI.

RESEARCH OBJECTIVE

There are some specific objectives. Among them are:

- i. Identify certainly elements of emotional intelligence required by perception of MTEI lecturers.
- ii. Identify defined contribution practice (practice, technology and curriculum) on emotional intelligence.

RESEARCH QUESTION

There are several research questions. Among them are:

- i. What certainly elements of emotional intelligence required by the perception of lecturers MTEI?
- ii. How defined contribution practice (practical, technology and curriculum) on emotional intelligence?

RESEARCH INTERESTS

The study can help lecturers to identify their training teachers emotional intelligence. The information obtained can help lecturers develop the potential of self-awareness, self-management, social awareness and social skills during the MTEI. When placed next to the school, these training teachers can excel academically and emotional intelligence. In addition, the determination in building a future career can also be used as a guideline for training teachers before entering the teaching profession. The findings of this study can give MTEI opportunity to identify their emotional intelligence trainees. This study can help the MTEI in applying the provisions to increase emotional intelligence of students. The MTEI can also plan in-service courses to improve the skills of the lecturers in the use of emotional intelligence in assignments, projects that practical trainees. Indirectly, this assessment can help the MTEI general and our country in particular to produce a quality teacher in line with Vision 2020. In producing teachers with towering and authoritative in the field of education, teachers need to know and understand the elements of emotional intelligence.

STUDY LIMITATIONS

The result is highly dependent on the honesty of the respondents, namely the lecturers during responded to the questionnaire. Restrictions also apply when the targeted respondent is not obtained at the time the study was conducted for acting outside the study.

SCOPE OF THE RESEARCH

The study was conducted in five out of twenty seven MTEI nationwide. Selection is based solely concerned MTEI offering and have training teachers who take the program PISMP RBT option. MTEI involved were MTEI Temenggong Ibrahim, MTEI Kampus Tun Hussein Onn, MTEI Kampus Sultan Mizan, MTEI Kampus Perlis and MTEI Kampus Keningau. In addition, the relationship between emotional intelligence are taken into account in this study was limited to elements of emotional intelligence in this instrument.

CONCEPT FRAMEWORK

The conceptual framework of this study show the role of emotional intelligence training form teachers. In this study, the role of training is on the elements of pedagogy, practice, technology and curriculum as in Figure 1.1 (Smith, Nemser & McIntyre, 2008).

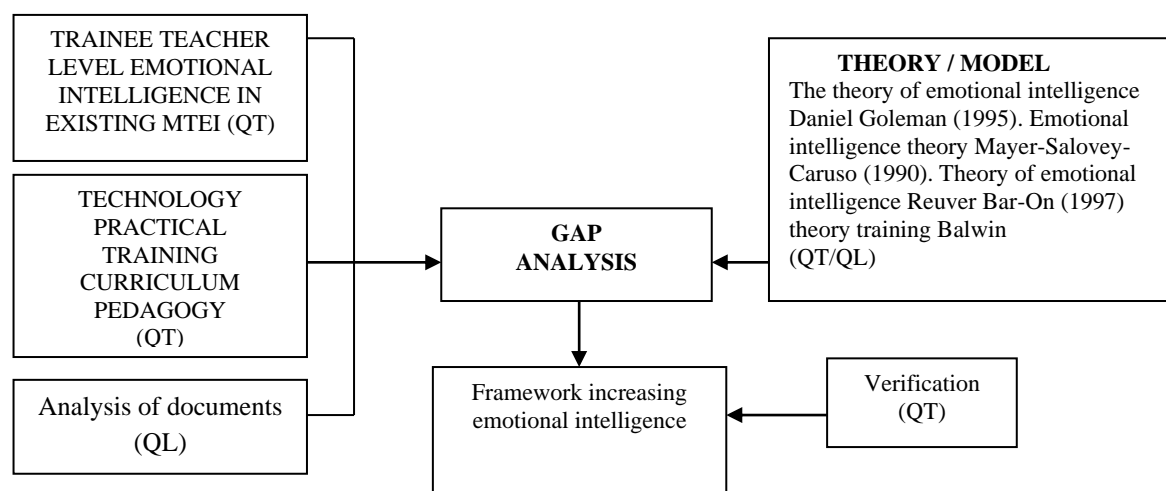


Figure 1.1: Framework Concept Study

In Figure 1.1, the researcher will seek a review of the needs of emotional intelligence existing teachers in MTEI through questionnaires. In addition, researchers will also get elements of training of respondents readings and expert opinions. The document is the guide books, the National Education Philosophy, Philosophy of Teacher Education, Annual Report of the MTEI and the Malaysia Education Blueprint 2013-2025.

The conceptual framework that is built reflects the independent variables as emotional intelligence and the dependent variable is the training. Researchers expect the correlation between the independent variables and the dependent variable selected. PISMP program trainees who have taken the RBT and lecturer in MTEI main respondents to the perceptions of teachers and lecturers perception of the contribution of independent variables selected to increase the level of mastery and understanding of emotional intelligence trainees. The effect of demographic factors on the aspect of gender and academic achievement was associated in this study.

FINDINGS

Analysis showed that the element of self-management, self-awareness, social skills and social awareness are elements of emotional intelligence needed by trainees from the perception of lecturers. The social skills has a means of 4.50, self-management has a means of 4.49, self-awareness has a means of 4.48 and social awareness has a means of 4.47 as in Table 1.

Table 1: Elements of emotional intelligence required by perception of lecturers MTEI

Element	Means
Self-management	4.49
Self-awareness	4.48
Social skills	4.50
Social awareness	4.47
Total means	4.49

Regression analysis of practical and technological to the emotional intelligence of lecturer's perception showed forecasters practice ($\beta = 0.516$, $t(58) = 4.361$, $p < 0.05$) and technology ($\beta = 0.244$, $t(58) = 2.062$, $p < 0.05$) is contributing significantly to the overall emotional intelligence for the respondents of lecturer's perception. The results of the analysis also found elements of the technology is the dominant predictor than practical, accounting for 42.3% ($r = 0.650$) changes in variance with emotional intelligence [$F(2,55) = 41.055$, $p < 0.05$] as shown in Table 2.

Table 2: Multiple Regression Analysis of Practice and Technology towards Emotional Intelligence Based on MTEI Lecturer Perception

Variable	β	T	p
Practice	0.516	4.361	0.000
Technology	0.244	2.062	0.044

Information:

* $p < 0.05$	* $p < 0.05$
$R = 0.650$	$R = 0.681$
$R^2 = 0.423$	$R^2 = 0.464$
$AR^2 = 0.413$	$AR^2 = 0.445$
$F = 41.055$ (Practice)	$F = 23.846$ (Technology)
$P = 0.000$	$P = 0.044$

Therefore, the null hypothesis stating that there is no significant contribution between the practical and technological variables on emotional intelligence from lecturer's perception is rejected. Results showed that the two variables is a good contributor to emotional intelligence.

Regression analysis of practical and curriculum to the emotional intelligence based on lecturer's perception showed forecasters practice ($\beta = 0.294$, $t(58) = 1.917$, $p > 0.05$) and curriculum ($\beta = 0.455$, $t(58) = 2.969$, $p < 0.05$). This shows a significant predictor of the curriculum contribute to emotional intelligence for the entire respondents. The results of the analysis also found elements of the curriculum is the dominant predictor, accounting for 50.3% ($r = 0.709$) changes in variance with emotional intelligence [$F(1,56) = 27.500$, $p < 0.05$] as Table 3.

Table 3: Multiple Regression Analysis of Practice and Curriculum on Emotional Intelligence Based on MTEI Lecturer's Perception

Variable	β	t	p
Practice	0.294	1.917	0.060
Curriculum	0.455	2.969	0.040

Information:

* $p < 0.05$
 $R = 0.709$
 $R^2 = 0.503$
 $AR^2 = 0.485$
 $F = 27.800$ (Curriculum)
 $P = 0.000$

Therefore, the null hypothesis of the perception lecturers stating that there were no significant contribution of variables curriculum and hands-on emotional intelligence is denied. The null hypothesis of the perception of lecturers who stated that there were no significant contributions of variables curriculum of emotional intelligence is denied when there is a significant contribution of the variable practice of emotional intelligence perceived by respondents of lecturers also welcome. Results showed that the curriculum is a good contributor to emotional intelligence.

Multiple regression analysis of technology and curriculum to the emotional intelligence on lecturer's perception showed curriculum predictor ($\beta = 0.598$, $t(58) = 4.596$, $p < 0.05$) were significantly contribute to emotional intelligence for the entire respondents. The results of the analysis also found elements of the curriculum is the dominant predictor, accounting for 47.9% ($r = 0.692$) changes in variance with emotional intelligence [$F(1,56) = 25.301$, $p < 0.05$] as shown in Table 4.

Table 4: Multiple Regression Analysis of Technology and Curriculum to the Emotional Intelligence Based on MTEI Lecturer's Perception

Variable	β	t	p
Curriculum	0.598	4.596	0.000
Technology	0.132	1.011	0.316

Information:

* $p < 0.05$
 $R = 0.692$
 $R^2 = 0.479$
 $AR^2 = 0.460$
 $F = 25.301$ (Curriculum)
 $P = 0.000$

Therefore, the null hypothesis of the perception of lecturers who stated that there were no significant contributions between curriculum and technology variables of emotional intelligence is denied. The null hypothesis of the perception of lecturers who stated that there were no significant contributions of variables curriculum of emotional intelligence is denied when there is a significant contribution of technology to the variables emotional intelligence perceived by respondents of lecturers also welcome. Results showed that the curriculum and technology is a good contributor to the perception of emotional intelligence of teachers while only variables curriculum alone is a good contributor to the emotional intelligence of perception lecturer.

Regression analysis of the practical, technological and curriculum of emotional intelligence based on lecturer's perception showed forecasters curriculum ($\beta = 0.385$, $t(58) = 2.246$, $p < 0.05$) is contributing significantly to the emotional intelligence, while forecasters practice ($\beta = 0.284$, $t(58) = 1.849$, $p > 0.05$) and curriculum ($\beta = 0.385$, $t(58) = 2.246$, $p > 0.05$) was found not contribute significantly to the overall emotional intelligence for the respondents of lecturers perception. The results of the analysis also found elements of the curriculum is the dominant predictor, accounting for 51.0% ($r = 0.714$) changes in variance with emotional intelligence [$F(1,56) = 18.748$, $p < 0.05$] as shown in Table 5.

Table 5: Multiple Regression Analysis of Practice, Technology and Curriculum to the Emotional Intelligence Based on MTEI Lecturer's Perception

Variable	β	t	p
Curriculum	0.385	2.246	0.029
Technology	0.116	0.908	0.368
Practice	0.284	1.849	0.070

Information:

* $p < 0.05$

$R = 0.714$

$R^2 = 0.510$

$AR^2 = 0.483$

$F = 18.748$ (Curriculum)

$P = 0.000$

Therefore, the null hypothesis of the perception of lecturers stating that there were no significant contribution of the variable practice, technology and curriculum of emotional intelligence is denied. The null hypothesis of the perception of lecturers who stated that there were no significant contributions of variables curriculum of emotional intelligence is denied when there is a significant contribution between the practical and technological variables on emotional intelligence perceived by respondents of lecturers also welcome. Results showed that the curriculum, practice and technology is a good contributor to the perception of emotional intelligence of lecturers while only variables curriculum is a good contributor to the emotional intelligence of perception lecturer. Therefore, the ministry had to take the initiative in improving the curriculum for improving emotional intelligence trainees.

DISCUSSION

In this study, elements of emotional intelligence mean are high. Social skills are an element of the highest, followed by self-management, self-awareness and social awareness. This finding is consistent with several studies conducted by Noordin (2009) who found a higher share of social skills among university students. But the order is a little different, which is followed by self-management, social awareness and self-awareness. In accordance with it, nurturing emotional intelligence can form can form teachers who have high social skills and personal skills. This finding is in line with recommendations by some emotional intelligence experts such as Goleman (1998) and Brackett et al., (2010).

Analysis of regression elements of the technology, the practical and the emotional intelligence curriculum was conducted to see the contribution of the variables. Multiple regressions was used to look at the contribution of variable practice, technology, and curriculum of emotional intelligence. There are several findings based on the selection of several variables on emotional intelligence.

Research showed between variables practice and technology of emotional intelligence found the practice and technology contributes significantly to emotional intelligence. Contribute variables practice and curriculum of emotional intelligence found the curriculum contribute significantly to emotional intelligence and the practice does not contribute significantly to emotional intelligence. Variables contribution technology and curriculum of emotional intelligence found the curriculum contribute significantly to emotional intelligence and technologies do not contribute significantly to emotional intelligence. The researchers also conducted a multiple regression of the contribution of variable practice, technology and curriculum of emotional intelligence found the curriculum contribute significantly to emotional intelligence and technology while the practice does not contribute significantly to emotional intelligence.

This study was conducted regression to find the contribution of variables practice, curriculum and technology on emotional intelligence by MTEI's lecturer. The findings showed that there are contributions variable practice and technology of emotional intelligence. Analysis on practice and curriculum on emotional intelligence found that only curriculum contribute to emotional intelligence while practices have no relationship with emotional intelligence.

This variable can improve emotional intelligence. This finding is consistent with Buntat et al., (2008) in his study of private training institute lecturers who found practice to improve motor hand skills while using internet technology to increase skills and software. These skills increase the intelligence of their trainees. Abdullah et al. (2008) support the findings and found a correlation with the attitude of the end years teacher training college students. Asri Atjeng (2008) find that practical teacher training increase the confidence level in the aspect of self-management and self-awareness.

Cherniss et al., (1998) related emotional intelligence to improve job performance. Marzuki and Don (2007) findings that emotional intelligence form an effective schools. Noordin (2009) find social skills improve mastery of the subject in the training center. Razlan (2011) said the practical teacher training in school enhance the potential to improve social skills and self-management. In conclusion, practice, technology and curriculum affect the emotional intelligence.

CONCLUSION

MTEI role is to train teachers to teach in schools. Teachers are ready academically able to teach and explain the subject well, while teachers with emotional intelligence also have good interpersonal and intrapersonal. Therefore, teacher training needs to be developed in the form of excellent teachers in line with the Malaysia philosophy of education.

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EMPIRICAL RESEARCH BASED LEARNING TO ENGAGE STUDENTS IN AN ONLINE COURSE IN PPROGRAM EVALUATION IN PEDAGOGY

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ABSTRACT

Our purpose in this project is to design a learning course, online, centered in develop professional competencies on the subject of Program Evaluation, together with lifelong learning competencies, offering students motivational questions on theory and practical activities related to the theory in a progressive sequence along the course. Using evaluation research methodology we have analyzed the students and teacher behaviors in the online course, students achievement and satisfaction with the instructional design and their learning, by means of a survey and the Evaluation from the Institutional Quality Assurance System. The results based in the study of three cohorts, shown improvements in student's participation in the debates in forum, in achievement, and in satisfaction with the learning design. Our purpose to develop competencies for professional and lifelong learning, online, included in the curriculum academic, based on an instructional design that attends personal needs, collaborative learning and formative feedback got good results. We recommend their use to teach similar online courses.

Keywords: Online learning, Learning design, Performance-centered learning, Professional competencies, Lifelong learning competencies, Quality evaluation

INTRODUCTION

Internet represents a medium through which universities may deliver grades, masters and doctorates courses for students who need to study at a distance and for all who need to actualize their studies and training to improve in their profession and in their lives, without any restriction of time, geographical situation or topics area. The success of this learning modality rests on their instructional designs, learners need and motivation and teachers involvement.

Students in Higher Education usually acquire considerable knowledge and many separate skills, but they rarely learn how to integrate them into performance of complex tasks. Students should learn professional competences where complex tasks could be performed as integrated units, as well as key competencies for lifelong learning to be updated for their personal and professional development (Janssen-Noordman et al. 2006, p. 447). For this reason they have to receive training for application of research skills, develop and evaluate projects, take decision and find solutions to problems that they should prove.

This is done as complementary training of conceptual and procedural contents, and it also contributes to the development of students' autonomous learning, and their ability to analyze and select relevant information, and experiment with their own solutions. It is a new way of learning. Through application you learn how to perform the task. The task resolution is a motivational element that creates the need to understand the fundamentals that underlie the task. The use of a learning design, internet-based, for theory and task learning, helps students to develop their ability to organize their own learning, as it is one important characteristic for lifelong learning (LLL) together to have a positive disposition to learn, the ability to regulate one's own cognitive processes, and to have a positive attitude towards collaborative work, which is necessary for solving complex tasks and problems.

To address these questions, our learning design pay special priority both, theory and educational practices, placing the higher-level of the Bloom taxonomy objectives to get our goals (Bloom, Engelhart, Furst, Hill & Krathwohl, 1956), awaking in students' higher expectation on learning, requiring adequate teacher support and feedback, as well as peers collaboration.

THE INSTRUCTIONAL COURSE DESIGN CHARACTERISTICS

The instructional course design, based in the principles of Gagné (Gagné, Briggs & Wager, 1988) and Merrill (2008), in synthesis are the following:

We build our instructional project based in the previous theoretical framework on the *Instructional course design* of Gagné (Gagné, Briggs & Wager, 1988) together to the *First principles of instruction* of Merrill (2008), identifying

necessary conditions (strategies) for effective, efficient and engaging instruction for information-about, parts-of, kinds-of, how-to and what-happens instructional outcomes, with learning strategies as *Questioning by the teacher to guide learning*, implementation of continue *Formative evaluation and feedback by teachers and peers* and key competencies development for lifelong learning applied along the academic curriculum in one subject content of 'Program Evaluation' belongs of Pedagogy Degree in the Spanish University for Distance Education, which teach online to deliver their university programs.

The web page of the course on 'Program Evaluation' presents the 'work plan' and includes the 'Student Learning Guide', with the course syllabus affirming the goals that are expected to get at the end of the instructional process which are crucial for students to be a professional. (Figure 1).

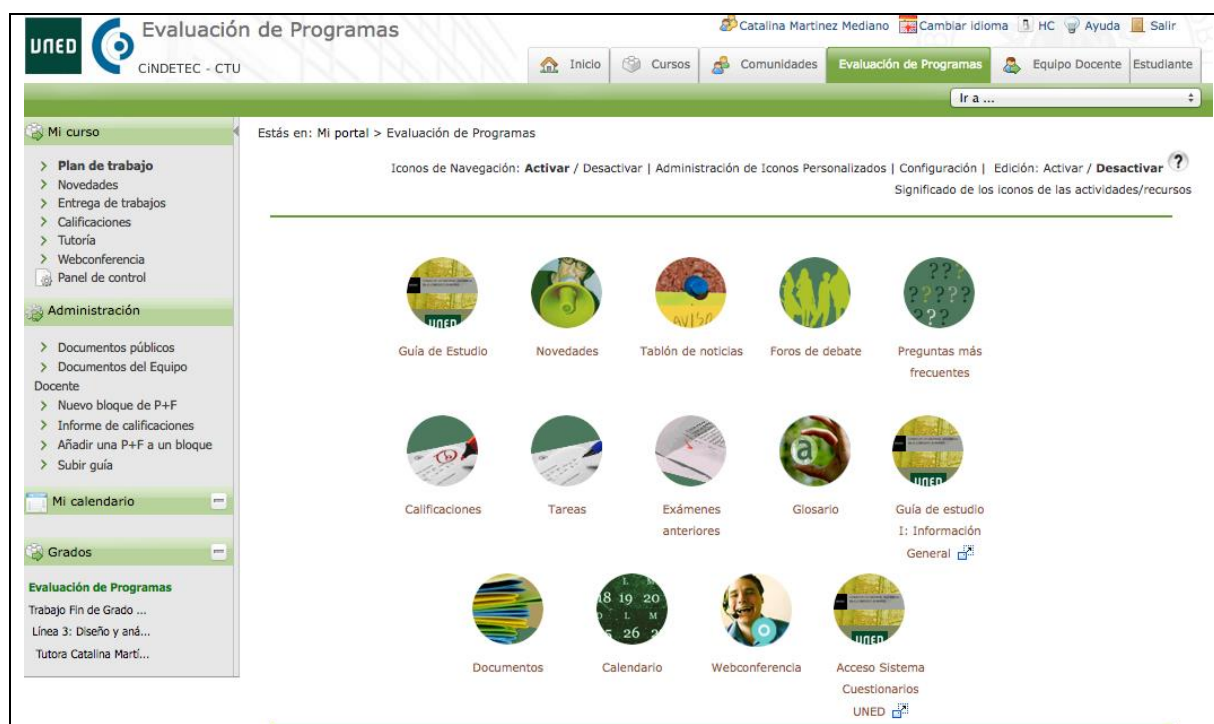


Figure 1. Main page in 'Evaluación de Programas' virtual course.

In the same main web page of the course it is presented the mandatory works supported by specific guidance and rubric evaluation. An also is presented the Syllabus, with every topics, with links to a web-conference recorded by the teacher, along the course, together a wide variety of instructional supports, and links to the correspondent forum on to debate on key questions on theory and its application into practice.

Professional and Lifelong learning competences

A *professional competence* is defined as meaningful whole tasks that are performed in professional practice, and requires integration of knowledge, skills and attitudes. *It says is competent* who possesses the ability to do something efficiently and to meet complex demands in a particular context, through knowledge, cognitive skills, practical skills, as well as social and behavior components such as attitudes, emotions, values and motivations. (Gonczi, 2003). Competency emphasizes a stronger relation between practical and theoretical knowledge, and the contribution of personal and social qualities to task performance (Brockmann et al. 2008, in Fastre et al. 2014, p. 972).

Eliciting the performance. Practices related to the key theoretical questions and its relation with the real issues contextualized, together to provide opportunities to practice on the competencies being taught and giving feedback, is an adequate way to elicit performance. The practices following the principles of problem-solving instruction, based in the following elements (Merrill, 2008):

- *The problem* to be solved is framed in the real-world context. It is facilitated a successive progression of problems rather than a single problem.

- The task must activate the student's relevant prior knowledge and experience, and students should be guided to use the new knowledge.
- The final work in the course should be guided to ensure the student demonstrate what have to learn by means of examples rather than merely telling information, pointing out relevant information, providing multiple representations of information and demonstrating explicit comparisons.
- The student must have opportunities to practice and apply the knowledge and skills acquired to solve problems. And the practices must be consistent with the stated or implied objectives.
- The course should provide techniques that help the student integrate and transfer their new knowledge and skills to professional situations, by means of opportunities to reflect, discuss and defend their new knowledge and skills.

Lifelong learning competencies play an important role to fulfill the profession-oriented goals in Higher Education in the European Union. Accordingly, the Qualification Framework in the European Higher Education Area outcomes recognizes: *To have developed those learning skills that are necessary for them to identify their own training need to continue to undertake further study with a high autonomy degree.* (EUC, QFEHEA, 2009).

Lifelong learning (LLL) is regarded as an important strategy to improve human development, with a growing interest related to employability, as well as an important learning output of the Educational Systems in Europe and the entire world. (Moos and Gray, 2013). LLL competencies in today's knowledge society require specific key competencies, such as knowing what one has to learn, knowing what one does not know, and knowing where to find relevant information. Because of the increasing amount and the changing nature of knowledge, the need to keep up with change is even more critical today, (Martinez-Mediano & Lord, 2012).

Thus, Professors should be involved in the professional and LLL competencies development to reduce the gap between young people's training and job Demands. And, with this purpose, our instruccional design is focused in developing professional and lifelong learning competencies embedded in the academic curriculum, on line. Prepare students as professional requires preparing them for Lifelong learning.

Learning guidance by teachers questioning, formative assessment and feedback

Asking key questions on theory and its application in real contexts, enhancing reflection on leaning and self-regulated learners.

Formative assessment is defined as "a process used by teachers and students during instruction that provides feedback to adjust ongoing teaching and learning to improve students' achievement of intended instructional outcomes" (Council of Chief State School Officers, 2008, p. 3). Formative assessment (FA) is part of the instructional design, but takes special relevance in the project here described. FA refers to assessment that is specifically intended to generate feedback on performance to improve and accelerate learning (Sadler, 1998).

In higher education, formative assessment and feedback should be used to empower students as self-regulated learners. The construct of self-regulation refers to the degree to which students can regulate aspects of their thinking, motivation and behavior during learning (Pintrich & Zusho, 2002). In practice, self-regulation is manifested in the active monitoring and regulation of a number of different learning processes, e.g. the setting of, and orientation towards, learning goals; the strategies used to achieve goals; the management of resources; the effort exerted; reactions to external feedback; the outcomes produced. (Nicol and Macfarlane-Dick, 2006, p.199). Formative assessment involves four assessment activities -clarifying learning expectations (goals), collecting information, interpreting information, and acting on/using information collected to move students closer to the learning goals.

In the Virtual & Personal Learning Environment, there is a Forum of Theory for each topic in the syllabus.

- The teacher introduces questions to drive learning and generate debate and collaboration, promoting deep learning, centered in theory understanding and its relation with every part of the global practice.

In the Forum to guide the Practical work:

- Students are encouraged to present their proposal to evaluate a real educational program. It is recommended the program chosen was familiar to the student.

All receive formative feedback individually, open to all students, grouping the answers when it is possible.

The design of the course, the web-conference on every topic, the learning guided by question in the forum, the script to do the work, benefits to all students enrolled in the course. The participation in the forum benefits students for theirs directs involvement in the debates, to the others because the reading promotes reflection. To those presented in the ordinary call and those who do it in September and read they in summer to follow the discussions in the virtual course as a personal learning environment. The examination is done by essay evaluation, in which the contents of theory and their

application in educational real contexts are evaluated.

The Virtual & Personal Learning Environment Network is key to personal and professional development of students, taking advantage of the wealth of network communication, to reflect on key theoretical issues and their relationship with practice, to show examples, share experiences, consult multiple learning resources and update information. The online learning has the challenge of creating learning environments that help students build networks that allow them to integrate knowledge, skills and attitudes of collaboration, respect, commitment and responsibility.

RESEARCH METHODOLOGY

Innovation based in Science Learning should be tested in order to check if the innovation obtains more effective, efficacy, satisfactory, and enjoyable learning. According with the idea to benefit student education, teacher should receive feedback from their students. In this section we show the procedures following to address this premise.

The innovation and the research objectives

The innovation consisted in a “Learning design, performance centered, in a Virtual & Personal Learning Environment Network, guided by key questions enhancing collaborative learning and formative feedback” to enhance learning motivation and competencies to program evaluation and lifelong learning”.

The main objective of the project is “to evaluate the learning design, its implementation, and their results, to test if it has success in getting the intended goals, to gather arguments to improve the course, and make recommendations”.

Research design

The research design belongs to the evaluative research that uses a mixed methods approach. We analyse three students’ cohorts, from the following courses:

- 2013-2014: The course first time in the Grade. Enrolled: 120.
- 2014-2015: The innovation was implemented. Enrolled: 279.
- 2015-2016: The innovation was improved. Enrolled: 324.

We use survey techniques to collect information from the course users, the students, and also compare the students’ final mark obtained in the year we applied the innovation, with the obtained a year before, together to the students achievement and information collected by the Institutional Quality Assurance System on the course.

The indicators and procedures followed to measure the results of the innovation are the following:

- The teacher and students behavior in the Forum (Platform statistics).
- The achievement: Comparison between students’ final mark in the base-year, the year we applied the innovation, and the following year to check if the innovation is consolidated and sustainable (2013-2014, 2014-2015, 2015-2016. (ANOVA).
- The course evaluation by students the course which the innovation was applied, 2014-205 (Survey).
- The course evaluation in the three academic years, 2013-2014, and 2015-2016, by the UNED Internal Quality Assurance System (IQAS).

FINDINGS

Teacher and students’ behavior in the Forum

The data in participation in the virtual course are in table 1.

Table 1. Key questions, students’ participation and teacher feedback in the Forum

Forum	2013-2014 (120)			2014-2015 (279)			2015-2016 (323)		
	KQ	SP	TF	KQ	SP	TF	KQ	SP	TF
1. General questions	23	56	29	36	112	38	15	62	16
2. The practical work	6	10	8	40	102	40	57	141	79
Total participation in Forum 2	24			182 (x7.5)			277 (x11)		
The theory on the syllabus:									
3. Concepts and Functions of P.E.	15	69	32	6	160	14	9	121	15
4. Evaluative Theories of Scriven	4	18	13	8	112	12	5	31	3
5. The CIPP Model of Stufflebeam	3	9	7	5	86	14	11	56	15

6. The Educational P.E. of Pérez Juste	3	9	10	4	96	19	8	36	21
7. Procedures to realizes P.E.	8	24	18	4	86	8	7	21	11
8. The Program Evaluation Standards	3	13	4	5	75	9	5	22	8
9. Techniques and Instrument to P.E.	2	3	4	3	8	4	2	6	5
Total	42	145	88	35	623	80	47	293	68
Total participation Theory forum 3-9	403			1106 (x3)			788 (x2)		

KQ = Key Questions; SP = Students Participation; TF = Teacher Feedback. P.E.= Program Evaluation.

Font: Statistics from the virtual course.

The students enrolled have been increasing since the first course in 232 % and 270% respectively. The key questions, the students' participation and the number of teacher participation to give the formative evaluation and feedback, also are higher in the year that innovation was implemented. In the course 2015-2016 the Innovation was maintained. It is remarkable the increase of the key issues in the forum on the practical work on the course that innovation was introduced, 2014-15, and it was increased in the course 2015-2016, as well as student participation and teacher feedback.

The forum is an excellent learning resource, for the students participating and also for those silent and invisible ones.

Students' achievement

Regarding the students achievement, their results in the three years are showed in table 2.

Table 2. Descriptive. The achievement. Final mark (in mean, range 1-10, pass from 5)

	2013-14 (enrolled 120)				2014-15 (279)				2015-16 (324)			
	June		September		June		September		June		September	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Presented	70	58.33	36	56.25	155	55.55	61	39.95	207	63.89	68	20.99
Pass	46	62.16	24	66.67	124	80.52	47	77.05	165	81.16	54	79.41
Mean	5.84		6.11		6.99		6.56		6.99		6.98	

Freq.: Frequency. Font: Institutional Statistics. Scores application.

From the information in the table 2, it is worth to note the following results:

- The number of students' enrolled has been considerably incremented.
- The percentage of presented in June 2015-2016 is higher than in the previous course in 8.34 percentage points.
- The percentage of approved to the first is higher in 2014-2015 and 2015-2016.
- Comparing the students' scores in June in the three courses, the ANOVA result gives statistically significant differences to favor of the courses 2014-2015 y 2015-2016 against the course 2013-2014 ($F=8,509$, $p=0,001$ and $p=0,000$ respectively).

The results confirm the objective pretended with the Instructional Design, centered in performance, guided by theory questions, and a practical work, enhance collaboration and formative evaluation and feedback in the forum, in a Virtual & Personal Learning environment, in the aLF platform in the UNED.

Students satisfaction on the course

The evaluation of the course, in which the innovation was implemented (2014-2015), was made by means of a questionnaire integrated by 29 items, Likert scaled, from 1 to 5. The sample invited to answer the survey were all the students enrolled, 279, in 2014-15. The sample participants were of 35. The results are showed in table 3.

Table 3. The five blocks in the Course Evaluation Questionnaire.

The five blocks in the Questionnaire (1-5 Likert)	Items	Mean	St. Dv.
The virtual course design	6	4.60	0.12
The questions for learning, in forum	6	4.65	0.04
The competencies for lifelong learning	4	4.47	0.13
Prepare student to performance practice	7	4.80	0.07
Develop generic competencies related to LLL	6	4.56	0.18
Total	29	4.63	0.109

N= 35. Course 2014-2015. (Reliability by Cronbach Alpha: 0.95).

Font: Questionnaire elaborated by the teacher.

The mean in the questionnaire was 4.63 over 5. The items best evaluated in the course were the practical work, the forum structure, and the professor presence. Summarizing the students' evaluation on the course, it is worth to note the following results:

- The high agreement degree with the questions presented, which show a good conformance and satisfaction with the innovation.
- The part best evaluated in the questionnaire was the referred to the practical work.
- The orientation in the forum was also well evaluated.
- The competencies development for lifelong learning has been also well evaluated, with a mean of 4.47 over 5.

Evaluation results from the Institution's Quality Assurance System

The course is evaluated every year by means of the Institution's Quality Assurance System by means of a questionnaire, which reports the following results (Table 4):

Table 4. The Institution's Quality Assurance System Questionnaire (2015-2016).

Evaluation Questionnaire on the course. ITEMS	%
The previous knowledge in the subject	100
The student Learning Guide	96.43
The learning material impressed	96.43
The complementary learning material in the virtual course	100
The activities in the virtual course	100
The structure of the virtual course	100
The teachers team behavior in the virtual course	100
The students involvement in the virtual course and its importance to prepare the subject	92.59
The information facilitated by the teachers team on the final evaluation	96.43
The continue assessment in the virtual course	92.59
The final exam	92.86
Personal satisfaction with the learning material	96.30
Personal satisfaction with the teachers team	100
Personal satisfaction with the evaluation system.	92.86
Personal satisfaction with the learned in the subject matter	100
N= 28. Mean in %	97.6

The evaluation results on the course, with a participation of 28 students, show a better valuation on the course objectives and its implementation.

The graphic shows the course results according to the students' evaluation in 2015-2016, and its relationship to the average in the Grade, the maximum and the minimum (Figure 2):

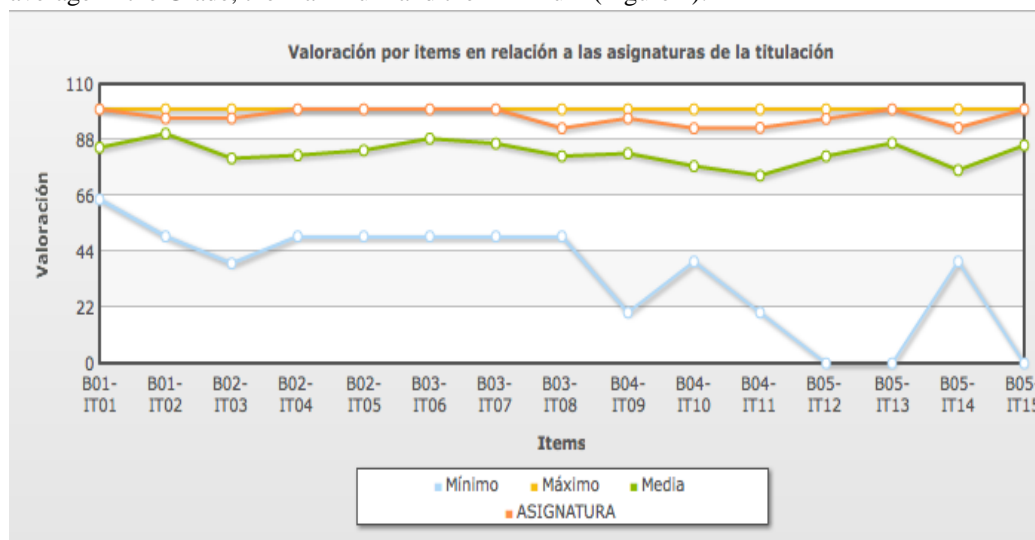


Figure 2. Evaluation of the Subject by students. Course 2015-2016. N= 28. Mark: 97.6 in %. Font: <https://app.uned.es/evacal/questgen.aspx?cu=2016&tecp=6302&ca=63024059&ten=1&en=4>

We show the histograms in which are relates the average, minimum and maximum, of the course and the Grade, in the three years we are studying, which allows comparing the evolution of the evaluation of the subject, in the year that innovation was introduced, the previous one and the following where the innovation was maintained and improved, showing its sustainability during the time (Figure 3).

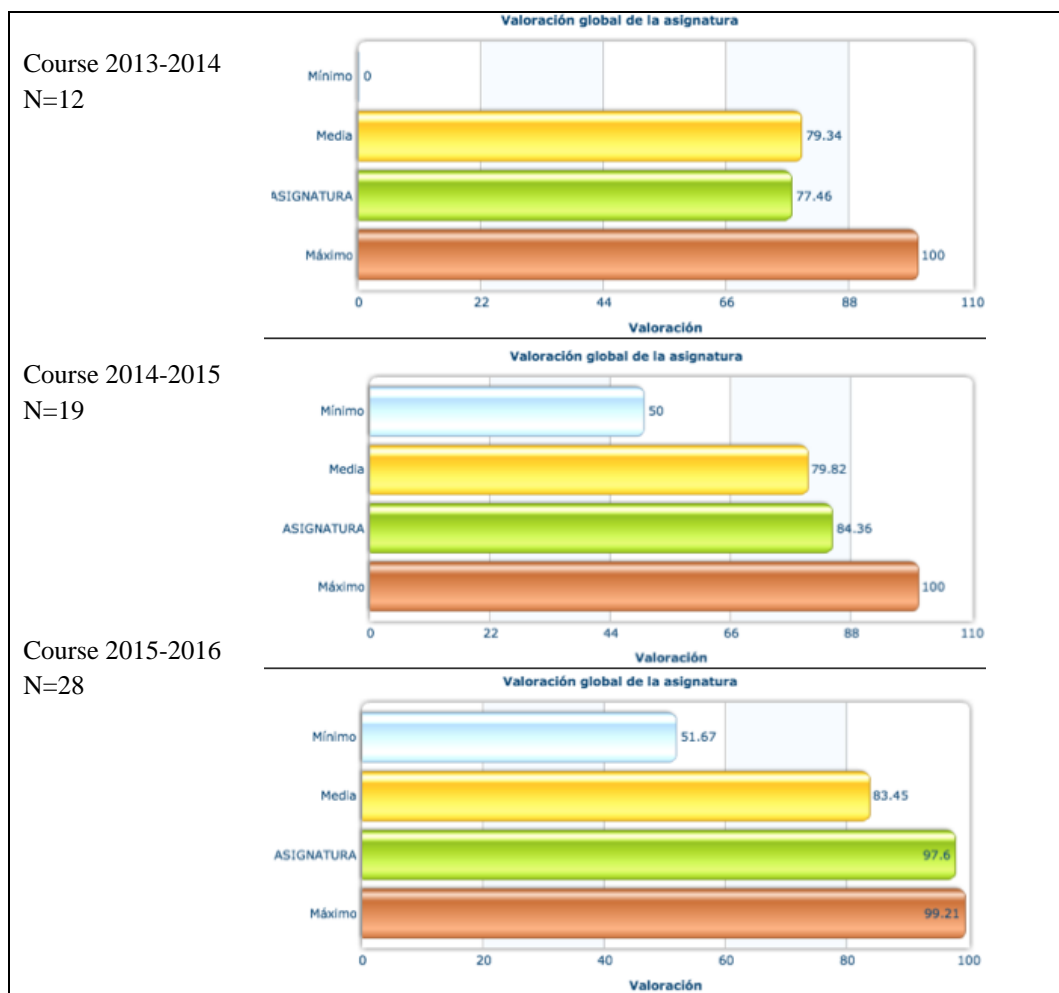


Figure 3. Evaluation of the subject (ASIGNATURA) and the Minimum, Mean and Maximum in the Grade in Pedagogy. Font: SGIC of UNED.

<https://app.uned.es/evacal/questgen.aspx?cu=2016&tecp=6302&ca=63024059&ten=1&en=4>

The evaluation of the subject through the Internal Quality Assurance System of UNED, in percentages scores, on a maximum of 100%, shows a very positive increase since the first or basic course, in 2013-2014, with a students participation of N=14, received a score of 77.46%. In the year which the innovation was first time implemented, 2014-2015, the answers in the questionnaire were gave by N = 19, with a score of 84.36 %. And the year where the innovation was maintained, the course 2015-16, the answers in the questionnaire were higher, with a participation of 28 students, N = 28, giving a score of 97.6%, indicating an excellent evaluation result, and showing the sustainability of the innovation over the time.

The learning guided of theory, as well as of the practical work, in one virtual learning environment, is key to obtain a good learning result in students.

DISCUSSION

The results obtained in this research, centered in one innovation based in an “Instructional design, to guide learning of theory and practice, in a Virtual & Personal Learning Environment”, promoting the collaborative learning and the formative evaluation and feedback”, have demonstrated their positive influence through the following indicators:

- The participation in the forum on the practical work and in the forum of theory, in both courses, the first in applied the innovation, 2014-2015, and in the next one, 2015-2016 has been considerably incremented.
- The students presented on the first call, was incremented in 8.34 % points.
- The students approved to the first, was incremented in the academic year 2014-2015, in 18.36 % points, and in 2015-2016, in 19 % points.
- The achievement, the students’ scores in June in the three courses, show improvement, proved through the ANOVA test, giving statistically significant differences in 2014-2015 y 2015-2016 against the course 2013-2014 ($F=8,509$, $p=0,001$ and $p=0,000$ respectively).
- The satisfaction with the innovation centered in practices, theory guided by teacher, promoting collaborative learning and formative evaluation and feedback, in a Virtual & Personal Learning Environment, obtained in the Questionnaire to Evaluate the course, in 2014-15, a Mean of 4.63, over 5, $N=35$.
- The satisfaction with the course, in the Institution Quality Assurance System Questionnaire, answered by 28 students, in the course 2015-2016, obtained a score of 97,6 % over 100.

To be competent is to be able to learn to adapt and respond to new situations i.e. to continue to learn throughout one’s life. Learning by internet has a huge potential, but it couldn’t be seen independently of an adequate instructional design and the formative feedback on the learning progress.

The evaluation of the innovation, with purposes of continues improvement on students, teachers and course design, has demonstrated its contribution to the improvement of educational quality.

We recommend the use of this instructional design in the UNED. Also we recommend it to other Online and Distance Higher Education.

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ENGAGING STUDENTS' LEARNING WITH ELEMENTS OF FORMATIVE ASSESSMENT

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ABSTRACT

Formative assessment consists of activities undertaken by teachers and students that will provide them with feedback for the purpose of guiding teaching and to improve learning. Formative assessment may also be implemented by incorporating questionings, self- and peer-assessments into classroom teaching. With the integration of formative assessment, teachers may benefit by practicing it so as to enhance their teaching. Concurrently, students learning processes may also improve. This study investigates how formative assessment can be implemented in secondary Geography lessons and to investigate how it can enhance or develop the learning of 17 secondary school students in Brunei Darussalam. A qualitative approach was utilized to collect and analyze the data. Data were collected by means of video recorded lessons, interviews and a group research project. The findings revealed that by implementing formative assessment components such as questioning, feedback, and assessments involving peer and self within the lessons, the students have shown improvements in their learning, in terms of acquiring knowledge and skills not only in relation to the study of Geography subject, but also in developing their 21st Century skills in communication and socialization.

Keywords: Formative Assessment, Geography, Teaching and Learning

INTRODUCTION

The existing education system, overseen by the Ministry of Education of Brunei Darussalam was introduced in 2009 known as the National Education System for the 21st Century (in the Malay language known as *Sistem Pendidikan Negara Abad ke-21* or SPN21). In realizing the challenges of the social and economic development in Brunei, the SPN21 aims to fulfill the Ministry of Education's vision and mission that is to equip Bruneian students with the 21st century skills instilled with *Melayu Islam Beraja* or MIB values (translated as the Malay Islamic Monarchy). The school curriculum and assessment play an integral part in Brunei's education system. In SPN21, the School Based Assessment for learning (SBAfL) was introduced in the lower secondary curriculum subjects in 2011 (CDD, 2010). SBAfL is a fusion of School Based Assessment (SBA) and Assessment for Learning (AfL). SBAfL is a formative assessment that is used to facilitate students' learning and understanding of their subjects.

In the upper secondary level subjects including Geography, students have to sit for the Brunei Cambridge General Certificate of Education Ordinary Level (BC GCE O Level) examination, which is summative assessment in nature. In the upper secondary, Geography is offered as an elective subject where the skills the students need to acquire are the ability to conduct research, think critically and creatively, communicate and participate socially thinking

(Ministry of Education, 2009). Therefore, to ensure the effectiveness of students' learning outcomes, the use of appropriate teaching strategies and assessment are fundamental in the teaching and learning of Geography.

One of the major problems faced by the students is the difficulty in comprehending subject content, which in turn affects their test and exam results. In most cases, this is attributed to the students' poor command of English language. Geography demands students to have a good command of the English language, as it is the medium in which the subject is taught. However, this is not the only problem the students faced. Our observations showed most students could only answer simple recall questions in the knowledge and understanding level of cognitive thinking. Students were good at remembering facts by memorizing but not by understanding.

In Jaidin's (2009) study where she explored the conceptions of children's learning in government schools in Brunei, she found similar observations, where one of the learning conceptions held by the children was 'learning as remembering' mainly to pass examinations and to score good grades and marks. Similar opinions were reiterated in other local studies (Matzin et al., 2013; Yatab & Shahrill, 2014; Botty & Shahrill, 2015; Nawi et al., 2015; Caesar et al., 2016; Yunos et al., 2017).

REVIEW OF THE LITERATURE

Formative Assessment and AfL

Formative assessment is always associated with the term AfL. According to the Assessment Reform Group (ARG, 2002), the process of AfL seeks to interpret the evidence to be used by the students and their teachers in deciding the learning stages. Formative assessment involves making any necessary adjustments to teaching concurrently within the stages in learning (Leahy et al., 2005) and provides information for teachers to adapt their instruction strategy to suit students' needs (Wong, 2007). AfL also informs a student-centered instruction responding to students' performance and progress (Stiggins, 2005), and enables students in taking responsibility of their learning process (Black et al., 2006; Kirton et al., 2007). According to Wren (2008), in order to successfully implement formative assessment to all students, there is a need to have a classroom environment that encourages success instead of competition. Additionally, teachers need to know and understand the learning objectives they are teaching by communicating this information in language that their students understand (Wren, 2008; Shamsu, 2012).

Elements of Formative Assessment

Questioning

The use of questioning has been mentioned in the Al-Quran as an effective method to facilitate understanding in education of the Muslim followers, for example, the use of questionings in the verses of Surah Ar-Rahman (Qur'an: 1-78). In AfL, questioning is vital in order to check for understanding as well as give feedback on incorrect responses (Fisher & Frey, 2009). Questioning can be used to promote thinking and classroom discussion (Black et al., 2003; Shahrill, 2009, 2013; Salam & Shahrill, 2014; Shahrill & Clarke, 2014).

Teachers are encouraged to ask questions that explores issues that are crucial in developing students' understanding rather than asking knowledge questions that can be answered quickly and only catered to the low level of thinking (Black et al., 2004). In other words, teachers should ask higher-order thinking questions of the Bloom et al.'s (1971) taxonomy of educational objectives. These types of questions may help our students in developing the 21st century skills such as critical thinking, problem solving, communication and social skills. Teachers should also increase the 'wait time' for students to answer the questions they asked to allow students to think (Black & William, 1998; Shahrill, 2009, 2013; Salam & Shahrill, 2014; Shahrill & Clarke, 2014; Panjang et al., 2017). All answers whether they are right or wrong can be used to develop understanding aimed at developing thoughtful improvement rather than getting it right at the first time (Black et al., 2003).

Feedback

Hattie and Hamperley (2007) regarded feedback as a powerful way to affect students' achievement. According to Askew (2001), feedback could be verbal, non-verbal, written, or a combination of these. Teachers present feedback to students either to individuals or to pairs and groups, or to the whole class. Embedded within the learning process, feedback have to be goal-referenced, appropriate, on-going, actionable, precise and comprehensible to students to allow self-adjustment on the students' part (McTighe & O'Connor, 2005; Wiggins, 2012). Teachers need to remember that giving feedback is more towards improving and not about evaluating the students' work (Black & William, 1998).

Self- and peer-assessments

Apart from receiving teachers' feedback, students themselves need to self-assess since learning can only take place on their own will (Black & William, 1998). In peer assessment, the students' work will be assessed by someone other than the teacher, and thus offers an additional element to formative assessment (Sadler, 1998). It allows students to give constructive feedback to their peer's performance. Newby and Winterbottom (2011) stated that peer-assessment provides students with the chance to understand the successful piece of work's criteria. The students were willing to share ideas with each other and their feedback focused on improvements. However, some students prefer their teacher assessing them rather than their peers especially in relation to group assessment (Scaife & Wellington, 2010). Students may experience discomfort when it comes to assessing work other than their own and their peers may also make unnecessary judgments of their capability (Smith, 2009).

THE STUDY

The main goal of this study is to examine the implementation of formative assessment in the teaching of Geography lessons at the upper secondary level. Accordingly, this may be one of the ways to help students enhance their learning processes in order to improve the students' understanding of the Geography subject content and to develop their higher-order thinking skills. It is hoped that the students would benefit from its implementation. In addition, this study seeks to gain insights into the process of self-professional development, specifically in the area of teaching methodologies. The two research questions guiding the study are as follows: How can formative assessment be used in teaching upper secondary Geography lessons? And to what extent has formative assessment enhanced students' learning?

METHODOLOGY

A case study approach (Yin, 1994; Merriam, 1998) was used in this study. Throughout the research period, one of the researchers acted as a participant observer. A participant observer is a "role adopted by qualitative researcher in which he or she is known to be the researcher by the participants and is thought of as the group members" (Sowell, 2001, p. 363). The class was taken over for the whole four weeks from the Geography subject teacher and was taught the topic according to the scheme of work. The participant observer was able to gain the information on how the teacher did the formative assessment and to what extent formative assessment can be used in the teaching of Geography topics. Questionings, feedback, self- and peer-assessment techniques were embedded in the teaching process.

Instruments

Video recorded lessons

Every lesson was video recorded. A colleague helped to record the lessons conducted. There were five double lessons altogether of which two lessons were used for students to do presentations on their group research projects. This was when components of the formative assessments for example, questioning, feedback, self- and peer-assessments were integrated into the lessons. During the classroom teaching it was not possible to take field notes on the sequence of teaching process. However, observations were made after viewing the video recorded lessons to triangulate the data gathered. Recorded lessons allowed them to be viewed as many times as necessary so as to capture any relevant and related findings of the study. The recorded lessons provided a good pool of data since they covered the whole process. Wiggins (2012) asserted video recordings could help teachers perceive things they may not perceive as they perform. They help teachers learn to look for difficult-to-perceive but vital information.

Audio-recorded interviews

Another instrument used was semi-structured interviews with students in a focus group setting. The focus group interviews were undertaken to encourage discussion between interviewees, rather than between interviewer and interviewee (Morgan, 1988). The focus group interviews explored students' perspectives about the lessons when questioning, feedback, self- and peer-assessments were used and their active involvement during the lessons. The interviews included some open-ended questions so as to give enough flexibility for students to respond. Before the interviews, students were made to understand the purpose and were given time to share their views with the group members. The shared views were then used for discussions in a subsequent focus group interviews. All the interviews were audio-recorded, and on average, lasted about eight to fourteen minutes per session.

Group research project

Data were collected through the provision of group research project to students. Students had to complete the project in groups within two weeks. They were divided into four groups consisting of four to five members per group. This project was chosen because of the benefits students can obtain from it. According to Scaife and Wellington (2010), collaborating produces a better outcome with students learning from one another with discussions and stimulations, which may thus create innovative concepts and skills. Keppell and Carless (2006) stated it enabled relevant learning to take place through participation in a motivating and challenging project, which is linked to real-world issues. In this case, students were dealing with issues on food consumption patterns in different countries.

Participants

The chosen site for this research study was a secondary school in Brunei. The participants comprised 17 students from a Year 10 class (equivalent to Grade 9 High School American Schooling); consisting of nine male and eight female students who studied Geography as one of their subjects. Their ages ranged between 14 and 15 years old. The students would proceed to Year 11 in the following year for their BC GCE O Level in November.

Data Analysis

The data in this research was analyzed qualitatively. The recorded focus group interviews were transcribed. The transcripts were analyzed to identify emerging concepts or themes, with inductive coding used to establish such themes. The recorded lessons were reviewed to gather data used to respond to the research questions. These two data sources were triangulated to identify the themes, which were consistent across both data sources so that detailed and balance perspective of the research can be portrayed. The video recorded lessons and audio-recorded interviews have allowed data triangulation to overcome the threats of validity to the research. The data analysis collected by using a case study approach was suitable for answering the research questions. Reliability of research was achieved through the process of data triangulation.

RESULTS AND DISCUSSIONS

Utilizing Questioning Techniques

In this study, utilizing questioning as one of the techniques of formative assessment was used in the everyday classroom practice. An example of the questions given to students in one of the lessons was to identify the differences of food consumption between the less developed countries (LEDCs) and the more developed countries (MEDCs). According to the teacher, this question required students to do some analysis and interpretation in their group discussion. At the beginning it seemed to be difficult for students to cooperate with each other during the discussion. Towards the end of the data collection, it was evident students were more comfortable not only with each other during group discussion but also with the teacher. They asked questions whenever they were not clear with the lessons. Hence, in this study, it was found that the questioning techniques had helped the teacher to check students' understanding and learned how to help the students. However, it was also found that the teacher should ask more questions, which explore real world issues critical to students' development of their 21st century skills.

Conveying Constructive Feedback to Students

In this study, it was found that the comments given could have negative impact on students' confidence and enthusiasm. During data collection, constructive feedback was continuously given to students on their progress and their completed work. Some comments can have negative impacts on students' confidence and enthusiasm, therefore comments were given on students' work that needed improvement rather than on the individual. The following extracts were from one of the lessons on the difference of food consumption between the less developed countries (LEDCs) and the most developed countries (MEDCs). It shows how feedbacks were delivered on the point that was raised by one of the students.

Student 8 (Group 3): I want to ask Group 1. You focus your answer on MEDCs only on the excess of food but the question asked us to discuss MEDCs and LEDCs. You mentioned MEDCs have more food than LEDCs but you don't explain the LEDCs lack of food is due to what?

Teacher's note: Student 8 was commenting on the way Group 1 answered the question. He felt that Group 1 did not give a reason for the differences in the amount of food consumed.

Student 2 (Group 1): MEDCs have a lot more money than LEDCs, that's the difference.

Teacher's note: Student 2's answer was simple but some of the students still did not get it. I could see clearly from their facial expressions especially Student 8.

Student 8 (Group 3): But is it only because of money?

Teacher's note: I asked if there was any student who wanted to give further comment. I waited for about four minutes but no one said anything. So at last, I decided to intervene by giving feedback.

Teacher's feedback: Group 1 said MEDCs consumed higher calories when compared to LEDCs. However, Student 8 said they did not state the reason. Actually they did state the reason but only on the MEDCs side and it was not stated clearly. What they are trying to say is that MEDCs have more money so they can produce or purchase more food. Do you think that it would be better if they said something on LEDCs' side too? However, I also agreed with Student 8. He said money was not the only reason.

Teacher's note: Some students nodded and the lesson continued with the discussion on the other group's point. By now the students started to grasp the same point that they shared, namely they all agreed that MEDCs have more money to purchase or produce food for their population. I also informed the students that the other reasons for the differences would be discussed in the following lesson.

It was observed that the teacher should further reflect on the way the feedback was given to the students. The teacher could improve on giving constructive feedback by advising the students on their strength and advise them on how to develop their responses. The best feedback provides students with the information about their progress or lack of it towards achieving the expected standard and suggests actions they can take to come closer to it (Brookhart, 2008). The teachers in this study should encourage and give chances to their students the opportunity to enhance their learning (ARG, 2002).

Engaging Students in Undertaking Self- and Peer-Assessments

During the lesson, the students engaged themselves with the processes of self- and peer-assessments. In the case of self-assessment, the students were given the opportunities to reflect.

Self-assessment from Student 2 (Group 1):

My strength: *I am very confident. I have a voice that most people can hear. I make eye contact with people.*

My weaknesses (to be improved): *Maybe I have to explain the content a little more so that my peers and teacher can understand better.*

Self-assessment from Student 4 (Group 2):

My strength: *My voice was clear and I explained content clearly.*

My weaknesses (to be improved): *I think I am less confident, I don't maintain eye-contact with my peers and teacher and I'm also very nervous.*

The challenges faced by some of the participants in this study were similar to a local study by Rashid and Jaidin (2014). The teachers in the study by Rashid and Jaidin (2014) highlighted that in order to develop students' peer-assessment and self-assessment skills will require a lot of effort, particularly in getting the students to give each other constructive feedback rather than merely giving superficial or judgmental comments. Constructive feedback needs to be more descriptive and clearly explained, as noted by Student 2 from Group 1 in the current study.

Consequently, formative assessment cultivates the skill for self-assessment in order for the students to develop the ability of being reflective and manages oneself successfully (ARG, 2002). For peer-assessment, the students were reminded to give constructive feedback on their peers' work, not to the person, and to be positive and open to their peers' feedback on their work. The following represents the reflections from individual students regarding peer assessment.

Student 6 (Group 1): *... and then the other people, they tell us what we need to improve on. So I, we know what are the weaknesses and how to improve them. I learn... we learn that you should not be mad at other people when they gave us comments. We should think it as constructive feedback instead of thinking of it as a negative thing. So we can produce better work.*

Student 7 (Group 2): *We try to tell them their weaknesses, what they need to improve. We felt very happy that we know our weaknesses.*

Student 5 (Group 3): *We can see the weakness and tell them to improve that and tell them their strength.*

Consequently, peer-assessment allows students to listen to their peers' ideas and evaluate them (Black et al., 2004). However, in this present study, it was found that the students commented more on the ways to improve their presentation performance. The peer assessment had made the assessment experience less constructive. And thus, the peer assessment should provide students with the chance to understand the successful piece of work's criteria (Newby & Winterbottom, 2011).

Encouraging Social and Communication Skills in Group Work

The project that the students performed in groups assisted them to develop social and communication skills. Although these students were in the same class for almost seven months, some of them did not know each other well and seldom talked to each other before the project. Some of the students' comments are given below.

Student 6 (Group 1): *It's really fun because I mostly don't talk to some of them but after doing that project together, we bonded.*

Student 8 (Group 3): *We have to communicate with each other. Even though it's really hard, challenging.*

Student 10 (Group 4): *Although sometimes we are not very close in class, we have to talk and discuss with each other because we have to be in teamwork.*

Overall, the students indicated that they enjoyed their learning experience from the group work where it helped them with their social and communication skills. Hence, concurring with Johnson and Johnson (2004) that using the teaching strategy of group work encourage socialization.

CONCLUSIONS

Formative assessment can be implemented by incorporating questionings, feedback, self- and peer-assessments into classroom teaching. Questioning techniques can be integrated throughout the lessons by asking constructed questions measuring students' higher-order thinking skills. This technique can promote interaction and supportive classroom environment (Black et al., 2004; Reynolds, 2009). Providing constructive feedback allowed scaffolding students' learning direction by showing them where they are in respect to their learning, their current achievement, strengths and weaknesses as well as to provide suggestions on ways to improve further. Besides, strategies such as sharing and clarifying the objectives of learning early on in the lessons aided the students in being more focused on their goal and consequently to achieve it (Harris, 2007).

By implementing self- and peer-assessments, it also provided the students the ownership of their learning (Leahy et al., 2005; Newby & Winterbottom, 2011). They were able to self-reflect on their own strength and weaknesses and recognized ways to improve them. The integration of formative assessment elements in the project given has developed students' self-confidence not only in presenting but also in giving constructive feedback to their peers' work (Brew et al., 2009). The project also strengthened their 21st Century skills on socialization (Johnson & Johnson, 2004; Sulaiman & Shahrill, 2015), communication and teamwork or collaboration (Strachan & Wilcox, 1996; Othman et al., 2015; Shahrill et al., 2015; Lim et al., 2016; Wood et al., 2017).

This study has a significant purpose in enhancing the pedagogical processes in the classroom. It allows for the creation of new knowledge based on previous research and our findings. As for Geography lessons, further research is recommended on other topics such as Map Reading, River and Coastal, Development and Industry as well. Similar research could also be conducted with other year levels with different student age groups. Additionally, similar research may be conducted in primary classes to see how it can help to prepare pupils before they enter secondary schools.

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ENGLISH AS FOREIGN LANGUAGE IN ECUADORIAN PRIMARY SCHOOLS BEFORE ITS OFFICIAL INTRODUCTION INTO THE NATIONAL CURRICULUM. WHAT HAVE WE LEARNED FROM IT?

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ABSTRACT

Between 2016 and 2017, English as a Foreign Language (EFL) was officially introduced as a compulsory subject in primary schools. Prior to this, EFL teaching in primary schools held the status of an elective subject or complementary activity, to the point that its inclusion in the school curriculum depended, among other aspects, on the school principal's decision. In view of this, this paper sets to reveal the ups and downs that EFL in the primary underwent before acquiring official status. To do so, one hundred and twenty-one primary EFL teachers from several provinces of Ecuador were surveyed, and eight school principals were interviewed. The most salient features observed had to do with absence of trained teachers, nonexistence of a curriculum for this subject, deficient infrastructure and insufficient knowledge in terms of methodology. This investigation has touched on some curriculum, logistical, technical and policy-making aspects that the government should pay attention to. The introduction of EFL in primary schools since 2016 presents new challenges and concerns, as well as hope for stakeholders. In this sense, educators and researchers have an opportunity to help along the change Ecuadorians want for their children.

Keywords: English as Foreign Language, primary schools, new curriculum

INTRODUCTION

The first University English Language Program in Ecuador was founded in 1928 at the Central University of Quito. During the 30s and 40s, other English language programs were opened in Guayaquil, Cuenca and Portoviejo. Espinosa (2007) explained that in the mid-40s, English replaced French as the foreign language of the middle and upper social classes in Ecuador. *Colegio Americano* was founded in Quito during the presidency of Galo Plaza Lazo to promote English as a global language. However, only students in the upper secondary benefited from learning English at that time. English language was not mandatory in any public primary schools and it only happened at private primary schools. In secondary public schools', principals included it in the curriculum depending on the human and economic resources availability. This condition contrasted with private elitist high schools because English-Spanish Bilingualism learning became the most important elements for trading their educational services during the 1980s.

Significant changes have been made in the education system after the Constitution of the Republic of Ecuador 2008. However, English language teachers of public schools demonstrated proficiency in English at the A2 level of the Common European Framework of Reference for Language (MCER) which was evidenced via a series of tests given by (Ministerio de Educación, 2011). Also, English Foreign Language learning (EFL) in public primary schools (Ministerio de Educación, 2014) was proposed to be incorporated officially from 2016 in all schools in Ecuador. In addition to this, Ecuadorian universities have adopted the legislative mandate to introduce English into the entire public education system thus, from 2015 they worked on the redesign of vocational programs that respond to the identified national demand of English Language teachers. This paper sets to reveal the chronological evolution of the EFL in the primary schools underwent before acquiring official status in Ecuador.

Evolution of English Teaching Curriculum in Ecuador

The evolution of English teaching as part of the core curriculum in Ecuador has four key periods: the CRADLE project (1992-2006), the national educational reform (2006-2012), the project Advance for education (2012-2015), and the current period for the massive teaching of English in Ecuador from 2016.

The CRADLE Project (1992-2005)

Having as an objective to offer a better access to English language instruction in all public schools, the Ministry of Education created the Foreign Language Administration Division [*División Nacional de Idiomas Extranjeros*] in 1992, under an agreement established with the British Council. Thus, the project for Curriculum Reform Aimed at the Development of the Learning of the English (CRADLE) was set (Haboud, 2009).

English as Foreign Language (EFL) was introduced in Ecuador as a relevant curriculum reform in public secondary schools from 1993, whose main objective was to "innovate and strengthen the process of teaching and learning the

English language, and to provide adequate infrastructure for the development of the new curriculum" (López, 2011, p. 41); offering "secondary students a solid foundation in EFL, with an emphasis on developing their listening, speaking, reading and writing skills (Caizaluisa, 2012). So, educational levels in Ecuador were divided in three different sections from 1996: a kindergarten, primary school (from 1st to 6th grade), and high school divided in two sections lower secondary (from 7th to 9th grade) and upper secondary (10th grade to 12th grade) (Ministerio de Educación, 2011).

In addition, the Model for Intercultural Bilingual Education (MOSEIB) was also launched in Ecuador in 1993; and it was put in place to recover the language and culture of the Ecuadorian ethnic populations (Conejo, 2008; Oviedo & Wildemeersch, 2008). To achieve this goal, indigenous people had to receive an education in their native language, resulting in the offer of the Intercultural Bilingual Education (EIB). "The EIB is a subsystem of MOSEIB for both the ethnic groups as well as for the rest of the population" (Actores del Sistema de Educación Intercultural Bilingüe, 2013; Aguerrondo, Crespo, Robalino, & Van Damme, 2013; Soto, 2015).

However, the globalization tendency led the government to the decision of improving the Ecuadorian population competitively in the region which reaffirmed the necessity of developing English language curriculum in Ecuador. Thus, the main contributions of CRADLE project were:

- Ecuadorian teacher's professional training by the British Council under the sponsorship of the Ecuadorian Ministry of Education.
- Production and distribution of a set of books named: Our world through English (OWTE); which was developed considering the Ecuadorian context to be used in the secondary.
- Inclusion of five hours of English classes per week in the curriculum map in all public secondary schools.

The increase of English hours per week was intended to be done in a progressive manner, starting from eighth grade of Basic General Education system BGE in the *Sierra* and *Amazon* regions regime in October 1993 and in May 1994 in the provinces of the coast. Nonetheless, this did not happen and by 1997 the number of periods of English class was still three classes week.

The national educational reform (2006-2011)

The results of the examination applied to the students of public schools in Cuenca city in Ecuador during 2004, showed the low results of 10.3 points out of 20 points. According to Calle (2012), these results were related to the fact that "public school teachers did not use strategies that strengthen communicative competence" (p.2).

During the same year, the secondary was introduced the constructivist model in teaching English which meant 5 hours of class per week, and some private schools even more.

The main objective of the new curriculum was to introduce technology innovation in educational system. It also promoted the development of the human condition, intercultural identity, multi-nationality aspects, and inclusion. The reform gave major emphasis to Spanish language and Literature, Mathematics, and Social and Natural Sciences. At this point, English was not yet officially part of the primary schools' curriculum.

From 2009 the Ministry of Education established on the agreement 0611-99, a new curriculum which included five periods per week of English class (45 minutes per class). Such reform was not applied uniformly, especially in the high School *bachillerato*, because many secondary schools lacked EFL teachers, many high school principals considered that English was not an important subject and parents were not able to pay for extra English language texts for their kids. Finally, in July 2011 through the Government Agreement No. 242-11, the number of periods for EFL classes in the *bachillerato* was regulated as five mandatory class periods per week in every private and public institutions (Ministerio de Educación, 2011).

The project Advance for education (2012-2015)

The Foreign Language Administration launched in 2012 the Advance English Project (AEP) as a way to provide support and guidance towards English teaching and learning processes in the public schools in Ecuador (Ministerio de Educación, 2012). It consisted in the publication of the English Language Learning Standards (ELLS) in 2012. This curriculum was aligned to a cognitive and constructivist teaching approach with a social and pedagogical view, which established the outcomes expected to achieve at the end of a proficiency level, based on the Common European Framework of Reference for languages (CEFR). It also delineated the knowledge and skills to be mastered by in-service teachers (Equipo Técnico de Proyecto Inglés, 2012).

The Ministry of Education assessed 5000 English teachers at the national level in 2013. The results indicated that only 2.4% of those evaluated obtained a B2 CEFR and according to the international program Education First, Ecuador ranked in 2015 in position 38 of 70 countries in the world where the English language is taught.

The number of students that were admitted at the tertiary level of education in Ecuador doubled during 2014; (preschool 317.701; primary 1.825.288; secondary 1.801.918; tertiary 1.458.762) which increased the English teachers demand whose number was 213,886 in 2014 (Antamba, 2015). Of that, 67% of the teachers were in the public segment, 27% in private schools, 5% in *fiscomisional* (combined government and religious schools), and 1% in municipal schools.

The program *Quiero ser Maestro* [I want to become a teacher] offered the opportunity to become an English teacher of the Ecuadorian educational system. The candidates had to demonstrate proficiency in English at the Common European Framework of Reference for Languages (CEFR) B2 level. They also had to approve evaluations about content-area knowledge, logical and verbal reasoning; and the execution of a demonstration class. The current English language teachers should also reach the same standard. This program also facilitated the training of English teachers through immersion programs in the United States and the Caribbean (Instituto Talento Humano, 2015). According to Paez (2013) this plan raised the work in mastery of the language that involves the development of the teachers' capacities as they know, understand and use the main theories and research related to language structure and acquisition, curriculum, assessment procedures, and ethical commitment. As a result of the program, the number of university professors with a master's degree increased from 7,899 to 11,307 in 2008-2012 (Gallegos, 2015). However, this educational project was financed with the oil exports revenues until 2014 when the reduction of oil world price affected the national economy (Villafuerte and Intriago, 2016).

The beginning of Massive English Language Teaching in Ecuador 2016

In 2015, the Ministry of Education and Ecuadorian universities network began a process of curriculum standardization in cooperation with the US Embassy. This new curriculum for teaching English had 3 objectives summarized in (1) Development in the learners of understanding of the world and other cultures, the communication of their thoughts through English. (2) The development of the personal, social and intellectual skills required to assume their potential productive participation in the growth of the world, and finally; (3) creation of a taste for language learning at an early age, through positive learning experiences.

At the beginning of 2016, skills acquired in English were expected to be developed from the components of communication (a) listening, (b) speaking, (c) reading, and (d) writing, based on Common European Framework of Reference for Languages (MCER). However, many tasks are still pending to be completed as the EFL teachers are being trained, teaching material are being developed, and educational centers are equipped with the required technology.

Stakeholders' perceptions about scenario for English language teaching in Ecuador

Here are exposed the results of a survey in which participated 120 Ecuadorian English language teachers and educational institutions administrators. The 60.6% of participants work in the coastal region and 39.4% in the Sierra. Similarly, a 75.5% of the people surveyed work in the urban areas while 24.4% work in the rural areas. Finally, 76% of participants were female, 20% were masculine and 4% declared other genders.

Throughout the analysis of data collected, it was possible to identify a **wide** variety of realities from region to region. In the Amazon region, for example, teachers in a public primary school are not required to be qualified as an EFL teacher, as long as they demonstrate proficiency in any of the language skills.

Table 1
Current situation for massive English teaching in Ecuador

Categories	Subcategories	Statistic
Kind of teacher	All subjects' teacher (including English)	85.90%
	Only English teacher	14.10%
Number of hours class/week	5 hours class/week per course	50.70%
	3 hours class/week per course	17.00%
	Less than 3 hours class/week per course	32.30%
Teachers' English level (CEFR)	A2	10.00%
	B1	42.90%
	B2	24.30%
	C1	1.50%
Teaching approach preferred for teaching	Grammatical-translation	43.70%
	Natural	29.60%
	Reading	36.6%
	Audio-lingual	39.40%
	Cognitive	33.80%
	Communicative	64.80%

Source: Survey applied / 2016.

A typical EFL lesson in primary school has been limited to the teaching and memorizing of a few segments of vocabulary: the alphabet, numbers from one to ten, colors, days of the week, months of the year, parts of the body, and in some advanced classes the names of some vegetables and fruits. Very rarely, the class involves hands-on activities to address the resolution of a problem in a group. Most of these vocabulary lessons have been given without context and have lacked meaning and relevance for the learners.

CONCLUSION

ELT in primary schools is critical since it may become a key factor in determining where English language education will go from the basic elementary to the tertiary level. This research findings revealed the following challenges:

- (1) Setting clear goals for learning English, in the national curriculum for primary schools that are aligned with language proficiency standards of the CEFR,
- (2) Articulating the curriculum of English in a way that promotes gradual continuity from the basic elementary grades to the lower and upper secondary levels,

(3) Developing an effective teaching methodology and adequate textbooks

It is crucial for the universities to prepare teachers as reflective practitioners that analyze their teaching and keep innovating their practice.

(4) Establishing an effective system of pre- and in-service training for primary school teachers of English as well as a recruitment system for quality teachers.

(5) It must be noted, especially, that to date most universities train students to work as EFL teachers in the secondary, opening the opportunity for undergraduate and graduate English language programs that target the primary to be created.

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ENGLISH LANGUAGE TEACHING IN ECUADOR: AN ANALYSIS OF ITS EVOLUTION WITHIN THE NATIONAL CURRICULUM OF PUBLIC PRIMARY SCHOOLS

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ABSTRACT

This study aims at portraying the gradual change in the status of the English as a Foreign Language (EFL) subject within the Ecuadorian National Curriculum for public primary schools since it was introduced in the curriculum in 2000. For the achievement of this purpose, we performed a review of public documents including Ministry of Education agreements, studies performed by UNESCO as well as data from official webpages, and newspapers. The results showed that the introduction of the EFL subject in the curriculum of public primary schools in 2000 resulted from the attempts made by the administrators of the CRADLE project since 1993. In 2000, English was introduced as an elective subject. It could only be taught in the establishments that had the facilities and specialized human resources. School principals had the say whether to incorporate EFL, Music, or Manual Arts in the periods assigned for the elective subject. In 2011, the status of the subject changed to as complementary activities. EFL and Computing were the choices this time. In March 2014, the complementary activities were excluded from the primary school curriculum, generating a huge controversy around Ecuador. Consequently, the Ministry of Education claimed that EFL would be included again in the primary schools' curriculum after having the curriculum for this subject and prepared human resources ready. EFL was officially implemented as a compulsory subject in all Ecuadorian public primary schools in September 2016 in the *Sierra* and Amazon region; and in 2017, in the coastal provinces. Space is left to study whether this subject is being incorporated in all schools or not.

Keywords: EFL, Public primary schools, Ecuador, Curriculum

INTRODUCTION

English as a Foreign Language (EFL) teaching in Ecuador has undergone several processes and reforms that in most cases benefited only secondary schools. In 1992, the launch of the Curriculum Reform Aimed at the Development of the Learning of the English (CRADLE) project drove the incorporation of EFL in the curriculum for the secondary level starting in 1993 (The CRADLE Project, Ecuador, n.d.). Unfortunately, this was not the case for public primary schools-grades 1st to 7th. Before 2016, EFL teaching in public primary schools was not a priority. Economic, social, political, and educational forces (Soto, 2014) influenced how EFL would be considered in that academic level. Despite of this, many attempts were made to introduce the subject into the curriculum of primary schools. Such efforts led stakeholders to issue agreements that would address the introduction of EFL in the curriculum under different denominations/statuses.

EFL has passed from being an elective subject, as it was first introduced in 2000, to become a complementary activity later on. In both cases, it was not compulsory. However, such condition would change with the election of a new political leader in 2006. The progressive philosophy of Rafael Correa made of education one of the fundamental pillars of his government. He put a lot of emphasis on bringing the nation up to international standards, which included seeing English learning with different eyes. Proficiency and Assessment requirements, training for EFL teachers, the design of a new curriculum, the establishment of learning and teaching standards, among other things, would occur after a language proficiency evaluation administered to both students and teachers in 2009. All of this would once again target the secondary level forthwith. But, something had to be done for the primary school as well, considering that those years are critical for language learning.

Finally, EFL would be officially implemented as a compulsory subject in all Ecuadorian public primary schools in September 2016 in the *Sierra* and Amazon regions and in 2017 in the coastal region. Before that happened, a gap of about three years would emerge in the teaching of this language, though. The irregular way in which EFL had been taught in primary schools due to the lack of a curriculum, standards, alignments, qualified teachers to instruct the language at this level, among other considerations, led the stakeholders in turn to suspend the teaching of EFL in primary schools since 2014 up part of 2016. Such decision caused controversy nationwide because during that time no room was left for EFL, not even as an elective nor complementary activity. Uncertainty became part of the day to day also as the future of EFL teaching in elementary schools was not clear due to the shortage of qualified EFL teachers in Ecuador.

Considering the importance of documenting events that mark the advance of education in each nation worldwide, this study aims at portraying the gradual change in the status of the EFL subject within the Ecuadorian National Curriculum for public primary schools since it was introduced in the curriculum in 2000. To accomplish this objective, this work includes all the curricular frameworks approved for primary schools since 1996. A descriptive analysis of how EFL was acknowledged in each curricular framework complements the chronological portrayal of EFL in Ecuadorian primary schools.

METHODOLOGY

This study required a deep analysis of the historical background of English language teaching in primary schools taking into account how it was labeled in the curricular frameworks approved for this level over the years. Therefore, qualitative data such as official documentation and posts on government websites that helped in the understanding of the changes in the status of EFL teaching in Ecuadorian primary schools were analyzed. Agreements 00001504; 306-11; 0041-14; and 0052-14 were key in this study as they reported reforms and regulations for EFL teaching in primary schools. Reports published by UNESCO were also crucial as they provided information about the curricular framework of Latin American countries, including Ecuador. The data collection and analysis were carried out from January 2016 to May 2017.

FINDINGS

The efforts for introducing EFL as a formal subject in the secondary started in 1992-1993 with the implementation of CRADLE, and later on with Advance (the EFL teaching project that replaced CRADLE in 2012). This, however, was not the case for EFL in primary schools. In the past, there was not much support from education stakeholders to include English in public primary schools. In fact, as shown in the curriculum approved in 1996, see Table 1, it did not exist for the kindergarten, basic elementary, or basic intermediate levels of primary schools (UNESCO, 2010/11).

Table 1.
Curriculum Approved for Basic Elementary Levels

Subject	Weekly periods per grade					
	I	II	III	IV	V	VI
Spanish	8	8	7	7	5	5
Math	5	5	6	6	7	7
Social Sciences	3	3	4	4	5	5
Science	2	2	3	3	4	4
Sub-total	10	10	8	8	8	8
Technical-Practical Formation						
Physical Education	3	3	2	2	2	2
Artistic Education	4	4	3	3	3	3
Practical Activities	3	3	3	3	3	3
Subtotal	10	10	8	8	8	8
Complementary Activities						
Class Association	2	2	2	2	2	2
Total	30	30	30	30	30	30

Source: UNESCO, 2010/11. Agreement 1443, April 1996

Adapted by the authors

However, efforts of citizens and CRADLE administrators started to gain strength years later. With the aim of improving EFL learning in Ecuador, the CRADLE project proposed to the Ministry of Education at that time to include EFL in the curriculum for primary public schools and seven years after they started operating with the project at the high school level, they managed that the Ministry of Culture and Education included EFL in primary schools (Caizaluisa, 2011; L. Arevalo, personal communication, February 11, 2016; J. Chamba, personal communication, January 10, 2016). Consequently, in March 2000, the Ministry of Culture and Education issued Agreement 00001504 (Ministerio de Educación y Cultura,

2000). According to the Article 2 of this agreement, the Ministry of Culture and Education agreed to include EFL instruction from the first to seventh years of primary school as an elective subject in the institutions that had the facilities and staff with the qualifications to teach the language.

As it was stated in Agreement 00001504, room was made for incorporating EFL in the curriculum of public primary schools as an elective subject. However, the academic hours assigned for the elective were not exclusive for the teaching of EFL. According to the Ministerio de Educación (2011), the school principals had the say to include either EFL, Music, or Manual Arts as an elective. As a guide for EFL teachers of primary schools that included English in their curriculum, in 2007, CRADLE presented, through the Foreign Language Administration, the EFL Program for grades one to seven of EGB: Curriculum design by competences: Philosophy, foundation, and guidelines for the teaching of elective EFL in grades 1st. to 7th (Ministerio de Educación, Dirección Nacional de Currículo, & División de Idiomas Extranjeros, 2007). This program was noncompulsory, therefore, not all public primary school teachers adhered to it.

The possibility of having EFL as an elective the curriculum for primary schools was mandated in Agreement 00001504, but the national curricular framework of primary schools was not modified immediately. Schools principals did attached to what was ordered in Agreement 00001504, though. In December 2009, the Ministry of Education launched a new curricular framework for primary schools, see Table 2, and in its structure is seen the incorporation of the aforementioned elective subject (UNESCO, 2010/2011).

Table 2.
Primary Education: Weekly Schedule per curricular area

Area	Weekly periods per grade					
	First cycle		Second cycle		Third cycle	
	1st	2nd	3rd	4th	5th	6th
Spanish and Literature	12	12	10	10	8	8
Math	6	6	6	6	6	6
Social and Natural Environment	5	5	-	-	-	-
Science	-	-	4	4	4	4
Social Studies	-	-	4	4	5	5
Esthetics	3	3	3	3	3	3
Physical Education	2	2	2	2	2	2
Elective	2	2	1	1	2	2
Weekly total	30	30	30	30	30	30

Source: UNESCO, 2010/2011. Agreement 61199, December 6, 2009.
Adapted by the authors.

Another change that involved EFL teaching in primary schools was seen in August 2011 with the issue of Agreement 306-11 (Ministerio de Educación, 2011a). Through this agreement, the Ministry of Education assigned five class periods for complementary or additional activities, which replaced the two class periods appointed to the elective subject in primary schools. The extra periods of complementary activities added five more class periods to the school workload, which translated into an official transformation of the school workload from 30 to 35 hours. As complementary activities, teachers could, among other subjects, instruct students in EFL and Computer Use (see Table 3). However, in order to incorporate these subjects (special subjects as they were named), public primary schools were required to have qualified staff and resources to teach the mentioned subjects.

Table 3

Approved workload for basic general education.

Subject	EGB Grades									
	1 st	2 nd	3 rd	4 th	5 th	6 th	7 th	8 th	9 th	10 th
Spanish and Literature	-	12	12	9	9	8	8	6	6	6
Math	-	6	6	6	6	6	6	6	6	6
Social and Natural Environment	-	5	5	-	-	-	-	-	-	-
Science	-	-	-	4	4	4	4	4	4	4
Social Studies	-	-	-	4	4	5	5	5	5	5
Esthetics	-	3	3	3	3	3	3	3	3	3
Physical Education	-	2	2	2	2	2	2	2	2	2
Elective	-	-	-	-	-	-	-	5	5	5
Subtotal	-	30	30	30	30	30	30	30	30	30
Additional Activities*	-	5	5	5	5	5	5	-	-	-
Total	35	35	35	35	35	35	35	35	35	35

Adapted by the authors. Source: Agreement 306-11 of August 2011.

* Additional activities included EFL, Computer Use, Music or Physical Education

As can be noticed, in the agreements issued between 2000 and 2011 EFL was only considered officially as an elective subject within the curriculum of public primary schools; no mandatory curriculum existed for this subject at the primary level; and, school authorities were the ones who decided whether to include English in their schools or not based on the available resources at their disposal. 2014 marked another important point of reference for EFL teaching in primary schools in Ecuador. A new agreement was issued in that year which generated polemic nationwide.

A controversial agreement

Agreement 0041-14 issued on March 11, 2014 caused national controversy as it established a new curricular framework for EGB which did not leave room for EFL teaching in primary schools (see Table 4). The academic hours assigned for complementary activities, in which English could be taught, were excluded from second to seventh grade in this curricular framework. In their place, academic hours for *Clubs* were included. As it was contemplated on this curricular framework, *Clubs* were meant for extracurricular activities concerning cultural-artistic, sporting, scientific, and social interaction matters (Ministerio de Educación, 2014a). The school community and the media reacted immediately and claimed that this new agreement represented a setback for the public primary education.

Table 4

School workload for the ten years of EGB

Core Subjects and Clubs	Grades of EGB / Hours per week									
	1 st	2 nd	3 rd	4 th	5 th	6 th	7 th	8 th	9 th	10 th

Language Literature	25	12	12	9	9	9	9	6	6	6
Mathematics	-	8	8	7	7	7	7	6	6	6
Natural and Social Environment	-	5	5	-	-	-	-	-	-	-
Natural Science	-	-	-	5	5	5	5	4	4	4
Social Studies	-	-	-	4	4	4	4	4	4	4
Aesthetic Education	2	2	2	2	2	2	2	2	2	2
Physical Education	5	5	5	5	5	5	5	5	5	5
English as a foreign language	-	-	-	-	-	-	-	5	5	5
Clubs	3	3	3	3	3	3	3	3	3	3

Source: Agreement 0041-14 issued on March 11, 2014.

Translated by the authors

In light of this, on March 23rd, 2014, the Ministry of Education issued a communication on its official website and stated that what had been reported by the media was weak and that such agreement did not modify the curricular framework for public primary schools (Ministerio de Educación, 2014c). In addition to that, the Ministry of Education also indicated that

those institutions that already offered EFL or any other foreign language within their curriculum, in the first grades of EGB, could continue offering its instruction by presenting the curriculum to the corresponding District Administration following the transitory disposition stipulated in the mentioned agreement (par. 3).

However, the point was that this transitory disposition stated that only once the Ministry of Education had published the curriculum for EFL, had the textbooks and the necessary human resources to teach this subject in the first years of GBE, the current curriculum and the class workload could be modified to incorporate EFL as an individual subject (Ministerio de Educación, 2014a). This meant that schools had to wait until the Ministry of Education and the Foreign Language Administration were ready to implement this subject in the curriculum of public primary schools.

The day after the aforementioned communication was published on the Ministry of Education's website, a new agreement was issued by the Ministry of Education, Agreement 0052-14. Through this agreement, the Ministry of Education agreed to issue the "Regulations Exploitation of the Transitory Disposition Included in the Agreement which stated that English language teaching would be mandatory for public, religion-driven, and private institutions from the second grade of primary school to the last year of high school (Ministerio de Educación, 2014b). This reform would be included in the 2016-2017 school year for the *Sierra* and amazon regions and in 2017-2018 for the coast (Ministerio de Educación, 2014d) -Dates vary because the beginning of the school year in Ecuador is not the same for all regions in the country. Classes begin in April-May in the coastal provinces and the Galápagos Islands and in September in the *Sierra* and Amazon regions.

Likewise, in its Article 2, Agreement 0052-14 also stipulated that the academic periods, which in Agreement 041-14 were assigned to *Clubs*, could be used for EFL classes. Additionally, in its article 3, the agreement also specified that "for schools to be able to incorporate EFL in their curriculum, they needed to have teachers accredited with a CEFR B2 level; the school should also have the necessary resources to guarantee the correct learning of this language" (Ministerio de Educación, 2014b, p. 3). The deficit of English teachers with a B2 level was evident, meaning that several schools that wanted to implement English in their curriculum were not able to fulfill this requirement. In one of its articles, *el Comercio* (2014, March 26) highlighted this situation; and, since English was not compulsory for the primary grades, the schools that did not have teachers for the job could opt for the other alternatives offered through *Clubs*.

Principals of public primary schools, concerned with continuing to provide EFL instruction, appealed to their districts administrators to assign an English teacher to their institutions, but as there were very few teachers with a CEFR B2 level

to work in primary schools so this requirement could not be fulfilled. The state of EFL instruction in public institutions varied between public primary schools that excluded the subject to adhere to the new curricular framework and those schools that continued with it. Being the former case the most commonly found due to the lack of competent EFL instructors available (El Comercio, 2014, March 26).

EFL finally became a core subject in primary schools

After all the ups and downs, on February 17th, 2016, the Ministry of Education issued the agreement that would give EFL a life of its own in primary schools. EFL would not be treated as an elective or complementary activity anymore. Agreement *MINEDUC-ME-2016-00020-A* finally incorporated EFL as a core subject in the curriculum of primary schools (Ministerio de Educación, 2016a). With a new curricular framework (see Table 5), Agreement *MINEDUC-ME-2016-00020-A* restated what the Ministry of Education had indicated in Agreement 0052-14. English language teaching became compulsory for public, religion-driven, and private institutions from the second grade of primary school to the last year of high school in the 2016-2017 school year of the *Sierra* regime and in the 2017-2018 school year of the coast regime. It would be incorporated progressively, though, until all primary schools have the staff with qualifications to teach English.

Table 5
School workload for the ten years of EGB

Subjects	Grades of EGB / Hours per week								
	Basic elemental			Basic Intermediate			Upper Basic		
	2 nd	3 rd	4 th	5 th	6 th	7 th	8 th	9 th	10 th
Language and Literature	10	10	10	8	8	8	6	6	6
Mathematics	8	8	8	7	7	7	6	6	6
Social Studies	2	2	2	3	3	3	4	4	4
Natural Science	3	3	3	5	5	5	4	4	4
Cultural and artistic education	2	2	2	2	2	2	2	2	2
Physical Education	5	5	5	5	5	5	5	5	5
English as a foreign language	3	3	3	3	3	3	5	5	5
School projects	2	2	2	2	2	2	3	3	3

Source: Agreement *MINEDUC-ME-2016-00020-A* issued on February 17th, 2016.

Translated by the authors

By the time EFL was allocated as a core subject in the curriculum of primary schools, the curriculum and textbooks for this subject were ready; just like the Ministry of Education had reported in Agreement 0052-14. The requirement of counting with staff accredited with a CEFR B2 level would be met through the “It is time to teach in Ecuador project”. This project has recruited (since 2016 up to date) volunteer professionals who hold a B2 accreditation to teach in public schools of Ecuador (Ministerio de Educación, 2016b). It is time to teach in Ecuador project will be open until accomplishing the goal of counting with qualified staff to teach EFL in all schools belonging to both the primary and secondary level.

As it has been discussed throughout this work, the EFL has been part of the curriculum of primary schools for almost two decades. It did not hold a place of its own for thirteen years; during those years, it was taught as an elective or complementary activity. An interval of about three years without EFL in primary schools occurred prior to earning a spot in the Ecuadorian curriculum. However, the shortage of teachers with the qualifications to teach this language is still a barrier that need to be overcome. Hopefully, projects like “It is time to teach in Ecuador” will aid to cover the demand of EFL teachers for primary schools and soon children all over Ecuador will have the opportunity to learn this language.

CONCLUSIONS

The purpose of this work was to portray the gradual change in the status of EFL within the Ecuadorian National Curriculum for public primary schools. In light of this objective and the results found, we can conclude that EFL has existed (under different labels) in the curricular framework of primary schools in Ecuador for almost two decades. Since 2000 up to 2013, two agreements allowed for its delivery as an elective subject first and then as a complementary activity, which permitted some schools, teachers and students to benefit from it. Of course, the quality, extent and depth of the program depended on factors such as the will of the principal and availability of resources and teachers. Regardless of this reality, some primary schools did offer EFL to their children.

President Rafael Correa, who governed Ecuador since 2007 up to 2017, was not satisfied with the irregular way EFL was delivered in primary schools. It was noncompulsory, there was not curriculum for this level, no books, no teachers with appropriate qualifications, no guidelines, nothing. It meant that not all children would be benefited from learning EFL. It also meant that what children enrolled in one primary school learned was completely different to what was learned by children enrolled in other primary school, no matter if both schools were located in the same city or neighborhood. Therefore, in 2014 the Ministry of Education banned primary schools from teaching EFL unless they had teachers with qualifications to do it. At the same time, The Ministry of Education also communicated that EFL would be part of the curriculum of primary schools in 2016 again, but this time a curriculum, books, and qualified teachers would frame its delivery. A gap of about three years arose in the teaching of EFL in primary schools before it finally became part of their curriculum with the status of EFL itself and not under the label of elective or complementary activity.

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ENHANCING ENGLISH SPEAKING INTERACTION IN FUTURE FOREIGN LANGUAGE TEACHERS: CASE STUDY CORRECTIVE FEEDBACK THROUGH GOOGLE SHEETS

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ABSTRACT

This action-research aims at improving future English language teachers' proficiency in English through the use of Corrective Feedback (CF) supported on Information and Communication Technology (ICT). Twenty two English teacher education undergraduates in Ecuador participated of a four-month educational intervention that involved literature circles (LC), written corrective feedback (WCF) from instructors, and self-correction supported on an adaptation of the Strategy Inventory for Language Learning (SILL). From observing recorded LC sessions, instructors and participants gave CF via two Google Sheets forms to monitor and enhance language acquisition. The findings showed that the participants incrementally improved their English proficiency. Additionally, several teaching and learning strategies supported on ICT were transferred to the soon to be primary and secondary English language teachers.

Key words: English learning, digital competences, corrective feedback, literature circles.

INTRODUCTION

Having as a horizon the challenges proposed by UNESCO (2015) for the global, peaceful, diverse and sustainable educational system for all in 2030, Information and Communication Technologies (ICT) have the potential to improve collaborative learning (Cabero, 2009); and these technologies have revolutionized the way people communicate and learn around the world (Armstrong & Franklin, 2008; Farhat & Kazim, 2011; Ince, 2014; Spragueb, 2016).

However, it should be noted that despite the increase in the use of technology in educational institutions, pedagogical practices have not necessarily implied a substantial improvement of how languages are taught (Area, 2010). Thus, teachers and students require of innovative strategies to reach higher and more effective educational results, avoiding the repetition of obsolete teaching strategies that only make use of a computer at the basic level.

In addition, Burgues (2011) claims that in the search for new ways to promote a “learning to learn” attitude, the combined efforts of learners and teachers has proven to be of great value and greatly enhanced learning thanks to the incorporation of technology that allows virtual collaboration in the current interconnected and complex contexts where we participate as members of a digital society (Seely, 2012, p15).

This action-research study focuses on the combination of two types of Corrective Feedback (CF) on the oral performance of a group of learners in an English teacher education program in Ecuador, South America.

Current educational policies have made English a mandatory subject in the primary, and so it is expected that by the time a student finishes the secondary, where English has been part of the curriculum for 25 years, he or she will reach the B1 level of the Common European Framework of Reference (CEFR). Although many students in the secondary don't like English, they acknowledge it as a necessary tool required for accessing to prestigious higher education institutions (Education First, 2015). In view of this, and to help accomplish this objective, it is necessary for English language teachers to develop and apply teaching strategies that offer the English learning student population more access to quality education.

LITERATURE REVIEW

Educational interaction through internet

ICTs have impregnated the spheres of English language education, and the impacts are growing deeper and deeper (Ince, 2014). In this sense, Chun (2011) and Golonka et al. (2014) have stressed the fact that the web 2.0 allows for English as a Foreign Language (EFL) instructors to take advantage of social networking sites, virtual worlds, interactive games, cloud computing sites, among others in their classrooms. This has brought student participation, collaboration, and interaction to new levels.

Educational programs designed to strengthen foreign language communicative skills should take into account the advantages in these technologies to exploit cognitive aspects at the level of knowledge, experience, and ideas (Halliday, 2014), but in coherence to the learners' age, sex, and context.

Literature circles as English language learning strategy

Literature Circles (LC) are small peer-led discussions that involve reading in English as a foreign language (EFL). Literature circles have been associated with the learning strategies that produce a lot of benefits to the English language classroom. Ruben (1975) defined the term ‘learning strategies’ as “the techniques and devices which a learner may use to acquire knowledge” (p 43).

Holt and Bell (2000) list among the benefits of reading circles that the students position themselves as members and viewers of the world, and in that sense, they are invited “to feel, to question, to explore human values, and to examine traditions and cultures” (p. 5). Thus, it has been observed that students that get involved in the conversations as the result of reading, increase their interest for reading outside the classroom (Almasi, 1995). In fact, literature circles as spaces for conversations not only permit readers to understand the text, but also allow them to make sense of the readings in the subsequent discussions (Rowland and Barrs, 2013).

Video recording as a the source for Corrective Feedback

Video feedback has been used by teachers and scholars as a medium for giving feedback to students learning English as well as in the training of future teachers. (Tochon, 2008; (Farfán, G., Villafuerte, J., Romero, A., Intriago,E., 2017). Hayden (2012) argued that videos capture reality in ways far more precise than our memory is capable of. This makes it more accessible to capture the small details of spoken language. Hensley & Jordan(2009), adding to the previous claim, believed that observing the videos several times not only made possible a much more objective judgement of EFL learner's oral performance, but also of feedback given from their teachers. When learners use videos for self-evaluation and teachers for giving feedback to their students, the chances of this feedback being richer in details and deeper in analysis are much higher. Additionally, Reitmeier and Vrchota (2009) commented on another benefit for students, the transfer of knowledge that is achieved from self-evaluation transcends the classroom and it becomes a more personal experience.

However, videos pose some challenges. Video is a medium that because of its intrusive nature can cause anxiety during the recording process, (Nielsen & Harder, 2013) and embarrassment in later instances (Hayden & Jordan, 2012).

Similar Studies

A case study carried out by Shintani (2015) investigated the characteristics of computer-mediated synchronous corrective feedback and asynchronous corrective feedback in an EFL writing task. By means of an interview that was conducted immediately after the writing session to find out about the the writer's perceptions about the feedback they received. This research yielded results where synchronous corrective feedback was responsible for a dynamic writing process that in some aspects resembled oral corrective feedback. Also, both types of feedback allowed the participants to understand and reflect on the unique features of writing: having a slow pace, its permanency and accuracy.

In such context, this work answers the following question:

(i) To what extent does CF given by teachers and students themselves, supported in Google Sheets, help future English language teachers to improve their oral performance in English?

METHODOLOGY

Setting and Sample

The study was conducted in the college of education of a public university on the coast of Ecuador. The students were in the English teacher education program and came mostly from public high schools.

Participants

Twenty-two students in the ninth semester were purposefully selected to participate in the study, twelve male and ten female, in the ages between 22 and 45. They were informed and requested consent to participate in the investigation. The class used for this intervention was Literature Workshop whose main methodology was based on LCs. Although, the learners had prior experience working with LC, they were informed of the new additions: videotaping the LC sessions, a self-assessment questionnaire and a speaking performance rubric delivered via Google Sheets and Google Drive.

Instruments and tools

Likert-scale questionnaire for self-assessment used by the students

This is a tool adapted from the Strategy Inventory for Language Learning (SILL) originally developed by Oxford (1989), to evidence the participants' individual self-assessment. The form formatted as a Google Sheets form include 40 items to assess participants' use of memory strategies, cognitive strategies, compensation strategies, metacognitive strategies, affective strategies and social strategies in their process of learning EFL. Participants had to choose from 1 to 5, being

1. Never or almost never true of me
2. Usually not true of me
3. Somewhat true of me
4. Usually true of me
5. Always or almost always true of me

Speaking interaction performance rubric used by the teachers

This is a 5-scale rubric, also formatted in Google Sheets, that was designed from the language performance describing scales in the Common European Framework for languages: Learning, Teaching, Assessment (Consejo de Europa, 2001). The rubric allowed teachers to choose a qualitative description and give feedback in the following areas: vocabulary control, grammatical accuracy, phonological control, spoken fluency and propositional precision. The form also had a comment field to add positive or negative impressions about participant's performance, and make specific suggestions to improve their communicative and linguistic performance in English.

Literature Circles

A total of ten LC sessions were conducted with the participating class. Students were divided into four groups based on their English level: two beginning groups, one lower intermediate and one upper intermediate. There were five roles that were rotated every week. For each level, there was a set of graded books that they could choose from. Students in their groups decided which books to read, how many pages, and which roles to play as long as the roles did not get repeated.

From the sixth session, students could repeat a previously played role. The roles that the students performed were discussion leader, bridge builder, artist, diction detective and reporter as proposed in Shelton-Strong (2012).

Reading material selected

A list of titles was preselected by the researching team as presented in figure 1, considering the students English level. The students were involved in the selection of titles, which was done to have them express their personal interests. The list of title is the following:

Books' Titles	Authors	Book's Gender	Level of complexity	ICT Activities support	Other activities
"Marcel and the Shakespeare Letters" Pearson Education Limited ISBN 0-582-42768-1	Stephen Rabley	Romance	Beginner	Audio CD	Reading and comprehension questions
"Girl meets boy" Pearson Education Limited ISBN 0-582-40111-9	Derek Strange	Romance	Beginner	Audio CD	Reading and comprehension questions
"The Last Photo" Pearson Education Limited ISBN 0582-40282-4	Bernard Smith	Adventure	Beginner	Audio CD	Reading and comprehension questions
"The Carnival" Pearson Education Limited ISBN 0-582-50530-5	Annette Keen	Romance	Beginner	Audio CD	Reading and comprehension questions
"Run for your Life" Pearson Education Limited ISBN 0140815643	Stephen Waller	Adventure	Beginner	Audio CD	Reading and comprehension questions
"Treasure Island" Pearson Education Limited ISBN 0 582 46828 0	Robert Louis Stevenson	Adventures	Lower Intermediate	Audio CD	Reading and comprehension questions
"King Arthur and Knights of the Round Table" Pearson ISBN 9781-4058-5532-7	Edited by Andy Hopkins and Jocelyn Potter	Adventure	Lower Intermediate	Audio CD	Reading and comprehension questions
"Lost Love and Other Stories" Pearson Education Limited ISBN 978-1-4058-8165-4	Edited by Andy Hopkins and Jocelyn Potter	Adventure and Romance	Lower Intermediate	Audio CD	Reading and comprehension questions
'The Wave'	Morton	Suspense	Lower	Audio CD	Reading and

Pearson Education Limited ISBN 0-582-41677-9	Rhue		Intermediate		comprehension questions
“The strange case of Dr. Jekyll and Mr. Hyde” Black Cat Publishing ISBN 978 7 5617 3590 9	Robert Louis Stevenson	Mystery	Higher Intermediate	Audio CD	Reading and comprehension questions
“The Scarlet Letter” Black Cat Publishing ISBN 978-7-5617-6611-8	Nathaniel Hawthorne	Drama	Higher Intermediate	Audio CD	Reading and comprehension questions
“American Crime Stories” Oxford Woodworm Libraries ISBN 0194230791	Several Authors	Crime and Mystery	Higher Intermediate	Audio CD	Reading and comprehension questions

Figure 1. Selection of Readers used during the educational intervention

Video recording equipment

The participants' language performance was recorded using an iPhone 6s. The recordings were made during the discussion phase of the LCs. These sessions took place inside the designated classroom in the College of Education. The videos last from 15 to 25 minutes. These videos were uploaded into Google drive folder that was shared with students and teachers so they could access them for observing and completing the questionnaire and rubric.

The educational intervention

The intervention consisted of 4 steps. The activities and recommended ICT tools corresponding to each step are explained in figure 2.

Steps	Didactic activities	ICT tool recommended
1. Planning the educational intervention	1.- Setting English learning goals 2.- Choosing a role for discussion in groups 3.- Selecting the texts	Google drive
2. Execution of Literature Circles Time: 3 months	Individual Reading - input Group discussion - input and output Roles handouts – output	Distribution of text and listening material using Google Drive
3. Assessment (meta-analysis) Self assessment External tutoring	1. Videotaping of LC session (discussion part) 2. Self assessment through the individual observation of videos. 3. Giving feedback via Speaking Interaction Performance Rubric through the observation of videos on the part of the instructors.	Iphone 6s with adapted microphone Google Drive Google sheets
4. Re-start the Practice	The practice re-start activities from the step No. 2. Participants re-set new language goals and work on the weaknesses detected.	Google sheets Google drive

Figure 2. Educational Intervention Supported by ICT

RESULTS

Corrective feedback forms given via Speaking Interaction Performance Rubric - Qualitative assessment

Tables 1 and 2 present the analysis of two selected randomly students. There can be seen the comments made by one of the participating teachers.

Table 1.

Analysis of Participants' corrective feedback: Vocabulary control and Grammatical accuracy.

No.	Participant 1	Participant 2	Analysis
Vocabulary control	Score 3. Comment: I am happy that there are very few errors in the use of vocabulary, I think I did not notice any. But watching the videos so many times is a bit exhausting.	Score 2. Comment: More practice is required in the oral communicative part, not only to answer questions, but to communicate ideas based on solid reasons. There are words that maybe should be revised as "Beautiness" that do not exist but you certainly have the idea of the same "Beauty"	The students receive concrete suggestions to improve their vocabulary. Students venture words in their attempt to make meaning, even though the partly incorrect. As students are required to read the comments given, there is chance for extra support directly from the instructors.
Grammatical accuracy	Score 3. Comment: The student struggles to form sentences accurately. It is worth mentioning that the students is trying his best to retrieve structures that he has read and practiced. It seems it is a matter a practice in this case.	Score 3. Comment: It is noted that it strives to correct grammatical errors, but there are mistakes that are quite solidified in usual conversations that should improve, such as connectors, and verbal conjugations and their times. But I suggest you participate more so that you can continue to provide more efficient suggestions that could improve your oral production.	The teachers stresses the point that there are some fossilized error that require attention. In this case, the teacher asks the students to observe several categories of their discourse.

Table 2.

Analysis of Participants' corrective feedback: Phonological control, Spoken fluency and propositional precision.

Phonological control	<p>Score 3. Comment: Attention. The pronunciation is not bad at all, only that the strong influence in the mother tongue sometimes denotes certain confusions that are related to the vowels, the same ones that are not in the mother tongue. It is recommended to practice the other 10 vowels that are not in Spanish. Another, timely observation is to relax the consonants so that they are not as sharp as the, P, T, R.</p>	<p>Score 4. Comment: It is noted that it strives to have a pronunciation that is closer to the natural, there are aspects that can be considered as the rhythm and volume, that cadence marked in the highs and lows make that when expressing the words are charged More strength and do not always feel as detached from what is meant</p>	<p>One other linguistic aspect is related to pronunciation. Students, in this description, are invited to consider the root of their weak pronunciation. Although the comment whose score is 4 provides info to sound more natural, the terminology employed might be an obstacle to comprehension.</p>
Spoken fluency	<p>Score 5. Comment: It is very well seen how you can maintain the flow of ideas, although these are quite linked to the knowledge of the subject, which is why more reading is recommended so that the increase in lexico is not only partial or required to a topic Specific, but to any idea.</p>	<p>Score 4. Comment: But I must insist that the participation is quite low, which makes it difficult to evaluate and advise effectively.</p>	<p>Fluency is encouraged to be developed apart from accuracy. Participant one is motivated to read more since the more they read the more content they have to share during the session. Participant two is indicating that students should act more so the instructor can evaluate more accurately their spoken performance.</p>
Propositional precision	<p>Score 3. Comment: Must work in tone and volume; In English there is a rhythm like in all the languages that are needed to emphasize conviction, desire, encouragement, etc. So you can brighten up your oral expression.</p>	<p>Score 2. Comment: Although it is true that the essential aspects are explained, a clear, detailed and reliable codification is not yet issued, probably because the interventions are limited to simply responding or participating in a limited way. Remember that the more you participate, the more you acquire dexterity.</p>	<p>Participant one is called his attention to communicate in more sophisticated way. The instructor, in participant two's case, is suggesting that in order to communicate elegantly and with candour, the learners have to try to participate more during the discussions.</p>

2.- Learners' Self Assessment

In tables 3, 4 and 5 can be seen the selections that they made of their own performance during the spoken part of the literature circles.

Table 3.

Participants' perceptions about Memory and Cognitive Strategies used during conversations held in the LCs.

No	Items	1	2	3	4	5	N	Categories
1	I used new words in sentences or sentences that I built as exercise to remember them.	0	5	23	70	2	10 0	Memory Strategies
2	I tried to remember a new word by making a mental picture of a situation where I could use that word	0	2	19	12	67	10 0	
3	I used rhymes to remember new words from the readings.	0	4	72	22	2	10 0	
4	I repeated the new words several times	0	0	8	15	77	10 0	Cognitive Strategies
5	I practiced the sounds of English	0	0	6	90	4	10 0	
6	I used the words I know in different ways	0	6	21	73	0	10 0	
7	I started conversations in English this week	0	14	74	12	0	10 0	
8	I tried not to translate word for word.	0	0	8	24	68	10 0	
9	I read in English for pleasure this week	0	0	10	12	78	10 0	
10	I have written notes, messages in Whatsapp, Messenger, letters or informs in English	0	0	8	21	71	10 0	
11	I summarize what I read and hear in English	0	0	66	21	13	10 0	

Table 4.

Participants' perceptions about the Compensation and Metacognitive Strategies used during English conversations workshops

No	Items	1	2	3	4	5	N	Categories
12	When I did not know how to say a word in English, I used Spanish.	0	0	22	72	6	100	Compensati on Strategies
13	I tried to guess what the other person is going to say	0	0	8	20	72	100	
14	If I do not remember how to say a word in English, I use a synonym.	0	0	5	21	74	100	
15	If I did not know how to say a word in English, I asked the speaker	0	11	86	3	0	100	
16	I helped myself with gestures when I did not know a word	0	0	10	78	12	100	
17	I avoided speaking in English when I felt I did not know the topic or the relevant vocabulary.	0	14	75	11	0	100	
18	I reduced ideas, omitted difficult information, and used simple words	0	0	4	89	7	100	
19	I invented new words when I did not know the proper in English.	3	78	12	7	0	100	
20	I paid attention to how my colleagues spoke in English.	0	6	11	19	64	100	
21	I am thinking and asking others how to be a better learner in English	0	10	87	3	0	100	
22	I planned my schedule to have enough time to study and perform	5	14	78	3	0	100	
23	I have clear objectives to improve my English skills.	4	11	8	72	5	100	
24	I know exactly how to improve my knowledge and skills in English	0	12	84	4		100	
25	I tried to read in English as much as possible	0	0	3	11	86	100	
26	I tried to find as many ways as possible to use and practice English.	0	5	8	76	11	100	
27	I have reflected on my progress in learning English	0	6	7	83	4	100	
28	I looked at my mistakes and used that information to help improve.	0	10	13	73	4	100	
29	I understand that part of learning English involves making mistakes	0	5	3	8	84	100	

Table 5.

Participants' perceptions about the Affective and Social Strategies used during English conversations workshops

No	Items	1	2	3	4	5	N	Categories
30	I tried to relax when I was tense when speaking English.	0	6	31	63	0	100	Affective Strategies
31	I risked speaking English even when I feared making mistakes.	9	11	10	66	4	100	
32	I rewarded myself when I did it right.	4	13	22	56	5	100	
33	I noticed when I got nervous @ studying or using English.	4	22	57	6	11	100	
34	I noted in a journal my feelings about learning English.	64	23	10	3	0	100	
35	I talked to someone about how I feel about learning English.	0	6	21	65	8	100	
36	I have been asked to correct me when I speak	0	12	58	24	6	100	Social Strategies
37	I have practiced English with other people	0	10	22	63	5	100	
38	I asked questions in English	0	13	10	73	4	100	
39	I have been learning about the culture of the English language	0	10	68	22	0	100	
40	When I have not understood something, I have asked them to speak more slowly or to repeat.	0	5	13	78	4	100	

DISCUSSION

This paper began with an essential question centered around the purpose of this investigation.

To what extent does CF given by teachers and students themselves, supported in Google Sheets, help future English language teachers to improve their oral performance in English?

In the application of literature circles whose students' spoken interventions were filmed for later analysis, it was possible to get a much clearer picture of the linguistic performance of future English language teachers. On the other hand, it was possible to give the students an opportunity to value the role that strategies play in learning a language, as well as the importance that self-regulation has in reaching higher levels of linguistic-communicative performance in English. Additionally, it was possible to see the levels of interaction that collaboration through technology brings to educational settings. Armstrong & Franklin (2008) and Farhat & Kazim, (2011) agree that ICTs are cyber environments with the power to promote collaborative learning for the construction of contents, the promoting of creativity and the participation in multiple ways where an exchange of authentic resources takes place. Also, ICT has proved to promote learners' independence and autonomy (Cabero & Barroso, 2013). Students require opportunities to get exposure to the language, and opportunities to use the language. This was thought to make sense because it was hypothesized that contact with the foreign language is necessary to produce language. Also, it was expected that these learners also had opportunities to use the language they have learned during the phase of reading. The literature circles made that possible. But what was missing in a typical literature circle was an element that allowed the teacher to observe closely how the students actually use the language since the students may not be capable of identifying whether they are pronouncing correctly, or using the appropriate vocabulary or grammatical structure. The speaking interaction performance rubric allowed the instructors to observe the students as they shared the ideas and details of the stories read. As the comments kept coming from the instructors, the participating students became aware of specific suggestions that led them to apply strategies of different sort to improve their performance in the subsequent discussions.

Now, as was mentioned, the participants became aware of the good and the bad aspects regarding spoken performance in English.

And in order to not make the same errors in the following sessions, they were given a form that allowed them to reflect on how they solved a specific problem when sharing information from their roles, or if they did not use one, to think of strategies for upcoming classes.

Another important element that is worth mentioning is the concept of self-regulation which good language learners make use of. According to Rubin (1975) a good learner is one that uses learning strategies and develops the habit of looking inside him or herself to regulate what he or she uses to solve or reach a communicative adventure.

Over the sessions, it was observed that the progress that students made were in two main areas, fluency and accuracy. Although the gains were not at a really high level, by watching the videos from the first week in comparison to those of tenth week, the differences could be observed easily. For example, the use of false cognates, e.g. actually, disappeared little by little. In the same fashion, problematic sounds such as /z/, /th/ or /t/ vs /d/ and /id/ in irregular verbs was brought to the students' attention and in various cases was solved by the students.

The use of Google sheets facilitated that teachers registered their impressions on the performance of the students. It additionally permitted that the students themselves not only participated in actions of correcting themselves, but also in a process of metacognition, letting them experience first-hand the power that regulating oneself has.

CONCLUSION

The purpose of this study is to share the findings of an educational intervention that involved giving learners CF to improve their English, and reflecting on strategies to make them better language learners. Next is the main conclusions reached after the completion of this work.

The success of educational projects that promote the use of ICT should consider learners' attitude towards implementing ICT in the classroom. The importance of this assertion lies in the fact that human attitudes have the power to change learners' perception and their reaction before situations and opportunities occur (Farhat & Kazim, 2011).

Students do benefit from an accompanying process conducted by teachers interested in helping students learn in an environment of collaboration and interaction via Google Drive and Google Sheets. Students and teachers work together to support the learning process from the written corrective feedback (so-called in English) by promoting metacognition and recognition of the powerful role of the learner

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ENHANCING INTERNATIONAL BACCALAUREATE STUDENTS' SPEAKING ABILITY THROUGH ORAL PRESENTATIONS

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ABSTRACT

This study aims at analyzing international baccalaureate students' perspectives towards how taking part in oral presentations influences their English speaking skills. Forty-one students participated in the study; 27 students were enrolled in the second year of the international baccalaureate program at a public high school in Ecuador and 14 in the third year of the same program. The participants of the study completed a questionnaire that was composed of thirteen Likert Scale items. In the questionnaire, students reported whether some points had increased or improved a lot, moderately, little, or very little. The data was analyzed by conducting a factorial analysis of main components with a Varimax rotation system. The results show that the participants' speaking skills have been positively influenced in four areas; improvement of students' oral discourse, responses processing, vocabulary and grammatical construction, and non-verbal interaction. These four factors explain the 72.16% of the variance. Age and sex had no impact on the results.

Keywords: oral presentations, speaking skills, discourse, vocabulary, grammatical construction, non-verbal interaction, international baccalaureate.

INTRODUCTION

Developing speaking in their students is a major objective for teachers in English as a foreign language (EFL) classrooms in Ecuador due to the main purpose of the EFL Ecuadorian Curriculum is to have learners bring up to a B1 proficiency level by the end of high school. This level is aligned to the Common European Framework of Reference for Languages (CEFR) which states that learners at this level will be able to communicate on a great variety of situations and also to develop conversations on familiar topics like family, work, and travel, among others.

In Ecuador, public high schools can offer two academic programs; Polyvalent Unified Baccalaureate (PUB) program and/or International Baccalaureate (IB) program. The institution where the study was conducted both programs, but we worked with students enrolled in the IB programs. Students who are involved in this program must prepare for taking the IB exam, apart from preparing for getting the B1 proficiency level which is expected in both programs. The IB exam includes a speaking test for which students' oral production is recorded and evaluated by a teacher of the institution of origin and an external examiner (teacher of IB programs from another country). For this reason, creating opportunities for students to practice English is an important aspect that EFL teachers must take into consideration for their speaking skills development. In this respect, in order to encourage students to practice the target language in a meaningful way, the institution where the study was conducted, implemented oral presentations as a part of the class activities.

Oral presentations in EFL classes

The oral presentation is a common technique adopted by EFL teachers with the purpose of improving speaking fluency and also for increasing students' confidence when speaking (Al-Issa & Al-Qubtan, 2010). This activity provides meaningful opportunities for students to practice the target language as well as engage them in effective communicative interactions (Živković, 2014). Additionally, the use of oral presentations in EFL classrooms provides teachers with valuable information about students' errors on the production of the spoken language. In fact, through speaking activities teachers can identify students' weaknesses in the use of the target language and search for ways to counteract such deficiencies; this way, teachers will contribute to "consolidate students' linguistic knowledge" and "the development of communicative competence" (Wang, Teo, & Yu, 2017, p. 4). This is supported on what is mentioned by Krashen (1987) who asserts that error correction enables learners to assimilate the right form of a rule.

The development of oral presentations brings many benefits to language learning. They, for instance, (1) promote oral production through students' questioning and encourage learners to take part in effective speaking interactions. In this respect, some participants in Chou's (2011) study pointed out that questioning allowed them to interchange ideas with their fellows and also stated that this kind of activities turns the class into more interactive and communicative. (2) They provide learners a venue to analyze, comment and interchange ideas in an authentic learning environment (Tuan & Neomy, 2007; Donato, 1994). (3) They contribute to pronunciation development, this is supported on what is mentioned by Levis & Grant (2003); in their study, they confirm that oral presentations "offer opportunities to target many pronunciation skills with minimal class instruction" (Levis & Grant, 2003, p. 15). (4) They foster language learning throughout "discovery and research" (AL-ISSA & AL-QUBTAN, 2010, p. 231).

It is valuable to mention that one of the most significant aspects of using oral presentations is the target language exposure students get involved in. According to Krashen' Natural Order Hypothesis, language is better learned if learners are exposed to language input (1987). In this respect, Nazara (2011) points out that the exposition to the target language has the greatest influence on speaking development. With oral presentations, students have the opportunity to listen to their peers about a variety of topics and expand their vocabulary. They also have the possibility of interacting with them as they ask them questions about the content of their oral presentations. Both the speakers and their audience also learn from the feedback (about grammar, pronunciation, or vocabulary) provided by their instructors after the oral presentations.

So far, we have discussed how oral presentations can benefit language learners to develop their speaking competence from what experts have reported in their works. In this work, we add knowledge to the existing literature about oral presentations by analyzing international baccalaureate students' perspectives towards their participation in oral presentations. As we mentioned before, oral presentations were implemented in the institution where we conducted this study as a pedagogical tool to boost students' speaking skills in English so that they be able to pass the IB exam. Then from the perspectives of the recipients of oral presentations, we intend to answer the following question: What benefits have students obtained from performing oral presentations?

METHODOLOGY

Setting and Participants

The study was conducted between May and August 2017 with students enrolled in the IB certification program. This high school certification program comprises three academic grades. For this study, we worked with 41 out of 43 students (17 male and 24 female) enrolled in the second and third years of the IB program of a public high school located in the coastal region of Ecuador. The students volunteered to participate in the study. 27 students belonged to the second year of the program and 14 to the third year.

We decided to work with students enrolled in the second and third grades of the IB because they had developed oral presentations during the previous school years. The participants from the second grade had developed oral presentations throughout their first grade and those in the third grade throughout their first and second grade of IB. In average, every student performed between five and six oral presentations per scholar year. The participants' average age was 15.97, ranging from 15 to 17 years old. Eight students were 15, twenty-six were 16, and seven were 17 years old.

Ethical considerations

Following ethical protocols, permission was obtained from the high school principal. Informed consent was also taken from the students' parents. To ensure participants anonymity, students were asked to fill out the data collection instrument without including their names on them.

Instruments

A structured questionnaire was developed to obtain students' perspectives towards their participation in oral presentations. For the validation of the questionnaire, the researchers asked three researchers (who were not part of the study) to review the items and report their effectiveness. Some items were restated and those with similar meanings, removed. The questionnaire was divided into two parts. In the first part, the participants provided demographic information about themselves (age and gender); and, on the second part, they completed a Likert scale that contained thirteen items to determine how much they had benefited from participating in oral presentations. In the Likert scale, participants had to select whether ten points had improved and other three had increased *a lot* (1), *moderately* (2), *little* (3), or *not at all* (4) due to their participation in oral presentations. The Likert scale items were the following.

N	By performing oral presentations:	A lot	Moderately	Little	Not at all
1	My pronunciation has improved				
2	My fluency has improved				
3	My confidence when speaking in English has increased				
4	My public speaking performance has improved				
5	My speaking accuracy has improved				
6	My vocabulary has increased				
7	My knowledge about grammar structures has increased				
8	My ability to organize my ideas in English has improved				
9	My ability to express ideas in spoken language has improved				
10	My ability to interact in English with others has improved				
11	My ability to answer questions in English has improved				
12	My ability to use facial gestures and body language to convey meaning has improved				
13	My ability to use speaking strategies such as emphasizing, rephrasing, providing context to convey meaning has improved				

Oral presentations procedure

Oral presentations are developed in the first and second year of IB due to when students are in the last year of high school, they spend the whole school year preparing for taking their speaking and writing test. The oral presentations are performed twice a week, 3 students per day. Each student develops a total of 5 to 6 oral presentations per year. The delivering of oral presentations begins with topics about individuals and society, leisure and work, and urban and rural environment. In the second and third stages of oral presentations, students present presentations related to the United States common federal assistance programs, among others. Topics presented in the fourth and fifth stages of oral presentations are about well-known popular business in the USA. Students perform oral presentations about the aforementioned topics to enable their familiarization with content and vocabulary that they will find in most sections of the IB test they take to achieve their IB certification.

Data analysis procedure

Data from the Likert scale was analyzed using the IBM statistical software SPSS 22.0. A factorial analysis of main factors with Varimax rotation system was performed.

RESULTS

The factorial analysis resulted in four factors that explain 72,16% of the variance associated with the target of the study (see Table 1).

Table 1: Total Variance Explained

Factor	Initial eigenvalues			Rotation Sums of squared loadings		
	Total	% of variance	Cumulative %	Total	% of variance	Cumulative %
1	5,796	44,584	44,584	3,879	29,838	29,838
2	1,32	10,157	54,741	2,072	15,939	45,776
3	1,173	9,024	63,765	1,936	14,894	60,67
4	1,092	8,397	72,161	1,494	11,491	72,161
5	0,902	6,939	79,101			
6	0,631	4,851	83,952			
7	0,503	3,867	87,818			
8	0,4	3,076	90,894			
9	0,345	2,656	93,55			
10	0,287	2,21	95,76			
11	0,247	1,902	97,662			
12	0,175	1,347	99,009			
13	0,129	0,991	100			

Extraction Method: Principal Axis Factoring.

Table 2: Exploratory Factor Analysis Solution

Items	FACTOR	FACTOR	FACTOR	FACTOR
	1	2	3	4
4. My public speaking performance has improved	0,864			
3. My confidence when speaking in English has increased	0,774			
5. My speaking accuracy has improved	0,752			
10. My ability to interact in English with others has improved	0,727			
9. My ability to express ideas in spoken language has improved	0,719			
2. My fluency has improved	0,565			
1. My pronunciation has improved		0,862		
11. My ability to answer questions in English has improved		0,538		
7. My knowledge about grammar structures has increased			0,858	
8. My ability to organize my ideas in English has improved			0,691	
6. My vocabulary has increased			0,615	
12. My ability to use facial gestures and body language to convey meaning has improved				0,922
13. My ability to use speaking strategies such as emphasizing, rephrasing, providing context to convey meaning has improved				0,589

The results show that the benefits obtained by the students by performing oral presentations fall on four areas. The first area (Factor 1), which represents 29,84% of the variance, is composed of six items that comprise the improvement of students' oral discourse. These items indicate that oral presentations have contributed to the improvement of students' speaking performance, accuracy, and fluency, as well as the enhancement of their ability to express ideas when interacting with others in English. Students' confidence when speaking in this language has also increased, which is an important point for producing oral discourse when learning a language.

The second area (Factor 2) explains the 15,94% of the variance. This factor is structured by two items which lean towards response processing. This factor indicates that oral presentations have favored students' ability to answer questions and the improvement of their pronunciation, being the latter an important aspect to communicate with others in any language.

Factor three deals with vocabulary and grammatical construction; it explains 14,89% of the variance and is composed of three items. The analysis of this factor shows that by performing oral presentations on a regular basis, students' experienced an increase in their knowledge about grammar structures and vocabulary as well as an improvement in their ability to organize their ideas when speaking in English. Finally, factor four, which explains 11,49% of the variance, implies that students have experienced improvement in their ability to use non-verbal interaction (facial gestures and body language to convey meaning) and speaking macro skills (emphasizing, rephrasing, and providing context to convey meaning).

As can be seen, the perspectives of students expressed in the responses they provided in the Likert scale-based questionnaire indicate the benefits that they have obtained after performing oral presentations in their EFL class. The performance of oral presentations helped to improve students' speaking performance and their ability to process their responses as well as their ability to use non-verbal interaction and speaking macro skills. It has also contributed to the increase in students' knowledge about grammar structures and vocabulary. These findings add knowledge to what other researchers such as Tuan & Neomy (2007), Donato (1994), and Levis & Grant (2003) have reported, who found that oral presentations provide students with opportunities to exchange ideas with their peers and contribute to the development of one of students' speaking micro skills, pronunciation. This study shows that oral presentations not only favors students' pronunciation but all aspects that involve the micro and macro skills of speaking.

CONCLUSIONS

The purpose of this study was to analyze international baccalaureate students' perspectives towards their participation in oral presentations. From the perspectives of the participants, we can conclude that this strategy has a positive impact of in students' communicative competence. The oral discourse of language learners can be highly benefited as students may experience an improvement in their speaking performance, contributing to areas such as accuracy, fluency, and confidence. Conversational skills are also benefited as students' ability to respond questions faster is improved.

Overall, the performance of oral presentations contributes to the development of both micro and macro skills simultaneously. This means that oral presentations represent a beneficial strategy for the development of students' speaking in foreign language contexts. We can also assert that the goal of the strategy in the institution where the study was conducted is certainly reached as oral presentations give students opportunities to practice the target language and therefore, prepare for oral component of the tests they have to take previous to receiving the high school certification. Finally, we advise the implementation of oral presentations to boost language learners' speaking skills for all the benefits reported in this work.

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ENHANCING THE ONLINE EXPERIENCE: IMPROVING FACULTY INTERACTIONS IN BLENDED DELIVERY

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ABSTRACT

This paper examines the use of online course delivery to reduce the time a student would spend in an on campus setting. It will look at the benefits and barriers from a faculty perspective. To be an effective online facilitator the faculty need to be aware of student perceptions and understand the need for enhanced communication methods. Student engagement hinges on the degree of interaction with the content, other students, and the course instructor. Educators that use online or blended courses need to be aware of the impact they have when creating an engaging learning environment. Data that was gathered from a pilot project will demonstrate the importance of student engagement and enhancements to the online learning environment that can be driven by program faculty. Overcoming barriers that faculty might have when developing and delivering online courses will be identified and solutions to these barriers will be examined. Designing interactive course materials that engage students and faculty will enhance the learning experiences.

INTRODUCTION

Over the past decade there has been a shift from traditional methods of course delivery to one that uses online technology. The use of internet based courses and resources have affected the way that students access materials and also the relationship between students and teachers. (Simonson et al., 2006, p. 230) Students are able to access course content and resources outside the traditional methods used in the past. The expanding network of the internet has opened the door of access not only to resources but also to courses, programs and degrees from educational institutes worldwide. The flood of information available to students has created a crossroads where instructional faculty must choose the best way to engage the students. If the traditional teacher-centered model is used the faculty deliver instruction, control the learning process whether that is done in a face to face or online delivery model. If they choose to move to a learner-centered delivery model then the role of the faculty changes to one of a coach, facilitator, and designer. It is this change to a learner-centered model that was used in a pilot to see if it would increase learner engagement in the courses. To do this there was a need for faculty training and a stepping away from traditional methods and embracing the transition to this different focus on learning. The results of this shift in roles should be more engaged learners and faculty that is focussing on creating interactions and providing feedback. (Simonson et al., 2006, p. 235).

THE METHODS

The first step down the path to designing and delivering online courses is to be aware of how the learner will interact with the course materials. Course descriptions and the use of very detailed course outlines and study guides are critical both for the learner and the faculty. (Haugen et al., 2017, p. 1605) Often all that is done is to take existing print based courses and simply put them up in an online environment. Effectively engaging the learner with content needs to be designed into the course, this can be done by having self-assessments to reinforce concepts or activities for the learner to practice newly learned materials. (Dick et al., 2007, p. 219) Although designing this type of interaction into the course is important for the learner, it is just as important that the faculty facilitating the course know how to watch these interactions and understand the value that they have for the learner. Viewing the learners progress will help inform the faculty if there are additional conversations or content that would help the learner as they more through the course. In a recent faculty training session this process was discussed, and the value of giving feedback to a learner that was struggling in an area of the course and was detected by the replies on self-assessments. Teaching online creates an environment where the faculty needs to be aware of student progress. Traditionally faculty just preparing and delivering the course outlines to the students, this leaves the interaction with the content up to the student. In an online course creating interactive materials allows the faculty to design

opportunities like adding media, interactive self-assessments, and discussion posts to encourage the student to get involved in the content. (Dick et al., 2007, pp. 125-129)

Creating open communication between the student and faculty, student to student, and faculty to faculty are also key in enhancing the experience online. (Dabbagh & Bannan-Ritland, 2005, pp 84-86) The communication strategy that is used needs to be part of the faculty training prior to teaching online. Faculty sessions where the faculty actually use the communications tools and interact with each other around best practices when creating interpersonal interactions online let them experience the feeling of community that the students will also feel. Since this is a change from the typical classroom interaction it is not one that first time online faculty members would have experienced. Bonk states that since the technology is available and information and opportunities are available that faculty must experiment and engage with people and technology outside their typical spheres. He uses a term that is relatively new “The Web of Learning” and explains how this will influence the direction of education. (Bonk, 2009, p 394) The more engaged the faculty are can be witnessed in the courses by the students and other faculty. Creating an open communication space where ideas, concepts, and feedback are the norm will enhance the experience for everyone in the course. A faculty member’s passion for the course can be seen in the communications online just as it can be in the classroom. It was discovered that joining online learning communities provided support from colleagues who were already teaching online. This sharing of information simulated the learners experience in an online course. (Lizano-DiMare & Bruciati, 2016, p 1379)

Learning in a communications rich environment builds a sense of community for faculty members as well as the students. Regular interactions between faculty and students are key indicators for sense of belonging in the course. (Simonson et al., 2006, p. 171) Creating spaces within the online course where students can have discussions with each other helps to build the feeling of being part of a class. Discussion boards within a course are an excellent place to share information and provide additional links and information as needed to support the students. Assigning some grades for participation will encourage the students to participate in the discussions.

Building exercises that require the student to make contact with business and industry organizations to gather information that will be shared in course discussions is a great way to keep the courses authentic and insert new and current information into the learning environment. “At the Workplace” activities can be designed into the courses which would create an opportunity for students to make contacts in industry. When this information was posted in the discussions it allowed the other students and the instructor to get actual updates of actual practices, materials and technology. By selecting specific questions for the students to reply to in the posts the instructor would be able to stay updated with trends and changes in their discipline.

THE BARRIERS

When speaking to faculty about instructing online quite often the first response from a traditional in class faculty member is that it either cannot be done or that is not the best way to teach. That statement is really quite true, “it is not the best way to teach”. But that focus is on what they like to do, not which is the best way for the student to learn. There are some courses and some students that will always be taught in the traditional face to face setting and for those students, course, or faculty member maybe that is true. Some students need to be in the physical presence of the other learners and the faculty member to feel comfortable and safe. For these students maybe online courses are too much of a switch for them to handle. The same might be said of some faculty. There needs to be the desire to try the online experience and the attitude to do new and different things to assist the students.

Planning to succeed at engaging the students and being present in the course are critical in the successful engagement with the students. This can be one of the greatest barriers for faculty to remove. If a faculty member is not open minded and positive about making this new learning environment a great place to learn for everyone then that feeling will be passed on to the students and it will change the experience. Faculty must take the lead role in promoting the sense of community in the course and fostering a safe place to share and learn. Providing training to prepare and assist course faculty to work in an online environment is critical to the success of the course.

Financial barriers can also be an issue in some cases. Faculty will need to have time to help develop, design and create courses that will be both informative and engaging. This will require some training in using online communication tools, feedback tools and the pedagogical principles that are the basis for engaging the students. The more the course faculty are aware of the best practices for online delivery and prepare the materials to be meaningful the greater the initial cost will be. Due to the nature of more individualized course interactions the time that course faculty spend preparing and facilitating the course the more expensive they will be.

In order to reduce the barriers for the institute and the faculty the senior management team must be aware and supportive of this shift to online delivery models. Information technology groups will also need to be onboard as they will be called upon to provide both student and faculty support.

The most difficult barrier to overcome is the attitude of the institute toward online learning and online course delivery. Overcoming all of the barriers depend on the will, desire, drive and need of the institution, faculty, support teams and the students. Without recognising the barriers and planning and preparing to remove them the vision for online delivery of courses would be difficult if not impossible.

THE SOLUTION

It is important to have some training sessions to facilitate the training for faculty to be online instructors. There are many resources that are designed to assist new online faculty to understand the importance of communications and setting clear instructions about how the course will run. (Boettcher, 2013) In a pilot that is currently running to shorten the length of time that trades apprentices spend on campus several things were added to some online courses to increase the communication on the faculty end. An introduction video was inserted at the very beginning of each course that featured the faculty member facilitating the course. In the introduction video the students had an opportunity to see their instructor as well as listen to them give some personal and some important course information. “The video should also give students a taste of the instructor’s personality, which can help dispel fears about learning online”. (Chapes, J. 2017, p 1136) Comments from the students when they attended the on campus portion of their training indicated that the welcome video made them feel that they knew who the instructor was and it made them feel welcome in the course. Regular opportunities for feedback and communication between the instructor and student were designed into the course materials. This assisted the instructor with having set areas where interactions with the student or students take place. Also every assignment that the student did had a requirement for the instructor to give feedback and guidance.

The faculty that were assigned to instruct the online courses were part of the team that designed the course. So they had some input in the course materials. This helped them understand how the course materials would be used and let them experiment in the learning management system. For most of them it was the first time they used a learning management system to deliver course materials the use of faculty trainers to demonstrate and show some best practices was helpful. There were 6 pilot faculty members that participated in the project. After the first phase of the pilot which included work on the course, the online delivery and the on campus instruction, the faculty members were interviewed. They all expressed similar comments around feeling that they had some connection with the students due to the online postings and discussions. When asked if this was different from a typical on campus cohort they all stated that there was a greater sense of community because they knew the students names, some had posted their pictures, and they knew some background information. Another practice that was well received was each student received a phone call at the beginning of the online course from the instructional faculty member. They also received personal feedback on every posting and assignment. This timely feedback kept the faculty engaged in the course and helped to monitor the work that was being done by the students.

From the online pilot we surveyed the faculty that facilitated the courses and here are some of the comments that we received:

- It didn’t take long for me to realize that I was forging a stronger connection with these “online” students than I ever would with a group of face to face students.

- This extra connection with the online students thrilled me as I realized that students who are well connected with instructors excel in the classroom. Also instructors who are well connected with students enjoy and perform their job better!
- We got off to a great start both during the block training because we already “knew” each other.
- Overall it was great experience and it is my hope that we expand and continue with online learning for apprentices.
- With communications as they are today, students had almost instantaneous access to me for help and I could deliver the help in a "real-time" fashion.

It is evident in the comments that preparing and providing training prior to delivering the online course did make a difference for the faculty. Their experiences were recorded and they had an opportunity to view the video together to learn from each other what worked and what it was like to experience an engaging online course.

Feedback about the course and the delivery should be requested throughout the course and not just at the completion as we so often do. The sooner the course faculty have student evaluation, either formal or informal, the quicker they can respond and reduce or remove barriers for the students. (Boettcher, 2013) This feedback can be used to modify the course to create greater opportunities for interactions and allow students to suggest additional resources that can be accessed by the others in the course.

Course faculty need to use authentic examples and experiences that will use their past experiences to create a real life learning experience. Using actual live and current examples will allow the instructor to demonstrate valid and professional competencies in the subject area. Online courses will heighten your awareness as a course instructor and open connections to a wider world of knowledge and experience. (Ko & Rossen, 2010, pp 20-22)

CONCLUSION

In an online course the faculty play a very important role in setting up and maintaining a safe and open community. The more tools the course instructor uses to engage the students the more the instructor will be engaged. Practicing using the tools of engagement will open up opportunities to enhance the teaching and learning experience for the instructor. The more engaged the course faculty is in the course materials, the student interactions, and professional communities better the online experience will be. With the burst of technology we see today the early online canned courses cannot compete with the interactive, engaging online courses that are available. One of the key factors in designing and delivering an interactive engaging online course is the role that the course faculty have to play.

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E-PORTFOLIO PARADIGM: BASIS FOR DEVELOPING AN ACADEMIC CONCEPTUAL FRAMEWORK TERTIARY LEARNING PERFORMANCE

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ABSTRACT

Among different institutions in the Philippines, the select institution in this study was one of the schools employing a portfolio system that collects and documents evidences of achievement of students. This study sought to answer what benchmarking results can be utilized as an input to the development of the E-portfolio framework for the select institution. In the early stage of this study, benchmarking technique was used to identify different institutions that employs collection of students' performances in a form of portfolio. The result of the initial study was the basis of development of conceptual framework of E-portfolio for the select institution. To be able to measure the students' achievement in learning, discussion of student performance, reflection and feedback, the development of E-portfolio was employed as it can be served as an effective tool (Ouyang, 2004). The initial goal and purpose of this portfolio was to collect evidences of student learning and showcase student work.

In the final stage of the study, it sought to answer what other factors can be integrated in the development of E-portfolio design. In this stage, other factors and framework that can be integrated in the development of design of E-portfolio were considered. This included related framework used in the development of interface design, database design and content. These components were utilized to produce desirable result throughout the process of achieving E-Portfolio design.

It was reported that the academic institutions implementing E-portfolio does not have a clear objective and purpose of E-portfolios. It was reported that the select institution was employing manual portfolio that leads to loss of evidences and expected bulk of file. Therefore, it was recommended that the project construction and implementation of E-portfolio may pursue for the continuous realization of its significance. **Keywords** – *Learning Management System; Learning Performance; Student Portfolio;*

INTRODUCTION

A portfolio is “a collection of evidence that demonstrates skills, achievements, learning or competencies” (Love, 2004). As it is defined, accomplishments, achievements, skills, understanding, and interests are organized in such a way that the students work will be purposively collected for display or showcase as evidence of work and knowledge. These evidences may include reflective thinking, artwork, research projects, writing, reflection, videos, photos, or even observation from peers and mentors. Electronic portfolio may be defined according to its goal and purpose. It can be of two types in general - the working portfolio and presentation (Barrett H. &, 2006). Documentation of learning process which includes the collection of learner's artifacts are called working portfolio. This focuses on the process of portfolio and gives emphasis on the reflection of student work. On the other hand, the presentation portfolio focuses on the organization of set of learning outcomes. This portfolio creates a specific story of learning with goals or standard where a learner organizes the results of their learning process. These two types of portfolios can be purposively developed for career development, employment, achievement of course outcomes or achievement of specific standards (Barrett H. C., 2000) (Barrett H. C., 2013)

Due to the rapid advancement of technology, there is an increase in the use of e-learning tools to support learner-centered and self-phased learning. With this scenario, e-portfolio can be a motivation in bringing a new model of teaching, learning, and assessment.

The Lyceum of the Philippines University started to employ monitoring of student portfolio which keeps track record of the student's academic performances. These are done through manual process of collection and documentation of records and accomplishments of students such as performances, quizzes, projects and major exam results. The LPU portfolio system was employed however, the purpose and the content of the student portfolios were partially utilized.

In order to implement e-portfolio, an institution must decide based on its assessment needs and goals (Lorenzo, 2005). The goal of this study was to develop an electronic portfolio for the LPU that stored student performance to simplify data retrieval and reports. The student performance was stored by going through the process implemented in the conceptual framework for the LPU. The electronic portfolio provided a collection stage, reflection stage, selection stage and presentation stage that showcased student's work and performance online.

2.0 Related Studies

Portfolio may change its definition according to the use and purpose of the portfolio. According to (Arter, 1992), a portfolio is “a purposeful collection of student work that exhibits to the student, or others, her efforts or achievement in one or more areas. Portfolio is a purposeful collection of student's work that exhibits the student's efforts, progress and achievement in

one or more areas.” In order to collect and select content for portfolio, student participation is needed. The collection should include the criteria for selection, the criteria for judging merit and evidence of student self-reflection (Paulson, 1991). To be able to understand the student knowledge, evidences must be present as a proof of knowledge. Hence, a container of collected evidences must be implemented in a form of Portfolio. This will serve as a documentation of evidences collected through time (Collins, 1992).

Portfolio has been used for different purposes. It is used in the assessment of student’s performance nowadays. Definition of portfolio may change according to users’ purpose and way of usage (BYRGÝN, 2007). The design of portfolio depends on the purpose of it. On the basis of a literature analysis there is a clear conceptual link between the design of an ePortfolio and the purpose of it (Callens, 2007).

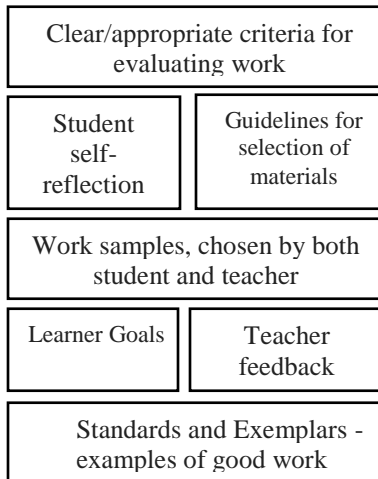
According to (Tierney, 1989), there is no "right" way to design portfolios. Each classroom, school district, and state will reflect a unique approach to authentic assessment, and in this sense, each student's collection of documents will differ somewhat, depending on the purpose of the assessment.

In the study conducted by (Lorenzo, 2005), it aims to review how selected higher education institutions have implemented assessment e-portfolio systems that demonstrate and assess learning. This demonstrates benchmarking on different higher education institutions based on best practices in their implementation of e-portfolio. The reflection of the study shows that the institution implementing the assessment e-portfolio must decide based on its assessment needs and goals (Lorenzo, 2005).

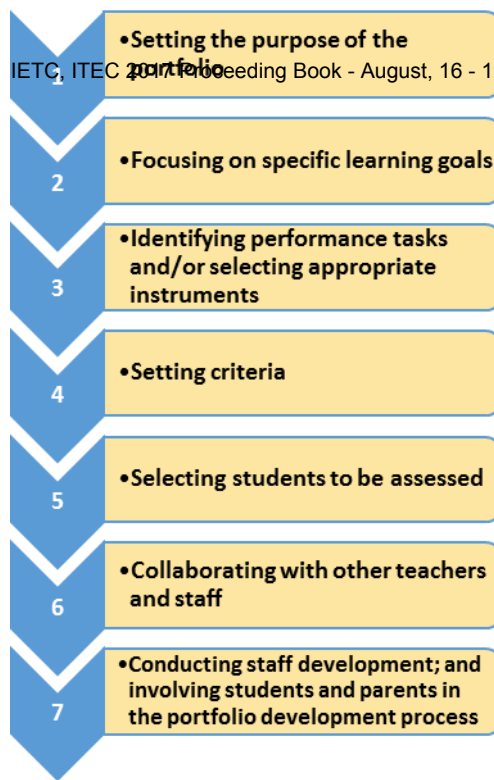
Content and Elements of E-portfolio

Base on the study conducted by (Barrett H. C., 2000), the following are the elements to be include in any portfolio (whether traditional or electronic).

Elements of Portfolio (Barrett, 2000)



According to (Pierce, 1992), portfolios can be designed following a multi-step process that involves the following:



3.0 Conceptual Framework

The content and conceptual framework of the LPU E-portfolio was the result of the research previously conducted by the researcher. These were drawn based on the benchmarking results from different institutions that integrates portfolio in their academic system and from the related studies presented in the early study of the E-portfolio paradigm.

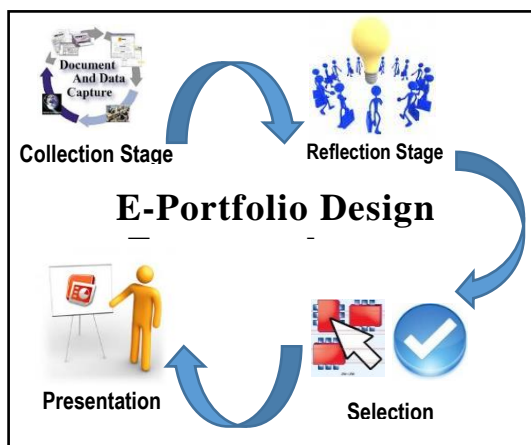


Figure 1 – E-Portfolio Framework

Collection. The Collection Stage is the preliminary phase of the LPU E-portfolio framework which includes creation, submission, and collection of student performances. This stage is initialized when the faculty member starts the creation of outcomes-based requirements of the student. In this stage, the teacher creates the project requirement, quiz, seatwork and assignment based on learning goals of each course. This allows the teacher to build and post student's requirement electronically.

The Collection stage also included the submission of work based on what the teacher posted in the LPU E-portfolio. The students can upload their work electronically and also received notifications from the system once the teacher received or graded the work of the students. Finally, the student performances were collected when the student submits their work online. The system automatically stores and collects the electronic files in the E-Portfolio database.

Reflection. The Reflection Stage of the LPU E-portfolio comprised the discussion and suggestion stage. In this stage, the students are free to discuss or ask their teachers about their artworks. The teachers can also provide comments and suggestion to the students with regards to their work and projects. In this way, the students have the time to reflect on their creation and improve their performance as well.

Selection. The Selection stage of the LPU E-portfolio was part of the initial presentation of student performances. In this stage, the students choose a template for their personal E-portfolio to make their portfolio appealing to the viewers. In this phase, the students can also choose their works and performances by selecting the electronic files available in the database. This showcases their outcomes and performances electronically through the web.

Presentation. The Presentation stage of the E-portfolio included showcasing and viewing of student works and performances. In this stage, guest viewers can glean on the student works through the web even without logging into the website. The viewers can simply provide the link on the browser to view the electronic portfolio of the students.

4.0 The User Interface Design

In the study, there were factors integrated in the development of user interface design of the E-portfolio. The interface design utilized the heuristic of Schneiderman's Eight golden rules of interface design which focus on the interface of a system (Sulaiman, 2009)

The Shneiderman's "Eight Golden Rules of Interface Design" became a guide to design the proposed E-Portfolio for the select institution. These eight principles of design are shown in Figure 2.



Figure 2 – Shneiderman's "Eight Golden Rules of Interface Design"

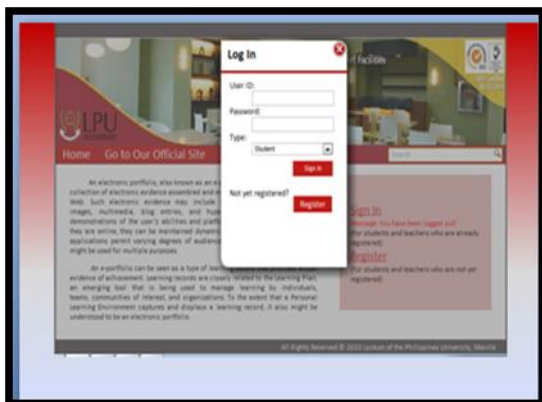


Figure 3 – E-Portfolio Log-In Page

Figure 3 illustrates the Log In page of the proposed LPU E-portfolio design. This was provided to impose security in E-portfolio. There were 3 levels of authorization imposed in the design: the Administrator, Teachers, and Students. Each users of E-portfolio were given username and password for security and privacy of information. Basically, the administrator has the full access to the system and has all the privileges to add, edit, and delete records from the database. There were also privileges for the administrator to create classes and add users.

On the other hand, the students were given the privilege to post personal information and keep record of their grades and schedule. While teachers were given the privileges to post assignments, projects and to keep class record as well.



Figure 4 – E-Portfolio Home Page

Figure 4 illustrates the design framework for the Student Account Home Page. This page is part of the E-portfolio collection stage. In this stage, students’ academic works such as projects, quizzes, seatwork, assignments and other academic requirements can be submitted. The electronic files submitted by the students were collected and stored in the E-portfolio database. In this page, personal information of the students were also posted.

Basically, the Student Account Home Page has link modules such as Home, Academics, View Academics and My, Account. On the Academics module, there were links to Grades, Current Template, Ledger and Class Schedule. This part of E-portfolio submits the activities, reports and assignments of the students to their teacher electronically. This basically records all the submitted and returned documents of the students in the E-portfolio database.

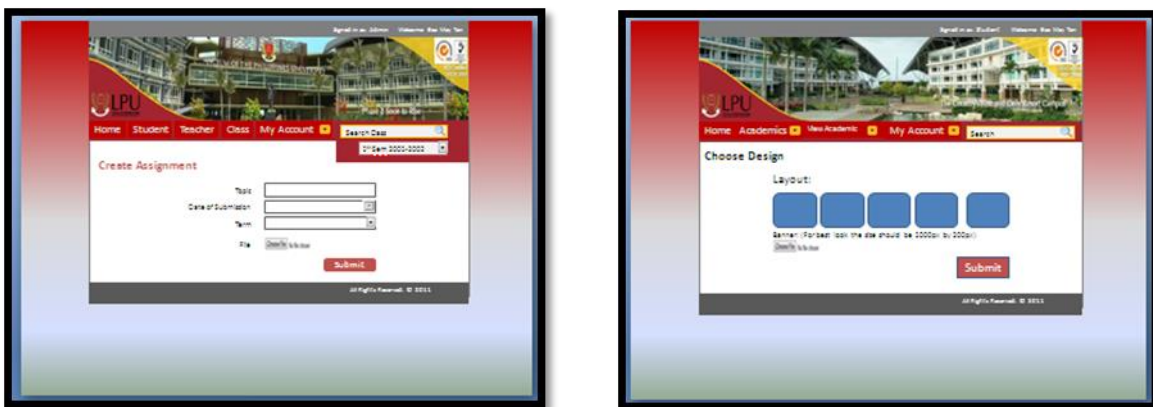


Figure 5 – E-Portfolio Create Assignment Page

Figure 5 illustrates the design framework for the Teacher Account Home Page. This page is part of the E-portfolio collection stage. In this portion of the E-portfolio, teachers can create academic requirements such as projects, quizzes, seatwork, assignments and other student performances electronically. These activities can be created and posted directly to individual student accounts who are currently enrolled in the courses. The electronic files created by the teachers were also collected and stored in the E-portfolio database. In this stage, teachers are being notified about the status of the submission of the students. Reports who among the students were already submitted their works are also being provided in this module. This can help the teachers to monitor their students and keep record of grades, assignment details, and date of submissions.



Figure 6 – E-Portfolio Discussion Page

Figure 6 illustrates the design framework for the Discussion Page. This page is also part of the reflection stage in the E-portfolio framework design. In this stage, students can respond and give comment. As well as feedback with respect to the improvement of their work suggested by their teachers. This part of the E-portfolio provides a venue for discussion and clarifications in a form of forum to improve the students' works. This open communication provides reflections on the performance of the students for continuous improvement of learning goals.

Figure 7 – E-Portfolio Presentation Page

Figure 7 illustrates the design framework for the Presentation Page. This page is part of the Presentation stage in the E-portfolio framework design. In this stage, the students can customize their home page to make their E-portfolio appealing to their viewers and showcase their academic performances. The design framework of LPU E-portfolio provides different designs to choose from. Student can also save and upload new design templates if they prefer to have a personally designed account in the LPU E-portfolio.

5.0 Results and Discussion

Table 1.0 Assessment of LPU E-Portfolio.

Criteria	\bar{X}	V.I
	Functionality	4.42
Usability	4.60	Excellent
Reliability	4.48	Very Good
Efficiency	4.43	Very Good
Maintainability	4.43	Very Good
Portability	4.51	Excellent
Total	4.48	Very Good

As gleaned from the Table 1.0, it revealed that two of the criteria in the Assessment of LPU E-portfolio was rated "Excellent" and majority of the criteria was rated "Very Good". As shown in the table, "Usability" and "Portability" had rate of "Excellent". It has weighted means of 4.60 and 4.51, respectively. As the data disclosed, the "Functionality", "Reliability", "Efficiency" and "Maintainability" were rated "Very Good". The criteria "Functionality" and "Reliability" had weighted means of 4.42 and 4.48, respectively while "Efficiency" and "Maintainability" had the same weighted mean of 4.43. It was noted that the respondents rated the LPU E-Portfolio software positively.

CONCLUSION

The proposed LPU E-Portfolio can be used and can be implemented as a tool for collection of evidence that demonstrates skills, achievements, learning or competencies of the students electronically. Moreover, E-Portfolio should be developed in full module and be used as an alternative tool for collection and archiving student performance to document learning process and competencies. Other modules can also be developed or integrated in the LPU-E-Portfolio such as Learning Module Systems (LMS). It is a relevant input or source of students work and data archive. The integration of other modules or system related to student performance such as grading system is recommended as well since the e-portfolio is a data archive of students work.

It is also recommended that the students and faculty be trained once the E-Portfolio is implemented. The project construction and implementation of e-portfolio is highly recommended for the continuous realization of its significance.

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ETHICAL AND PROFESSIONAL EDUCATION: THE RIGHT DECISION

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ABSTRACT

How can one be a good professional, whether businessperson, politician, banker, professor or engineer, while being also a good person? Is it a contradiction that professional excellence can occur in the absence of moral virtues? The channel opened by the conceptualization of the transcendent motives that exist behind a decision – together with the extrinsic and intrinsic motives already known from different scientific perspectives – contributes a way to unite theory and practice in ethical endeavours, and a possibility to learn where are we failing when we engage in a rigorous analysis of our behaviour from an ethical perspective. The three types of criteria for making decisions bring together, when deciding, three types of knowledge: the what (the economy); the how (all particular sciences) and the what for (ethical considerations, the treatment of the other). We do not make one decision to earn money, another one to become a competent professional and another one to be good person. When deciding, we put into our action (or not) the greatest profundity we can, and we conjure at the same time a moral personality (or not).

Keywords: *Ethical education, moral virtues, transcendent motives, motivational quality, professional education*

INTRODUCTION

For human beings the mechanism of decision-making is not only a way to live their lives, but to decide how to live them. Once a decision has been made, the person can control, from within itself, its actions, it can live its life holistically: it has a *biography*. However, this control is not guaranteed beforehand, since, as we know, the dominion over the intellectual self-awareness and the freedom from its desires and sentiments is politic and not despotic, and it is formed through action.

It is in action and in decision, and in the knowledge that their exercise implies – practical reason - where the unity of all the operational strands of man is reached, because they all converge in one sole action. The theoretical reason, or speculative knowledge, that emerges as the specific capacity of human beings that differentiates them from the other animals - the element that allows man to say “I”) - does neither perfect human beings as such, nor is compromised in subjectivity. While this last one feels compassion, commits and perfects itself in the practical reason, in the decision. To choose is to choose *oneself*. The real unity of human beings within themselves and with the outer reality is won or lost in the exercise of free action.

The *ethical value* of action (the value it has for the decisor – the person taking the decision-), is different from the *social value* (the value it has for others). It is important to mark this difference in order not to reduce ethics to mere sociology. Hence, the ultimate criterion in deciding the ethical value of an action is not the “social acceptability” of the consequences of said action. This conception would make the mechanisms of the theory of human decision tremendously trivial, since it eludes the delicate articulation of human knowledge in the decision-making process. It also neglects to analyse the inner consequences the action has within the subject itself. Understanding this gives us an understanding of how moral virtues grow within ourselves, an essential condition for the issue at hand, since to talk about ethics ignoring the moral virtues is like talking about mechanics ignoring gravitational forces. We could make a more or less poetic discourse about it, but nothing even remotely close to a rigorous analysis.

The virtue so acquired manifests as an increase in the vital intensity that each of us adds to its own capacity. We are empowered. We have *more* power because we *are* more. That the end result of this operation remains inside us as agents of the action is something that needs to be stressed to palliate the neglect suffered by this very important inner dimension of human actions. It affects our manner of being. We make ourselves through it.

The philosopher MacIntyre (1987) has shown that the difficulty in recovering the original meaning of the word *virtue* comes from the loss of the theological, or finalist, sense of reality, and consequently, of the obscuring of the notion of human nature, of the blurring of our characteristic way of being as humans. This is because virtue is the realization of those potentialities characteristic of the way of existing and behaving of human beings. If this way of being does not exist, or if it has a purely material character, the very sense of virtue disappears. It is at this point when we incur the risk of attempting to construct a

conventional ethic with notions such as duty, consensus, emotion, usefulness, likeability, dialogue, love, pleasure or solidarity, all very well in themselves, but – with the anthropological sense dissolved and disconnected of each other- incapable of leading anywhere other than towards utilitarianism or relativism, realms both in which disorientation is insurmountable. On the other hand, the accumulation of rules and prescriptions to guarantee a positive human conduct ends up producing Pharisees.

In the exercise of choice, something is chosen, but ultimately what we end up choosing is ourselves. It is not a matter of wanting something for oneself, but *eo ipso*, a matter of wanting oneself for something. This is self-realization and hence, it is also self-construction, because a person is not the same person depending on the values or tasks that is committed to.

Ethical education has to do with the development of moral virtue. Any satisfactory conception of the process of formation of the ethical character has to integrate the basic tenet that we are not isolated individuals and, on the other hand, we can only approach human achievement when living closely and solidarily with other people. Our self-realization demands an ongoing dialogue with other human beings that are, in some sense, part of us and vice versa. And this is not in addition to the individual, but a constituting part of the person as an essentially social being. Living in partnership with others is an essential condition to live with dignity.

The person is an absolute, in the sense that is something unique, irreducible to anything else. Myself is not interchangeable with anybody else's. From a phenomenological-psychological perspective, the human *personal* character is perceived in the quality of this self, this *I*, being open to *you*. This minimum mutual acknowledgement between human beings, besides conditioning the acquisition of a fully human identity on the part of the individuals, is what makes possible the subsistence of this larger *we* that is the fabric that allows life in society in communities such as the business environment, the neighbourhood, the city or the political society. The *person* is essentially and simultaneously an individual and a relational being. The individual aspect alone cannot be stressed because "having no *mirrors* in which to reflect itself, the human being develops a fragile and poor personality, empty and full of complexes, and with the added difficulty that the *societal relation is relegated to the merely accidental*" (Alvira 1988, 24)

This is not a matter of generating altruistic actions or beneficent attitudes at random. A person, whoever it may be, and regardless of its circumstance, is untouchable, it has an incalculable value, it can never be exchanged for money or any other external or internal good. Woman and man are universal and transcendent realities. The wounding of anybody's dignity wounds, somehow, our own dignity, because the injured woman or man are never far from us, they are not strangers or indifferent to us.

What *real value* do we assign to those present in our lives? What real weight has those "others" in our decision-making process? Our reason allows us to identify them as human beings, but to value them as such, to internalize them as other "selves" we have to incorporate them in our decision-making process.

THREE CONSEQUENCES OF DECISION-MAKING WITHIN A HUMAN CONTEXT

Many authors from the Psychology of Learning (E. Deci, 1976; Schunk, 1982; P.R. Pintrich, P.R y E. de Groot 1990; A. Closas, M.L. Sanz y M. D. Ugarte 2011; etc.) had familiarized us with the distinction between the so called extrinsic and intrinsic motives. The first type refers to the world of sensate realities and aligns with the rewards or punishments the environment sends as responses to the actions of the individual: money, raises, prestige, rewards, etc. The satisfaction provided by the second set of motives is generated by the direct outcomes the action has on the subject executing the action, and not by an environmental response. Satisfaction such as that felt after performing a duty, engaging in professional learning, the acquisition of various skills, the sense of achievement, etc., are all intrinsic motives.

Pérez López (1993) breaks this dichotomy proposing a third type of motivation: the transcendent motives. These motives respond to the Franklian concern with the search for sense *outside* the subject, in the opening up of the person to the world. They address the consequences the action may have for those "others", or "other", that will receive the impact of our action, regardless of the effect the same action may have on the subject. These are the motives guiding those that are working to support their family, or on behalf of their country, or wanting to offer a good service to their clients, or those trying to be helpful to their workmates. These motives may not be confused with self-realization or with the enjoyment derived from the regard of others, since self-realization is not concerned, other than instrumentally, with the repercussions of our own behaviour on others and the regard of others does not flow from the one who acts to the others but the other way around.

The knowledge of the existence of transcendent motives is not only the result of the observation of behaviour. It is deduced from the study of the dynamics of the action. The behaviour of the decisor while interacting with one or more persons produces several types of outcomes, each susceptible to attract attention and become a powerful source of motivation.

1. Extrinsic outcomes: The interaction itself, called the *efficacy* of the plan of action.
2. Internal outcomes: The learning of the active agent or the *efficiency* of the plan of action.

3. External outcomes: The learning of the reactive agent, or the *consistency* of the plan of action.

One or several of these outcomes could very well go unnoticed or be underestimated by the decisor, but he can notice them and, if interested, he may want to pursue them, turning the results into motivation for action. This is how the three types of motives indicated can be deduced (Table 1):

1. Extrinsic motives: What we expect to receive in exchange for the action. These motives respond to the most basic needs, those we could call material needs. They mean, ultimately, the possession of things or the possibility to establish sensate relationships with things.
2. Intrinsic motives: What we expect to learn or enjoy while performing the action. These motives respond to cognoscitive needs. They address the subject's inner world, the capacity to do things, to get what we want. Through the appropriate learning process, a person develops what is called *operational knowledge*, a set of skills needed to manage the surrounding environment. The sense of power and, somehow, the feeling of security derived from the psychological states that depend upon the satisfaction of these needs.
3. Transcendent motives: The manner in which others are expected to benefit from our actions. These motives address the affective needs, not only the need to be loved, but most specially, the need to love. These motives are linked to the attainment of appropriate relationships with others, that love us as persons and appreciate us for who we are, and not for the presence or absence of certain qualities, or because we are useful to them. The satisfaction derived from actions based on these motives is made manifest in the certainty of knowing that whatever affects us affects the other as well, because it affects us. "People have the ability to internalize – make their own- everything that happens to other people. This internalization process is what we call, in a strict sense, love. People are capable of loving and being loved, and this relationship is what satisfies the emotional or affective relations" (Pérez López 1993, 60).

Table 1. Three criteria for decision-making.

<i>Consequences of action</i>	<i>Types of knowledge</i>	<i>Types of motives to be satisfied</i>	<i>Criteria for decision</i>
1. Effectiveness 2. Efficiency 3. Consistency	1. Perceptual 2. Abstract rational operational capacities 3. Appreciatory evaluative capacities	1. Extrinsic 2. Intrinsic 3. Transcendent	1. I like it 2. I Know how to do it and I can do it 3. And what about the other?

Source: López-Jurado, M (2010) *La decisión correcta. El aprendizaje de los valores morales a través de la toma de decisiones*. Bilbao, Editorial Descleé De Brouwer

These three motives may be present when performing the action. A doctor's foremost concern, for instance, is the health of his patients, although by caring for them he acquires prestige, new knowledge and good earnings at the same time. These motives are not the exclusive prerogative of those who generously spend their life on behalf of others. They are present in any human activity. This is a personal attitude towards work and life. The three motives intervene in any action, but the pre-eminence of one upon the other depends on each individual. The manner in which a person allocates importance to each motive defines his or her motivational quality.

The differentiating factor of this type of motivation is that the action seeks to satisfy the needs of a person or persons other than the subject's. The category of the need to be satisfied may be in any of the categories mentioned above: quenching their thirst, helping them become better technicians or learn a new software application, helping them become better parents, or quitting a drug habit. The determining factor is that we are seeking not a change in ourselves, or a result for ourselves, but a direct improvement of the other person's circumstance.

The search for transcendent motives as a guiding principle of movement is one of the main traits that differentiate humans from animals. This is the type of motivation we refer to when talking of generosity, or the orientation towards service, or solidarity, etc. Colloquial language offers us a sample of this: when we qualify a person as "very humane", we mean this person takes into account what happens to other people and is willing to help them, that is, the transcendent motives are very present in his or her actions. The opposite concept, that of a selfish or not very humane person defines a person whose actions are only directed to his or her own satisfaction, and do not take into account the difficulties that this behaviour may be inflicting on others.

THREE DIFFERENT BUT INTERCONNECTED MOTIVES PRESENT IN THE DECISION-MAKING PROCESS

These three outcomes of the action are three different levels of reality, but are not detachable from each other. They are not mutually independent, but interconnected. The type of feasible actions each of us engages in depends on our inner state, that is, of the level of development of our will and our rationality. Not everybody is prepared to rescue somebody from a house on fire. To be able to do this, the person has had to previously develop the will and the capacity to help others. Hence our capacity to engage in increasingly costly interactions will depend on the level of development of our inner states. On the other hand, the inner states of the reactive agent, coupled with the exercise of individual freedom of action, determine.

We see then, that these three categories of reality called efficacy, efficiency and consistency affect the outcome, which is also influenced by the level of trust the reactive agent has in us, indicative of a particular inner state. A high degree of trust between two people allows a great deal of interactions between them that will be accompanied by the corresponding satisfaction they generate. It can be said that in this state all feasible interactions are already possible.

These three different levels of reality, since they are all significant in themselves, can be the motivating factors of our actions, and the outcomes of said actions will, in turn, cover different human needs.

The *real value* of a specific action depends upon the *value* of all of the outcomes and thus it would be incorrect to analyze the value of an action considering only one or two types of outcome, since the three are present whether the decisor wants it or not.

THE MOTIVATIONAL QUALITY OF THE DECISION

Virtue cannot be learned in the same manner as theoretical knowledge is acquired. We do not become prudent merely by reading all the books written about prudence. It is a type of knowledge that *must be exercised* to really know it. This knowledge is updated via the solutions we give to intermotivational conflicts, that is, conflict that arises amongst different types of motives. Conflict that arises within the same type of motive is called intramotivational.

There can be no conflict of values in the theoretical line, or the unity of all values would not be valuable then, but it is obvious that there is a conflict of values in the practical plane caused by the unavoidable presence of evil in the world. Only in a world were all people were good people and all their values were realized would the conflicts between them disappear.

Pure egoism is probably as rare as pure altruism. Generally these three types of motives are present in any interaction. It is a normal motivation for teachers to exchange fees for services (helping students), to develop their professional skills (learning to teach) and make their students learn something specific. Naturally, the weight assigned to each type of motive is different for each person. Some teachers will place more value in obtaining their fees while others will favour the learning of their students. And this is true for any professional because it is true for any action of any human being.

It should be stressed that when we fail to incorporate transcendent motives in the decision-making process, it will become increasingly difficult for us to do so. The spontaneous impulse will be less and less sensitive to this type of motives while we will find ourselves gradually further from the most valuable aspects of reality. "Assigning a hierarchy to values implies the capacity to notice that there are different modes of reality and behaviour and that some have higher features than others" (López Quintás 1993, 444).

What does the decisor obtain when carrying out "consistent" actions? Something of such calibre that acting differently would be irrational and insane. However, the "reward" must be experienced to *know it* and to *feel it*. "We are completely different when we are moral. We change inside out if we exercise our autonomy deciding to be moral, in other words, if we relate to others granting them consideration as valuable beings in themselves" (Sábada 1995, 47). We recognise ourselves as subjects and not objects. We recognise ourselves as persons, and this recognition cannot be achieved by competition, but by seeing in the other what exists within oneself, setting in motion the reciprocal appreciations and assessments.

The model proposed here does not entail a renunciation of value as such. There is a preference, since the action is going to contain the three interconnected order of values and none of them can be maximized. The rule to decide correctly would be "to always include the third party". Not surprisingly, the more attractive trait from the perspective of solving a concrete and immediate problem is not acceptable from the perspective of consistency (taking into account the consequences that our actions would have for others). We will then seek a plan of action that while consistent – implicitly in pursuit of positive learning for the receptor of the plan of action- , has a minimum of efficacy. "Our personal axiological hierarchy is a result of our *preferences*. This preference, even if it does not contribute value, contributes at least valuation and places the subject in a concrete position before the values, so it is true that "preference has a creative action" (Lavelle 1951, 506).

To implement these not inconsistent actions, it is necessary the exercise of will power to restrain the immediate impulse – spontaneous motivation - to act in the most desirable manner at a given point. The moral virtues play a key role in the implementation of the right action: rationality aided by will has to stop and think of an alternative that contains consistency *a priori*, and then the subject has to act, after having conquered the spontaneous impulse to act in a more desirable manner.

Since moral virtues are developed through practice, transcendent motives can be defined in two different manners:

1. Motives based in the action being good for the other address those properties of the action that will provoke those consequences in the subject's moral virtues: the action must be carried out because it is good for "the environment".
2. Motives based in the action developing moral virtues in the subject. Here transcendent motives are considered as those that improve the self-awareness of the decisor, the development of his or her ability to take better decisions.

Moral virtues contemplate the overall goodness of the action and not only the efficacy it has for the other. The paradigm of properly done valuations– a necessary reference in all education in values –requires, always, the incorporation of the "consistency of the plan of action", or paraphrasing Saint Augustine of Hippo, "Tell me what you love and I will tell you who you are."

Ethics is a science that pointed out, thousands of years ago, that the *de facto* value a human being assigns to another is not a matter of "what" is being "valued" - it is always a human being - but of "who" is doing the "valuing" and of the level of development this person has reached in the appreciation of what is valuable. There is a process by which we learn to value reality without being deluded by superficial appearances

It is essential to determine *which type of capabilities* we intend to develop through the educational process. If we develop only operational capacities, we are considering Moral Education as a "moral product" that is transmitted to a third party via the granting of an "Ethics credit", for instance. The formation of virtues will then be relegated to whatever can be obtained through disciplinary rules, extra-curricular activities, and of course, the exemplariness as role models of the educators themselves. This is all very well and it is important and necessary, but it is not enough.

If we also want to develop *evaluative capacities* together with the operational capacities, because we are teaching our students to do *complete valuations* of reality, we are entering in the deliberative process necessary to exercise prudence, helping then to foster a moral education. I say foster because it is a goal that is only reached if the recipient of this education so desires. In this manner we are endeavouring to provide an education that will enable them to be *competent* and *virtuous* professionals.

A PRIORI VALUATION OF EACH OF THESE MOTIVES

Prudence is the virtue that foresees and anticipates future contingent scenarios before they take place in order to avoid a plan of action that would cause, rather than solve, problems. The assessment or valuation of these three levels of reality or *a priori* motives cannot be done only by one mechanism that assesses the three scenarios together. We need "three skills or *cognitive mechanisms*", (Pérez López 1998, 205), since to qualify as motives they have to exist before the action.

We use *memory* – perceptual knowledge –to evaluate *a priori*, extrinsic motives. A concrete perception – a set comprising action and reaction – accompanied by its associated satisfaction, sets the mechanism in motion anticipating the reward. Memory is the channel we use to connect with past experiences, imprinted inside our selves. These satisfactions are not transferable or communicable. Perceptual knowledge sets in motion the mechanism of spontaneous motivation. Animals move in this manner, their memory is extensive and intensive: they feel, unlike a computer whose memory is solely extensive and therefore feels neither pleasure nor pain resulting in zero cost operations.

We use *rationality* – abstract knowledge- to evaluate *a priori* intrinsic motives. Rationality is the archive where we file information about the value of things. This process takes effort: thinking, inferring and making predictions based on the available data is costly. Thinking means utilizing, making and applying all this data to feed the process and arrive to a decision regarding the problem at hand. Here is where the will intervenes, and it is at this level where we speak of rational motivation.

However, we may have a very "refined" weighing process to evaluate *a priori* only one dimension: efficacy. In this manner we use reason *instrumentally*, treating others solely "in function of our interests", as "a means to", but not as a value in and of themselves. This corruption of prudence has a degenerating effect on us as persons and eventually disables us from making the same plans we were able to make before, since the others, noticing our *modus operandi*, will not want to interact with us. We see how rationality articulates two intentions: the explicit, or what we seek with a specific plan of action, and the implicit, the degree in which we more or less care about the impacts of our actions on others. Rationality

contributes the aim and the sense of the action and that is why it is such an important element in the development of moral values. Ignorance, when insurmountable, does not harm the subject morally, since he or she is using appropriately the available, albeit incomplete, data. The thinking process is done honestly before implementing the action, and therefore ignorance is not a corrupting factor.

What real value are we assigning the “other” receiving the impact of our action? The development of *valuative knowledge* allows us to value the other as another self. It allows us to discover personal realities, that is, the inner states of other person. This knowledge, however, calls for a pre-requisite.

It is important to note that the individual level of awareness (or capacity for awareness) of the personal realities –incorporating them in the decision-making process- is precisely the same capacity individuals have of feeling deep affective satisfaction. We tend to think that satisfaction of human needs depends solely in what takes place *outside* the person. This is true – and only partly so - for material needs. The satisfaction of affective needs depends mostly of some *thing* that is *inside* the person: the *state* of his or her *valuative knowledge*. Even when surrounded by others that truly love them, their deep affective needs will be unsatisfied in the absence of this type of knowledge, because they will be *incapable of discovering*, and consequently of *feeling* the affection they feel for them.

For this knowledge to be present two conditions have to be met: 1) the presence of another person (s) that feels true concern for us, and 2) to know in an *experiential* (rather than theoretical) manner their true inner state.

It is a matter of designing plans of action where it is assumed – intended - that we can trust the other. This entails a cost, an effort and the risk of not arriving to the decision desired by the other. We need to take this risk because avoiding these types of decisions precludes the discovery of the personal realities in an experiential manner, and therefore of *feeling their value*. To know experientially the inner states of the other- the non-perceptual realities -, we need to *experiment*, to design experiences to that effect.

The cogitative faculty, different from the animal estimative faculty, intervenes in this knowledge, however, if the decisor systematically judges others and their actions in functions of his or her own desires, the human cogitative faculty is reduced to the animal estimative faculty. The subject is then dehumanized and animalized.

“This habit, in the psychosomatic nature of man, can originate a stable dysfunction and even an organic injury (since the cogitative faculty, unlike the spiritual intelligence, has an organ, even though neurologists have yet to locate it and perhaps they never will). Here we have one origin for a reactive psychopathology that can escalate to extreme forms of dementia, and that in any case produces a grievous fracture of the personality and a painful psychological existence” (Cardona 1987, 127).

It is important to stress again the distinction between needs that are satisfied by external factors – their satisfaction depends on the external-, and the *desires* or *internal needs* which satisfaction depends on the inner state, a self-generated state that is produced by the manner in which a person uses rationality and will.

Prudence can direct or lead the cogitative faculty. This faculty addresses everything real that is concrete in its temporal dimension from the perspective of *value*.

“The link between reason and the cogitative faculty allows us to understand that the practical reason has a *practical apprehension*, because if reason draws from the apprehensive powers as needed (*ex necessitate*), when it apprehends from the cogitative faculty it takes physical realities as goods. This practical apprehension is the basic act over which reason will act to be able to move on to deliberation, to practical judgement and to dominion. All acts that underlie the corresponding habits that culminates in *prudence*” (Sellés 1999, 183)

The development of this *valuative knowledge* – the knowledge that is reached when the decisor is guided by rational motivation based on transcendent motives- is essential for human happiness, because we cannot be happy merely by thinking about it, but with life. Happiness is experiential and this includes feeling. *Valuative knowledge* allows us to arrive to the point of “feeling” the value of the other as a person that loves us and that we are capable of loving.

“That is why it can be said that motivation based on transcendent motives is the motivation that tries to orient human action towards our own personal improvement at the deepest plane of our individual self: our capacity to feel others as people, our capacity to establish deep affective relationships with other human beings” (Pérez López 1993,61)

CONCLUSIONS

The ethical level is the existential level par excellence. Without ethical experience we can hardly speak of existence, and therefore we acquire prudence if we act with rational motivation based on transcendent

motives. In our proposal for an education in moral values we offer the Case Method as a privileged method for decision-making. It's very structure confronts the subject with a concrete correct decision, here and now. The instructor, by means of maintaining a dialogue about the situation, brings out and helps manifest the reasoning process of the student until he or she arrives to the point of choosing a plan of action. The questions incorporated in the dialogue serve to rescue the student's basic guiding motives. There are three criteria related to decision-making: efficacy (economic value), efficiency (psychological value), and consistency (ethical and anthropological value)

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EVALUATING TEACHER EFFECTIVENESS USING MATLAB GUI

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ABSTRACT

Measuring teacher effectiveness is a vital activity for teacher development. However, evaluation of teacher's performance is crucial and sensitive affair. In this paper an effort has been made to develop a measuring tool for evaluating teacher's performance using MATLAB GUI (Graphics User Interface), the evaluator being higher authority. The teachers, whose performance is to be evaluated, are those from higher education, teaching at diploma and degree levels of Engineering, and, who do not have any formal training on teaching. The tool includes the skill and attitude components of teaching as it is well understood that an individual who joins teaching profession would be well versed with the knowledge aspect or content knowledge. This is an attempt to generate a feedback form for a fair, holistic, quantitative and qualitative evaluation of teacher's performance.

INTRODUCTION

The technical teachers, those teaching students at diploma & degree levels of Engineering, mostly join teaching profession without any formal training in the art of teaching. It is understood that the easiest way followed to teach is adapting the method by which the teachers had been taught during their students' days. Some teachers also follow a method of trial - and - error, which might not be suitable many a times. However, teachers continue to improve themselves with experience and students' feedback. Be it primary education or higher education, a teacher's performance is directly related to students' achievement in learning. Of late, teachers are being evaluated by different sources primarily for their improvement as also for higher accountability. Moreover, establishing an effective method of evaluating teachers' performance, itself, is challenging.

Teacher effectiveness and teacher efficiency are two different parameters that can judge the quality of learning by the students. The dictionary meaning of effectiveness stands as 'the quality of being successful in producing an intended result'. Efficiency refers to 'doing things right', that means getting the maximum possible output from the least amount of inputs. In this paper, the term teacher effectiveness will mean with reference to students' achievement in learning, i.e., effective classroom learning. Hence, to understand easily, we can define teacher effectiveness as the ability of a teacher to improve students' learning. It also refers to 'doing the right things'. This would take care of all the domains, i.e., cognitive, affective, behavioral and those relating to skill. If we talk about teaching in terms of 'input-process-output' model, its output would correspond to the efficiency, while the outcomes of teaching would relate better with effectiveness. A highly qualified teacher need not necessarily be very effective in making students understand the concepts being delivered. On the contrary, a less qualified teacher can bring about more effective learning for the students through her/his teaching. Hence, it becomes a natural curiosity to know and comprehend as to what are the crucial elements that make a teacher effective.

RELATED LITERATURE

Teacher effectiveness would certainly mean the way a teacher performs in the classroom. Contributions of some researchers in this area are being listed here.

Rosenshine and Furst (1973) identified the five most important variables of teacher-effectiveness which are Clarity, Variability, Enthusiasm, Task-oriented and/or Businesslike Behaviors, and Student Opportunity to Learn.

Brophy & Good (1986) view it differently opining, “What constitutes ‘teacher effectiveness’ is a matter of definition, and most definitions include success in socialising students and promoting their affective and personal development in addition to success in fostering their mastery of formal curricula”.

Studies have shown that several aspects of teaching practice directly influences learning by students and their learning outcomes (Brophy and Good, 1986; Wang, Haertel and Walberg, 1993).

It is a myth that good teaching follows naturally from subject mastery. Teacher effectiveness can be interpreted by the "Four Aces of Effective Teaching" (Walls, 1999), as mentioned in the study of Bulger, Mohr, & Walls, 2002, which can be listed as outcome, clarity, engagement and enthusiasm.

From a cognitive perspective, teaching may be defined as the creation of learning environments in which students maximize the possibility of executing the cognitive activities necessary for building knowledge and reasoning capacity (Floden, 2001).

As cited by Lovat (2003), effective teachers ‘have a rich understanding of the subjects they teach and appreciate how knowledge in their subject is created, organized, linked to other disciplines and applied to real-world settings.....’.

Teacher effectiveness has been termed as the impact that classroom factors, such as teaching methods, teacher expectations, classroom organization, and use of classroom resources have on students’ performance as stated by Campbell, Kyriades, Muijs & Robinson (2004).

THE STUDY

Teaching effectiveness can be interpreted in different ways. From the findings of literature survey as also the experience of authors, certain parameters have been identified as essential factors leading to teacher effectiveness. They were also circulated among some of the experts and technical teachers to obtain their feedback and validate the criteria. It is well understood by practicing teachers that the content of what is taught influences how it is taught. Different areas are considered vital for teaching in addition to subject knowledge. These have been broadly categorized under communication skills which includes verbal and non-verbal types accommodating body language, gestures, eye contact, etc., the other categories were teaching skills, classroom management, and instructional plan. Further, the teachers' ability to understand and apply the subject-matter in different ways, according to the context of their classes, the sequence of lessons, and their knowledge of the individual differences of students are also very important. Thus, feedback on teachers’ performance is of paramount importance in today’s competitive market. Moreover, we now talk of 360⁰ feedback for a holistic view. In this study, feedback on teachers’ performance by a senior colleague / head of the department / higher authority has been taken into consideration. Keeping this in view, the authors tried to explore the various criteria by which a teacher can be judiciously evaluated and found that the student feedback, peer feedback, parent feedback and feedback by higher authority would be beneficial for a teacher to improve her/his teaching.

Since teacher effectiveness is measured through students’ achievement in learning, the components of creating a productive learning environment were explored. The objective of this study is to develop an evaluation tool to measure important aspects of teacher effectiveness. Any evaluation tool to assess teachers’ performance would require setting up evaluation criteria to determine the level of performance of individual teachers for each of the aspects assessed. The criteria for judging the teaching effectiveness were brainstormed and identified. These were consolidated and classified as skill and attitudinal components. However, the proposed list is not exhaustive. For the

purpose cited above, an instrument to provide impartial quantitative and qualitative evaluation by the higher authority, the Graphics User Interface (GUI) program was developed with MATLAB software.

CRITERIA CONSIDERED FOR EVALUATION

In addition to the parameters mentioned above, certain other parameters were also identified which result in teaching effectiveness, for example; teacher's flexibility to change the date of assignment submission, or class tests etc. Moreover, a teacher's enthusiasm and creativity also play a great role in teaching effectively. Again, a teacher demonstrating sufficient & updated subject knowledge is also highly essential.

A teacher has to have very good communication skills in order to pass the message across. In addition, she/he should be equipped with certain skills of teaching, for example inducting the students to the class in first few minutes, communicating expectations, defining the learning outcomes, questioning students, explaining, closing the class, to mention a few. Often, teachers take the help of teaching aids, but these must be used wisely as and when needed. These are considered to be the skill components as they can be improved with practice. Besides, teachers must know how to engage their students for active learning with a variety of activities and collaborative learning, so that the development of 21st century skills is taken care of. Providing feedback to students includes both formative and summative feedback, with an emphasis on the former, so that the improvement in learning becomes visible to students and teachers alike. Further, different types of assessment tools are needed to assess the attainment of various outcomes. The criterion of 'providing feedback to students' has been kept separately in addition to 'employing different assessment tools' to emphasize its role and relevance in student learning.

Teaching, being a complex activity, encompasses a variety of skills besides mastery in one's own subject matter. However, from the brainstorming, it is understood that the attitudinal components play a major role in defining teacher effectiveness. For example, a well-prepared and enthusiastic teacher would certainly display creativity in teaching. Similarly, the 21st century skills have become essential for the survival of the millennials. A teacher appreciating construction of new knowledge and its application to real-world settings would always address the queries of students. Such teachers displaying a positive attitude would be kind and empathetic to students besides being easily available and accessible to them.

In this paper only a few skill and attitudinal aspects, that are considered vital, have been mentioned. These areas have also been reiterated and prioritized as understood from the related literature review. The weightage to the skill and attitude components are allotted based on the priority to the respective parameters.

This weightage has been denoted on a seven point scale. Weightage of 7 indicates a parameter with high priority while that of 1 means the parameter with lowest priority. In this study, a criterion having weightage less than 3 has not been considered. However, the weightage can be changed as per the suitability of the study and the valid requirements of the evaluator.

$$\text{weightage average} = \frac{\sum_{i=j}^k w_i x_i}{\sum_{i=j}^k w_i}$$

In this study, j=1 and k=7 for skill criteria and j=8 and k=16 for attitude criteria. The value of 'x', provided by the evaluator is between 1 and 5 and weightage on different parameters are set under 7 point scale as illustrated in Table1.

Table 1: Parameters for evaluating Teacher Effectiveness and their related weightage

Sr. No.	Teacher's Performance Criteria /Parameter (x)	Parameter under Skill / Attitude Domain	Weightage Factor (w)
1	Demonstrating Good Communication	Skill	7
2	Demonstrating Adequate Teaching Skills		7
3	Employing Different Assessment Tools For Evaluation		6
4	Demonstrating Sound Classroom Management Skills		5
5	Using Different Teaching Aids Judiciously In The Class		5
6	Using A Variety Of In-Class Activity		5
7	Providing Variety Of Feedback To Students		5
8	Coming Well Prepared and Enthusiastic For The Class	Attitude	7

9	Being Punctual In Her / His Class Timings		6
10	Encouraging Students To Ask Questions		6
11	Encouraging Development Of 21 st Century Skills		6
12	Assisting Students To The Laboratory		6
13	Being Easily Available & Accessible To Students		4
14	Providing Time To Students To Solve Their Queries		4
15	Providing Variety Of Learning Resources		3
16	Returning Corrected Assignments In Time		3
$\sum x=16$			$\sum w=85$

Thus, seven skill and nine attitudinal components are found to be important as are depicted in the Table 1 with respective weightage factor (w). However, keeping in mind the prime objective of the study and for the ease of workability and manageability of the display in window frame, the number of parameters was kept limited. Each skill / attitudinal parameter for the teacher is rated (x) under five point scale by the evaluator, qualifying 1 as 'not satisfactory', 2 as 'satisfactory', 3 as 'good', 4 as 'very good' and 5 as 'excellent'. To evaluate a teacher using the identified criteria, both quantitatively and qualitatively, software MATLAB has been used to create GUI.

The evaluator (here, higher authority) will rate the faculty on sixteen selected parameters, out of which seven are skill based and nine are attitudinal. There can be several other components of skill & attitude domains, but only these sixteen have been considered to be essential and vital for any teacher, especially in higher education, where they learn to teach on their own.

As the content knowledge has not been studied in detail in this study, the researchers have also considered its rating on a five-point rating scale to keep parity with the domains of skill and attitude. This rating has to be provided by the evaluator after receiving the information from respective subject expert, as the evaluator may not be from the same discipline. Finally, to obtain 'Faculty Performance with Gross Weightage Score', weightage on 'Knowledge', 'Skill' and 'Attitude' (KSA) are considered as 1:1:1. Using the GUI with inputs of required ratings, the 'Faculty Performance with Gross Weightage Score', will be displayed in the GUI window the teacher's quantitative and qualitative performances based on the three domains, i.e., knowledge, skill and attitude (KSA).

ABOUT MATLAB

MATLAB which stands for MATrix LABoratory, is a high-performance language for technical computing, which includes computation, visualization, and interactive user friendly programming environment. A graphical user interface (GUI) is a human to computer interface. It is an effective way for user to interact with computers using windows, icons and menus, which can be manipulated by a mouse / keyboard. It helps the user to enter the related data to the respective places of GUI window and getting the required result with the use of 'Push Button' tag, eliminating the need to learn the MATLAB language in order to run the application.

Initial developed blank GUI Window for this work is depicted in Figure 1. Sixteen identified criteria for evaluation are shown with respective ratings 'Pop-up Menus', one 'Pop-up Menu' for knowledge rating, one 'Edit Box' next to 'Text Box' named 'Faculty Name' for entry of the name of the faculty and one 'Push Button' titled 'Faculty Performance with Gross Weightage Score' tag for getting final feedback qualitatively and quantitatively.

FINDINGS & DISCUSSION

Since subject matter expertise is not the sole determinant of effective teaching, several parameters were identified by brainstorming with the practicing teachers, about different areas which they consider vital for teaching in addition to subject knowledge. The weightage factor on respective parameter is considered under 7 point scale. The number of parameters can be changed with respective weightage factor using different scale and accordingly, the program can be modified.

Figure 2, displays the final GUI frame after entering all related inputs. Feedback is provided by the evaluator using the 'pop-up menu' for all listed parameters on five point scale (i.e., 'Not Satisfactory', 'Satisfactory', 'Good', 'Very Good', 'Excellent') and typing the name of the faculty in the 'Edit Box' next to 'Static Text Box' named 'Faculty Name'.

The 'output' on teacher evaluation will be displayed on the MATLAB GUI window after pressing the 'Push Button' key named 'Faculty Performance with Gross Weightage Score'. Using the weightage factors in respective parameters as shown in Table 1, the program will also display the 'Pie Chart' on 'Skill' and 'Attitude' domain separately with labels. The overall qualitative feedback is based on the quantitative feedback as displayed in Table 2.

It is noteworthy that the several components of knowledge domain that account for its effectiveness in teaching have not been studied. The comprehensiveness of the tool can be increased by incorporating a teacher's way of representing knowledge, the manner in which she/he helps the learners assimilate information to construct knowledge, interaction with colleagues, ability to work in a team, and the like. Detailed studies in this regard would widen the horizon.

Figure 1 :Initial window of the MATLAB GUI (without data input)

Table 2 indicates that a gross weightage score of less than or equal to 40 is not desirable, and, therefore, has been labelled as 'not satisfactory'. It is clear from the above that the qualitative feedback has always been displayed as a positive statement. This is done so for the obvious reason that the purpose of any feedback is to improve the individual's performance and, hence, the statement ought to have a motivational function. Moreover, saying good or excellent does not carry much meaning as the feedback has to be descriptive rather than evaluative in nature.

Table 2 : Qualitative feedback based on the quantitative % Gross Weightage Score

Quantitative Feedback (% Score)	Level of Teacher Effectiveness	Qualitative Feedback
Score \leq 40%	Not satisfactory	A teacher can make a lasting impact on students, try to be one
40 % < Score \leq 50%	Satisfactory	A good teacher can change the world, you can be one
50% < Score \leq 60%	Between Satisfactory & Good	An exploratory teacher promotes discovery, explore with your learners
60% < Score \leq 70%	Good	A good teacher motivates every student to ask questions, make your students think
70% < Score \leq 80%	Between Good & Very Good	The influence of a good teacher can never be erased, keep motivating
80% < Score \leq 85%	Very Good	A very good teacher knows how to bring out the best, keep it up
85% < Score \leq 95%	Between Very Good & Excellent	An inspiring teacher has lasting influence, you deserve to be one

Score > 95%	Excellent	An excellent teacher is the heart of education, keep the good work going
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From figure 2, one can easily appreciate that a teacher possessing ‘very good’ knowledge (here, 80%) may not be overall rated as very good in teaching since the other two domains of attitude and skill (here, 38% & 28% respectively) are not found to be desirable. As such, we find here that the gross weightage score of the concerned teacher’s performance is 49%, indicating a below ‘good’ level of teacher effectiveness, as shown in table 2 earlier.

However, the case shown in figure 3 is somewhat different and quite opposite of that shown in figure 2. Here, the knowledge component is ‘satisfactory’ (40%), but faculty performance shows a gross weightage score of 62% because of weightage skill (79%) and attitudinal (67%) components. Therefore, it needs no further elaboration that the understanding and expertise in pedagogy and subject matter, together with teachers’ ability to apply effective instructional skills, are the keys to learning for all students for which attitude plays the foremost role.

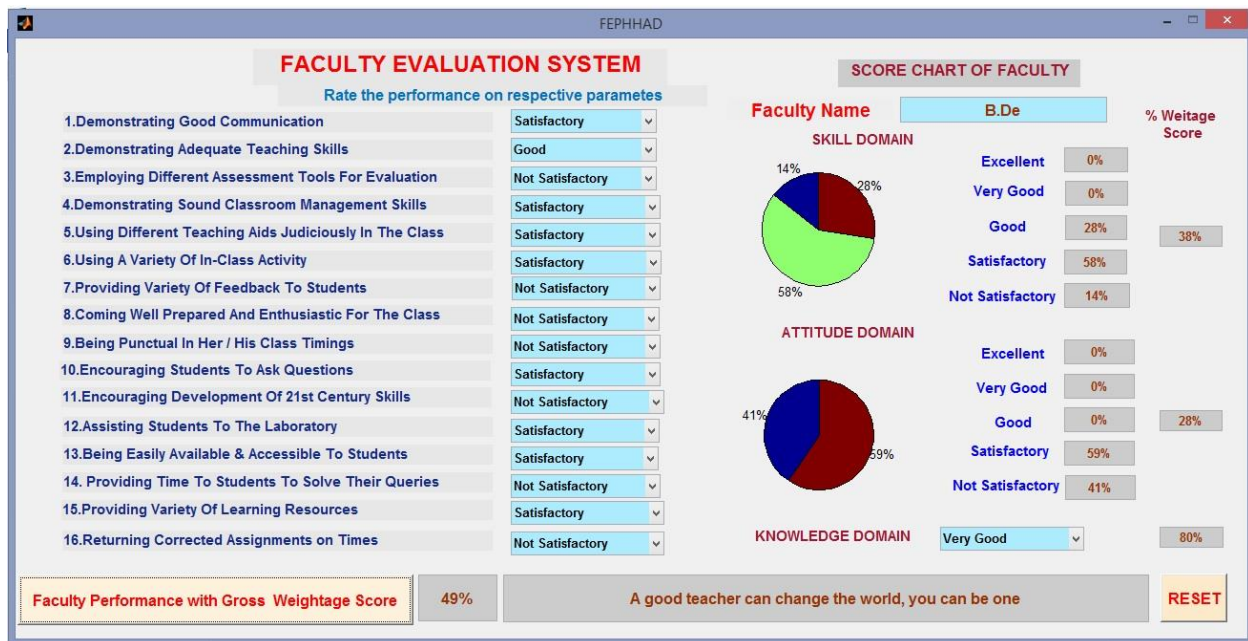


Figure 2 : Final window of the MATLAB GUI (with sample data input)

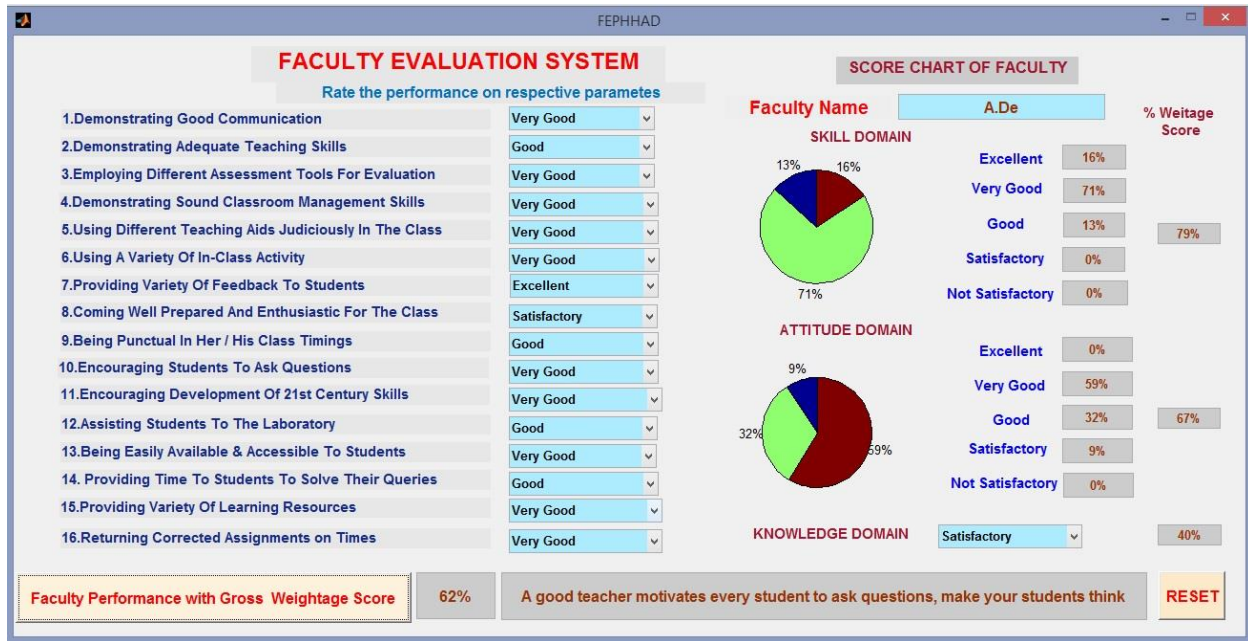


Figure 3: Final window of the MATLAB GUI (with sample data input)

In order to use this GUI, the evaluator needs to have Matlab platform. The developed GUI can be used with the access of two developed GUI files, that is, 'm' file and one 'graphics' file. Hence, it has been mentioned earlier that even without the technical know-how of Matlab, this GUI tool can be used fruitfully, without hassle.

CONCLUSION

Effective teaching can be defined in several ways as discussed earlier. The effect of teaching on student outcomes can be diverse, viz., teaching can have an effect on learning in the cognitive domain, attitudinal component, skill development and even on the motivational upliftment of learners. Factors of classroom instruction like, adequate classroom management, systematic monitoring of students, well-structured lesson plans, timely & encouraging feedback, - all have a positive impact on learning achievement.

An important fact is that the teacher should not be aversive to feedback given by the senior authority, otherwise teaching becomes mechanical. Constructive feedback of any activity will always lead to improvement of the same. The rater who will evaluate the teacher also has to be enough knowledgeable about teaching and its effectiveness. In this paper, an attempt has been made to develop user friendly MATLAB GUI considering some limited but essential parameters based on Skill and Attitude domains for effective teaching. The mentioned list of parameters is not exhaustive. Improvement on the developed GUI may be made with rating on knowledge domain precisely.

Teacher effectiveness can be judged only by assessing the impact of teaching on students' learning. As such, the tool suggested has to be used only after the teacher has taught a group of students to study its effectiveness. Hence, this tool is only suggestive.

However, there are certain delimitations of the work. To mention a few, the validity and reliability of the instrument is yet to be established. As already stated, the comprehensiveness of the tool can also be increased. For any learning-teaching system, the evaluation framework needs to be clearly defined. The strategies and approaches, in this regard, are also essential to be mutually agreed upon by the evaluator and the individual to be evaluated. Though the knowledge component has not been elaborated in the list of parameters, this can be an area of research in itself. Further, the suggested tool needs to be administered and studied for its utility and impact.

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EVALUATING THE LEADERSHIP BEHAVIOURS OF THE SCHOOL PRINCIPLES ACCORDING TO TEACHERS' WORK SATISFICATION

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This study aims to search the effects of the school principals' leadership behaviours on the teachers' work satisfaction. The study group of the study consisted of 40 class teachers working in the official primary schools in the district of Batman province center. This research reposes the qualitative research method. In this research, the effects of school managers' leadership behaviors on job satisfaction of teachers were investigated and the findings were analyzed by NVIVO qualitative data analysis program. As a result of the research, it has been determined that the school administrators are a good leader, the teachers will improve their loyalty to the school and feelings of belonging. It has been seen that the fairness of the school administrators will increase the job satisfaction in the teachers. Job satisfaction has been shown to increase job loyalty among employees. Leadership behaviors directly affect teachers' job satisfaction at the point of reaching the institutional goals of school administrators, and those who are satisfied with their work are more productive in organizational structure

EVALUATION OF SCHOOL EXECUTIVES' AND TEACHERS' VIEWS RELATED TO SCHOOL EXECUTIVES EXHIBITION LEADERSHIP BEHAVIORS

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The aim of the research was to evaluate the views of school executives and teachers on the demonstration of the teaching leadership behaviors of school executives in the Turkish Republic of Northern Cyprus. The case study was used in the research qualitative research design. Participants consisted of 10 school executives and 10 teachers who were selected by snowball sampling method among the teachers working in primary schools affiliated to TRNC Ministry of National Education in 2016-2017 school year. Participants were asked open-ended and semi-structured questions and interview techniques were applied. Voice recording was received during the call. The obtained data were analyzed by qualitative data analysis method. Findings analyzed using content analysis and thematic analysis methods were presented and interpreted. When the answers given by the school executives and the teachers to the interview questions are examined, It has been seen that the school executives have determined the school objectives in terms of determining and sharing the goals of the school. It has been determined that school executives do not have enough knowledge about educational programs in terms of managing the education program. On the assessment of pupils, school executives have reached the conclusion that pupils have supported pupils in increasing pupils' achievement. It has been observed that school executives have contributed to the professional development of teachers as a support of teachers. On the level of establishing a regular learning environment, managers have been cooperating with the social environment and achieved the motivation that motivates teachers to increase motivation. It has also been observed that school executives have demonstrated effective management in school management

EVALUATION OF TEACHER'S VISITS OF THE SCHOOL ADMINISTRATOR'S LEADERSHIP STYLES

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This study was carried out by investigating the literature. In the study, it was aimed to determine how 'school administrators' in the primary schools in the TRNC evaluated the leadership styles of teachers and their teachers' perspectives on professional commitment to the profession. This work is a qualitative study. Participants of the study were selected from primary school teachers affiliated to the Ministry of National Education of the Turkish Republic of Northern Cyprus in the 2016-2017 school year. Participant 20 teachers were reached by snowball sampling method. This study was formed by a case study. Using semi-structured interview techniques, we have been asked to answer semi-constructive questions about the research topic. The information gathered during the interview was interpreted by data analysis and related themes were created and expressed with the help of tables. When the responses of participant teachers are examined as a result of this research; It is seen that school administrators have adopted patience, understanding, equal and positive leadership styles. Besides this, it is stated that there are school administrators who do what one side wants. Teachers have enjoyed this profession, have fewer working hours, have a good reputation for their profession, When doing this profession, they are complaining about the lack of equipment, the excess of students in the classroom, the indifference of their families and students. According to the behaviors of the school administrators, there are teachers who feel themselves worn out in this profession, as well as teachers who feel themselves well and increase their motivation and dedicate themselves to this profession according to the leadership styles of the managers.

EVALUATION OF THE QUALITY OF ECUADORIAN UNIVERSITY WEBSITES**Carlos VEGA**

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ABSTRACT

This research work aimed at evaluating the quality of the websites of 52 Ecuadorian universities through the definition of evaluation parameters and the selection of tools of analysis. First, we determined six evaluation parameters and their criteria. For their establishment, we considered international standards such as ISO / IEC 25010 and the W3C (World Wide Web Consortium). The parameters established were Functionality, Usability, Portability, Efficiency, Compatibility and Positioning. Then, we selected eight quality analysis tools that meet the requirements of the parameters selected. The results obtained from the tools of analysis were weighted, placing the websites in a national ranking. The evaluation identified the improvements that website administrators must make to ensure the quality of their sites. The parameters that need more attention are positioning and accessibility. This form of evaluation can be adopted by the institutions or regulatory bodies that seek to ensure the quality of the web service provided by Ecuadorian universities.

INTRODUCTION

Universities were one of the first organizations to use the WWW web service (Molina et al., 2004), an effective way of offering university services. These websites are the most widely used in the world (Jatmiko Suwawi, Darwiyanto, & Rochmani, 2015). Therefore, universities should meet the characteristics that guarantee their quality.

There are some organizations that verify the quality of websites, including the ISO (International Standard Organization) and the W3C (World Wide Web Consortium). These organizations have developed standards and guides for the fulfillment of such standards. For instance, ISO issued the ISO / IEC 25000 based on ISO / IEC 9126, ISO / IEC 14598, has also presented ISO / IEC 25010 and ISO / IEC 9126. These standards are used for evaluating the quality of websites through a Finite number of parameters (ISO, 2016a).

Different studies, methods, questionnaires, proposals, and models have been developed to evaluate the quality of websites based on these standards. From them, we can highlight the evaluation of television websites focused on 32 indicators (Díaz Campo, 2014); evaluation of libraries through indicators of design-usability and content-services (García Fernández, 2013); exhaustive web model of school libraries (Pérez & González Mateos, 2013); evaluation of conditions, tasks, and objectives to verify the accessibility and access to information (Melo Alves & Quiroa Herrera, 2007); evaluation of postgraduate programs websites through a checklist, automated tools, and the fulfillment of tasks detailed in a questionnaire as part of the research process (Olvera & Aguilar Soto, 2011); proposals that include 8 evaluation parameters with 36 indicators on cybermedia (Rodríguez Martínez, Codina, & Pedraza Jiménez, 2012); evaluation of sites using an agile methodology and re-engineering (Benigni, Ordaz, Gervasi, & Pallottelli, 2011); evaluation of sites using a questionnaire to verify compliance with quality criteria for health websites (Bermúdez Tamayo et al., 2006), research methodology based on a template with a total of 12 topics and 154 indicators (García Fernández, 2013). **Table 1** compares these studies and their indicators.

Most of the indicators that guide these studies involve the ISO / IEC 25010 standards. The W3C, for its part, develops guidelines for accessibility of web content (WCAG) through the Web Accessibility Initiative. The W3C pretends that the websites are accessible to people with disabilities (W3C, 2016). Based on these regulations, the NTE INEN-ISO / IEC 40500 technical regulation came into force in Ecuador since August 2016. This regulation directs the compliance with basic levels of accessibility on government websites.

The Council of Evaluation, Accreditation and Quality Assurance of Higher Education - CEAACES- evaluates the quality of universities following the model of institutional evaluation designed for evaluating Universities and Polytechnic Schools of Ecuador (CEAACES, 2016). Furthermore, institutions of the Ecuadorian government count with an Electronic Government which focuses on the use of Information and Communication Technologies (ICT) to improve their information services (Gobierno Electrónico, 2014). Unfortunately, in Ecuador, little or nothing has been done to analyze, evaluate, and ensure the quality of university websites. Therefore, in this work, we evaluate the quality of university websites of Ecuador through the analysis of the best parameters and tools to establish a new evaluation model.

Table 1. General indicators in previous studies

Indicator / Author	Television Websites	Library Websites	Library Websites	Postgraduate programs Websites	Cybermedia Websites	Health Websites
	García Fernández	Pérez & González	Melo & Quiroa	Olvera & Aguilar	Rodríguez, Codina, & Pedraza	Bermúdez Tamayo
Website menu	X	X	X			
Complete URLs	X					X
Browsing	X	X		X	X	
Homogeneity	X					
Resources quality	X		X	X	X	
Readability	X	X				X
Web standards and programming	X					
Implementation of good practices	X					
Compatibility among browsers	X					
Website logo	X	X	X			
Adequate design		X		X	X	
Multilingual		X	X			
Accessibility			X	X		X
Adequate font type and size		X	X			
Appropriate Visibility				X		
Contents quality		X		X	X	X

METHODOLOGY

A series of steps were followed to conduct this study, applying a rigorous standard procedure of observation and measurement. The steps are as follows:

- 1) Selection of websites.
- 2) Identification of a set of parameters to be evaluated in a website by using a methodology of theory that is grounded in scientific and analytical contributions in this area.
- 3) Selection of tools of analysis for each indicator by using laboratory tests.
- 4) Testing of the sites of 52 universities selected.
- 5) Generation of top ten rankings for each parameter and an overall ranking from the results obtained.

Procedure

ISO / IEC 9126 is among the most widely used standards. This standard was unified with ISO / IEC 14598 to create the ISO / IEC 25000. The subdivision 25010 of the ISO / IEC 25000 evaluates quality through evaluation parameters that are similar to those of the ISO / IEC 9126.

We analyzed the parameters of the ISO / IEC 25010; functionality, performance, compatibility, usability, reliability, security, maintainability, and portability. Such parameters omit reliability and maintainability because the site development team are the

only individuals who have access to these parameters, which makes it difficult to evaluate them. Reliability focuses on maturity, fault tolerance, resilience and compliance with it (ISO, 2016b); in other words; it indicates how the software recovers through the occurrence of a failure. On the other hand, maintainability refers to the effort required to the site to adapt to new specifications and requirements, including analysis, variability, stability, ease of testing, and compliance with maintainability (González López, Bañegil Palacios, & Buenadicha Mateos, 2013). In addition to the parameters selected, we also include the parameter concerned with search engine positioning. Therefore, the parameters that should be considered to evaluate the quality of websites include Functionality, Performance Efficiency, Portability, Compatibility, Usability and Positioning in search engines.

We evaluated 28 tools through laboratory tests. The evaluation tested that the tools met the following points:

- Test the 52 websites of the universities of Ecuador satisfactorily.
- Be freely accessible.
- Have online access.
- Evaluate the most criteria of the parameters selected.
- Present the results with clear visualization and easy interpretation.

From the tests conducted, we found out that nine tools were open source tools; all the tools are accessed online, and some of them integrate more than one evaluation parameter.

To measure the functionality parameter, we used the W3C tools: both the HTML and Unicorn Validator were developed by the W3C to check the correct compliance of web standards such as HTML and CSS (World Wide Web Consortium, 2015a)(World Wide Web Consortium, 2015b). On the other hand, GtMetrix was employed to evaluate the performance efficiency by integrating it with tools such as Google PageSpeed Score and Yahoo Yslow; such integration aided to learn the different requirements of this parameter (GT.net, 2017). We also selected MetricSpot, which is a tool oriented to provide advice on SEO and digital marketing (Metricspot, 2017), as well as the Functional Accessibility Evaluator 2.0 tool developed by the University of Illinois to provide support on web accessibility (Universidad de Illinois). To evaluate the portability, we used Website.grader, which was developed by the HubSpot company

that is responsible for increasing customers through marketing (HubSpot, 2017); we also used the ReadyMobi tool, which is available to developers of websites and mobile devices (Afiliat Technologies, 2016). For the evaluation of search engine positioning, we applied the Moz Bar tools (Moz, 2017). The MOZ company developed the Moz Bar tools; their extension for web browsers indicates the SEO score on the domain of a website and MetricSpot (Metricspot, 2017). Compatibility was measured with Microsoft Browser Shots (Microsoft, 2016), whose function is to show the behavior of a website in different popular browsers and different operating systems, including mobile operating systems. Finally, Security was evaluated by using the ScanMyServer tool. This tool presents the vulnerabilities of both the server and the website (Beyond Security Inc, 2016). Therefore, due to the sensitivity of the evaluation performed by this tool, the results of this parameter will not be presented. We strongly recommend its use for internal evaluations only.

The results of each evaluation parameter are weighted to a 10 points value because we consider all of them have the same level of importance.

RESULTS

According to the evaluation parameters

In the tables included in this section, we present a top ten for each parameter accompanied by its criteria and the qualification obtained from the tools used. The highest score has a 10 point value and the lowest a 0 point value. Under the name of each university listed in the top ten, we find the category to which it belongs to (A - D). A is the category with the highest value and D, the category with the lowest value. We also find the nature they belong to (public or private).

Functionality. It reviewed the markup language code (HTML) and Cascading Style Sheets (CSS), evaluating the number of errors. The optimal score was reached with the least number of errors as shown in **Table 2. Figures 1 and 2** show that categories B and C occupied 40% and category C 20% from the top ten. Regarding the nature of institutions, private institutions reached 80%.

Table 2. Functionality Top ten

#	University (Category - Nature)	Total HTML			Total CSS			Score
		Errors	Warnings	Score	Errors	Warnings	Score	
1	Pontificia Universidad Católica del Ecuador (B - Private)	3	2	9,9165	0	0	10	9,9583
2	Universidad Tecnológica Empresarial de Guayaquil (B - Private)	6	0	9,9604	12	22	9,9134	9,9369
3	Universidad Estatal Península de Santa Elena	13	1	9,8824	5	158	9,7964	9,8394

	(C – Public)							
4	Universidad de Especialidades Turísticas (C – Private)	1	2	9,9297	20	220	9,6494	9,7896
5	Universidad Tecnológica Israel (C – Private)	11	5	9,7682	7	190	9,7501	9,7592
6	Universidad Tecnológica Indoamericana (C – Private)	39	3	9,6472	12	103	9,8223	9,7348
7	ESPOL - Escuela Superior Politécnica del Litoral (A – Public)	0	2	9,9363	58	197	9,4797	9,7080
8	Universidad Católica de Santiago de Guayaquil (B – Private)	18	3	9,7857	16	354	9,5193	9,6525
9	Universidad Técnica Particular de Loja (B – Private)	33	1	9,7505	87	7	9,5441	9,6473
10	Universidad de Especialidades Espíritu Santo (A – Private)	13	3	9,8187	85	199	9,3384	9,5786

Figure 1. Percentages of functionality considering the category of the universities.

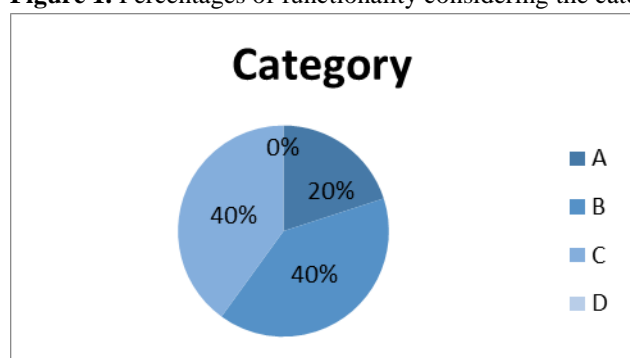
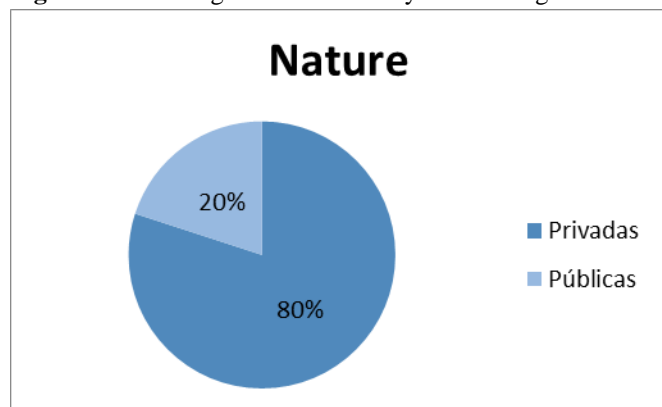


Figure 2. Percentages of functionality considering the nature of the universities.



Efficiency. It evaluated the recommendations and best practices on the efficiency provided by Google; the results of this evaluation are shown in **Table 3**. Category B universities predominated in this top ten with 50% as shown in **Figure 3**.

Similarly, in **Figure 4**, we can see that private universities had a high representation in the top ten reaching 70%.

Table 3. Efficiency Top ten.

#	University (Category – Nature)	Total Efficiency	Total /10
1	USFQ - Universidad San Francisco de Quito (A – Private)	9,5	10
2	Universidad Técnica de Cotopaxi (C – Public)	9,2	9,6512
3	Universidad de los Hemisferios (B – Private)	9,1	9,5349
4	Universidad Internacional del Ecuador (B – Private)	9,1	9,5349
5	Universidad Tecnológica Empresarial de Guayaquil (B – Private)	8,9	9,3023
6	Universidad Tecnológica ECOTEC (C – Private)	8,8	9,1860
7	Universidad de Especialidades Espíritu Santo (A – Private)	8,7	9,0698
8	Universidad Central del Ecuador (B – Public)	8,7	9,0698
9	Universidad de las Américas (B – Private)	8,7	9,0698
10	Escuela Superior Politécnica Agropecuaria de Manabí (C – Public)	8,6	8,9535

Figure 3. Percentages of efficiency considering the category of the universities.

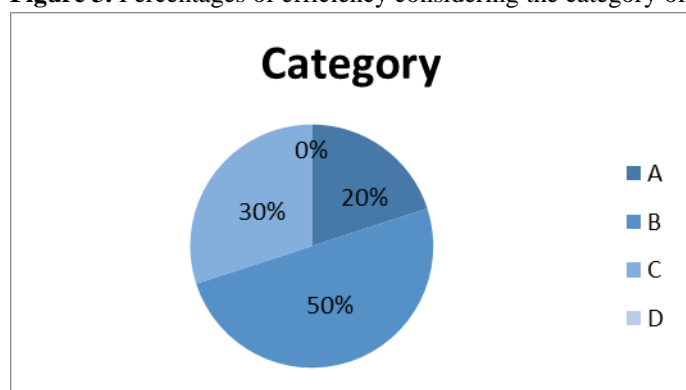
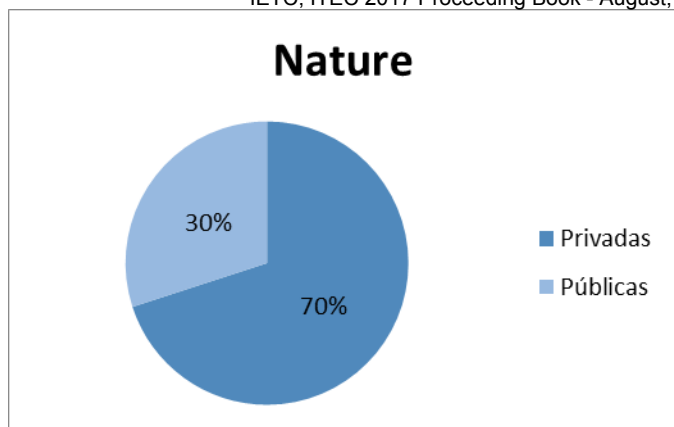


Figure 4. Percentages of efficiency considering the nature of the universities



Portability. It evaluated whether the sites were responsive (1 point); whether they had the meta-view port tag (1 point); whether they evidenced adaptability when using a web browser adjusted to different sizes (1 point). In addition to these points, we added the score of The Ready Mobi tool. The results of these criteria are shown in **Table 4**. **Figures 5** and **6** demonstrate that 40% of the results is shared by universities that hold the categories B and C. 80%, on the other hand, belongs to private universities.

Table 4. Portability Top ten.

#	University (Category – Nature)	Automated adaptability		Manual adaptability	Ready Mobi	Total	Total /10
		Responsive	Viewport	Manual			
1	Universidad Tecnológica Israel (C – Private)	1	1	1	1,82	4,82	10
2	Universidad Laica Eloy Alfaro de Manabí (D – Public)	1	1	1	1,61	4,61	9,5643
3	Universidad Iberoamericana (B – Private)	1	1	1	1,18	4,18	8,5778
4	Universidad Tecnológica Indoamérica (B – Private)	1	1	0	2,08	4,08	8,3558
5	Universidad Politécnica Salesiana (B – Private)	1	1	1	1,05	4,05	8,2889
6	Universidad de las Américas (B – Private)	1	1	1	1,03	4,03	8,2444
7	Universidad de Especialidades Espíritu Santo (A – Private)	1	1	1	0,92	3,92	8,0000
8	Universidad Estatal del Sur de Manabí (D – Public)	1	1	1	0,9	3,9	7,9556
9	Universidad Politécnica del Carchi (B – Public)	0	0	0	3,87	3,87	7,8889
10	Universidad Católica de Santiago de Guayaquil (B – Private)	1	1	1	0,84	3,84	7,8522

Figure 5. Percentages of portability considering the category of the universities.

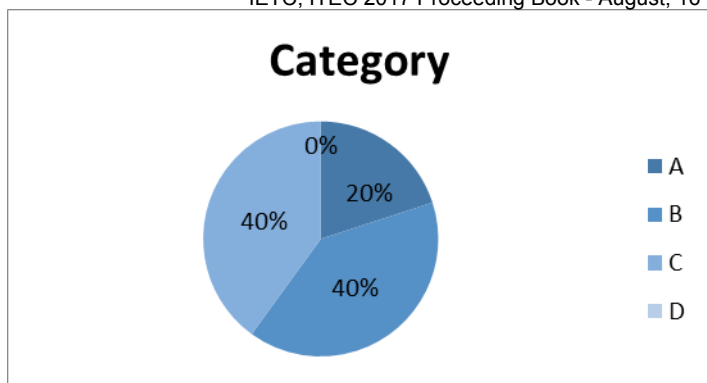
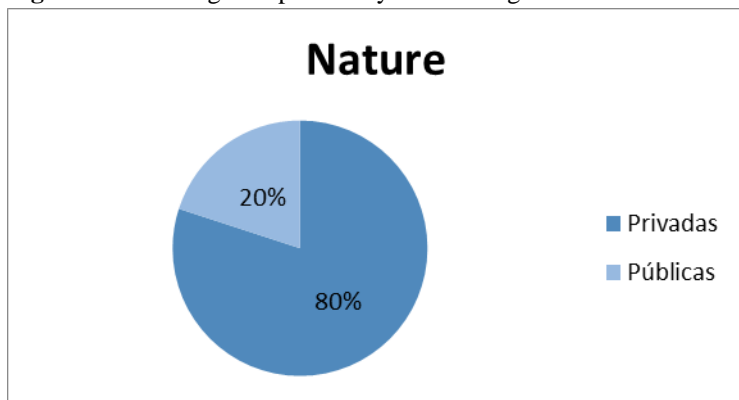


Figure 6. Percentages of portability considering the nature of the universities



Usability. It evaluated whether the sites complied with requirements such as correct domain name (1 point); whether they presented a custom error page (1 point); whether the sites had a language tag in HTML syntax (2 points if correct; 1 point if incorrect; 0 if it did not exist); whether the sites had a Favicon (2 points if correct; 1 point if incorrect; 0 if it did not exist); whether the sites included search tools (3 points if the site had Google and the websites’ search tools; 2 points if it had an internal search; 1 point if it only had Google search; 0 if the site did not have search tools); whether the sites included mobile optimization (1 point for meeting each of the following requirements: existence of CSS for mobile devices, meta viewport tag, icon for Apple devices, not flash usage, not mobile redirect usage, and use of a responsive web design); whether the sites showed where in the site the user is located (1 point if it existed, 0 if it did not exist); whether the sites contained accessibility guidelines for web content based on WCAG 2.0 (3 points if complete; 2 points if almost complete; 1 point if partial implementation; 0 if incomplete). The results of the top ten of this parameter are displayed in **Table 5**. **Figure 7** shows that category B universities represented the majority in this parameter with 50% and private universities reached 70% according to **Figure 8**.

Table 5. Usability Top ten.

#	University (Category – Nature)	Domain's name	404 Error page	Language	Favicon	Search tool	Mobile Optimization	Route Guide	FAE 2.0	Sum (80)	Total
1	Universidad San Francisco de Quito (A – Private)	10	10	10	10	6,67	10	10	7,3	73,97	9,25
2	Universidad de las Américas (B – Private)	10	10	10	10	6,67	10	10	6,4	73,07	9,13
3	Universidad de Especialidades Espíritu Santo (A – Private)	10	10	10	10	6,67	8,33	10	6,7	71,7	8,96

	Private)										
4	Universidad Internacional del Ecuador (B - Private)	10	10	10	10	6,67	8,33	10	6,1	71,1	8,89
5	Universidad Casa Grande (B - Private)	10	10	10	10	6,67	8,67	10	7,7	71,04	8,88
6	Universidad Regional Autónoma de los Andes (C - Private)	10	10	10	10	6,67	8,33	10	5,9	70,9	8,86
7	Universidad Nacional de Loja (B - Private)	10	10	10	10	6,67	6,67	10	6,5	69,84	8,73
8	EPN - Escuela Politécnica Nacional (A - Private)	10	10	10	10	6,67	6,67	10	5,5	68,84	8,61
9	Universidad Iberoamericana (B - Private)	10	10	10	10	0	10	10	7,2	67,2	8,40
10	ESPOL - Escuela Superior Politécnica del Litoral (A - Private)	10	10	10	10	10	8,33	0	8,6	66,93	8,37

Figure 7. Percentages of usability considering the category of the universities

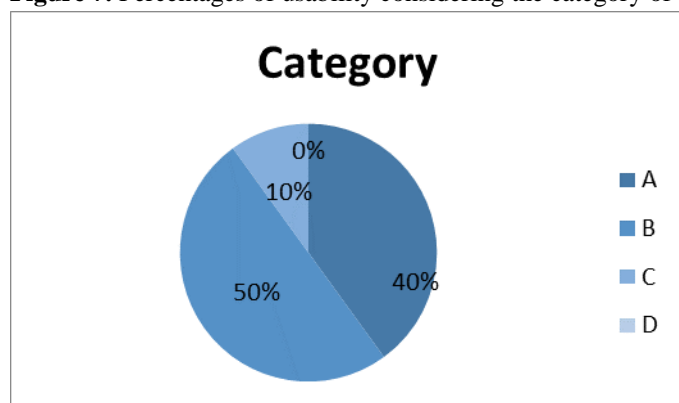
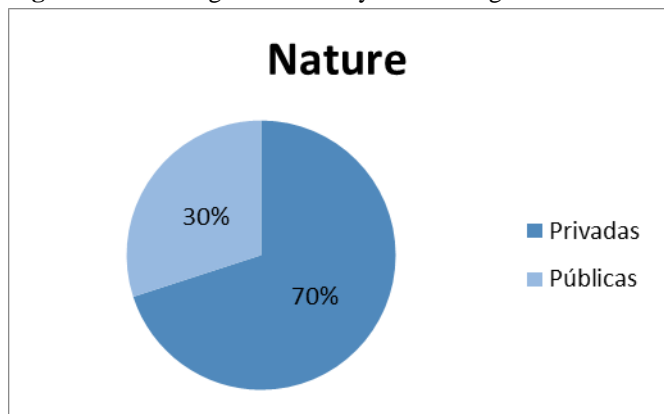


Figure 8. Percentages of usability considering the nature of the universities.



Compatibility: In

this parameter, 22 universities showed that they are compatible in carrying out the tests with browsers that are currently popular, obtaining the maximum score of 10. Forty-one percent of the 22 universities belong to category B as seen in **Figure 9**. Private universities dominate in **Figure 10** with 59%.

Figure 9. Percentage of compatibility considering the category of the universities

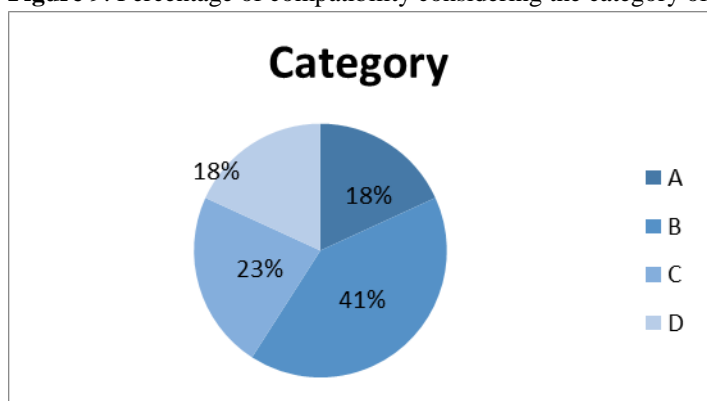
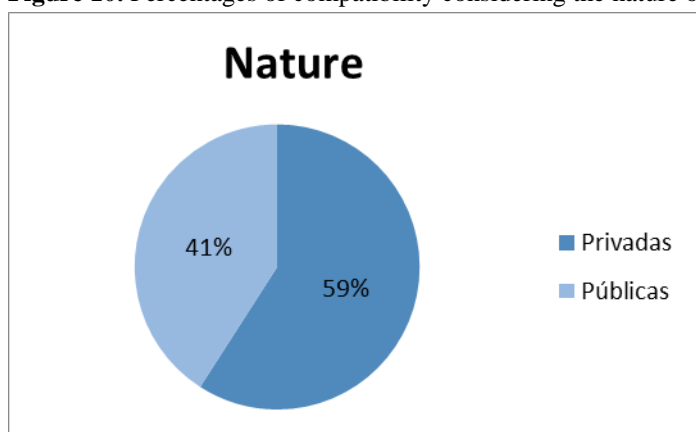


Figure 10. Percentages of compatibility considering the nature of the universities.



Positioning: This parameter analyzed the domain authority criteria (traffic estimates, Moz ranking , backlinks, domain authority) and basic SEO (www redirect, title, description, robots, sitemap, URL’s friendliness). **Table 6** shows the results for this parameter and, in **Figure 11**, we can observe that 70% of these universities are currently in category B. **Figure 12**, on the other hand, shows that 60% of the top ten universities are private.

Table 6. Positioning Top ten.

#	University (Category – Nature)	SEO authority Total	Basic SEO Total /10	Total Positioning
1	Universidad Politécnica Salesiana (B – Private)	9,6363	10	9,8192

2	Escuela Superior Politécnica del Litoral (A – Public)	9,6315	10	9,8157
3	Escuela Politécnica Nacional (A – Public)	9,4588	8,75	9,1044
4	Universidad de las Américas (B – Private)	8,1861	10	9,0930
5	Universidad Central del Ecuador (B – Public)	8,5382	8,75	8,6441
6	Universidad Internacional del Ecuador (B – Private)	6,8242	10	8,4121
7	Universidad Casa Grande (B – Private)	6,2872	10	8,1436
8	Universidad Técnica Particular de Loja (B – Private)	10	6,25	8,1250
9	Universidad Nacional de Loja (B – Public)	7,5805	7,5	7,5402
10	Universidad Regional Autónoma de los Andes (C – Private)	6,0378	7,5	6,7689

Figure 11. Percentages of positioning considering the category of the universities.

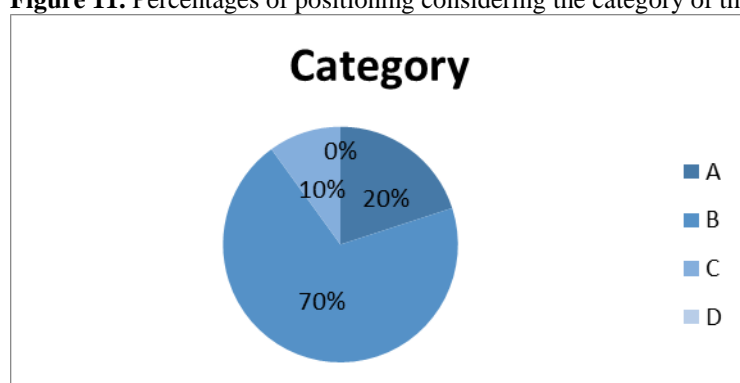
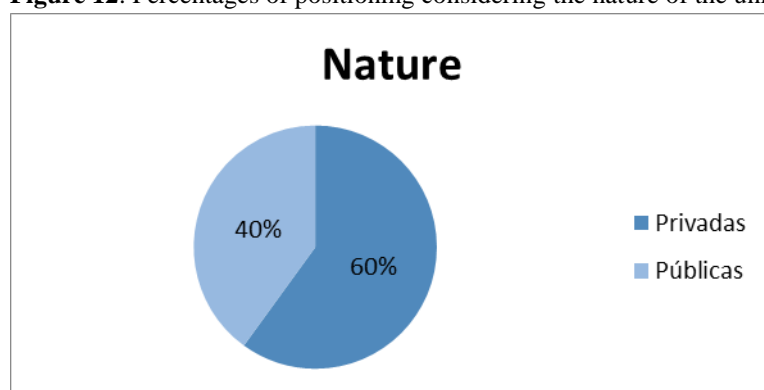


Figure 12. Percentages of positioning considering the nature of the universities.



Ranking

Table 7 summarizes the results of the evaluation to the universities, generating a ranking of website quality.

Table 7. Overall Ranking

#	University	Score	#	University	Score
1	Universidad de las Américas	9,0127	2	ESPOL - Escuela Superior Politécnica del Litoral	8,7454
3	Universidad de Especialidades Espíritu Santo	8,6167	4	Universidad Internacional del Ecuador	8,4306
5	USFQ - Universidad San Francisco de Quito	8,4135	6	Universidad Técnica de Cotopaxi	8,3437
7	Universidad Regional Autónoma	8,2404	8	Universidad Iberoamericana	8,1767

	de los Andes					
9	Universidad Tecnológica Israel	8,1413		10	Universidad Politécnica Salesiana	8,0649
11	Universidad de los Hemisferios	8,0371		12	EPN - Escuela Politécnica Nacional	7,9377
13	Universidad de Cuenca	7,8747		14	Universidad Tecnológica ECOTEC	7,8593
15	Universidad Estatal Península de Santa Elena	7,7942		16	Universidad Católica de Santiago de Guayaquil	7,6220
17	Universidad Central del Ecuador	7,5149		18	Universidad Nacional de Loja	7,3416
19	Universidad Técnica de Manabí	7,3329		20	Universidad Tecnológica Equinoccial	7,1450
21	Universidad Politécnica del Carchi	7,1353		22	Universidad Técnica Particular de Loja	7,0957
23	Universidad Estatal Amazónica	6,9542		24	Universidad del Pacífico Escuela de Negocios	6,9501
25	Universidad Agraria del Ecuador	6,9354		26	Universidad Católica de Cuenca	6,9329
27	Universidad Estatal de Milagro	6,9014		28	Universidad Particular Internacional SEK	6,8671
29	Universidad Técnica de Ambato	6,8372		30	Universidad Casa Grande	6,8354
31	Universidad de Especialidades Turísticas	6,8296		32	Universidad Metropolitana	6,8000
33	Universidad Técnica Estatal de Quevedo	6,7598		34	Universidad Técnica Luis Vargas Torres de Esmeraldas	6,7328
35	Universidad Estatal del Sur de Manabí	6,7099		36	Universidad Tecnológica Indoamérica	6,6041
37	Universidad Laica Eloy Alfaro de Manabí	6,6019		38	Universidad Técnica de Machala	6,5096
39	Universidad del Azuay	6,5019		40	Universidad Estatal de Bolívar	6,5005
41	Universidad de Guayaquil	6,3559		42	Escuela Superior Politécnica Agropecuaria de Manabí	6,3386
43	Universidad Técnica del Norte	6,2759		44	Escuela Superior Politécnica del Chimborazo	6,1311
45	Universidad Laica Vicente Rocafuerte de Guayaquil	6,0312		46	Universidad Nacional del Chimborazo	5,7362
47	Universidad Particular San Gregorio de Portoviejo	5,5875		48	Pontificia Universidad Católica del Ecuador	5,4238
49	Universidad de Otavalo	5,3310		50	ESPE - Universidad de las Fuerzas Armadas	5,2516
51	Universidad Tecnológica Empresarial de Guayaquil	5,2336		52	Universidad Técnica de Babahoyo	5,1789

DISCUSSION

In all the top ten, private universities predominated with an average of 80%, and in agreement with their categorization, universities in category B represented the 56%. When evaluating their functionality, 46.15% of the universities obtained a score higher than 9. This result indicates that almost half of the websites complied with this parameter. Regarding efficiency, 16 universities were on the recommended average score, which is 72%. It means that 30.77% of the university sites was above the recommended average score for this parameter. The portability parameter showed that most universities met the minimum and basic conditions required by this parameter. A small percentage (15.38%) of the universities fully complied with the recommendations and basic techniques to achieve a good positioning within search engines. In the compatibility parameter, it is evident that most university websites did not have difficulties when accessing from any browser and in any of the operating systems. In general, by averaging the scores of all the evaluation parameters of the 52 universities in Ecuador, it indicated that the best-scored parameter is the Compatibility, with an average rating of 8.7820 and the lowest one is the Portability parameter, with an average of 5.7757. From the results obtained, we suggest that universities use a content management system. Such systems are up to date with the latest web trends, compliance of standards, improvement of their upload speed, utilization of frameworks that adjust the website to different screens, simple SEO setups, and other features.

CONCLUSIONS

- Six web quality assessment parameters, each with their respective criteria, were determined based on the international standards ISO / IEC 2510 and the W3C.
- Out of the 28 analyzed tools, the eight that best fit the parameters and established criteria were selected. Manual checks were performed on the parameter Usability, Portability as well as in the Redirection, Title, and Description of Basic SEO criteria for the Positioning parameter.
- The ranking was generated by weighting the proposed parameters equitably.
- By using this information, administrators of university web services will be able to improve their websites to make them more inclusive, accessible, and with better positioning worldwide.
- With defined parameters and tools one can work on the development of an online system, in real time, and free of charge to monitor websites of governmental entities.

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EVEN IN E-LEARNING IS IMPORTANT TO DO YOUR OWN NOTES!

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In the last decade is e-learning a standard part of the educational process at all types of schools - primary, secondary and high schools. When use e-learning can be achieved significant savings not only in terms of time as well as operating costs. However, e-learning is also often criticized. This is mainly due to direct absence of teachers. This is mainly due to direct absence of teachers (lack contact with him). This fact brings with it a range of following these problems, such as long response times in asking a question or impossibility to consult on specific issues. E-learning brings with it other, often - hidden problems, that in the traditional way of teaching we do not perceive. Since from year 2009 we try at to Department of Computer Science, Faculty of Natural Sciences, Constantine the Philosopher University in Nitra create modules for LMS Moodle, which could help students in organizing way of teaching process (module Interactive Element Stat, Module Emotion Recognition and others). The aim of the creation of modules is to support adaptivity in Moodle. Nowadays for the support of teaching process we designed and created module with a name Notes. The aim of this paper is to highlight the importance of creating their own notes in Moodle. The basic function of the newly created solution is to add comments to the study materials including highlighting text. The module allows users to edit notes, created and printed them together with study materials.

EXAMINATION OF THE RELATIONS BETWEEN VOCATIONAL HIGH SCHOOL STUDENTS' SELF-EFFICACY PERCEPTIONS TOWARDS ONLINE TECHNOLOGIES, LEARNING READINESS AND INFORMATION SEARCHING STRATEGIES

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This research aims to explore the relations between vocational high school students' self-efficacy perceptions towards online technologies, learning readiness and information searching strategies. The research used relational screening models. Screening models are research models that aim to describe a situation existing in the past or current, and relational screening models are those which aim to determine the relationships between variables or to determine the existence and/or degree of changes between two or more variables.

This research was carried out with 284 vocational high school students who study at Goksun Vocational High School in Kahramanmaraş and who were selected by the simple random sampling method. They were selected in the spring term of 2016-2017 academic year. Vocational high school students enrolled in different departments including computer programming, land registry and cadastre, map and cadastre and foreign trade. The research deployed four data collection tools: The "Personal Information Form" developed by the researchers; "Online Technologies Self-Efficacy Scale" adapted by Horzum and Çakır (2009); the "Online Learning Readiness Scale" adapted by Yurdugül and Sırakaya (2013) and "Online Information Searching Strategy Inventory" adapted by Aşkar and Mazman (2013). The researcher developed the "Personal Information Form" with the purpose of acquiring some personal information about the students. With the goal of determining vocational high school students' self-efficacy perceptions towards online technologies, the study employed the Online Technologies Self-Efficacy Scale, which was developed by Miltiadou ve Yu in 2000. This scale, the Turkish adaptation of which was created by Horzum and Çakır, possesses 29 items and 4 factors. The internal consistency coefficient Cronbach's alpha reliability coefficient was found to be 0.94 for the overall scale. The Online Learning Readiness Scale developed by Hung, Chou, Chen and Own (2010) was used in order to determine students' online learning readiness levels. It is a five-point Likert-type scale composed of five factors. The internal consistency coefficient Cronbach's alpha reliability coefficient was found to be 0.91 for the overall scale. Last but not least, Online Information Searching Strategy Inventory was developed Tsai (2009). The scale holds 25 items and 7 factors. The internal consistency coefficient Cronbach's alpha reliability coefficient was found to be 0.92 for the overall scale. The study's research analysis has been utilized through descriptive statistics, independent samples t-test, one-way ANOVA, bivariate correlation, and Tukey significance test.

Research results have revealed that there exists a positive, linear and medium correlation between vocational high school students' online self-efficacy perceptions and their learning readiness levels. Similar results have been identified between students' online self-efficacy perceptions and information searching strategies as well as their online learning readiness levels and information searching strategies.

EXAMINATION OF THE STUDIES ON THE LIFE STUDIES COURSE IN TURKEY

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The purpose of this study is to provide an overview of the Life Studies course in Turkey by examining the articles and post-graduate theses written on it. Qualitative research method was used to this end. 41 articles, 13 doctoral theses, and 72 master's theses (a total of 126 studies) written from 2007 to 2017 that were chosen through purposeful sampling were analyzed. The studies were chosen from among the international articles included in Web of Science SSCI, the national and international articles included in Dergipark and Google Scholar databases, and the master's theses and doctoral theses included in the database of YÖK [The Council of Higher Education of Turkey]. To evaluate the said publications, the publication classification form developed by Sözbilir, Kutu, and Yaşar (2012) was used after its revision for the studies on the Life Studies course. Each publication was subjected to content analysis via this form, and the data concerning the publications were recorded in a database. The obtained data were interpreted by both researchers based on percentage and frequency and represented in tables and charts.

The data obtained from the articles showed that most studies were conducted in 2007, 2012, and 2016 and they were published in 32 international and 9 national journals. As to the subjects, 15 of them were about "curriculum work"; 9 were about determining "attitudes-interests-perceptions"; and 5 were about "teaching material work". The subject with the least focus was seen to be "teacher training". Only 1 study was detected about it. 29 studies employed qualitative research method, 9 quantitative research method, and 3 mixed research method. The data collection tools used most frequently were found to be "documents" utilized in 19 studies. They were followed by "Likert-type surveys" used in 8 studies. The data collection tools used least frequently were determined to be "teacher's journals, perception-attitude tests". There was only one study in which no data collection tool was used. 14 studies covered primary school teachers as sample while 11 covered various teaching curricula. They were followed by primary school students covered in 8 studies and textbooks covered in 7 studies. Sampling size in these 42 articles, most of which were qualitative studies, was in "1-10" category. As to data analysis method, content analysis (13) and descriptive analysis (18) were employed most in qualitative research. They were followed by frequency/percentage tables (10) and average/standard deviation (5), both of which are quantitative descriptive analyses.

In the present study, an attempt was made to show the general situation of the Life Studies field in Turkey by examining the distribution of the studies conducted in this field by year, subject, research method employed, data collection tool used, sample covered, and sampling size.

EXAMINING THE ATTITUDES OF PRESERVICE TEACHERS TOWARD MOBILE LEARNING IN TERMS OF TECHNOPEDAGOGICAL CONTENT KNOWLEDGE

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Mobile learning supports a great variety of teaching approaches and could be used in individualized education. The integration of technology and education depends on the relationship between technological knowledge and pedagogical knowledge. The objective of this study is to examine the relationship between the attitudes of preservice teachers toward mobile learning and technopedagogical education competences. Working group of this study which was conducted by using the descriptive screening model consists of totally 397 senior-class preservice teachers studying in 10 different teacher training programs of two Public Universities in the Spring term of the School Year of 2016-2017. The results show that preservice teachers consider themselves highly competent in terms of technopedagogical field information and have moderate attitudes toward mobile learning. No significant difference was determined between the attitudes of preservice teachers toward mobile learning and technopedagogical field information and the variables of gender and department. The study findings revealed that there was a positive and moderate relationship between the technopedagogical field information of preservice teachers and their attitudes toward mobile learning.

EXAMINING THE CORE COMPETENCIES FOR TEACHER SUCCESS AT DIFFERENT LEVELS OF K-12 TEACHING

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“A teacher takes a hand, opens a mind and touches a heart” (Anonymous)

ABSTRACT

Teacher competencies, defined as the knowledge, skills and attitudes that a teacher should have in order to fulfill the teaching profession effectively and efficiently (MoNE, 2006), are of great importance in the teaching and learning process. The aim of this study is to identify the core competencies required for success for teachers who teach at three different levels (primary, middle-school and high school) in a prominent private K-12 school in Istanbul, Turkey. A focus group discussion using the card sort technique is employed in this study. A representative sample of 17 teachers (six from each of the primary and high school levels and five from the middle school level) comprise the study participants. The teachers, in three separate focus groups, chose the top five roles they fulfilled most from the role cards handed to them. After a discussion, they identified their top six indispensable roles and were then introduced to the competencies that were related with these roles. At this stage, all teachers separately rated each competency's importance and ranked its priority as a success factor. From the focus groups; eight competencies were derived for the primary school teachers and seven competencies each for the middle and high school teachers as key elements of success. Three of the competencies were shared by all levels. This study's value lies in its defining the competencies required for success at the different levels of K-12 teaching. The identified competencies provide valuable criteria which can be used in teacher selection, performance evaluation, training and career development purposes.

Keywords: teacher competencies, K-12, card sort technique.

INTRODUCTION

The teaching profession is one of the most complicated and responsible fields of professional activity, as the job of teachers influences the lives, value orientations and the need for self-realization of many people (Aizsila, 2008). The focus on developing teacher competencies has its roots in the middle of the 20th century, when competency-based teacher education models became popular (Korthagen, 2004). According to the Australian Health Promotion Association, core competencies are what all practitioners are expected to be capable of doing in order to work efficiently and effectively (AHPA, 2004) and can thus give coherence to the practice of teaching. It is important that all teachers are equipped with strong professional competencies (Selvi, 2010).

The concept of teacher competencies was recently defined by the Turkish Ministry of Education as the knowledge, skills and attitudes that a teacher should have in order to fulfill the teaching profession effectively and efficiently (MoNE, 2006). These “Generic Teaching Profession Competencies” were prepared under the coordination of The General Directorate of Teacher Training, within the scope of Support to the Basic Education Programme. During the process, self-evaluation surveys as well as observation and interview forms were applied to 2129 teachers who served at 72 pilot primary schools within Turkey. As a result, the generic teacher competencies which encompass the technical information, skills and attitudes all teachers should demonstrate, were defined as; Personal and Professional Values (Professional Development), Knowing the Student, Learning and Teaching Process, Monitoring and Evaluation of Learning and Development, School-Family and Society Relationships and Knowledge of Curriculum and Content. Moreover, these six main competencies consist of 31 sub-competencies and 233 performance indicators (MoNE, 2006). All of these competencies for teachers are expected to be used in; personal and professional developments of teachers, identifying teacher training policies, selection of newly assigned teachers, preparation of pre-service teacher training, programmes of higher education institutions training teachers, in-service training of teachers and evaluation of teacher performance and achievements.

As reflected in the Turkish Ministry of National Education research results, there are many factors that make teachers competent. These encompass the knowledge of subject area, personality traits, teaching learning skills, classroom management skills, planning and evaluation skills, use of technology, communication and guidance skills (Şeker, Deniz, Görgen, 2005). Thus, the generic teacher competencies defined above encompass what can be called the ‘success profile’ of a teacher. The global human resources consultancy firm DDI (Development Dimensions International) has coined the term ‘success profile’ and has created a holistic view of success (Figure 1), including - and expanding upon - competencies as traditionally defined. As can be seen on Figure 1, success profiles holistically capture the requirements of job success – what knowledge, experience, competencies, and personal attributes are critical to perform any job. These profiles define what enables

individual, group and eventually organizational success – or conversely, contributes to failure if lacking (Cosentino, Erker and Tefft, 2009).



Figure 1 Success Profiles (DDI, 2009)

In this study, we deliberately chose to concentrate on one of the quadrants of the success profile, namely ‘competencies’ since competencies can be observed, evaluated and most importantly they can be further developed. Moreover, we aimed to define the necessary competencies across different teaching levels to shed light on teacher competencies necessary for success at different levels of K-12 teaching in a Turkish educational institution. Thus, the current study aims to answer the following question: What core competencies are necessary for teachers’ success at different levels of K-12 teaching?

METHOD

Participants: This study was conducted in a private K-12 school in Turkey which was established in 1963 first as a kindergarten and an elementary school and has now been transformed into an institution comprised of a primary, middle and high school. The educational philosophy of the school is based on the idea of its founder that, there is definitely an area in which every child is talented. This school is also one of the top schools in Turkey with regards to academic achievement.

A focus group discussion using the card sort technique was employed in this study. Invitations describing the aim of study were sent to teachers from different K-12 levels with expected performance to gain expert opinions on the topic. Participant teachers were selected from among those who were knowledgeable, could provide valuable input in the process and were interested and dedicated in their field of study/practice. The aim was also to select participants who could provide various perspectives and provide a variation in responses about all the possible competencies deemed important for different levels of K-12 teaching.

A representative sample of 17 teachers (six each from each of the primary and high school levels and five from the middle school level) from out of a total of 120 comprise the study participants. The study participants had a mean tenure of 8.5 years at their current institution. The participant information is presented in Table 1.

Table 1. Participant Information

	Participants	
Gender	Male	7
	Female	10
	Total	17
Mean Age		38,5
Mean Tenure		8,5
Education Level	Ph.D.	-
	Masters	-
	Bachelor Degree	17

Education Level Taught	Primary School	6
	Middle School	5
	High school	6
Subject Taught	Foreign Languages	2
	Chemistry	1
	Geography	1
	Science	1
	Turkish Literature	1
	Math	3
	Counseling	1
	Class teacher	6
	Physical Education Teacher	1

Measurement: The role cards used in the study are the product of 40-plus years of research, developed by the human resources consultancy firm Development Dimensions International (DDI) — applied and validated— across nearly every job, level, and industry around the world (Cosentino, Erker and Tefft, 2009).. This card sort process helps content experts articulate the critical challenges of a given role and define the competencies required for success in the job. The card sort process was chosen as the method of study since it offers the means to identify the job requirements, using highly structured language with clear links to specific competencies. The theoretical study model is depicted on Figure 2 below.

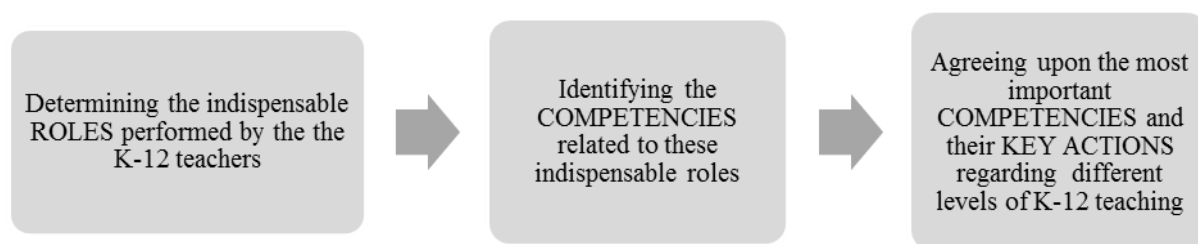


Figure 2. Theoretical Structure to Define Teacher Roles and Related Competencies

Procedure: At the beginning of the card sort sessions, the moderators explained to the participants that the aim of the research was to identify the competencies necessary for success for a teacher at their position. Thus, the central question for discussion between the teachers who participated in the card sort groups was the following: Which roles are indispensable/critical for your current job as a teacher and which roles do you most frequently display? During the discussions, the moderators were able to introduce other follow up questions that they considered could help participants to elaborate their views.

The 17 participants took part in three separate focus groups of five to six participants each, where they were instructed to choose the top five indispensable roles they fulfilled most from the role cards handed to them. To assess the indispensable roles they currently display, the participants were first instructed to sort the 32 role cards into one of the three categories of “high importance”, “middle Importance” and “low Importance”. They were then instructed to disregard those cards which were in the middle and low importance groups and prioritize the top five cards in their high importance column. Each participant’s top five roles were then entered into the cardsort excel spreadsheet and a final list of the roles with their mean rankings, standard deviations and the number of votes they received was reflected in the spreadsheet. After a group discussion upon the roles deemed most important for them, the groups agreed upon their top six indispensable roles that they demonstrated most frequently. After these six roles were entered into the spreadsheet, the system brought forth the competencies that were related with these six roles identified by the teachers. At this stage, first the moderators explained the meaning and the related key actions of each competency to the participants. Afterwards, all teachers separately rated each competency’s importance on a 1 to 5 scale (“1= this competency is not at all important for success in this job”, “5=this competency is very important for success on this job”) and also prioritized them in terms of being a success factor for a competent teacher (assigning number one to the most important competency and

moving on in this fashion to the next competency that had the second priority). Finally, the average mean and rank for each competency was calculated and those competencies above the designated cut off point (those with a mean value of 3.5) were included in the final competency list along with their key behavioral actions. This cut off point was deemed necessary, since at the individual role level, a total of seven to nine competencies are deemed enough to achieve desired work related results and it becomes harder to demonstrate, evaluate and develop a higher number of competencies at this role (Byham, Smith and Paese, 2002).

FINDINGS

The final list of role cards chosen by the three levels of teachers are presented in Figure 3 below. As can be seen, there are some overlaps between the cards chosen by the different levels of teachers. For instance, Continuous Learner and Tenacious role cards were chosen as indispensable by all of the three levels of teachers. Moreover, some role cards were shared by the two different levels' teachers; such as Change Agent and Planner (for both primary and middle school teachers), Researcher (for primary and high school teachers); and Active Team Member (for middle and high school teachers).

Primary School Teachers	Middle School Teachers	High School Teachers
Continuous Learner	Active Team Member	Continuous Learner
Change Agent	Continuous Learner	Researcher
Researcher	Tenacious	Active Team Member
Planner	Change Agent	Tenacious
Moderator/Instructor	Results Focused	Writer/Editor
Tenacious	Planner	Presenter

Figure 3. Top Six Role Cards Chosen by the Three Levels of K-12 Teachers

The data regarding the mean rankings, standard deviations and total number of votes given to the final list of role cards for the three levels can be viewed on Tables 2, 3 and 4 below.

Table 2 List of Top Six Role Cards for Primary School Teachers

List of Role Cards	Mean Ranking	Standard Deviation	Total Votes
Continuous Learner	2,67	0,84	5
Change Agent	3,17	1,95	5
Researcher	4,33	1,41	4
Planner	4,83	0,58	3
Moderator /Instructor	5,17	1,53	3
Tenacious	5,33	1,53	3

Table 3 List of Top Six Role Cards for Middle School Teachers

List of Role Cards	Mean Ranking	Standard Deviation	Total Votes
Active Team Member	3,60	1,67	5
Continuous Learner	3,60	0,58	3
Tenacious	4,00	1,71	4
Change Agent	4,40	0,58	3
Results Focused	4,60	1,73	3
Planner	5,20	0,71	2

Table 4 List of Top Six Role Cards for High School Teachers

List of Role Cards	Mean Ranking	Standard Deviation	Total Votes
Continuous Learner	3,17	1,67	5
Researcher	3,83	1,89	4
Active Team Member	4,00	1,29	4
Tenacious	4,67	1,29	4
Writer/Editor	5,17	1,53	3
Presenter	5,17	1,15	3

After their most indispensable roles were determined by the three levels of teachers, these were entered into the spreadsheet and as an output, the competencies related with these roles were introduced to the participants. At this stage, the moderators provided the participants with competency booklets to read about the definitions of these competencies and their key actions. After a discussion about these competencies and their behavioral components, the participants were asked to rate both the importance (out of a 1 to 5 scale as mentioned above) and rank the priority of these in order of importance as a success factor for their position. The points for each competency were summed up and their mean values were calculated for all experts. As the aim for this round was for participants to rank the competencies, the mean was an appropriate measure to use in order to ascertain the average points each competency achieved. A mean of 3.5 was employed as a cut-off point and this resulted in seven competencies achieving this mean for each of the primary, middle and high school teachers. However, during the final discussion about competencies, the primary school teachers stated that Energy was a crucial competency for their position and decided to add this competency to their final list at this stage. Hence, the final competency lists contained eight competencies for the primary school teachers and seven competencies each for the middle and high school teachers. Further statistical testing was not employed due to the low number of participants and the nature of the study design. The mean ratings and rankings of the final list of competencies (along with their key action summaries) for the three levels can be viewed on Tables 5, 6 and 7 below.

Table 5. List of Competencies for Primary School Teachers

List of Competencies and Their Key Action Summaries	Mean Rating	Mean Ranking
Communication Clearly conveying information and ideas through a variety of written and verbal media to students, parents and colleagues in a manner that engages the audience and helps them understand and retain the message.	5	2,67
Building Trust Interacting with students, parents and colleagues in a way that gives them confidence in one's intentions and those of the organization; demonstrating an ethical attitude and professional behavior that reflects responsibility.	5	3,5
Student Focus	5	3,83

Making students and their needs a primary focus of one's actions; developing and sustaining effective relationships with students.

Planning and Organizing	4,83	5,33
Making plans and organizing work to carry out work effectively and support student learning processes and social development.		
Continuous Learning	4,17	9,17
Actively identifying new areas for learning; regularly creating and taking advantage of learning opportunities; using newly gained knowledge and skill on the job and learning through their application.		
Building Positive Relationships	4,17	10
Using collaborative interpersonal styles to establish effective relationships with colleagues, parents community figures in order to help achieve teaching aims.		
Adaptability	4,67	11,5
Aligning teaching methods and processes with diverse needs, interest and skill levels of students in order to achieve teaching aims.		
*Energy		
Consistently maintaining high levels of activity or productivity in the educational setting; sustaining long working hours to achieve teaching aims; operating with vigor, effectiveness, and determination over extended periods of time.		

*The Energy Competency was not derived from the card sort study, but the primary school teachers wanted to add it to their final list during the final discussions about competencies.

Table 6. List of Competencies for Middle School Teachers

List of Competencies and Their Key Action Summaries	Mean Rating	Mean Ranking
Communication	4,6	3,8
Clearly conveying information and ideas through a variety of written and verbal media to students, parents and colleagues in a manner that engages the audience and helps them understand and retain the message.		
Contributing to Student Success	4,2	6,4
Collaborating with students and actively contributing to the achievement of students' social and academic aims.		
Adaptability	4,2	7,8
Aligning teaching methods and processes with diverse needs, interest and skill levels of students in order to achieve teaching aims.		
Energy	4,2	8
Consistently maintaining high levels of activity or productivity in the educational setting; sustaining long working hours to achieve teaching aims; operating with vigor, effectiveness, and determination over extended periods of time.		
Continuous Learning	3,8	8,8
Actively identifying new areas for learning; regularly creating and taking advantage of learning opportunities; using newly gained knowledge and skill on the job and learning through their application.		
Work and Time Management	4,2	9
Using time effectively during teaching and learning processes and guiding students to use their time effectively during in and out of class activities.		
Work Quality	3,8	11
Setting high performance standards for oneself and one's students; taking responsibility to fulfill tasks and projects with success and to internalise and apply the school's quality standards.		

Table 7. List of Competencies for High School Teachers

List of Competencies and Their Key Action Summaries	Mean Rating	Mean Ranking
Continuous Learning Actively identifying new areas for learning; regularly creating and taking advantage of learning opportunities; using newly gained knowledge and skill on the job and learning through their application.	4,33	3
Communication Clearly conveying information and ideas through a variety of written and verbal media to students, parents and colleagues in a manner that engages the audience and helps them understand and retain the message.	4,33	6
Contributing to Student Success Collaborating with students and actively contributing to the achievement of students' social and academic aims.	4	6,17
Work Quality Setting high performance standards for oneself and one's students; taking responsibility to fulfill tasks and projects with success and to internalise and apply the school's quality standards.	4,33	6,67
Adaptability Aligning teaching methods and processes with diverse needs, interest and skill levels of students in order to achieve teaching aims.	4,17	6,83
Stress Tolerance Maintain a stable performance under pressure or during times of conflict; cope with stress in an acceptable manner within the school environment.	4	8,67
Work and Time Management Using time effectively during teaching and learning processes and guiding students to use their time effectively during in and out of class activities.	3	11,67

DISCUSSION

As can be seen from the results, similar to the role cards, there are some overlaps between competencies from different levels. For instance; the competencies of Communication, Continuous Learning and Adaptation are deemed as crucial for all three levels of K-12 teachers. Middle school and high school teachers seem to value many common competencies as crucial for teacher success, with the exception of Energy being specific to the middle school and Stress Tolerance being specific to the high school level. Moreover, there are four competencies that are unique to the primary school level only which are; Building Positive Relationships, Building Trust, Planning and Organizing and Student Focus. A summary of the competency clusters and these overlaps is demonstrated on Figure 4 below.

High School Teacher Competencies

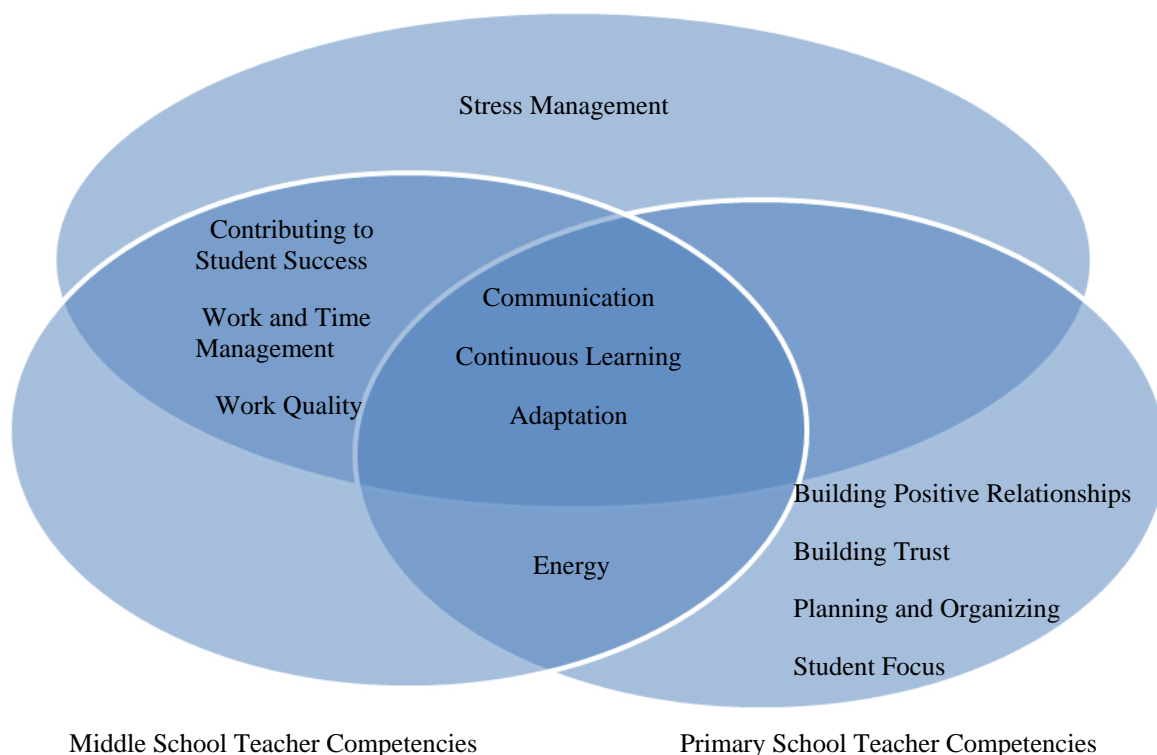


Figure 4 Competency Clusters for K-12 Teachers

Moreover, when we look at the top three competencies which have the highest ratings and rankings at the three levels, we see that, Communication has the first place for the primary and middle school levels and is also the second highest rated and ranked competency for the high school level. Thus, at the three separate levels of K-12 teaching, Communication seems to be one of the most crucial competencies. In addition to this, Contributing to Student Success has emerged as the second highest rated and ranked competency for the middle school level and the third highest for the high school level. A very similar competency, Student Focus, has also the third place for the primary school level. Hence, demonstrating good communication skills as well as student centered behaviors and facilitation skills emerge as a prominent competencies for all of the three levels.

The competencies that DDI has found to be commonly related to success in a position fall into four domains: Interpersonal Skills, Leadership Skills, Business/Management Skills and Personal Attributes (Byham, Smith and Paese, 2002). DDI research, in addition to research done by Borman and Brush (1993) suggests that related competencies make up these four primary competency domains. Interpersonal Skills are behaviors associated with interacting with others, such as Communicating and Developing Relationships. Leadership Skills are behaviors associated with leading others, such as Coaching/Teaching and Empowerment. Business/Management Skills are behaviors associated with the business or technical aspects of one's role, such as Decision Making. Finally, Personal Attributes are stable individual attributes, abilities, or orientations, such as Positive Disposition, Adaptability, and Energy (Byham, Smith and Paese, 2002).

Thus, when we look at the competency clusters for the three levels of K-12 teaching, we can also group these competencies fall under one of of these four domains. The primary school card sort results point out that, there are eight crucial competencies for a teacher's success at this level of teaching, which are; Student Focus, Planning and Organizing, Communication, Building Positive Relationships, Building Trust, Continuous Learning, Adaptation and Energy. Out of these competencies, Student Focus falls under the domain of Leadership Skills; Planning and Organizing falls under the domain of Business/Management Skills; Communication, Building Positive Relationships and Building Trust fall under the domain of Interpersonal Skills and the last three competencies of Continuous Learning, Adaptation and Energy fall under the domain of Personal Attributes. As can be seen from this allocation, most of the primary school competencies derived from this study fall under the domains of Interpersonal Skills and Personal Attributes. This is a valuable finding since,

especially at this developmental level, the type of personal attributes and relationship building capabilities a teacher has is of utmost importance to the students. A teacher's personality also has a significant role in maintaining an effective teaching and learning process. A teacher must have good communication and personality characteristics that facilitate learning (Tatar, 2004), since students first of all like the teacher and then subsequently like the course especially at primary school ages. Previous studies also point out that, in addition to their academic knowledge and success, it is also expected that teachers demonstrate positive attitudes and personality traits (Aydın, Bavlı & Avcı, 2013; Sümbül, 1996).

For the middle school level, the following seven competencies were identified; Contributing to Student Success, Work and Time Management, Work Quality, Communication, Continuous Learning, Adaptation and Energy. Out of these competencies; Contributing to Student Success falls under the domain of Leadership Skills, Work and Time Management and Work Quality fall under the domain of Business/Management Skills, Communication falls under the domain of Interpersonal Skills, and the last three competencies of Continuous Learning, Adaptation and Energy fall under the domain of Personal Attributes. When we compare the competencies in the primary and middle school levels, we can see that Student Focus at the primary school level evolves into Contributing to Student Success at the middle school level whereby the teacher takes on more of a moderator role. Moreover, under management skills at the middle school level, we see two new competencies; one of which is Work and Time Management. This competency encompasses the Planning and Organizing competency that was derived for the primary school level, but it also incorporates time management. The other competency under this domain is Work Quality, which is about aiming and maintaining high standards in one's own and one's students' performance. Under the Interpersonal Skills domain, at this level we only see the Communication competency. The competencies under the Personal Attributes column are the same ones that are derived for the primary school level. So, it can be seen that, at the middle school level, the competencies are evolving to become more comprehensive and work-oriented (as opposed to relationship-oriented) when compared to the primary school level.

Finally, for the high school level, the following seven competencies were identified; Contributing to Student Success, Work and Time Management, Work Quality, Communication, Continuous Learning, Adaptation and Stress Tolerance. Out of these competencies, Contributing to Student Success falls under the domain of Leadership Skills; Work and Time Management and Work Quality fall under the domain of Business/Management Skills; Communication falls under the domain of Interpersonal Skills and the last three competencies of Continuous Learning, Adaptation and Stress Tolerance fall under the domain of Personal Attributes. The competency list is almost identical with the one that is derived for the middle school level with the exception of Stress Tolerance which replaces Energy, under the heading of Personal Attributes. Energy is about consistently maintaining high levels of activity or productivity and operating with vigor, and effectiveness over extended periods of time. Stress Tolerance however, is about maintaining a stable performance under pressure or during times of conflict and coping with stress in an acceptable manner within the school environment. This is understandable given the fact that students at the high school level are at the adolescence stage of development and are busily redefining their identities in ways that incorporate the various changes occurring in their minds and bodies (Santrock, 2002). Unquestionably, this is a psychosocial stage that entails a time of stress, confusion and identity search for the students, and it is indeed crucial that the teacher at this level displays Stress Tolerance as a competency.

The competencies identified as important for teachers' success in this study also overlap with some of those identified through the Ministry of National Education project carried out in Turkey (MoNE,2006). For instance, the generic competency of Personal and Professional Values entails efforts to attain high level of student learning and development by taking into account social and cultural differences of students as well as engaging in one's self-development as a teacher. This generic competency encompasses the Student Focus, Contributing to Student Success, Adaptation and Continuous Learning competencies derived in the present study. Similarly, the generic competency of Knowing the Student, which entails knowing all the characteristics, interests and needs of the students and understanding their socio-cultural and economic backgrounds overlaps with again Student Focus, Adaptation and Building Trust. The generic competency of Teaching and Learning Process is about planning and managing the teaching and learning process and ensuring active involvement of students in this process. This competency is very similar to Planning and Organizing and Work and Time Management derived in this study. Moreover, the generic competency of Monitoring and Evaluation of Learning and Development which is about evaluating the development and achievement of students with regard to learning is similar to the Work Quality competency identified here. The generic competency of School, Family and Society Relationships is about knowing and encouraging the families and community to participate in the training process and school development activities, and it is very similar to the competency of Building Positive Relationships. The final generic competency of Knowledge of Curriculum and Content is about using the principles and techniques of the subject-specific curriculum was not a point of discussion in the focus groups of this study, since this section was

deemed as the technical knowledge domain of the success profile before the discussions began and was deliberately left out. The Communication competency derived in this study represents a common thread in all of the generic competencies defined by the Ministry of National Education research results. Thus, it can be seen that with the exception of a few specific competencies (Energy and Stress Tolerance), the results of the present study mostly concur with the generic competencies identified by MoNE (2006).

Similarly, assessing the situation in Turkey, in 2009, Turkish Educational Foundation (TED) suggested some teacher standards and competencies. According to these, teachers should be dedicated to; students and their learning, technological pedagogical content knowledge, instructional planning and implementation, evaluation and monitoring, providing of an effective communication in teaching and learning environment and managing student behavior, planning personal and professional development and implementation and working in partnership with other teachers, parents and school staff, teamwork and cooperation, as well as knowledge and understanding of the legislation related to professional duties and work (TED, 2009). Moreover, in the YÖK (Turkish Higher Education Council) guidelines for teacher proficiency the following components; knowledge of subject matter, planning the learning and teaching process, classroom management, effective communication skills, effective evaluation and feedback, updating one's professional development are mentioned (1998). As can be seen, there are many parallel competencies with the Turkish Educational Foundation's suggestions, The YÖK guidelines for teacher proficiency and the results of this study. Still, a value added by this study is the identification of competencies specific to the three levels of K-12 teaching, which sheds a new light on the competent teaching behavior patterns for K-12 different levels.

Moreover, on a global scale, the European Commission report on 'Supporting Teacher Competence Development for Better Learning Outcomes' (2013) draws on the work of the thematic working group 'Teacher Professional Development' which comprises experts nominated by 26 European countries, and stakeholder organisations. According to this report, teachers' competences can be outlined in six broad paradigms which are; the teacher as a *reflective agent*, the teacher as a *knowledgeable expert*, the teacher as a *skilful expert*, the teacher as a *classroom actor*, the teacher as a *social agent*, the teacher as a *lifelong learner* (Paquay & Wagner, 2001). The content of these broad headings has many parallel features with the generic teacher competencies identified by the Turkish Ministry of Education Study (MoNE, 2006) as well as with the results of this study.

CONCLUSION

Teaching serves a crucial function for society, since it is the teachers who by building various skills and competencies and promoting a societal, historical and cultural understanding, shape the future of every nation. Thus, identifying and developing the right competences for teachers is a task of utmost importance. Taking this view as a starting point, this study, aimed to examine core competencies necessary for teachers' success at a deeper level, namely the three separate levels of K-12 teaching.

The roles of teachers and schools are changing, and so are expectations about them; teachers are asked to teach in increasingly multicultural classrooms, integrate students with special needs, use ICT for teaching effectively, engage in evaluation and accountability processes, and involve parents in schools (OECD, 2009). Furthermore, a recent World Summit on Teaching noted that teachers need to help students acquire ways of thinking (creativity, critical thinking, problem-solving, decision-making and learning); ways of working (communication and collaboration); tools for working (including information and communications technologies); and skills around citizenship, life and career and personal and social responsibility for success in modern democracies (Schleicher, 2012). According to a recent European Commission Report (2013) titled 'Supporting teacher competence development for better learning outcomes', teaching requires complex and dynamic combinations of knowledge, skills, understanding, values and attitudes and that their acquisition and development is a career-long endeavour that requires a reflexive, purposeful practice and high quality feedback.

The quality of an education system depends ultimately on the quality of its teachers (Barber & Mourshed, 2007) and teacher competence frameworks, when devised and implemented in ways that are relevant to each national context and consistent with other educational policies, can be powerful tools to improve educational quality. The development of competency frameworks can also be used in order to strengthen teachers' professional practice, by using it to inform teacher education curriculum as well as serving as a 'self-orientation and development tool' for teachers (Pantic & Wubbels, 2010). As Molenaar, Zanting and Van Beukelen (2009) have stated, there are many ways in which a teacher competency framework can be used. For example, teachers can use the framework to help to define their roles and responsibilities, to self-assess and to guide their professional development activities. Staff developers can also use a framework of educational competencies to help to structure both formal (e.g. workshops) and informal (e.g. peer coaching) professional development activities. Thus, in many ways, a framework for teaching competencies can help to define standards, facilitate assessment and accountability, and promote the professionalization of teaching (Steinert, 2009).

The study reported here is a preliminary step in conceptualising teacher competencies in a private K-12 school in İstanbul, Turkey. While the intention is not to generalize from the data presented in this study, nonetheless it provides some insight in informing others who may seek to undertake an analysis of what it means to be an effective educator at different levels in K-12 schools. Therefore, it is hoped that the results will provide an impetus for future research in the domain.

There clearly is significantly more work to be done in order to contribute to a coherent body of knowledge in this field. For instance, it is imperative that research is conducted to listen to the voices of teachers from various other private and public schools and also their students in order to ascertain what they believe are the necessary competencies for success as a teacher in schools. It should also be further explored whether achievement of competencies leads to competence on the part of students.

Thus, if teachers are there in order to facilitate the development of future citizens — not just literate and numerate individuals, but critical thinkers, socially just actors, and innovative creators — then perhaps there is no real way to measure their effectiveness while their students are still at school. Perhaps, in the end, the school's alumni are actually best placed to nominate the best teachers (Measham, 2011).

LIMITATIONS

A focus group study, using the card sort method was used in this study. There are a number of disadvantages to the focus group method, including limited reliability and validity, and various forms of moderator and respondent bias (Drayton, Fahad and Tynan 1989). Focus groups are unlikely to be the method of choice when statistical data and generalizable findings are required: samples are usually small and unrepresentative, and it is difficult to make a good theoretical case for aggregating data across a number of diverse groups, or for making direct comparisons between groups.

In addition to the above limitation, the participants selected to partake in focus group studies, are often viewed as a potential limitation (Linstone, 1975) and it is acknowledged that the presence of a subjective selection process as may have led to potential selection bias. Thus generalisations from this study cannot be made to larger populations.

SUGGESTIONS FOR FUTURE RESEARCH

In the future, standards for acceptable teacher performance for different levels of teaching need be developed to better serve the needs of students at different levels of development.

Additionally, research might investigate whether perceived teacher competencies to facilitate reflective learning are related to students' improvement in various competencies, as well. Moreover, It is imperative that further research includes students' perspectives on this topic.

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EXAMINING THE RELATIONSHIP BETWEEN TENDENCY OF REFLECTIVE THINKING AND REFLECTION ABILITIES OF PHYSICAL EDUCATION AND SPORTS TEACHERS

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ABSTRACT

The purpose of this study was to examine the relationship between tendency of reflective thinking and reflection abilities of physical education and sports teachers and find out whether there was a significant difference regarding gender and job experience. The importance of the study is that the results of the scale applied on the physical education and sports teachers will be an example for other studies and provide support on the point of the necessity that physical education and sports teachers should reflect their reflective thinking and reflection abilities on education. Relational screening model that is one of the descriptive screening models was applied on the focus group which was chosen via random sampling method. 256 randomly-selected, voluntary ones out of 460 physical education and sports teachers in Sakarya province participated in the study which was carried out in 2015-2016. Scale of Tendency of Reflective Thinking in Physical Education and Sports Teachers (YANDE) developed by Semerci (2007) and Groningen Reflection Skill Scale developed by Aukes et al. (2007) and translated into Turkish by Elaldı (2013) were used in the study to gather data. Whether there was a significant relationship between YANDE and Reflection Skill score means were examined via correlation analysis and the results showed that there was a positively significant relationship between YANDE score means and Reflective Thinking score means ($p>0.05$). According to gender variable regarding YANDE and Reflection Skill score averages, there was no significant difference except for Open-mindedness sub-dimension of YANDE ($p>0.05$) and Reflection Skill score means ($p>0.05$). Besides, there was no difference between Reflection Skill and score means ($p>0.05$). YANDE and Reflection Abilities score means were examined according to the variable of job experience and the results were significantly different and statistically in favor of teachers with 1-10 years' experience in YANDE in total ($p<0.05$) and in sub-dimensions of "Constant and Purposed Thinking" ($p<0.05$) and "Open-mindedness" ($p<0.05$). Additionally, there was a statistically significant difference between the 11-20 years group in Reflection Skill score means ($p<0.05$).

INTRODUCTION

It is an undeniable fact that education is an obligation of life for today's and future generation and has the power to build a world. The issue of education is both a universal and a national one. For the humanity to dispose of the crisis it is in today, build world peace and meet on a common ground, it is essential that countries hold the principles of universal education above their national profits and intimately believe in it.

According to Semerci (1999), the developing and changing world conditions make it necessary to be an individual who can make oneself known. Only the ones who think, namely use their higher level cognitive skills will be more successful in the future according to Semerci (1999). Therefore he indicates the importance of education by saying, "This makes itself known as an obligation today and in the future." We can do that by developing multiple skills and knowledge of the educators. It is a necessity to examine the extent of the impact of the relationship between the tendency of reflective thinking and reflection abilities of the educators. Therefore, reflection and reflective thinking and how it is used are the focus of this study.

According to Gagnon and Collay (2001, p.29-50; cited in Semerci, 2007), Reflection is teachers' revealing their own thoughts, attitudes and skills while explaining a subject. Lipman (2003) defines reflective thinking as being aware of one's thoughts and actions, and able to think of the cause and effects of them. Besides, he indicated that reflective thinking is individual paying attention to her/his own methods and perspectives. According to Dewey (1933), reflective thinking is a type of thinking which involves considering a topic in the mind and evaluating it in a serious way. While stating the essentials of reflective thinking, Duban and Yelken (2010) state "gaining right ways of thinking will profit students in using information, problem solving, being successful in daily life and school." In order to equip students with these skills, firstly the teachers should have reflective thinking skills and constantly use and improve them.

Considering the explanations above, this study is important with regards to examining the relationship between tendency of reflective thinking and reflection abilities of physical education and sports teachers and whether the variables of gender and job experience are a factor on tendency of reflective thinking of physical education and sports teachers.

The hypotheses about the situations stated are given below.

H1: There is a significant difference between physical education and sports teachers' reflection abilities score mean and Tendency of Reflective Thinking (YANDE) score means regarding the gender variable.

H2: There is a significant difference between physical education and sports teachers' Reflection Abilities score means and Tendency of Reflective Thinking (YANDE) score means regarding the variable of job experience.

H3: There is a significant relationship between physical education and sports teachers' Reflection Abilities score means and Tendency of Reflective Thinking (YANDE) score means.

METHOD

Topic of the Study

The topic of the research is to reveal the relationship between Reflective Thinking Tendencies and Reflection Abilities of physical education and sports teachers who work at various education institutions in Sakarya province using relevant scales.

Model of the Study

In this study which examines the relationship between the Reflective Thinking Tendencies and Reflection Abilities of physical education and sports teacher who work at various education institutions in Sakarya province, relational screening model which is one of the descriptive screening models was used.

Preparation of the Scale Form and Data Collection Method

Scale was used as a data gathering method in the study. The scale form was composed of three sections. The first section of the scale form was comprised of the "Personal Information Form" which included gender and job experience variables. The second section of the scale form included "Reflective Thinking Tendency Scale for Teachers and Teacher Candidates (YANDE)" with statements to determine the physical education and sports teachers' Reflective Thinking Tendencies. The third form of the scale involved "Groningen Reflection Skill Scale" with statements to determine the physical education and sports teachers' Reflection Abilities.

Reflective Thinking Tendency Scale for Teachers and Teacher Candidates (YANDE)

"Reflective Thinking Tendency Scale for Teachers and Teacher Candidates (YANDE)" which was developed by Semerci (2007) was used to determine the opinions of the physical education and sports teachers in Sakarya province regarding Reflective Thinking Skills (RT). Necessary permission to use the scale was received. The scale included 20 negative and 15 positive, 35 items in total. The Cronbach Alpha value of internal consistency of this YANDE scale was calculated as 0.916. The negative items in the scale were 1,4,6,8,9,10,11,12,13,14,15,16,17,18,20,22,26,28,31,34; and the positive items were 2,3,5,7,19,21,24,25,27,29,30,32,33,35. 35 items of 7 sub-dimensions regarding Constant and intentional thinking, Open-mindedness, Critical and Effective Teaching, Responsibility of Teaching and Being Scientific, being Inquisitive, Visionary and Sincere, Perspective on the Job. The scale was Likert-type. The rating of the scale was Completely Agree (5), Mostly Agree (4), Partially Agree (3) Mostly Disagree (2) Completely Disagree (1).

The Groningen Reflection Ability Scale (GRAS)

The Cronbach Alpha value of internal consistency of the Groningen Reflection Ability Scale which was developed in Dutch by Aukes et al. (2007) was calculated as 0,795. The Groningen Reflection Ability Scale was adapted into Turkish by Elaldı (2013) with 10 positive (1,2,3,4,5,6,7,8,10,11) and 1 negative (9) items. It was a 5-rate Likert type scale with ratings such as Completely agree (5), Mostly Agree (4) Partially Agree (3), Disagree (2) and Completely Disagree (1). The focus of this scale was on self-reflection (I know my thinking habits well), empathetic reflection (I am aware of the possible emotional impacts of my opinions of others) and reflective communication (I am open to discuss my own ideas).

Creating the Population Frame and Sample

The population of this study was comprised of 460 physical education and sports teachers who worked at various education institutions in 2015-2016 in Sakarya province. Since it was not possible to reach all of the population, physical education and sports teachers were chosen via simple random sampling method. "YANDE" and the

“Groningen Reflection Ability” scales were applied to the 176 male, 80 female 256 physical education and sports teachers in Sakarya in total.

Data Collection and Analysis

After necessary permissions were received from the Directorate of National Education in Sakarya, the scale form was filled by the teachers in the presence of the researcher. The data were analyzed on computer via SPSS (Statistical Package for Social Sciences) 24.0 package program. Considering the data were normally distributed, suitable tests were chosen in the analysis. In descriptive data analysis, frequency, percentage, mean, standard deviation calculations were used. In order to examine the levels of “Reflective thinking” and “Reflection Abilities” of the teachers according to some variables, T test and ANOVA test which are parts of parametric tests were used. Additionally, correlation analysis was used in examining the direction and magnitude of the relationship between the scales. The analysis and findings were interpreted according to the $p < 0.05$ significance level.

FINDINGS

In this section of the study, information and explanations about the findings of the study are presented. The study includes findings and interpretations regarding the teachers’ “Reflection Abilities” and “Reflective Thinking Tendencies” according to the “gender and job experience” variables

Table1. Frequency and Percentage Distribution Results of the Study Group according to the Gender and

Job Experience Variables

Variables	Sub-groups of the variables	n	Total (n)	%	Total (%)
Gender	Male	176	256	68,8	100,0
	Female	80		31,3	
Job experience	1-10 years	140	256	47,3	100,0
	11-20 years	98		34,4	
	21 years and above	18		18,4	

256 participants who formed the study group according to the gender variable were comprised of 176 male and 80 females. The highest frequency was between “1-10 years” and the lowest frequency was “21 years and above” according to the job experience variable.

Table2. T Test Results of the Study Group regarding the Sub-Dimensions of Reflection Abilities and Reflective Thinking Tendency according to the Gender Variable

	Gender	n	Mean	Sd	Sd.	t	p																																																																																												
Constant and Intentional Thinking	Female	80	3,79	,59	254	,993	,322																																																																																												
	Male	176	3,70	,71				Open-mindedness	Female	80	4,37	,64	254	2,097	,037	Male	176	4,17	,72	Critical and Effective Teaching	Female	80	4,43	,61	254	1,165	,245	Male	176	4,33	,63	Teaching Responsibility and Being Scientific	Female	80	3,85	,82	254	,115	,909	Male	176	3,84	,91	Inquisitive	Female	80	3,76	,83	254	-,191	,848	Male	176	3,78	,82	Being Visionary and Sincere	Female	80	3,87	,95	254	,325	,745	Male	176	3,83	,92	Perspective on the Job	Female	80	4,12	,93	254	-,349	,727	Male	176	4,17	,89	YANDE Mean	Female	80	4,01	,53	254	,896	,371	Male	176	3,94	,56	Reflection Ability	Female	80	4,06	,44	254	,427	,670
Open-mindedness	Female	80	4,37	,64	254	2,097	,037																																																																																												
	Male	176	4,17	,72				Critical and Effective Teaching	Female	80	4,43	,61	254	1,165	,245	Male	176	4,33	,63	Teaching Responsibility and Being Scientific	Female	80	3,85	,82	254	,115	,909	Male	176	3,84	,91	Inquisitive	Female	80	3,76	,83	254	-,191	,848	Male	176	3,78	,82	Being Visionary and Sincere	Female	80	3,87	,95	254	,325	,745	Male	176	3,83	,92	Perspective on the Job	Female	80	4,12	,93	254	-,349	,727	Male	176	4,17	,89	YANDE Mean	Female	80	4,01	,53	254	,896	,371	Male	176	3,94	,56	Reflection Ability	Female	80	4,06	,44	254	,427	,670	Male	176	4,04	,48								
Critical and Effective Teaching	Female	80	4,43	,61	254	1,165	,245																																																																																												
	Male	176	4,33	,63				Teaching Responsibility and Being Scientific	Female	80	3,85	,82	254	,115	,909	Male	176	3,84	,91	Inquisitive	Female	80	3,76	,83	254	-,191	,848	Male	176	3,78	,82	Being Visionary and Sincere	Female	80	3,87	,95	254	,325	,745	Male	176	3,83	,92	Perspective on the Job	Female	80	4,12	,93	254	-,349	,727	Male	176	4,17	,89	YANDE Mean	Female	80	4,01	,53	254	,896	,371	Male	176	3,94	,56	Reflection Ability	Female	80	4,06	,44	254	,427	,670	Male	176	4,04	,48																				
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	Male	176	3,84	,91				Inquisitive	Female	80	3,76	,83	254	-,191	,848	Male	176	3,78	,82	Being Visionary and Sincere	Female	80	3,87	,95	254	,325	,745	Male	176	3,83	,92	Perspective on the Job	Female	80	4,12	,93	254	-,349	,727	Male	176	4,17	,89	YANDE Mean	Female	80	4,01	,53	254	,896	,371	Male	176	3,94	,56	Reflection Ability	Female	80	4,06	,44	254	,427	,670	Male	176	4,04	,48																																
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	Male	176	3,78	,82				Being Visionary and Sincere	Female	80	3,87	,95	254	,325	,745	Male	176	3,83	,92	Perspective on the Job	Female	80	4,12	,93	254	-,349	,727	Male	176	4,17	,89	YANDE Mean	Female	80	4,01	,53	254	,896	,371	Male	176	3,94	,56	Reflection Ability	Female	80	4,06	,44	254	,427	,670	Male	176	4,04	,48																																												
Being Visionary and Sincere	Female	80	3,87	,95	254	,325	,745																																																																																												
	Male	176	3,83	,92				Perspective on the Job	Female	80	4,12	,93	254	-,349	,727	Male	176	4,17	,89	YANDE Mean	Female	80	4,01	,53	254	,896	,371	Male	176	3,94	,56	Reflection Ability	Female	80	4,06	,44	254	,427	,670	Male	176	4,04	,48																																																								
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	Male	176	4,04	,48																																																																																															

There was not a statistically significant difference on the results of the t-test which was applied to compare the score means of “Reflection Abilities” according to the gender variable ($p > 0.05$). There was a statistically significant difference on the results of the t-test which was applied to compare the score means of the sub-dimension of “Open-mindedness” of YANDE [$T(254) = 2,097$; $p < 0.05$]. However, there was not a statistically significant difference between the results of other sub-dimensions of YANDE and total score means ($p > 0.05$).

Table3. ANOVA Results regarding the Sub-dimensions of Reflection Ability and Reflective Thinking Tendency of the Study Group according to the Job Experience Variable

Alt Boyutlar	Resource of the Variance	Total of the Squares	sd	Means of the Squares	F	p	Significant Difference
Constant and Intentional Thinking	Among the groups	4,783	2	2,391	5,427	,005	1-10 years >21 years and above
	In the Groups	111,481	253	,441			
	Total	116,264	255				
Open-mindedness	Among the Groups	5,991	2	2,995	6,319	,002	1-10years >11-20 years and above
	In the Groups	119,936	253	,474			
	Total	125,927	255				
Critical and Effective Thinking	Among the Groups	1,085	2	,543	1,399	,249	
	In the Groups	98,148	253	,388			
	Total	99,234	255				
Teaching Responsibility and Being Scientific	Among the Groups	4,494	2	2,247	2,946	,054	-
	In the Groups	193,003	253	,763			
	Total	197,498	255				
Inquisitive	Among the Groups	3,037	2	1,518	2,276	,105	-
	In the Groups	168,796	253	,667			
	Total	171,833	255				
Being Visionary and Sincere	Among the Groups	1,761	2	,881	1,016	,364	-
	In the Groups	219,364	253	,867			
	Total	221,125	255				
Perspective on the Job	Among the Groups	2,118	2	1,059	1,301	,274	-
	In the Groups	206,037	253	,814			
	Total	208,155	255				
YANDE Means	Among the Groups	3,047	2	1,523	5,202	,006	1-10years >21 years and above
	In the Groups	74,098	253	,293			
	Total	77,145	255				

Reflection Ability	Among the Groups	1,305	2	,652	3,025	,050	11-20 years > 21 years and above
	In the Groups	54,563	253	,216			
	Total	55,868	255				

There was a statistically significant difference in the sub-dimensions of “Constant and Intentional Thinking” ($F(2-255)= 5,42$; $p<0.05$), “Open-mindedness” ($F(2-255)= 6,32$; $p<0.05$) and YANDE means ($F(2-255)= 5,20$; $p<0.05$) according to the job experience variable. According to the Post Hoc tests, the difference was in support of the teachers with an experience of 1-10 years. Additionally, there was a statistically significant difference between the score means of Reflection Ability ($F(2-255)= 3,02$; $p<0.05$). According to the Post Hoc tests, this difference was in support of the teachers with an experience of 11-20 years.

Table4. Correlation Test Results regarding the Sub-dimensions of Reflective Thinking Tendencies and Reflection Abilities of the Study Group

	YANDE Mean	Const. and Int. Thinking	Open-mindedness	Crit. And Effective Thinking	Teaching Resp. and Being Scientific	Inq.	Being Visionary and Sincere	Perspe ctive on the Job
Reflection Ability	r ,314**	,174*	,143*	,228**	,279**	,244**	,292**	,213**
	p ,000	,005	,022	,000	,000	,000	,000	,001
	n 256	256	256	256	256	256	256	256

When the relationship between the Reflective Thinking Tendencies and Reflection Abilities of the study group was examined, a positively significant correlation was found between “Reflection Ability”, “Constant and Intentional Thinking” which is one of the sub-dimensions of YANDE [$r = ,174$; $p<0,05$], “Open-mindedness” [$r = ,143$; $p<0,05$], “Critical and Effective Teaching” [$r = ,228$; $p<0,05$], “Teaching Responsibility and Being Scientific” [$r = ,279$; $p<0,05$], “Inquisitive” [$r = ,244$; $p<0,05$], “Being Visionary and Sincere” [$r = ,292$; $p<0,05$] and “Perspective on the Job” [$r = ,213$; $p<0,05$] and YANDE means [$r = ,314$; $p<0,05$].

DISCUSSION AND CONCLUSION

In this section which includes discussion, conclusion and suggestions, the analysis results regarding the data of the sub-problems of the study. Results of the statistical data regarding the score means of Reflection Ability and YANDE sub-dimensions (Constant and Intentional Thinking, Critical and Effective Teaching, Teaching Responsibility and Being Scientific, Inquisitive, Being Visionary and Sincere, Perspective on the Job) according to gender and job experience variables of the physical education and sports teachers are presented below.

There was not a statistically significant difference in the results of the t-test regarding the “Reflection Abilities” and YANDE score means of the study group according to the gender variable ($p>0.05$). However, there was a

statistically significant difference in the results of the t-test regarding the comparison of the score means of the sub-dimension of “Open-mindedness” [$T(254) = 2,097$; $p < 0.05$]. According to this, while male physical education and sports teachers were more open-minded than female physical education and sports teachers; there was not a significant difference in the other six sub-dimensions.

According to the studies of Durdukoca and Demir (2012), Şahin (2011), Ergüven (2011) and Dolapçioğlu (2007), there was not a significant difference in the answers of male and female teachers to the sub-dimensions of reflective thinking tendency. So, reflective thinking tendencies did not change according to gender. Saygılı and Tehnedere (2014) did not find a statistically significant difference between the score means regarding the sub-dimensions of YANDE scale according to gender, education level and marital status of the education staff. Similarly, in Gedik, Akhan and Kılıçoğlu's (2014) study revealed that there was not a significant relationship in 3rd and 4th grade social sciences teacher candidates' reflective thinking tendencies according to their gender, family income and type of high school. These results also match with the results of the present study which reveals that there is not a significant relationship between the teachers' reflection abilities, their YANDE score means and YANDE sub-dimensions (except for the sub-dimension of open-mindedness).

There was a significant difference between the YANDE mean and sub-dimensions of “Constant and Intentional Thinking” ($F(2-255) = 5,42$; $p < 0.05$) and “Open-mindedness” ($F(2-255) = 6,319$; $p < 0.05$), according to the job experience variable. The results were in support of the teachers with job experience of 1-10 years in the Post Hoc Tests. Besides, there was a statistically significant difference ($F(2-255) = 3,02$; $p < 0.05$) between the Reflection Ability score means. This difference was in support of the teachers with job experience of 11-20 years. There are similar data in other studies. Hasırcı and Sadık (2011) found that teachers' gender, marital status and education level were not factors that affect their reflective thinking abilities; however, their job experience, type of school and socio-economical features of the schools were the factors that affected teachers' reflective thinking abilities.

When the relationship between the Reflective Thinking Tendencies and Reflection Abilities of the study group was examined, there was a positively significant relationship between the “Reflection Ability” and YANDE sub-dimensions of “Constant and Intentional Thinking” [$r = ,174$; $p < 0,05$], “Open-mindedness,” [$r = ,143$; $p < 0,05$], “Critical and Effective Teaching” [$r = ,228$; $p < 0,05$], “Teaching Responsibility and Being Scientific” [$r = ,279$; $p < 0,05$], “Inquisitive” [$r = ,244$; $p < 0,05$], “being Visionary and Sincere” [$r = ,292$; $p < 0,05$] and “Perspective on the Job” [$r = ,213$; $p < 0,05$] and YANDE mean [$r = ,314$; $p < 0,05$]. Therefore, as reflective thinking tendencies of the physical education and sports teachers increase, their reflection abilities also increased.

In his study, Karadağ (2010) found that the reflective thinking levels of social sciences teachers were quite high and their most positive perception regarding the reflective thinking abilities was in the dimension of “Open-mindedness”. In a similar study, Meral and Semerci (2009), aimed to determine critical and reflective thinking of primary school teachers of English. Results of the study revealed that while teachers of English generally thought reflectively, they partially thought reflectively in the sub-dimensions of perspective on the job and constant and intentional thinking.

These results match with the finding of the present study regarding a statistically positive and significant relationship between Reflective Thinking Tendencies and Reflection Abilities score means.

SUGGESTIONS

These suggestions can be made in accordance with this study:

- In-service educations can be given to the physical education teachers in order to improve their Reflective thinking tendencies and reflection abilities and allow them to use them actively.
- Also, related compulsory classes can be included in the curriculum of the undergraduate programs that train teachers.

- Preparatory, improving and executive education regarding reflective thinking tendencies and reflection abilities of teacher candidates can be included in the training program.
- Other scientific studies which will raise awareness on the subject of the necessity that physical education and sports teachers should think reflectively and use reflection abilities actively while conveying their skills and information can be conducted.

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EXPERIENCES AND CHALLENGES IN THE TEACHING OF UNDERGRADUATE PHYSICS: OPINIONS OF KINESIOLOGY STUDENTS REGARDING AN APPLIED PHYSICS COURSE

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This article aims to determine the Kinesiology-students' opinions regarding an Applied Physics course. A survey was applied to 34-kinesiology students of this course at Universidad Bernardo O'Higgins, Chile. 58.82% of students like the subject and 52.94% consider it an important pre-requisite for future courses; 100% agree that contents relate to workshops; 91.18% state the methodology is adequate to prepare exams. Only 5.88% and 2.94% is indifferent or disagree with the methodology, respectively. We argue that slightly more than half the students express a liking for the subject despite historical academic results suggesting low motivation, maybe due to deficient previous knowledge.

EXPLORING THE MULTIVARIATE ASPECTS OF THE PROACTIVE COPING INVENTORY

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ABSTRACT

The purpose of the present study was to test whether the relationships between the observed proactive coping variables as measured by PCI (Greenglass et al., 1999) and their underlying constructs exist in a priori manner, as the theory would seem to indicate. The psychometric properties for each dimension of the PCI were evaluated using a number of confirmatory factor analyses (CFAs) on a medium-size sample ($n = 447$). After the individual one-factor models were assessed as factorially valid, a combined model could be evaluated. The original 7-factor model (as well as 5-, 4- and 3-factor models) was tested. Based on the results, the 7-factor model best represented the data:

- (1) Proactive Coping,
- (2) Preventive Coping,
- (3) Reflective Coping,
- (4) Strategic Planning,
- (5) Instrumental Support
- (6) Emotional Support and
- (7) Avoidance Coping.

INTRODUCTION

There are many challenges to be faced in contemporary society, including the stresses of everyday living and newly rising challenges in patterns of professionalism, required job skills and soft skills. For this reason, symptoms of depression and lower self-esteem are being experienced not only in working society but also in those who are about to enter the labor market and integrate with society. The research for effective ways to reverse this trend has resulted in a significant shift in psychological approach from a focus on weaknesses and pathology to a more positive focus on the emphasis of health, personal growth and individual strength. This study contributes to our understanding of how people in different social backgrounds meet life challenges. If a given stressful event is still at its early stages, coping strategies become increasingly meaningful and necessary, as they can serve as a protective factor against possible failure. In doing so, the individual attempts to build up general resources and the process of coping with potential stress and difficult situations in the distant future both ensure personal growth and provide an opportunity for actualization of one's full potential. At this point we must make a distinction between traditional coping models as offered by [Folkman and Lazarus \(1985\)](#) and proactive coping. Studies that underline positive aspects of coping use the proactive coping concept to deal with a future-oriented and positive approach to coping ([Schwarzer & Taubert, 2002](#)).

The essence of proactive coping is inclusion of future aspects which can potentially lead to further self-development and self-regulation. Such definition of proactive coping differs from the originally/traditionally understood coping of [Aspinwall and Taylor \(1997\)](#), who were some of the first who used the term "proactive coping" in this context. However, the author definition corresponds more to the concept of preventive coping in connection with difficult situations, i.e., a solution that anticipates potential stress and is held in advance in order to prevent stressful situation or to minimize its negative consequences.

[Greenglass, Schwarzer and Taubert \(1999\)](#) developed the Proactive Coping Inventory (PCI), a widely used research tool that reflects the effort expended before the stressful situation occurs. Proactive coping is, according to [Greenglass et al. \(1999\)](#), multidimensional and forward-looking, combining processes aimed at improving the quality of life and those aimed at achieving self-regulatory set goals. The authors distinguish the traditional understanding of proactive coping in the three main areas: (1) Traditional coping is a reactive response to situations that have already happened. Proactive coping is, by contrast, oriented towards the future. Its purpose is to create a resource for personal growth and achievement of the autonomously set goals. (2) Another difference

in the definition of proactive and reactive coping is that proactive coping is focused on goals achievement rather than on reducing threats or negative risks. (3) Motivation of proactive coping is positive, the ability to perceive the situation as an opportunity for personal growth and an additional challenge to overcome personal obstacles. The PCI consists of seven dimensions that are covered by 55 items. Briefly characterized, the Proactive Coping subscale represents self-regulatory goal-setting and goal-attainment (i.e., “I like challenges and beating the odds”). Preventive Coping subscale reflects a potential threat in future (i.e., “I think ahead to avoid dangerous situations”). Reflective Coping subscale captures the thinking of the possible variants of behavior, comparing their effect and creation of further steps (i.e., “I imagine myself solving a difficult problem before I actually have to face it”). Strategic Planning subscale represents layout of actions needed to achieve the goals and tasks division into a smaller manageable units. (i.e., “I break down a problem into a smaller parts and so one part at a time”). Instrumental Support Coping subscale (i.e., “When I am in trouble I can usually work out something with the help of others”) and Emotional Support Coping subscale (i.e., “I know who can be counted on when the chips are down”) includes obtaining advice, information and feedback from other people and help and support from significant others. The last, Avoidance coping subscale, represents a passive approach to solving stress (i.e., “When I have a problem I usually let it simmer on the back burner for a while”).

The proactive coping is becoming a well-researched concept, especially in English speaking countries. [Šolcová, Lukavský and Greenglass \(2006\)](#) organized the first validation study using the PCI in the Czech educational environment. The psychometric properties of the inventory were comparable with the original version of the PCI. Using a medium-size student sample ($n = 176$), the original 7-factor model as well as an alternative 3-factor model were checked. The 3-factor model included the following factors: (1) Preventive, Reflective and Strategic Coping, (2) Emotional and Instrumental Support and (3) Proactive and Avoidance Coping. All items, except for one, loaded significantly on the relevant factor. Item 8 (*I try to let things work out on their own*) from the Proactive Coping subscale did not significantly load on the appropriate factor. EFA and CFA on the same data set were employed and the obtained data favored the original 7-factor model on a sample of the university students.

The context in which research on proactive coping has been carried out highlight the positive effect of proactive coping on life management. [Gan, Hu and Zhang \(2010\)](#) compared the relative importance of proactive coping and preventive coping in students' adjustment to university life and evaluated the function of proactive coping in the stress process. The results suggested that stress has a mediating effect between proactive coping and maladjustment but not between preventive coping and maladjustment. Likewise, [Gan, Yang, Zhou and Zhang \(2007\)](#) found that proactive coping fully mediated the relationship between stress and student engagement. Within another context, [Greenglass, Fiksenbaum, and Eaton \(2006\)](#) examined the use of proactive coping in an elderly population and its relationship to feelings of depression and functional ability. Results showed that proactive coping was negatively associated with functional disability and with depression. Similarly, [Li and Miller \(2017\)](#) explored the impact of coping and resilience on anxiety among older Australians. Furthermore, proactive coping facilitated the processes aimed at maintaining or improving the quality of life, such as overcoming a gambling disorder ([Slecza, Braun, Grüne, Bühringer, & Kraus, 2016](#)), chronic pain ([Adamcová, Knotek, & Raudenská, 2016](#)) or coping with a limb amputation ([Solgajová, Sollár, & Vörösová, 2015](#)). However, the presented results are in agreement with existing literature on the positive nature of proactive coping, the measures of the proactive coping considerably varied across studies, samples and statistical procedures employed.

The purpose of the present study was to test the hypothesis that a relationship between the observed proactive coping variables as measured by PCI and their underlying constructs exists in a priori manner as theory suggests. The psychometric properties for each dimension of the PCI were evaluated using a number of confirmatory factor analyses (CFAs). First, individual one-factor models for each PCI subscale were tested to confirm their unidimensional factor structure. Further, multiple-factor models were assessed to examine the intercorrelations among the original-factor structure of the PCI. An adjusted model was calculated in situations when the model did not fit with the expected level. In this case, the adjusted model took into account covariances between error terms associated with a modification index above 10. The best-fitting factorial model was re-tested with fewer factors and internal consistency was checked.

METHOD

Participants

Four hundred forty-seven university students enrolled in a traditional face-to-face course delivery format in a medium-sized public university in the Czech Republic participated in the current study. 89% (398) were female and 11% (49) were male with the overall mean age of the sample at 20.92 years ($SD = 2.07$), ranging from 18 to 49 years. The majority of students studied full-time bachelor's degree (414, 93%) and master's degree (33, 7%) in the field of helping professions. 25% (113) of students had chosen Social Education for their specialization, 22% (99) of students had studied Preschool Teachers' Training and English for Business Administration. 13% of students had chosen General Nursing, 9% and 8% of students had studied Midwifery and Health and Social Care Worker respectively.

Measures

The Czech version ([Šolcová et al., 2006](#)) of the Proactive Coping Inventory (PCI; [Greenglass et al., 1999](#)) was administered to respondents. The PCI consists of a total of 55 items covering seven subscales: Proactive Coping (14 items; $\alpha = .85$), Preventive Coping (10 items; $\alpha = .83$), Reflective Coping (11 items; $\alpha = .79$), Strategic Planning (4 items; $\alpha = .71$), Instrumental Support (8 items; $\alpha = .85$), Emotional Support (5 items; $\alpha = .73$) and Avoidance Coping (3 items, $\alpha = .61 - .74$). The original measure shows a reasonably good degree of factorial validity and internal consistency measured by Cronbach's alpha coefficient ([Greenglass et al., 1999](#); [Greenglass, 2002](#)).

A four-point Likert scale ranging from 1 (*not at all true*) to 4 (*completely true*) was used. The high scores on the PCI subscales are seen as having beliefs that are rich in potential for change particularly in ways that would result in improvement of one's life and environment. The PCI subscale items were randomly dispersed within their respective questionnaires. However, the presented numbers of the items in this study correspond to the original order of the PCI.

RESULTS

Data Preparation

During a traditional face-to-face course, a paper-and-pencil questionnaire administration was used. Respondents were asked to participate voluntarily in the anonymous survey. Missing values were handled using the Expectation Maximization (EM) technique and multivariate outliers were detected by Mahalanobis distance values. All influential outliers above the critical chi-square value were removed from further analyses.

Procedure

The minimal requirements for a good model of fit using CFA were non-significant fit statistic χ^2 that says that the model is not different from the default. However, the χ^2 statistics are very sensitive to sample size and no longer relied upon as a basis for acceptance or rejection ([Vandenberg, 2006](#)). A chi-square to degrees of freedom ratio (χ^2/df) of less than 5, ideally less than 3 and their goodness of fit (GOF) indices: a Root Mean-Square Residual (RMR) of .50 or less, a Root Mean Square Error of Approximation (RMSEA) $\leq .05$ indicates close approximate fit. A Goodness-of-fit Index (GFI) and Adjusted Goodness-of-fit Index (AGFI) of .85 or greater and a p of Close Fit (PCLOSE) greater than .05 are heuristic values that indicate that the model fits the data well. The internal consistency was examined by coefficient Cronbach's alpha (α) and intercorrelations were investigated using Spearman rank order correlation coefficient. IBM SPSS v. 22 and AMOS v. 21 were used.

Confirmatory factor analysis

The PCI subscales were originally developed using statistical techniques such as Pearson product-moment correlation coefficient, CFA, principal component analysis and reliability procedures – although it is not clear whether the scales were tested as one-factor model for each scale of the PCI, and/or whether they were tested within the multi-dimensional structure. The following analysis captures a logical practices chronology consisting of testing the hypothetical structure of the observed variables and their underlying latent constructs. The researcher used knowledge of the theory and empirical research and tested the hypothesis using CFA on one-factor models. When each factor can be confirmed, then a combined model can be evaluated. According to the

results (see Table 1), a one-factor solution representing each subscale of the PCI fit the expected level after all appropriate error covariance were added.

Table 1: Error covariance, factor loadings and reliability coefficients α of the CFA models.

Model	Error covariance (>10)	Range of factor loadings	α
1. Proactive Coping	e1 – e13; e2 – e4, e12, e14; e4 – e9; e5 – e10; e6 – e9; e9 – e13	.10 (item 8) –.68 (item 55)	.786
2. Preventive Coping	e1 – e3, e7; e2 – e5, e10; e5 – e9; e6 – e7	.10 (item 39) –.68 (item 43)	.737
3. Reflective Coping	e2 – e4, e7; e5 – e10; e6 – e8	.37 (item 9) –.68 (item 42)	.793
4. Strategic Planning	e2 – e4	.26 (item 10) –.96 (item 17)	.555
5. Instrumental Support	e1 – e3; e2 – e7; e3 – e7	.33 (item 26) –.73 (item 44)	.781
6. Emotional Support	e3 – e4; e4 – e5	.51 (item 32) –.78 (item 20)	.751
7. Avoidance Coping	Just-identified model	.56 (item 14) –.77 (item 21)	.701

The two items had relatively low factor loading during all analyses and thus seem to be problematic. Item 8 (*I try to let things work out on their own*) from the Proactive Coping subscale and item 39 (*I make sure my family is well taken care of to protect them from adversity in the future*) from the Preventive Coping subscale did not significantly load on the appropriate factor¹. As can be seen in Table 2, a one-factor solutions fit the data reasonably well with slight differences across each scale of the PCI. The reliability coefficients α ranged from .555 to .793, indicating that the reliability is acceptable. Moreover, the combined multiple-factor models were established.

Table 2: GOF indexes of the CFA models.

Model	χ^2	df	χ^2/df	RMR	RMSEA	GFI	AGFI	PCLOSE
1. Proactive Coping	146.34	69	2.12	.026	.050	.957	.934	.475
2. Preventive Coping	55.69	30	1.86	.025	.044	.976	.956	.696
3. Reflective Coping	77.73	40	1.94	.024	.046	.969	.949	.649
4. Strategic Planning	6.26	1	6.26	.016	.109	.993	.931	.074
5. Instrumental Support	41.38	17	2.43	.021	.057	.977	.952	.281
6. Emotional Support	4.288	3	1.429	.010	.031	.996	.981	.616
7. Avoidance Coping	Just-identified model							
7-factor model	2850.42	1399	2.037	.040	.048	.800	.780	.874
5-factor model	2908.27	1411	2.061	.041	.049	.797	.779	.786
4-factor model	2907.10	1413	2.057	.041	.049	.796	.778	.802
3-factor model	2946.92	1406	2.096	.041	.050	.788	.768	.607

The original 7-factor model fits the data well (see Table 2) with factor loadings ranging from .10 (item 8) and .11 (item 39) to .76 (item 32) and with overall $\alpha = .875$. The intercorrelations among the factors were examined (see Table 3). The significant and positive relationships among the most of the variables were found except significant and negative correlations for Avoidance subscale. There were the two strong relationships between Preventive Coping and Reflective Coping (.690) and between Instrumental Support and Emotional Support (.675), indicating that some of the factors may be too similar and therefore redundant. In the next step a 5-factor model was tested; it merged those variables into a simpler structure.

Table 3: Intercorrelations of the 7-factor model.

7-factor model	n of items	2.	3.	4.	5.	6.	7.
1. Proactive Coping	14 items	.367**	.423**	.365**	.111*	.179**	-.264**
2. Preventive Coping	10 items		.690**	.539**	.184**	.061	-.180**

¹ However, to remain consistent with the original PCI subscales, these items were included in the further analyses unless stated otherwise.

3. Reflective Coping	11 items	.452**	.221**	.121*	-.120*
4. Strategic Planning	4 items		.135**	.094*	-.259**
5. Instrumental Support	8 items			.675**	.016
6. Emotional Support	5 items				-.066
7. Avoidance Coping	3 items				

Note: * = Correlation is significant at the 0.05 level (2-tailed). ** = Correlation is significant at the 0.01 level (2-tailed).

The 5-factor model represents the data well (see Table 2) with no overall GOF index differences comparing to the 7-factor model. When the content interpretation of the factors fit was assessed, the 5-factor solution was decided to better represent the data. The intercorrelations among the factors were further checked (see Table 4).

Table 4: Intercorrelations of the 5-factor model.

5-factor model	n of items	2.	3.	4.	5.
1. Proactive Coping	14 items	.464**	.389**	.136**	-.273**
2. Preventive/Reflective Coping	21 items		.558**	.170**	-.179**
3. Strategic Planning	4 items			.131**	-.253**
4. Instrumental/Emotional Support	13 items				-.030
5. Avoidance Coping	3 items				

Note: * = Correlation is significant at the 0.05 level (2-tailed). ** = Correlation is significant at the 0.01 level (2-tailed).

Similarly, the model fits the data on the acceptable level (see Table 2). The strong significant and positive correlations were found between the Preventive/Reflective Coping and Strategic Planning (.558). This intercorrelation was higher than remaining values (ranging from .153 to .264) except significant and positive correlation between the Proactive Coping and Preventive/Reflective Coping (.464). However, we did not want to combine more than two factors at the time to be able to test the subsequent verification of the factor structure suitability. Those factors were not aggregated together to form a single factor at this point. Only the Preventive/Reflective and Strategic Coping factors were combined with the other factors remained unchanged. Next, a 4-factor model was tested to see whether there is remaining redundancy among the factors.

Table 5: Intercorrelations of the 4-factor model.

4-factor model	n of items	2.	3.	4.
1. Proactive Coping	14 items	.453**	.153**	-.264**
2. Preventive/Reflective/Strategic Planning	25 items		.180**	-.203**
3. Instrumental/Emotional Support	13 items			-.028
4. Avoidance Coping	3 items			

Note: * = Correlation is significant at the 0.05 level (2-tailed). ** = Correlation is significant at the 0.01 level (2-tailed).

The CFA analysis confirmed the factor structure of the 4-factor model (see Table 2). The remaining significant intercorrelations were low (see Table 5). The only exception was remaining positive correlation between the Proactive Coping and Preventive/Reflective/Strategic Coping factor (.453) suggesting that the factor model might have even simpler structure.

To statistically test this hypothesis, a 3-factor model was tested, including the Proactive / Preventive / Reflective / Strategic Planning, Instrumental / Emotional Support and Avoidance Coping. The model fit well overall (see Table 2). A significant positive correlation was found between the first factor and the Instrumental/Emotional Support (.191) and Avoidance Coping (-.281). The results did not suggest any further factor redundancy. Although, the fit indices for all CFA combined PCI models were almost equal, the original 7-factor model fit the data best based on the factor specificity and remaining interfactor correlations.

DISCUSSION

The present study was designed to test whether a priori stated hypothesis on the nature of the proactive coping will hold across a medium-size Czech university student sample. The stability of the factor structure was tested using a number of CFAs. Preliminary analyses were conducted consisting of the Expectation Maximization (EM) algorithm for solving missing values in the presented data set and the Mahalanobis distance values for detecting the multivariate outliers.

First, individual one-factor models for each PCI subscale as measured by the PCI ([Greenglass et al., 1999](#)) were tested to confirm their unidimensional factor structure. Single-factor models covering seven PCI subscales fit well with appropriate error covariance added if needed. However, item 8 from the Proactive Coping subscale and item 39 from the Preventive Coping subscale did not significantly load on their factor. Moreover, the single models were sufficiently reliable.

Further, the 7-factor structure was modeled to examine the intercorrelations among the original factor structure of the PCI. An inspection of the factor intercorrelations suggested that some closely related factors were highly redundant. There were two pairs of factors strongly related to each other: Preventive Coping and Reflective Coping, and Instrumental Support and Emotional Support. In the next step, a 5-factor model was tested combining those variables into one factor. Similarly, the model fit the data on the acceptable level. However, strong correlations were present between the newly-created factor combining Preventive/Reflective Coping and Strategic Planning subscale. On the basis of these correlations, the simpler 4-factor model was tested. Despite the reduction in the number of factors, there was still an existence of a significant and positive correlation between the Proactive Coping and the Preventive/Reflective/Strategic Planning factor suggesting that the factor model might have even simpler structure. To statistically test this hypothesis, the 3-factor model was tested, including the Proactive/Preventive/Reflective/Strategic Planning, Instrumental/Emotional Support and Avoidance Coping. If comparing 4- and 3-factor models, the 69% of unique variance between the merged factors for the 4-factor model and 79% of unique variance for the factors combined in the 3-factor model can be enough to retain merged factors to be separate factors. In other words, 31% and 21% of the shared variance between the factors of these models does not seem to be sufficient to form unified factors. Even in the 5-factor model, the shared variance of the combined factors did not exceed 50%, and thus did not indicate factor redundancy. Therefore, all combined PCI models met the minimal requirements for a good model of fit; the factor abundance in the form of shared variance was taken into account. On this basis, the original 7-factor model best represented the data, highlighting the close factor relationships indicating measuring coherent constructs.

The presented unstable factor structure of the coping construct is further visible. For example, a fourteen-factor model emerged out of the EFA on a sample of senior citizens of India ([Bhusban, Gautam, & Greenglass, 2010](#)). On the other hand, the seven-factor model representing the original factor structure of the PCI was verified using CFA on a Hungarian college and university student sample ([Almásy, Pék, Papp, & Greenglass, 2014](#)). Also, the 3-factor model was previously developed by [Šolcová et al. \(2006\)](#) with the Czech version of the PCI tested on a medium-size student sample; however, the authors favored the original 7-factor structure. Similarly, [Roesch, Aldridge, Huff, Langner, Villodas, and Bradshaw \(2009\)](#) tested multi-factor models of the original version of the PCI on large multiethnic sample. The 3-factor structure was analyzed with the factors renamed to Logical Analysis and Problem Solving, Social Support and Avoidance. Moreover, more complex conceptualizations of coping were suggested by [Cook and Heppner \(1997\)](#), who examined the psychometric properties of the Coping Inventory for Stressful Situations, the COPE and the Coping Strategies Inventory. Likewise, three general factors were found across the three measurements: Problem Engagement, Avoidance and Social/Emotional.

There are several limitations of the presented study. The first limit is associated with a general criticism of statements using self-reports. It always brings a declared statement about the level of proactive coping and not its actual usage. Second, the concept of proactive coping is forward-looking bringing the findings about future coping behavior. Last, these results are generalizable only to this presented research sample of university students and therefore generalization to other samples would be inappropriate.

Future research capturing dimensionality of proactive coping with large-size heterogeneous sample would be beneficial. So far, the average range of the most researched sample is approximately 200-300 respondents with a mean age of approximately 20 years, corresponding to college and university students. Ideally, the minimal number for reliable results is greater than 100 and five times the number of items.

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EXPLORING THE POTENTIAL RELATIONSHIPS BETWEEN TEACHING MATERIALS AND STUDENT MOTIVATION

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ABSTRACT

This paper investigates the potential usefulness of original teaching materials in order to enhance Japanese university students' intrinsic motivation when learning English including cross-cultural understanding, usefulness, and pleasure. Specifically, Non-English-major students were taught English for one semester using the author's textbook, based on his own experiences overseas. Data analysis suggests that almost all students in the two classes examined enjoyed learning from the teaching materials, had a strong feeling of the importance of English learning, and had a strong awareness of developing English ability after studying each unit.

INTRODUCTION

With regard to English learning in tertiary education, we educators and researchers need to continually evaluate our approach. University students who will use English as a tool in society after graduation need to improve their English proficiency, which might lead to their increased motivation to learn English at university.

In general, however, students lack motivation to learn English on a bachelor program, most do not feel language learning to be meaningful. Most student motivation relates to credit gains for their general English classes. Especially, by the time they become sophomores, students' attitudes toward English study tend to become diverse; in fact, some students appear demotivated with regard to learning English and others are just losing interest in English. However, among sophomores some students have studied very seriously by setting TOEIC Test goals or developing their English proficiency in order to study abroad.

It appears vital for teachers to create a class to motivate English language students. In this paper, one useful method to overcome this is considered, while teaching students who are less motivated or demotivated into English learning, in order to help them discover the significance of studying English in class. An attempt is made to implant feelings of English usefulness and pleasure in learning English into the students via the use of original materials which might motivate students to learn the language.

EARLIER RESEARCH

There have been numerous studies on English learning motivation. Particular attention has been paid to intrinsic motivation and extrinsic motivation. These types of motivation are distinguished in self-determination theory (e.g., Deci & Ryan, 1985; and, Ryan & Deci, 2002). Intrinsic motivation is responsible for learners taking an interest in English learning and wanting to communicate with English speakers in English. Alternatively, extrinsic motivation, coming from external sources, leads to learners towards qualifications or passing examinations (Deci & Ryan, 1985). It is often said that such motivations do not conflict with each other, but form a diverse continuity (Lin, McKeachie, & Kim, 2003).

Some research on intrinsic motivation has been conducted by introducing presentations into group activities in class. As a result, enhancement of intrinsic motivation has been shown to be successful (e.g., Tanaka & Hiromori, 2007). Hayashi (2009) explores the relations of intrinsic and extrinsic motivations to learner activities by classifying learners into three groups based on their autonomy, concluding that regardless of their autonomy, learners have a tendency towards 'enjoyable' activities in class. Iwanaka (2011) confirms that it might be possible to enhance learner motivations toward class activities, English classes and English learning by satisfying three psychological needs of 'competence, 'relatedness' and 'autonomy'. The above was conducted in order to enhance intrinsic motivation through various learner activities.

Miura (2010) conducted a seven-year longitudinal research on students' learning motivation from junior high to university, and suggested that university students tend to feel less motivated with regard to language learning after entering university even though their motivation tended to increase at the third year of junior high and senior high schools.

Hamada's (2008) quantitative research on junior and senior high school students' awareness shows that *course books* were the strongest demotivator. Sakai and Kikuchi (2009) collected high school student learning

motivation data and found three important motivation factors: *learning contents and materials, lack of motivation, and test scores*, especially for less motivated learners.

Tanaka (2009) conducted motivation research focusing on English learning materials, especially overseas dramas and movies, and likewise he found these to have the positive effect of enhancing intrinsic motivation. Use of DVDs has a great influence on motivation for learning English.

Based upon his data results, Hamada (2011) lists the following effective methods in preventing demotivation:

- (1) Practice listening by shadowing
- (2) Communicative tasks
- (3) Group/pair work
- (4) Less use of grammar translation style
- (5) Presentation
- (6) Teachers' uniqueness

The last category, *Teachers' uniqueness*, includes teachers' creative ideas such as their experiences abroad and their use of quizzes in English on current world news (Hamada, 2011). This category can be said to be related to the materials the teacher uses. When it comes to English reading class especially, the teaching content has a crucially important effect on student learning motivation.

OBJECTIVES

The current research investigates university students' intrinsic motivation to learn English and explores the extent to which the content of teaching materials is received favorably by non-English-major students, and the relationship between the original materials and student awareness of English learning. In particular, focusing on the four countries/areas introduced in class, learner affectivity about the content was compared and discussed. The specific research questions are:

- (1) To what extent are teaching materials favored by students?
- (2) Does learner awareness vary among teaching materials (amongst four countries or regions)?
- (3) How do students feel about the teaching materials?

METHODS

The subjects were 83 students who were not majoring in English (non-English major students). Students were divided into several classes, based on TOEIC Test scores, and the classes were taught using the author's original textbook, *Ryu's Misadventures Abroad*. Regarding the students' English levels, the average TOEIC scores of the classes was 389 (basic high level) and 486 (intermediate level) (out of a maximum 990 points).

In the reading class, the author's textbook based upon overseas experiences was introduced to enhance student motivation into English learning. At the end of each unit a questionnaire was administered to explore learner awareness on the teaching materials and language learning. To obtain answers from the subjects, the questionnaire used a 6-point Likert scale. The questionnaire items were classified into four categories based upon the content of each questionnaire. Then, the collected data were analyzed using Two-way ANOVAs and Pearson product-moment correlation. In the last item of the questionnaire the students were asked to freely describe impressive or interesting parts relating to the teaching content.

CLASS CONTENT

The research was designed to encourage students to take a greater interest in English learning, becoming more motivated to learn it, and enhancing their English proficiency through use of materials based on the teacher's traveling experiences, including 'misadventures'. The textbook introduced is the teacher's original, *Ryu's Misadventures Abroad*, which constitutes 24 chapters, covering eight countries or regions. However, as students have 15 classes in one semester, they could only cover 12 chapters (four countries or regions). Below are the nations or regions they read about, and some of the problems Ryu encountered:

China: The main character visits Beijing and appreciates Kyougeki (Chinese opera). He has a lot of difficulty understanding the content of it because it is explained in Chinese and the audience have to appreciate it looking at the English subtitle on the far-end screen. Also, he gives a presentation in English at the international conference for the first time, and is fatigued from reading his paper in front of an audience. After that, he goes back to his room at the hotel and gets ready for a bath. Then, he turns up the faucet in the bathroom to bathe. While waiting for the tub to be full of bath water, he starts to enjoy the TV. After a while he takes a nap with water running because of fatigue. As a result, he floods his hotel room with water and has to cope with the resultant problems.

Hawaii: The main character does the sightseeing on Oahu Island, such as pineapple fields and Waikiki Beach. He learns about history of the fields and he makes fun of his wife about her way of swimming. Also, at Pearl Harbor, one of the battlefields in World War II, he teaches his children about manners in places where there is a cenotaph on which the names of the war dead are engraved. Further, when climbing down the mountain on Oahu Island, the Diamond Head, he suffers from diarrhea and encourages himself to endure it, until he finally manages to get to the toilet at the foot of the mountain.

Sri Lanka: Before the civil war ends in the country, the main character visits the country to participate in an international conference. He looks at the severe situation of the strict security in the capital. On the city tour he knows the look of the city and the situation of the trains at Colombo Station in those days, and has a good time conversing with local people. Also, after the second day of the conference he joins the welcome party and enjoys eating and talking. However, he has food poisoning at night and suffers from diarrhea and vomiting. The next day he is dehydrated and taken to a hospital to see a doctor and he has to be in hospital.

Scotland: The main character goes to Edinburgh to attend a conference with other professors. He visits one of the professors who loves Japan and things Japanese, and he has a gorgeous dinner. When the conference starts, he is very moved to see one teacher practicing his presentation earnestly in the square. Also, he participates in the famous Tattoo Festival in Scotland and is overwhelmed by how big the festival is and how international and brilliant it is.

The following teaching methods were used in class.

- (1) Vocabulary check (10 words)
- (2) Reading the passages and checking phrases
- (3) Listening Section: Listening (4 questions)
- (4) Listening to the teacher's explanation
- (5) Reading comprehension (4 questions)
- (6) Speaking Section: Filling in the blanks in two dialogues
- (7) Doing role play using the above dialogues

Regarding the vocabulary check, students first check vocabulary. Then, they check not only the vocabulary in the section, but also difficult and unknown words in passages. Next, they read a slightly longer passage (800-1000 words). The passage comes with one or two photos, which hopefully can lower their resistance to reading the long text. If necessary, the teacher makes some comments on the photo(s) before reading.

With regard to the listening section in the passage, students listen to the CD and answer the questions. This type of longer text might be difficult for slow learners to read. Then, moving on to reading comprehension, students answer Japanese questions on the content of the passage in order to deeply understand it. Additional explanation based upon the writer's actual experiences further motivates learners to have a more positive attitude towards English learning.

In another activity, students fill in blanks in the dialogues created based on the text, and after checking answers, they play the roles of Ryu and another person from the text. One aim of this activity is to deepen their understanding of the content while reading the passage again in order to fill in the blanks. The other aim is to enable them to have a 'virtual reality' experience of an overseas trip by doing the pair work activity as if they actually were Ryu traveling abroad.

The final section is a Speaking Section or a fill-in-the-blanks type in the conversation of the story. Based on the story content, the conversation between Ryu and Person A develops. In short, Regarding Ryu's overseas experience, Person A asks Ryu questions about it and Ryu answers the questions.

RESULTS AND DISCUSSION

RESEARCH QUESTION (1)

In this section RQ (1) "To what extent are the teaching materials favored by students?" is discussed. As for the responses to questionnaire items among all students, first several remarkable items in the questionnaire are described. The mean scores of Item 5 (English will be useful in the future), Item 11 (Vocabulary section was effective) and Item 13 (Reading comprehension was effective) showed very high numerical values, 5.27, 5.08, and 5.04 on the 6-point Likert scale, respectively. Among the items, Items 11 and 13 belong to Category 4 (Effectiveness of questions) and these very high numerical values show how useful the questions to understand the texts, along with the other two ones (Items 12 and 14).

Also, the mean value of Item 6 (I came to want to develop comprehensive English ability better) was very high,

4.95. This means that many students had a strong awareness of developing English ability after finishing each unit. These results imply that the teaching materials including the writer's troubles while traveling abroad motivated them to learn English and urged them to understand the textbook using the questions, and that they feel how useful English is through the English classes.

Table 1: Descriptive Analysis

Class	<i>N</i>	<i>M</i>	<i>SD</i>	<i>SE</i>
E	38	4.793	.683	.055
BS	45	4.623	.688	.051

E: Education; BS: Combined Faculties

Table 2: Total responses to questionnaire items (Mean scores)

	1	2	3	4	5	6	7
<i>M</i>	4.53	4.77	4.37	4.42	5.27	4.95	4.67
	8	9	10	11	12	13	14
<i>M</i>	4.79	3.99	4.68	5.08	4.67	5.04	4.66

To reiterate, the questionnaire items were classified into four categories based upon the content of each questionnaire (Table 3), and the relationship among the categories was analyzed using Pearson product-moment and discussed (see Table 5).

Table 3: Classification of Items

	Classification	Item
C1	Cross-cultural understanding	1, 2
C2	Motivation into English learning	3, 4, 6
C3	Pleasure of textbook content	7, 8, 10
C4	Effectiveness of Questions	11, 12, 13,14

Table 4: Descriptive analysis (Categories)

	<i>N</i>	<i>M</i>	<i>SD</i>	<i>SE</i>
C1	83	4.649	.614	.067
C2	83	4.580	.731	.080
C3	83	4.714	.781	.086
C4	83	4.861	.597	.066

Table 5: Correlative relationship (Total)

	C1	C2	C3	C4
C1	1	.514**	.710**	.362**
C2		1	.715**	.445**
C3			1	.424**
C4				1

**: $p < .01$; *: $p < .05$

Reliability amongst the whole data were relatively high, since the range of Cronbach's Alpha was from .911 to .784. Therefore, for all the scales, reliability is considered acceptable. Table 4 shows that the mean scores of four categories are higher than 4.5 on the 6-point scale. This means that the teaching contents including questions on the texts are meaningful and useful for learner motivation and understanding the passages.

Table 5 demonstrates the strong correlation between Category 3 (*Pleasure of textbook content*) and two other categories: Category 1 (*Motivation into English learning*) and Category 2 (*Cross-cultural understanding*). These results suggest that learner awareness of the enjoyment of reading the passages in the textbook relates to their positive attitudes toward learning English and understanding of foreign cultures. In short, there is possibility that when the teacher provides students with interesting textbook or the enjoyable content and they enjoy learning English, they might deepen their understanding of the content and are motivated into English learning. In addition, there is a moderate correlation between C1 and C2, indicating that understanding foreign cultures might

relate to English learning motivation and that any incorporation of foreign cultures including overseas experiences into class might influence student motivation.

RESEARCH QUESTION (2)

In this section RQ (2) “Does learner awareness vary among teaching contents (four countries or regions)?” is discussed.

Table 6: Descriptive Analysis (Total)

Class	C	N	M	SD	SE
E	C1	38	4.813	.579	.094
E	C2	38	4.564	.798	.129
E	C3	38	4.945	.734	.119
E	C4	38	4.850	.557	.090
BS	C1	45	4.511	.616	.092
BS	C2	45	4.594	.678	.101
BS	C3	45	4.519	.773	.115
BS	C4	45	4.869	.635	.095

E: Education; BS: Combined Faculties

The two-way ANOVAs were conducted regarding learner awareness and classes, and the interactions between them were identified ($F(3)=6.227, p<.001$). In order to identify the differences among the groups, the data was analyzed using multiple comparison tests (Bonferroni). The results indicate significant differences between the two groups regarding C1 (Cross-cultural understanding) and C3 (Pleasure of English learning), but there were no significant differences when it came to C2 (Motivation into English learning) and C4 (Effectiveness of questions). On the whole the higher mean scores of all categories show that learners tend to be highly motivated and enjoyed the teaching content. Nevertheless, students in the Faculty of Education understand foreign cultures more deeply and tend to learn English in a more enjoyable manner than those in the combined class.

Table 7: Multiple comparison tests among categories (Total)

	L 1	L 2	M1	M2	SE	F	P
C1	E	BS	4.813	4.511	.075	4.044	.000
C2	E	BS	4.564	4.594	.075	.414	<i>n.s.</i>
C3	E	BS	4.945	4.519	.075	5.724	.000
C4	E	BS	4.850	4.869	.075	.256	<i>n.s.</i>

The data were divided in terms of student English level or class, and analyzed using the two-way ANOVAs in order to identify any differences between countries in each category. As mentioned in the Research Methods, in general the classes in Liberal Arts Education were classified based upon students' TOEIC scores. The mean scores of the classes, Group 1 and Group 2, were 381 points and 489 points, respectively. Group 1 belonged to the Faculty of Education, while Group 2 was a combined class including the Faculties of Letters, Integrated Arts & Sciences, Economics and Law.

Table 7 shows that all mean scores of categories tend to be very high. As for each category, the data obtained from the Education class was analyzed using the Multiple comparison test, Bonferroni. As a result, there were significant differences between China and Hawaii regarding C1, C2, and C3 (Table 8). This implies that, compared to the teaching content, China, students understand foreign cultures of Hawaii more deeply and were much more motivated into English learning by the correspondent content. In addition, regarding the materials, Hawaii, the data results show the significant differences between Hawaii and Sri Lanka when it comes to C1 C2 and C3, suggesting that almost the same things as the above can be said between Hawaii and Sri Lanka.

The mean scores of all categories in the BS class show the higher numerical values. As for each category, the Multiple Comparison test, Bonferroni was conducted and the data was analyzed. As a result, since the numerical values of Categories in China regarding C1 through C3 were somewhat lower, there were significant differences between China and the other countries (Table 9). The data results indicate that, compared to the text content of China, students could deepen intercultural understanding of the other countries (Hawaii, Sri Lanka and Scotland) and be more attracted by the content of the more interesting stories. Also, it seems that this kind of learner awareness led to enhancement of learner motivation into further English study. Regarding C4 (Effectiveness of questions) related to text content, there was a significant difference only between China and Hawaii. As the data shown in Table 9 indicates, the mean score of C4 in China was very high and there was statistically no

significant difference between China and the other two countries. This shows that students had a strong awareness of how effective the four types of questions were.

Table 8: Multiple Comparison Tests (Education class)

	L1	L 2	<i>M1</i>	<i>M 2</i>	<i>SD</i>	<i>F</i>	<i>P</i>
C1	Ch	Ha	4.566	5.026	.092	4.998	.000
	Ch	Sri	4.566	4.737	.092	1.856	<i>n.s.</i>
	Ch	Scot	4.566	4.921	.092	3.855	.001
	Ha	Sri	5.026	4.737	.092	3.141	.011
	Ha	Scot	5.026	4.921	.092	1.142	<i>n.s.</i>
	Sri	Scot	4.737	4.921	.092	1.999	<i>n.s.</i>
C2	Ch	Ha	4.421	4.746	.092	3.522	.003
	Ch	Sri	4.421	4.421	.092	9.646	<i>n.s.</i>
	Ch	Scot	4.421	4.667	.092	2.666	.048
	Ha	Sri	4.746	4.421	.092	3.522	.003
	Ha	Scot	4.746	4.667	.092	0.857	<i>n.s.</i>
	Sri	Scot	4.421	4.667	.092	2.666	.048
C3	Ch	Ha	4.868	5.132	.092	2.856	.027
	Ch	Sri	4.868	4.798	.092	0.762	<i>n.s.</i>
	Ch	Scot	4.868	4.983	.092	1.238	<i>n.s.</i>
	Ha	Sri	5.132	4.798	.092	3.617	.002
	Ha	Scot	5.132	4.983	.092	1.618	<i>n.s.</i>
	Sri	Scot	4.798	4.983	.092	1.999	<i>n.s.</i>
C4	Ch	Ha	4.678	4.875	.092	2.142	<i>n.s.</i>
	Ch	Sri	4.678	4.875	.092	2.142	<i>n.s.</i>
	Ch	Scot	4.678	4.974	.092	3.213	.009
	Ha	Sri	4.875	4.875	.092	5.151	<i>n.s.</i>
	Ha	Scot	4.875	4.974	.092	1.071	<i>n.s.</i>
	Sri	Scot	4.875	4.974	.092	1.071	<i>n.s.</i>

Ch: China; Ha: Hawaii; Sri: Sri Lanka; Scot: Scotland

Table 9: Multiple comparison tests (BS class)

	L1	L 2	<i>M1</i>	<i>M 2</i>	<i>SD</i>	<i>F</i>	<i>P</i>
C1	Ch	Ha	4.089	4.667	.086	6.695	.000
	Ch	Sri	4.089	4.633	.086	6.309	.000
	Ch	Scot	4.089	4.656	.086	6.566	.000
	Ha	Sri	4.667	4.633	.086	0.386	<i>n.s.</i>
	Ha	Scot	4.667	4.656	.086	0.129	<i>n.s.</i>
	Sri	Scot	4.633	4.656	.086	0.258	<i>n.s.</i>
C2	Ch	Ha	4.282	4.785	.086	5.837	.000
	Ch	Sri	4.282	4.615	.086	3.863	.001
	Ch	Scot	4.282	4.696	.086	4.807	.000
	Ha	Sri	4.785	4.615	.086	1.974	<i>n.s.</i>
	Ha	Scot	4.785	4.696	.086	1.030	<i>n.s.</i>
	Sri	Scot	4.615	4.696	.086	0.944	<i>n.s.</i>
C3	Ch	Ha	4.207	4.770	.086	6.523	.000
	Ch	Sri	4.207	4.504	.086	3.433	.004
	Ch	Scot	4.207	4.593	.086	4.463	.000
	Ha	Sri	4.770	4.504	.086	3.090	.013
	Ha	Scot	4.770	4.593	.086	2.060	<i>n.s.</i>
	Sri	Scot	4.504	4.593	.086	1.030	<i>n.s.</i>
C4	Ch	Ha	4.717	4.994	.086	3.219	.008
	Ch	Sri	4.717	4.894	.086	2.060	<i>n.s.</i>
	Ch	Scot	4.717	4.872	.086	1.803	<i>n.s.</i>
	Ha	Sri	4.994	4.894	.086	1.159	<i>n.s.</i>
	Ha	Scot	4.994	4.872	.086	1.416	<i>n.s.</i>
	Sri	Scot	4.894	4.872	.086	0.258	<i>n.s.</i>

Ch: China; Ha: Hawaii; Sri: Sri Lanka; Scot: Scotland

RESEARCH QUESTION (3): FREE DESCRIPTION

After learning each country/area, students were asked to freely describe their impressive or interesting parts etc. about the country/area. The main free comments collected after reading the story of each country were categorized and then they are shown in Table 10 & 11.

When it comes to the total average number of each category, the comment described most was ‘Understanding foreign culture’. In case of the Education class Table 10 shows that on the average 17 out of 38 students commented on it. In the BS class the average number was 17.25 out of 45 students (Table 11). It is considered that, through the units (four countries/areas) they learned, they recognize they could know different things in those nations and broaden their minds in many respects.

Table 10: Free Description (Education class)

Comments	China	Hawaii	Sri Lanka	Britain	AVG
Understanding different culture	11	22	17	18	17
Story of real experience/failure	19	4	12	3	9.5
(The content) Interesting	14	6	5	10	8.75
Want to go	0	8	2	7	4.25
Enjoy reading/studying	6	7	0	4	4.25

The second most comment in the free description was that they are impressed with the story of the writer’s actual experiences and failures. As for ‘Story of real experience/failure’, though the average numbers of the students writing the comment in Education and BS were 9.5 and 9.75, respectively. However, in case of China the total number of students was 37, overwhelmingly the large number among four countries. In short, the writer had a terrible and embarrassing experience of flooding the room with water at the hotel. While reading the passages, students might have felt as if it were their own affair and they probably thought it could happen to anybody as well. It is considered that the content of the story enthralled the students in class.

Also, regarding the third most comment, ‘the content was interesting/a lot of fun’, the total number of their comments on China was much larger (24 out of 83) than that of other nations. As mentioned above, it seems that it is related to the writer’s terrible experience and the students have been attracted by the writer’s urgent situation in the story. Interesting enough, in both Education and BS (combined faculties) classes, nobody answered that they want to go to China. As seen in the free comments, this result seems to have a strong relation with the bad image of China/Chinese people and environmental problems there.

Table 11: Free Description (BS* class)

Comments	China	Hawaii	Sri Lanka	Britain	AVG
Understanding different culture	10	17	17	25	17.25
Story of real experience/failure	18	6	13	2	9.75
(The content) Interesting	10	7	1	5	5.75
Want to go	0	13	1	12	6.5
Enjoy reading/studying	1	7	3	2	3.25

*BS: Letters, Integrated Arts & Sciences, Economics and Law

Further, seven students in both classes are impressed that a hotel staffer in China was very kind and gentle when she appropriately coped with the problem the main character brought about at the hotel. In spite of their image, in the story the staffer was kind enough to talk to the guest and deal with it quickly without any complaints. Some of the students seem to have been amazed to know the big gap between their conception about the country and the real story they read in class. Also, in the story of Hawaii there were some students who wrote the following comments:

I felt as if I were really visiting the sightseeing spots in Hawaii because the story was full of realism.

It was easier for me to read the story because of the story was full of realism.

I felt closer to the story because it contained irony and jokes.

The content of the story in Hawaii moved students and there is possibility that it made them enjoy reading English and read English more. Regarding the story of Scotland, there were students who commented like this: *I understood the on-the-spot situation clearly and felt as if I were traveling abroad while reading it.* This

comment gives the teacher more courage and motivation to teach English using this kind of content based on the true story containing actual experience. This implies how important the content is when we try to make students continue to study the target language. Furthermore, one student read the part of the story with the scenes where the professor jokes with other people and commented the following: *I want to enjoy a conversation in English and become a speaker who can say some jokes in English.*

CONCLUSION

The teaching materials, including traveling abroad and encountering various kinds of trouble, were utilized in class and the extent to which the teaching contents (the four countries/areas) favored by students and the relevancy between the teaching content and student motivation were explored. The current paper evaluates the use of travel abroad materials including whether experiences might relate to enhancing motivation.

With regard to the data, while the mean scores of categories were high for both groups, in case of the BS class, the data implies that specific areas (i.e. Hawaii, Sri Lanka, and Scotland) were preferred, in comparison to the China text; conversely, for students in the Education class there were clear differences between the teaching contents, Hawaii and China/Sri Lanka. In short, there appears to be a demonstration of preference for Hawaii to the other two countries.

The current paper was conducted with a relatively small cohort and limited number of subjects for a conclusive motivation study. Considering a greater number of factors related to learner motivation, in addition to a richer variety of different textbooks and learner backgrounds would benefit additional investigations.

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FEAR OF MISSING OUT AT ADOLESCENCES AND ACADEMIC BURN OUT AND SCHOOL DROP OUTS IN TURKEY

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ABSTRACT

FOMO (fear of missing out) is defined the rewarding experiences that others might have when you are absent which you wish to have (Oxford Dictionary,2017). It can be characterized a desire to stay continuously connected to what others are doing. It can also be described as a fear of regret which may lead up to an excessive concern that one can miss an opportunity for social interaction, a novel experience, a profitable investment, or any other satisfying event. Social Media Web Pages and networks is one of the most common activity between adolescences and children. When social media provides various forms of information such as activities, events, and conversations happening diverse social network. It is also a way of keeping tracks of others that might also drive adolescences to uneasy feelings of missing out and also be a reason for the early school leaving. In this research we sought to find out what are the specialities of adolescences who are under the risk of FOMO and having school burn out and academic failure. For this reason we conducted a qualitative research and interviewed 20 adolescences between the ages of 14-19 that tend to leave school or experiencing academic failures and burn out and declaring that they have excessive internet usage habit. The research indicated that the adolescences that with compulsive social media use and FOMO experienced loneliness, alienation and isolation. They also stated that they they got poor academic grades, burn outs and had intention of dropping out school.

This study provides information for parents, educators, academicians interested in harnessing social media and adding value to the current research on FOMO and its implication on early school leaving for adolescences.

INTRODUCTION

Information and communication technologies (ICT) have become an important part of our daily life. The increase in new technologies and virtual communication involving personal computers, tablets, and mobile phones is causing changes in peoples' daily habits and well being (Valkenburg, &Schouten, 2006; Kim, LaRose, Peng, 2009; King et al.'s 2013;). With the rise of ICT, parents and teachers are more worried about the potential negative results of children's and adolescents' excessive use of these technologies and their applications on social media such as twitter, facebook, instigram. The reseaches on social media displays two different view. One shows us that social media as a nortworthy resource of positive effects on well being (e.g., boosting self-worth, selfintegrity, & self-esteem ; Gentile, 2012; Toma & Hancock, 2013,Hetz, Dawson&Cullen, 2015) the other one suggests a darker, more negative view (e.g., social media negatively affecting emotional mood; Greitemeyer, 2014; Eldelekoglu&Batic,2013; Erdem et al's,2016). These concerns related to results of excessive social media useage has driven interest in an international phenomen " FOMO" (Przybylski et al.'s, 2013) defined as pervasive apprehension that others might be having rewarding experiences which one is absent, FOMO is described by the desire to stay continually connected with what others doing (Oxford Dictionary, 2017) .This research deals with the definition of FOMO and Excessive socia media use and also with a qualitivie point of view examines the properities of the students with FOMO who have under the risk of academic burn out and failure.

1. Literature Review

1.1 Social Media Use

SNS are defined as web-based virtual networks allowing the construction of an individual and partially public profile (Oberst et, al's , 2016). These virtual platforms for communication are rapidly present in

individuals' daily routines, and although their use is increasing throughout the entire population, they are generally preferred by adolescents and young adults. Facebook, at 1.65 billion users worldwide (Statista, 2016), is the most frequently used platform, followed by Twitter and Instagram. The age of initial Facebook use is falling down (now 12- 13 years old). Research has shown that these social media services are especially attractive for adolescents because they serve as tools to boost their social identities (Oberst et al's, 2016; Renau et al's, 2016) by letting them to manage their profiles in order to express their desired self-image. By using those "virtual identities" they can interact with friends and other adolescents in a platform that is often filtered from monitoring adults (Carbonell & Panova, 2016). Positive effects of social media networks are the management and enhancement of human capital (Ellison, Steinfield, & Lampe, 2007), connection with others (Spies Shapiro & Margolin, 2014), boosted self-image (Gonzales & Hancock, 2010), and the fulfillment of their need to fit (Nadkarni & Hofmann, 2012) in a technologically dominated society.

1.2 Negative Results of Excessive Social Media Use Besides the positive aspects of online social network web sites, the fulfilling nature of this social monitoring may be leading to the come out of uncontrollable checking behaviors and excessive engagement in social media, and consequently, to negative psychological effects. Research has provided clear evidence that overuse or excessive use of ICT might have negative effects on the well-being and psychological mood of children, adolescents, and young adults (Brooks, 2015; Fox & Moreland, 2015; Kross, 2013; Rosen, et al's, 2013; Sampasa-Kanyinga & Lewis, 2015, Oberts, et al's 2016). With respect to SNS, excessive use has been noted as a potential mental health problem (Kraut, Patterson & Lundmark, 1998; Young & Rogers, 1998; Morahan, 2005; Kuss & Griffiths, 2011). Parents usually worry about their adolescents and children being "hooked on Facebook" and spending too much time on social networks and with their smartphones, or tablets thus having less involvement with their real-life environment and with school issues. There are considerable studies showing the relationship between the time spent on SNS and lower grades (Kirschner & Karpinski, 2010; Chou & Edge, 2012), less communication with family and friends (Barker, 2009; Kim, LaRose & Peng, 2009), lower self-esteem (Mc Kenna & Bargh, 2000; Kalpidou, Costin, & Morris, 2011), and higher depression (Lin, 2016; Pantic et al's, 2012; Blease, 2015). However, the overall time spent on SNS does not seem to be the only factor in compulsive SNS use (Muench, et al.'s 2013). Similarly, excessive social media engagement itself is not considered to be problem (Turel & Serenko, 2012). Rather, specific individual exposure factors determine the possible negative psychological effects of SNS engagement, such as younger age (Blachnio et al's, 2015), deformity of the online profile (Oberst, 2016), and existing mental health problems, mainly depression (Gamez-Guadix et al's, 2013). Bhagat (2015) emphasizes that the use of SNS is associate with individuals who are experiencing psychosocial struggles, such as low self-esteem, but also with mental health problems such as anxiety, depression, and loneliness. Wortham (2011) suggest that Facebook seems to be very attractive for lonely individuals and especially those with psychopathological symptoms. Moreno (2011) show that college students with depressive symptoms are more active on Facebook and are more willing to discuss their problems publicly. The findings suggest that individuals get positive feedback online and receive support from their friends online, which could result in a more public self-presentation. The use of SNS also seems to be related to poor social adaptation, such as social anxiety (Ryan & Xenos, 2011). Davis (2012) claims that Social Media Networks can be "the Prozac of Social Communicaiton" for the ones suffering from socialfobia or alienation as it's less risky and easier than face to face communication. The results emphasize the relationship between SNS for individuals who try to cope with real life social problems and to gratify social

needs online. People with anxiety and depression might use more SNS, or it may also be that those who use social media intensively develop increased depression (Lin, 2016).

1.2. The Fear of Missing out Concept Fear of missing out (FOMO) is defined as “ having a pervading apprehending attitude that others might be having rewarding experiences from which one is absent ” and “ a desire to stay continually connected with what others are doing” (Przybylski et al.'s 2013; Alt, 2015; Baker, Kreiger & Leroy, 2016; Elhai et al.'s, 2017). Although FOMO is not necessarily a phenomenon special to social media users, individuals with high FOMO might feel urged to check their social media more often in order to keep up to date on their friends' plans and events. Up to now, FOMO has attracted more interest in the media than in scientific publications. Although there are still very few researches available on this relatively new construct and its theoretical background, some academic publications have showed FOMO to be a mediator variable between personal characteristics and social media engagement. It has been suggested that FOMO could be as a mediator linking deficits in psychological needs to social media engagement, and FOMO also turned out to be a mediator between different indicators of well-being (need satisfaction, general mood and life satisfaction) and social media engagement (Przybylski et al.'s,2013). FOMO also mediated the direct relationship between motivational factors and social media engagement in the classroom (Alt, 2015). In a recent study, FOMO as been shown to be a predictor of smartphone addiction (Chotpitayasunondh & Douglas, 2016). We can conclude that individuals with a low degree of basic need satisfaction (for instance, of connectedness with others) could be more tempted to engage with social media, because SNS, especially when accessed via mobile devices, serve as an easy means of staying in touch with others and participating in their lives (Casale, Tella & Fioravanti, 2015). FOMO might explain the addiction for people with chronic deficits in psychological need satisfaction to constantly search for updates and opportunities to engage with social media, even when this takes place in potentially inappropriate or dangerous situations, e.g. while driving (Przybylski et al.'s, 2013), attending a class (Alt, 2015; Turkle, 2011), or being in a face-to-face interaction (Chotpitayasunondh & Douglas, 2016). Adolescents with psychopathological problems (especially anxiety and depression) could also develop higher FOMO because of their perceived social deficits. Being connected with and being accepted by one's peers is of utmost importance in adolescence (Desjarlais & Willoughby, 2010; Eldelekoglu&Batik, 2013; Hertz, Dawson & Cullen, 2015), so SNS are especially attractive for these younger individuals, in order to provide them greater levels of social involvement. By using SNS, these adolescents may be able to satisfy their need to belong, but they also have a higher risk of suffering from anxiety when they have the feeling that they do not belong and that they are missing out on important shared experiences.

According to the 2015 reports of “We are social” In Turkey, there were 37. 7 million active internet users and over 40 million social media accounts. Beside this, Individuals spent 4. 5 hours in front of computers and about 3 hours of it was surfing on social media. When considering the social media and internet use booming in Turkey FOMO is becoming a preferred content for scholars. Even it is a recent topic, there have been also several researches in Turkey related to FOMO. The FOMO scale has been adapted to Turkish and applied to 200 university students in Eskisehir and have been found out that the data collected by university students supports the hypothesis that there is a relationship between excessive social media checking behaviour and FOMO(Gokler et al.'s,2016).In another research applied to high school students conducted by Kuleli(2017) indicated that no significant correlation found out between FOMO and Social Desirability Bias. This phenomenon and related

concerns led us to question what are the properties of the adolescences who were under the risk of school drop out because of excessive social media use. Also did these adolescences experience Fear of Missing Out

METHODS

2.1 Research Model This study aims to explicate perceptions of the adolescences about FOMO concepts deeply. Therefore, the phenomenology approach of qualitative descriptive models were taken up as a research model. Yildirim and Simsek(2008) claim that the phenomenology approach aims to define experiences, perceptions, the meanings and the attributions towards these concepts. Thus we can discover the experiences and the meaning of data analysis.

2.2 Research Group The purposive sampling method was used in this research. According to Yildirim and Simsek (2008) purposive sampling allows situations which are thought to have affluent information to be explored deeply. In this context, the purposive sampling method is very useful in exploring and explaining the events and phenomena in most of the situations. The convenience sample consisted of 20 students at different grades experiencing excessive social media use and academic failures in Turkey. Of 13 students were female and 7 of 20. The average age of participants was 16.5, with a range of 14 -18. 17 of the students reported that they were attending private or public high school in Istanbul Province, Turkey and 3 of them reported that they had intention of dropping out schooling and they rejected going on the classes anymore.

2.3 Data Collection and Tools In order to find out the views of the adolescences, a semi structured interview forms developed by the researcher. The interview forms were prepared with the suggestions of specialists after a literature review related to the FOMO and Social Media Use. The interviews were made with face to face at counseling service rooms of the schools in Istanbul, Turkey and each interview took approximately 30 or 40 minutes. The data collection process ended up in a month. The students were encouraged to answer questions and provide as much as detail and insight as possible.

2.4 Data Analysis After transcription, the researcher read and coded the answers of the open ended questions which were answered by the participants. After that, Categories were created by comparing similarities and differences through participants' expressions. Descriptive Analysis Technique was used to encode the data which were obtained by the participants. For Each question the similarities and differences were determined and the codes were formed. By the way, these data were tabled. Because of ethical concerns, the researcher didn't use the participants real names and all of them were named with a coding letter and number i.e,

“ G8”

FINDINGS

During the interviews, students openly shared their opinions, and thoughts. After transcription and coding, many commonalities were found and themes emerged. After our initial coding, we were able to consider their responses into larger themes; excessive social media use, the fear of missing out.

Table 1. Excessive Social Media Use

Theme	Codes	Participants	f
Excessive Social Media Use	use of social media as soon as waking up.	G1,G4,G6,G7,G8 G9,G10,G11,G12, G14,G16,G19,G20	13
	use social media when having breakfast	G1,G2,G3,G5,G7,G8, G10,G13,G16, G18,G19	11
	Use of social media while having lunch.	G2,G4,G5,G6,G8,G10, G12,G13,G14, G16, G18, G19,G20	12
	Use social media while having dinner	G1,G3,G5,G7,G10, G16,G17,G18,G19	10
	Use social media just before going to bed	G1,G2,G4,G5,G7,G9 G11,G13,G14,G16, G17,G19	12

The vast majority of students stated that they used mobile phones frequently (5.6 hours in a day) and checked out their social media accounts several times in a day. It may seem that the participants use social media to waste time and alleviate boredom. The results also indicate that using social media may be an important part of the majority of participants' every day routine.

.....In the morning , The first thing I do is generally checking my face book if there is something new.(G2)

.....When we have dinner I like hanging on facebook and checking whats going on.(G14)

.....Even It's late at night I never go to bed without messaging my friends on messenger. (G16)

Table 2 The Reasons of Excessive Social Media Use

Theme	Codes	Participants	f
Reasons for Excessive Media Use	To build a new social identity	G2,G5,G6,G7,G9 ,G10,G11,G12, G13,G16,G18,G19	12
	To boost self esteem and well being	G1,G3,G4,G5,G7,G8, G11,G13,G16, G19,G20	10
	The Purpose of Communication	G1,G3,G4,G6,G8,G10, G11,G13,G14, G15, G17, G19,G20	13

The research indicates that most of the adolescences prefer to use social media to develop a new identity to attract others and being a favourable person. By engaging the social media they get in touch with others and see it as a tool to develop social competence and an opportunity to deepen their relationships. The adolescences admitted that they use social media to promote themselves and a kind of self promotion and presentation.(12/20)

..... I use instigram to tell people... look I have been to this beautiful place.(G4)

...Having likes on facebook or instigram is important for me as I see it as a kinf of competition. (G19)

...I sometimes think about what is the best picture of mine before posting as my friends see and comment on it.(G3)

Peer acceptance and interpersonal feedback is a really important issue for adolescences. According to this research especially half of the adolescences who had the problem of low self esteem and depression suffered most from the negative side effect of excessive social media use. They saw social media a way of boosting self esteem and well being as communication by using social media requires less face to face communication (10/20).

...I use twitter as I find it really cool and have much more friends online than real life even I don't know most of them (G5).

....I'm not a kind of person that who can socialize easily but on instigram I have many followers that like my pictures (G20).

Most of the adolescences also perefered to use social media as a communication tool. They stated that they used texting on facebook or instigram instead of phoning or face to face interaction.(13/20)

...My mother sometimes get angry when I text her on facebook to ask something (G7).

...I don't like talking on the phone, texting is easier for me (G10).

....If I have good time it's important for me to post on instigram or facebook(G11)

...I find it difficult to answer on phone ,texting is easier and funnier for me.(G12)

Table 3. FOMO and Academic Failiture, and Burn out and Drop out

Theme	Codes	Participants	f
FOMO and Academic Failiture and Burn Out	Feeling isolated or alienation and Experiencing FOMO	G2,G5,G6,G7,G9, G10,G11,G12, G13,G16,G18,G19	12
	Feeling Anxiety and depression because of missing a life event when school time, or studying for a subject	G2,G3,G4,G6,G8,G10, G11,G13,G16, G20	10
	Keeping Track of other peers on Social Media during school time	G1,G4,G5,G7,G9, G11,G17	7
	Feeling Burn out or poor grades and drop outs because of experiencing FOMO	G3,G4,G8	3

Majority of the students reported that they could be isolated or alienation if they didn't have social media account and they would feel unhappy or dissapointed if they didn't understand what was going on social media (12/20)

...I feel isolated or alienated if I don't log in my facebook account.(G11)

....I get anxious if my friends are making fun of me when I don't understand a joke related to social media (G13).

Half of the students mentioned that while they were taking their courses or studying for an exam, they they felt depressed or anxious when they thought the possibility of their friends could do something enjoyable (e,i playing a playstation game or going out). So they reported that they somtimes had difficulties at concentrating when

studying for a subject or having an exam. They also stated that they could be worried if their friends had fun without them.(10/20).

...I sometimes feel why I'm not able to post on instagram like my friends and studying this dull courses (G10).

...I can't concentrate my studies as instead of going out, as I get jealous when I see my friends posting on Facebook when they are playing bowling or going to a concert (G17).

.... I don't want to go on my studies as I feel I 'm missing out my best days studying here (G12).

Some students indicated that even they were on a vacation they felt in need of keep tabs on what their friends were doing. And they mentioned that they would feel worried if they missed a planned events with their friends (7/20).

...I can't think of my self spending a day without messaging my friends on facebook.(G7)

...Even I 'm on a holiday I feel the need of checking my friends' status on facebook.(G9)

....I check my social media accounts as I feel worried if I miss out an important event or invitation.(G11)

Some of the students declared that they were wondering that if they were spending too much time on social media to keep up with what was going on. This point o view shows that they were actually experiencing. Also they admitted that spending on so much time on social media and experiencing FOMO could be a reason of getting poor grades at school and they added that being hooked on social media could be a reason for burn outs.(7/20)

.....When I saw my friends sharing their successes I feel stucked an felt that I'm incapable of doing something good.(G3)

..... I don't want to g oto school anymore as I feel stucked between my homeworks and having pleasurable time like my friends do.(G8)

DISCUSSION

The aim of the present study was to determine the properties of the adolescences experiencing academic failures and FOMO and negative consequences of excessive use social networking sites (SNS). The study provided evidence that the students that experienced FOMO had also academic failures, burn outs and intention to drop out schooling. Specifically, the findings of this study indicates that adolescences with a great deal of FOMO tend to have compulsive social media check outs in their daily routine, as they have poor social skills they see social media as a tool of building a new identity and boost of self esteem and the main purpose of communication. The findings were also related to the reasons of schooling drop outs and academic failures of the students experiencing FOMO. According to the findings, the adolescences experiencing FOMO tend to feel isolated and alienated more and they feel anxiety or depression becuase of missing out a fulfilling event while they are studying for something or attending to the classes because of that feeling they tend to have poorer school grades, academic burn out or schooling drop outs.

When the literature examined, the findings that the properties of adolescences experiencing FOMO and academic failiture and burn outs supports the provious researches. Past Researches, to our knowledge, has not presented a qualitative point of view related to FOMO and academic failiture, drop outs and burn outs (Przybylski et al.'s 2013; Alt,2015; Lai, et al.'s, 2016; ; Gokler et al.'s,2016; Baker, Kreiger & Leroy, 2016; Elhai et al.'s, 2017; Kuleli, 2017). The properties of adolescences experiencing FOMO and and academic failitures and burn outs can be explained by the suggestion that modern technologies have changed several facts of the human experience and that digital communication mediums can impair self-reflection and degrade well-being (Turkle, 2011) and learning skills.

Finally, related to these changes in technology and these research findings, parents, academic counselors and educational practitioners working with adolescences experiencing academic or interpersonal problems should recognize the impact social media use and FOMO have on those problems and incorporate discussions of social media and FOMO into one-on-one conversations

CONCULSION

This study adds to a small but growing literature on the fear of missing out (e.g., Alt, 2015; Chaudhry, 2015; Filippou et al., 2014). It demonstrates the association between time spent on social media and FoMO and academic failiture and burn outs and drop outs at young generation. Additionally, it establishes the properites of young age groups who use social media sites at higher rates. These findings provide foundational work to understand these relationships from which future research on social media use can build. It 's suggested to the reseachers who want to study FOMO to find out the relationship between FOMO and scool burn outs or school drop outs or desing a quantitative research applied to a larger group of people to find out the effect of FOMO or a research to be applied to other age groups.

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FIVE STAGES FOR DESIGN AND ESTABLISHING AN EFFECTIVE MOOC SYSTEM

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ABSTRACT

The chances a full education in Iraq different from one to another despite their desire because there are no suitable circumstances for each learner. To educate by the traditional methods in this recent time considered as the main obstacle that impeded any learner to develop himself and gain all the possible knowledge. In the twenty-one century, we all need to have the opportunity to continue our learning because the lifelong learning becomes the most fundamental concept in our life, so the need of developing a new method for electronic learning in order to achieve our purpose for everyone despite the time and place, that the same time make the process of learning more interesting, enjoyable and effective in a less effort. Hence, this research aims to design and implement MOOC system to develop the method of learning followed in Iraqi higher education.

INTRODUCTION

The Internet and the World Wide Web have made important changes to all parts of our lives extending from a worldwide economy, individual, commerce, news, and learning. In addition to, The Internet has made online learning conceivable, and numerous researchers and teachers are concerned about online learning to enrich and improve student learning results (Billington & Fronmueller, 2013). Along these lines, MOOCs have attracted a huge number of individuals from everywhere throughout the world (Gaebel, 2014). A MOOCs (Massive open online courses) is an electronic class aimed at a widely global participation and open access via the Web network. MOOCs have to bring the educational opportunities of elite organizations to a wider audience, and for addressing the matter of increasing costs of advanced education (Reich, 2015). An MOOC open new entry depends on using free courses, one that offers prominent collaborative and conversational chances for students to collect and discuss the course material. Depending on the massive open online courses (MOOC) could significantly changing the way of teaching and learning. These online courses have the adaptability to make a connection between people through sharing online videos and homework, letting participants study at their own pace (Koutropoulos & Hogue, 2012). This means that MOOCs have the potential to build a way for life-long education processes in the future. In this paper, we will present a method for design and implementation MOOC system in Iraq in order to enhance and enrich the higher education.

MOOC E-LEARNING FRAMEWORK

The orbital e-education framework was used as the e-learning frame work because it was tested widely in Iraqi learning environments and a lot of e-learning applications in Iraq used it, and it is the only framework that covers the education sustainability and development which is very important in our MOOC designs. (Elameer, 2011).

METHODOLOGY

The research methodology that follows in this paper which entirely uses the ADDIE framework.

ADDIE model is one of the most common models used in the website design field that is a guide to producing an effective design. The ADDIE model has been divided into five stages: Analysis, Design, Development, Implementation, and Evaluation (Danks, 2011). Each step in the model has an outcome that feeds into the next step in the sequence.

This process will help to ensure the covering all aspects of a successful platform and make the platform as effective as possible. The ADDIE model also can help to save money and time otherwise spent on solving sudden problems (see figure (1)).

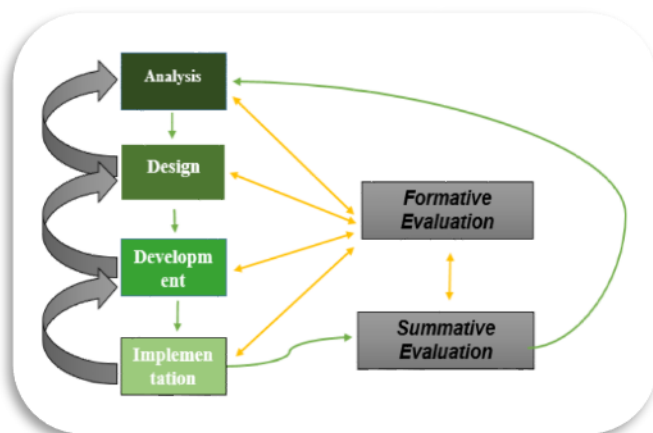


Figure (1): The five phases of ADDIE model.

Analysis Phase

The analysis phase is the foundation for all other phases. So that when doing this phase before creating the plan, developing, or even implementing, a huge amount effort and time will be saved. During this phase, the problem is identified and the data requires to the design should be collected. The analysis also considers the description of constraints, the learning environment, and the timeline for the project. The outputs of this phase usually include the research goals (aimed at identifying the end desired result), and a list of tasks to be instructed. These outputs will be the inputs for the Design stage.

This phase is the essential part of the present work, where the success of this phase leads to project success.

During this stage, the main problem of the project has been identified which is the adoption of old methods used in education that still follow in Iraq. So in this stage to gather information about the problem, several method are use:

- Interviews with students at different stages to find out their requirements and needs that help them in learning, as well as asking them some questions about what will be preferred available in the proposal MOOC system.
- Gathering some information from teachers to find out what are the best means to help them to facilitate the process of teaching, communicating information to students in the simplest and easiest ways.
- Comparison between the most famous MOOCs platforms to choosing the best, newest and the most appropriate methods used in teaching in order to apply it in the proposal system.

Design phase

The design phase is the next step in ADDIE model. It is a regular process of specifying learning objectives, the look, and feel, graphic design, user interface, and content is determined here. The method in this phase should be systematic with a rational, orderly the process of identification, improvement, and assessment of planned strategies which target the achievement of the project's goals. It should follow a very specific set of guidelines, and each part of the plan must be executed with the care to detail. Being a stickler for the details is crucial to the achievement of the design stage.

In this phase of the project, the information that gathered in the previous phase (analysis phase) are used to start drawing illustration planned to how MOOC system screen look.

First, drawing a wireframe that is considered an extremely important stage of the designing process. A wireframe is a basic interface guide that proposes the structure of an interface and the links between its pages(Robbins, 2012).

Second, sketching a site map to clearly understanding of what layout needs when designing sections beyond the homepage and clarify the content that needs to be on site as well as help to eliminate unnecessary pages.

Courses structure design

The main part of the proposal MOOC system is the courses that are designed to achieve the main goal of the project.

A course is the entire program of studies required to complete study of a specific subject. The course is always led by one or more instructors (teachers or professors). In this area, describes how the whole course is structured and in what arrangement the learning steps follow. Moreover, in order to make students is freely to select their

particular electives from among a wide range of courses, the courses in the MOOC system are divided into eight competencies to include all sections and not concerned with the specific study. The eight competencies of the courses are (see figure (2)) Computers, Medicine, Science, Geometric, Administrative, Humanist, Agricultural, and eventually the others.

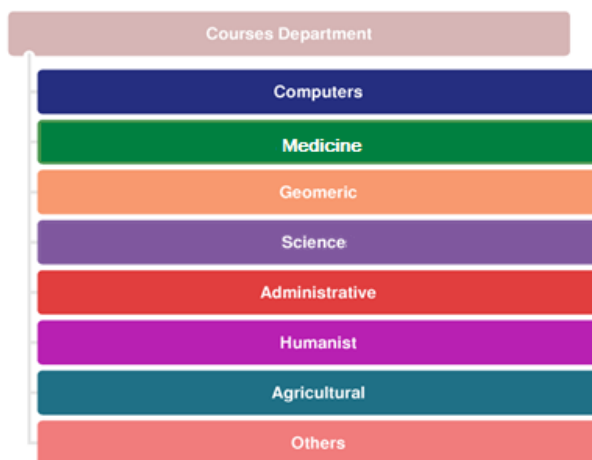


Figure (2): The eight competences in the RDD MOOC system
 After determining the main departments that should include in the MOOC system, it is important to drawing a wireframe of the courses, first drawing the wireframe to the overall structure of one course in general, as shown in figure(3).

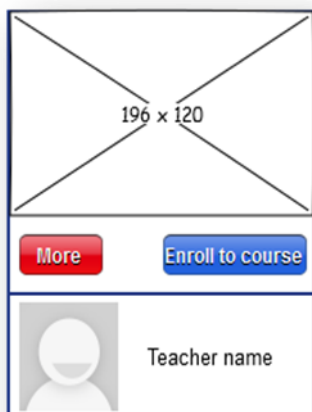


Figure (3): The wireframe of a single course structure
 Furthermore, the design of the course outline is defined to show students of what exactly topics they will be covering in a study course. A course outline expresses everything that will occur during a course, for example, lecture, test, and deadlines will be incorporated. The course outline typically includes what textbooks will be required, and what will be educated throughout the course of the class. The course outline will help the students assess their readiness for the course by identifying precondition parts of knowledge(Morris, 2009). The course outline of proposal system includes the following components (see table (1)):

Table (1): The components of the course outline.

component	The reason for added this component
Course name	In order to determine the title of the topic to the learner.
About Course	To give a brief summary of the course: scope, purpose, and importance of the material.
Instructor name	To define the name of the instructor who explains the course.
About instructor	To know the experience and competence of the instructor.

component	The reason for added this component
Syllabus	To lists the course objectives, schedule and defines the detailed course content.
Material requirements	What are the experiences that should you know to enroll in this course.
Course image	Expressive image about the course.
Date	It contains the start date and end date of the course (course timeline).
Resource	List of information pages or resource important for the course.

All previous components must be available in each course before enrolling student to determine whether this course is appropriate to the needs, experiences and the desire of the learner, as shows in figure (4).

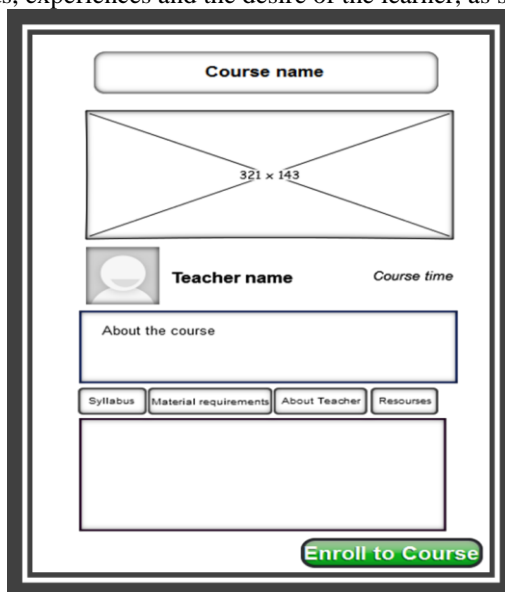


Figure (4): The wireframe of the course outline

The step now is to design the content of each course. Splitting the course into weeks, short modules, every week in the course includes a lecture and every lecture in each week focus on a particular subject. Different tools and technologies should be used to ensure the understanding of the lecture. So that the instructor can create the contents in different ways to explain the lecture for students, where each lecture can contain text, video, images, URL, document and discussion, as shown in table (2). It is also able to embed video from YouTube. Even if there are an enormous number of visitors to website to view videos, YouTube will pay for the bandwidth.

Table (2): Overall structure of each lecture in the course

<i>Week 1</i>						
Introduction	Text	Video	Image	URL	Document	Discussion

Moreover, the student (who reads the course components and wish to enroll in the course) can enroll easily by logged in the MOOC system successfully. The enrolled student is able to watch and study the lectures of each course anytime and anywhere.

Development phase

This phase depends on the previous two phases, which means if these phases did correctly the development phase will be easier. The development stage starts the creation and testing of the methodology that used in the project. At this phase, the proposed design is practically realized and the system is physically produced, this

is done by convert contents and designs into codes. In order to perform this process some toots, programs, and languages should be used. So the Dreamweaver program is used as an editor to write code to the MOOC system as well as used Apache Server to allow simply test their scripts and programs before they put them "live" on the Internet.

Afterward, to accomplish this phase three steps should be followed(Panta, 2009):

- The first step involved the implementation of client side scripting by using HTML5 and CSS3 Language in addition to JavaScript, JQuery, and Bootstrap(Barman, 2001). These Languages provide the basic structure, style information, layout, look and feel that built on the MOOC system. Nevertheless, in this steps, the contents and information in the platform will remain constant. So moved on to the next step is important.
- The second step is a server side scripting, this step implementation by using PHP Language in order to convert the platform from static to dynamic contents. After completing the previous two steps, the system needs a database to store the information such as text, images, files, video, document and other data.
- So the third step is database technologies which are carried out by using MYSQL where is the standard language of accessing databases and manipulating it.

Registration process in the MOOCs system

In this section, the user registration and the login process in the MOOC system is explained. Therefore, a flowchart is used to illustrate the whole steps that the user should complete it to successfully login in the system (see figure (5)). The flowchart explains that the log in process includes two cases:

- The first case, if the user is not registered in the system and in order to register should determine whether this account for instructor or student because the system gives different permissions to each one. Then, the user should enter the required information and after the system confirmed the validity of this information the user can be successfully login to the system.
- The second case, if the user previously registered but he not login in the system and in order to login should enter the username and password, if the username and password that entered match the username and password that previously stores in the database will start a session that allows user to access home page otherwise it will show an error message. Session plays important role in this type of system, for that PHP session are used to keep user login status. Since the user uses the session the login status of his will still keep and for canceled should destroy the current logged in. So the session can destroy only by clicking on the logout and after destroying the session the system automatically redirects to the login page.

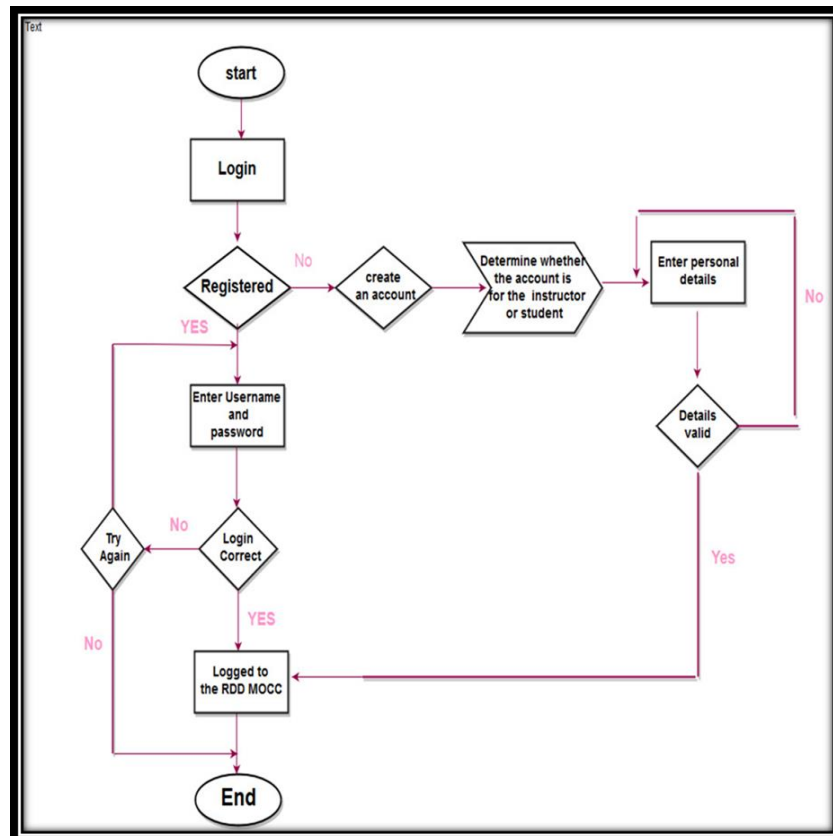


Figure (5): Login flowchart

How to enrollment in Courses

In this section, the process of how the student can be enrollment in the course will be explained by using a flowchart. So in order the student be able to enroll in a course should follow these steps, as shown in figure (6):

- The student must select the course that he find it like his desire after reading the course information (course syllabus) by clicking on the “More” button..
- Click “enroll to course” button.
- After that, if the student registered in the system he can view the course lectures directly, but if he doesn’t have an account the system will transmission him to the registration page and after the registration process is complete he can viewing the course lecture successfully.

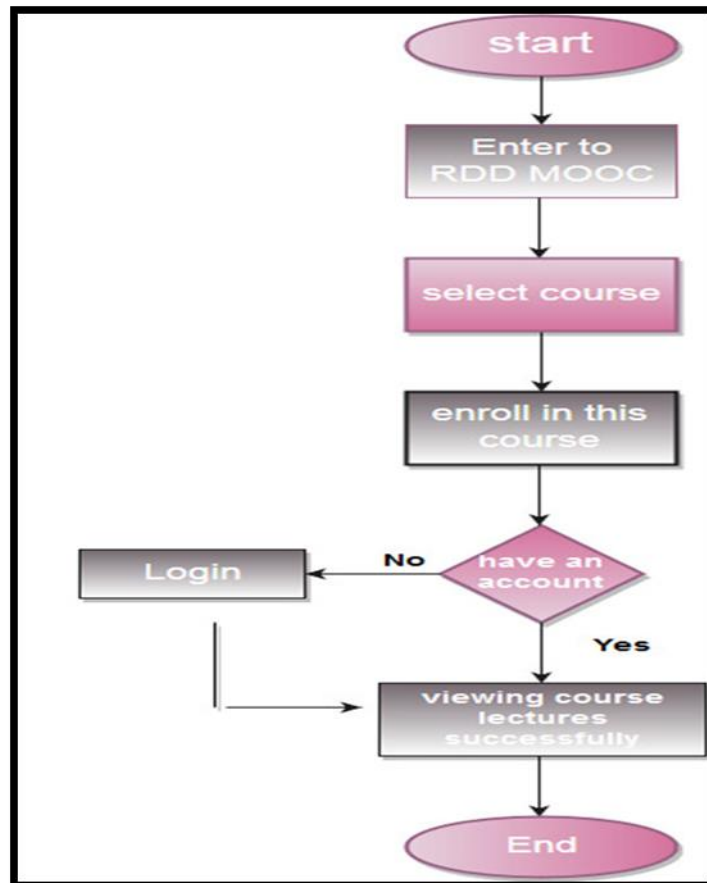


Figure (6): Enrollment in courses flowchart

What is the role of each user who interacts with the system?

Since the MOOC system have three types of users who interact with the system (admin, instructor, and student) so that each one has different levels of access (different authorization) to the system. Therefore, each one has different role in the system and in order to identify this role a use case diagram is used(Xiao & Pardamean). Use case diagram is a graphic depiction of a list of actions or event steps, usually defining the interactions between a user (actor) and a system(Gautam, 2015). Furthermore, to draw a use case diagram a “draw.io” (it is free online diagramming software) is used because it have a lot of flexibility that facilitates a drawing more easily and quickly. So figures (7), (8) and (9) represents a use case diagram for student role, instructor role, and admin role.

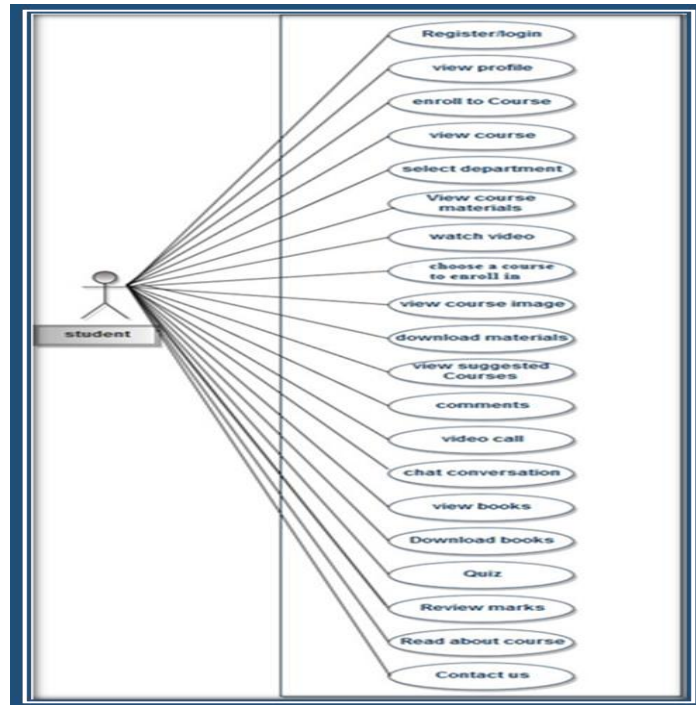


Figure (7): Use case diagram for the student Role.

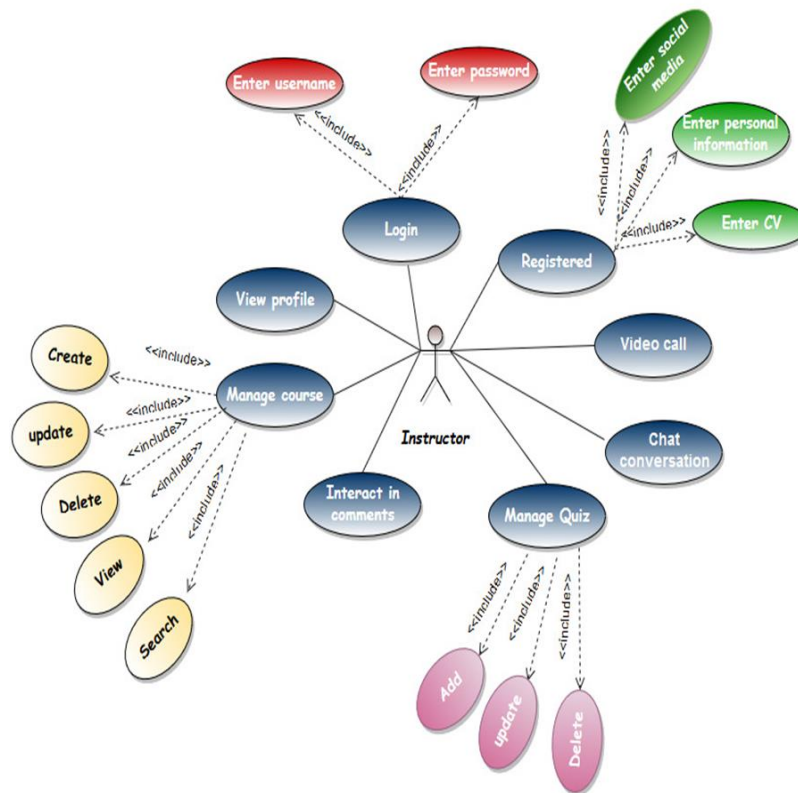


Figure (8): Use case diagram for the Instructor Role.

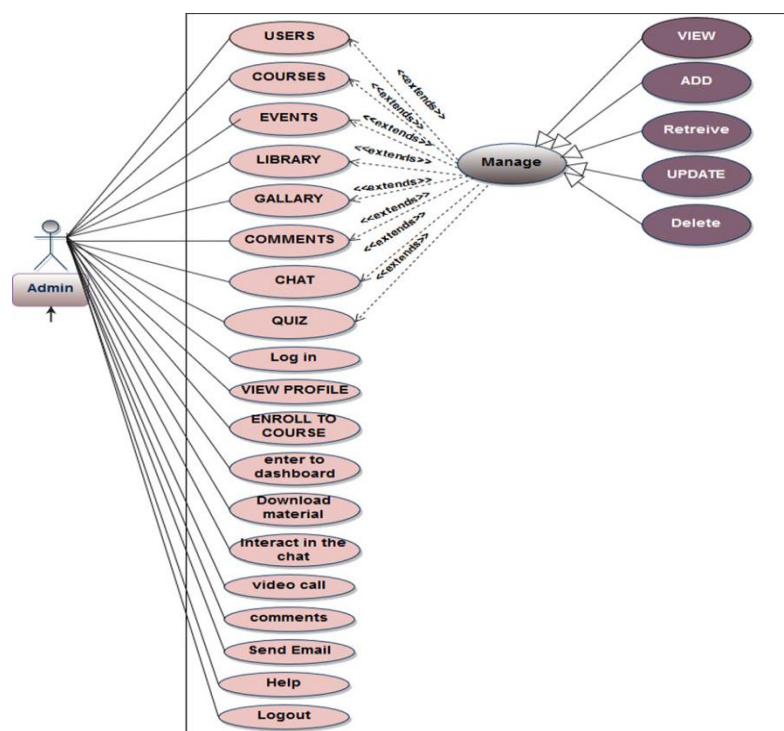


Figure (9): Use case diagram for the Admin Role.

Implementation phase

In the implementation phase, the plan (strategy) is converting into action and this is done by making the proposal system accessible to everyone. Therefore, in order to do that, a web hosting Servers is required. Web hosting is the service that makes a site accessible to be seen by any users associated with the internet. So to find an appropriate hosting to a platform some requirement should be analysis, such as “what features and functions are good-to-have in a hosting”.

Furthermore, the proposal system required a Domain Name System (DNS) to translate host names into equivalent IP addresses in order to reach the system.

So to determine a domain name should take into account it composed of several different parts which are:

- Sub domain: By agreement this is www – but can be altered.
- Second-level domain name: This is frequently the name of the website.
- Top-level domain name: This can involve.org, .com, .net, etc.

After determining the requirements that should available in the hosting of the MOOC system and identify the domain name that will be used in the system, the ALSICO Company is choosing as a hosting. Therefore, for transferring the MOOC files from computer to remote hosting, FTP server is required. The File Transfer Protocol (FTP) is a standard network protocol utilized for the transfer of PC files from a server to a client by using the Client-server model, on a computer network.

Evaluation phase

The last process in ADDIE model to building the proposal MOOC system is the Evaluation phase. It is very important to evaluate each step in order to make sure that we achieve the goals. This step is significant because it helps in distinguish the weak, good steps and also those need to be updated. In this phase, we measure the effectiveness and efficiency of the project. Evaluation should essentially occur through the process - within phases, between phases, and after implementation. The evaluation may be Formative or Summative(Braxton, Bronico, & Looms, 2006).

- Formative evaluation: starts through project development and continues during the life of the project. Its intent is to measure ongoing project activities and provide data to monitor the progress of the project. From this point, the information gathered throughout this stage are of huge value and need to be followed via instant adjustments and changes. The formative evaluation may assistance to determine weak spots in different areas of the process and consequently increase the worth of the final project.
- Summative Evaluation: typically occurs after the final version of the project is implemented. This type of evaluation measures the overall effectiveness of the education. Information from the Summative Evaluation is frequently used to create a decision about the project.

CONCLUSIONS

In this paper, we have present a methodology to design and constructing a mooc system. These methodology

relying on the ADDIE model. Where the ADDIE based on five stage which is: the analysis, design, development, implementation and evaluation. The outcome that will gain after applying these five steps is having a complete MOOC system that considers a much easier way of learning than traditional education because it delivers the courses online for any person with no worry on the physical attendance, also are able to deliver classes without regard for geographical boundaries.

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FLIPPED CLASSROOM IN PATHOLOGY EDUCATION

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ABSTRACT:

This paper reports the results of implementation of an innovative teaching method into undergraduate Pathology education. Pathology as a subject was always taught via didactic lecture approach; and despite positive student feedback, results of higher order assessments were consistently below average. Our method combined flipped classroom, concept mapping, and immediate feedback. An assigned reading, you-tube video, a quiz, and a concept map outline were provided as pre-class activities. During the class, utilizing the *GoFormative* software, students answered the same quiz in groups, providing responses via laptops or tablets. The instructor operated one iPad to project the quiz in class and zoom images as required while another iPad was used for viewing live student responses and providing immediate feedback. Post-lecture formative assessment included another quiz based on higher order cognitive skills and a crossword puzzle prepared using *Puzzlemaker at Discovery Education*. Although our study revealed mixed student feedback, adopting our pedagogical approach fostered deeper learning and demonstrated significantly improved student academic learning outcomes.

Key Words: Flipped classroom, concept mapping, immediate feedback, medical education

INTRODUCTION:

With technological advances, there is an increasing demand on academics in all disciplines to adapt their teaching styles to better suit new millennial learners (McLaughlin 2014, p236, Findlay-Thompson 2014, p63). The pathology topic of "Introduction to Neoplasia" taught to first year medical students at RUSM had always been taught using a traditional didactic approach, with a primary focus on description of terminology related to neoplasms. Despite positive student feedback, results of higher order assessments were consistently below average. So, it was hypothesized that if students previewed terms related to neoplasms as well as undertook formative assessments prior to class, face-to-face classes could be more effectively used for active learning of application-based exercises in small groups and these students would also perform better in summative assessments. We tailored the topic that used a flipped classroom pedagogy (McBride 2015) to offer students a relevant and engaging learning experience in Pathology education along with concept mapping (Pock 2016, p47) and immediate feedback.

THE STUDY:

In September 2016, a new lecture was designed at the Pathology Department in RUSM using the flipped pedagogical approach and was further improvised in January 2017. The method utilized two mobile devices (iPads). The instructor operated one iPad to project the quiz in class and zoom images as required while another iPad was used for viewing live student responses and providing immediate feedback utilizing the *Goformative* software. Pre- and post-class activities were developed with checkpoints for students to encourage and test retention of information. Pre-class activities involved students reading a set of power point slides and/or textbook pages, watching a 1-minute *you tube* video, reading a 1-page journal article as well as completing a pre-lecture quiz based on the information relayed in the online material. Pre-lecture quiz or the readiness assurance test (RAT), which included multiple choice questions, open-ended questions as well as an exercise of creating directed concept maps, was first taken and submitted on an individual basis. During the large classroom session, the same pre-lecture quiz was then taken again as teams when students responded via laptops or tablets using the *GoFormative* software and an immediate feedback was provided on team performances.

For post-lecture formative assessments, a post lecture quiz based on higher order cognitive skills (Lemons 2013, p) and a crossword puzzle (Saxena 2009, p1457) prepared using *Puzzlemaker at Discovery education*) was provided. To evaluate the effectiveness of our approach, we evaluated student feedback as well as surveyed the pathology scores in internal summative examinations of students who took the individual pre-lecture quiz and compared them with those students who had not taken the pre-lecture quiz during the flipped classroom sessions.

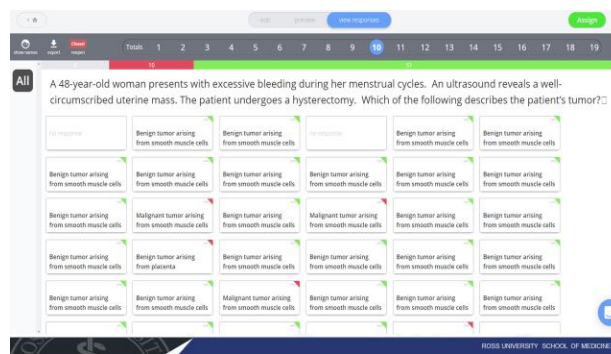
FINDINGS:

Students were actively engaged in various team-based activities.

Figure 1: Sample of pre-lecture quiz using *Go-formative*

- 3 A 55-year-old man is diagnosed with metastatic lung cancer. The term metastasis refers to which of the following?
- Dark blue staining of nuclei
 - Secondary neoplasm at a new site
 - Variation in size and shape of cells
 - A malignant tumor
 - A pre-malignant tumor
- 4 A 42-year-old woman undergoes surgical excision of a breast mass measuring 4 cm in size with infiltrating borders. A chest x-ray showed two nodules in the left lung, not present a year ago. Histological sections from both the breast mass as well as the lung nodule show cytological features of malignancy. Which of the following features is the most compelling evidence that the lesion is malignant?
- Size of breast mass > 2 cm
 - Presence of capsule in breast mass
 - Occasional mitotic figures in breast mass
 - Nodules on chest x-ray with cytological atypia
 - Absence of cytological atypia

Figure 2: Sample of responses received using *Go-formative*



Concept Mapping

Students created directed concept maps based on instructor provided basic outline (*Figure 3*) as well as exercises integrating pathology with other disciplines (histology and embryology).

Figure 3: Instructor directed Concept Maps with basic outline provided to students (prepared using *Mindomo* software)

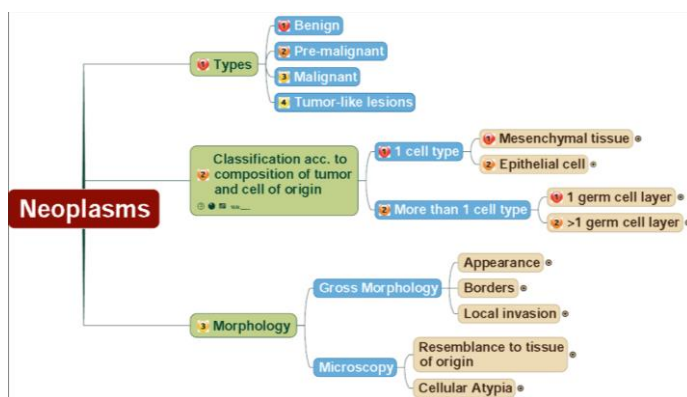
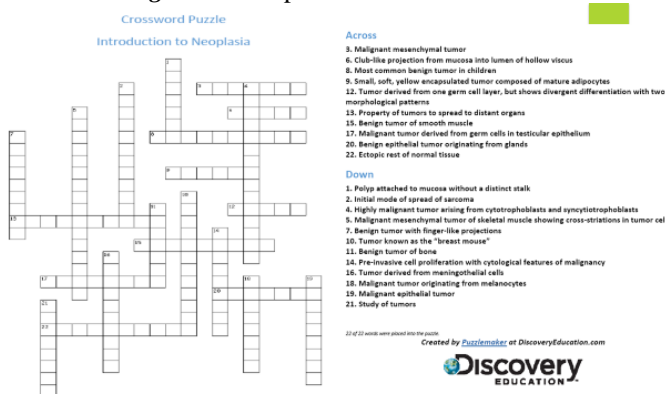


Figure 4: Sample of Crossword Puzzle



Internal Summative assessment

Pathology scores in internal summative examinations of students who took the individual pre-lecture quiz (or RAT) when compared with those students who had not taken RAT prior to the flipped classroom sessions were 5.9% and 19% higher in September 2016 and January 2017 respectively for those students who took RAT prior the classroom session.

Students who took RAT prior to flipped classroom session	Average Pathology score (September 2016)	Average Pathology score (January 2017)
No	72.3%	61.9%
Yes	78.2%	80.9%
Academic Improvement	5.9%	19%

Student Feedback:

Student feedback was mixed and ranged from “My first time going to class in weeks. I really enjoyed class today” and “It was greattt!!!” to “It was okay, but could have been better....”.

CONCLUSION:

Preliminary experiences of flipping a pathology lecture for our first year undergraduate cohort at RUSM active learning pedagogy coupled with advanced instructional technology are presented. By eliminating the didactic delivery of content via traditional lectures enabled us to better utilize the face-to-face time for higher level thinking in team-based small group activities and allowed us to extend, apply and consolidate student understanding of the online material in class. Student views on the flipped classroom were mixed, but they were actively engaged during the session and internal summative assessments demonstrated an increase in their

performance when students took pre-lecture quiz prior to the flipped classroom session. Eliminating didactic delivery of content not only enabled better utilization of time for higher level thinking allowing knowledge application in small groups but also resulted in better student performance when students came prepared.

Thus, although our study revealed mixed student feedback, adopting our pedagogical approach fostered deeper learning and demonstrated significantly improved student academic learning outcomes.

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FLIPPED LEARNING FOR ESL WRITING IN A SUDANESE SCHOOL

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ABSTRACT

This paper is a report on the use of the flipped learning (FL) approach of using online videos as homework before class, followed by learning activities during class, to address the issue of the lack of proficiency in writing among Sudanese students. A module for teaching English paragraph-writing for Secondary Year 1 was developed and implemented. The 28 students who volunteered were divided into two groups and the effects of this module on the students' writing proficiency and their satisfaction with the module was investigated. Data was collected from tests, focus group interviews and online interactions. Analysis showed that students' writing proficiency had improved and the students were satisfied using the module. Further studies should be done to investigate the possibility of using the FL module on a larger scale in Sudan.

INTRODUCTION

English language proficiency is necessary to ensure the economic and educational success of a nation (McKay, 2005). Specifically, writing in English is required for correspondence both for work and for personal interactions. Hence, the need to master English as a second language (ESL) is crucial for Sudan. However, Sudanese students' proficiency in English is still below expectation (Ministry of Education (MOE), 2012). Studies indicate the majority of the Sudanese ESL learners are not competent in communicating, specifically when writing (Alwasilah, 2006; Hajana, 2006; Makki, 2005; Nur, 2012). Sudanese ESL learners in Sudanese universities also have problems in communication (Yong, 2012). The lack of ESL writing proficiency might be because learners have not had sufficient preparation (Al-Khsawneh, 2010; Makki, 2005). In Sudan, Arabic is the first language and ESL is taught only from Grade 5 in the basic, or primary school (Arora, 2003).

This problem could be due to ineffective methods for teaching ESL writing skills at both the basic and secondary schools (Minister of Education, 2012). Passive learning experiences and the inefficient traditional teaching practices contribute to the lack of writing skills (Mack, 2012; Philips, 2012). In addition, there was little opportunity to communicate in English in authentic real world situations (Alhaj, 2005; Munhal, 2009; Sarwar, 2000). A product-based approach of memorizing grammatical structures, vocabulary, and specific written texts for passing examinations was employed (Cronje, 2006; Makki, 2005; Nur, 2012). Hence, research to determine models of instruction which can enhance the teaching of ESL writing are required (Keshta & Harb, 2013).

Technology-enriched and innovative teaching practices can contribute to the improvement of ESL students' proficiency (Baffoka, 2012). The flipped learning (FL) model may be a solution for improving writing as there has been some studies on FL in English writing, but more studies are required to investigate the use of this model in secondary schools for improving ESL writing (Flumerfelt, & Green, 2013). Further, there does not seem to be any study on FL in Sudanese schools. Therefore, the purpose of this study is to investigate whether an instructional module developed with the FL model could improve Sudanese students' paragraph-writing skills in ESL. The research questions are: What are the effects of FL on Secondary 1 Sudanese students' achievement in ESL paragraph-writing in a Sudanese Secondary School in Qatar? What are the students' satisfaction with FL through their engagement and interaction?

This study is significant to teachers in Sudanese schools to determine the effects of FL, and how it can be implemented in schools for active learning beyond using the textbooks alone. Researchers will benefit from the determining whether FL could solve the problems of ESL learning in Sudanese schools. In addition, policy makers could use these findings to plan teacher-training and the implementation of the new ESL curriculum for the improvement of instructional practices in Sudanese schools. Further, this study may help curriculum planners to consider the technology to be integrated in teaching.

LITERATURE REVIEW

A blended-learning approach is more suitable for teachers used to working in traditional classrooms but want to use digital technologies for teaching (Motteram & Sharma, 2009). Blended learning assumes that the face-to-face teaching continues, but is enriched with technology (Marsh, 2012). However, suitable activities need to be designed (Motteram & Sharma, 2009). FL is a blended-learning model (Milman, 2012). The usual classroom is flipped as students watch and interact with video lessons outside the classroom, and then use class time for engaging activities facilitated by the teacher (Love, Hodge, Grandegenett & Swift, 2013). When class work is done prior to class, while homework is done in the classroom, it frees the class time giving more time for active learning (Bergmann & Sams, 2012; Pierce, 2013). At the same time, the learning environment can be enriched with creative learning activities that enhance students' learning and develop their skills (Keshta & Harb, 2013).

This means that FL can be used to enrich a passive learning experience and the use of traditional teacher-centered approach in teaching ESL in Sudanese schools. The teacher can then focus on the development of ESL writing skills during class time as technology and FL enables teaching to extend outside the classroom. There still seems to be little research on the FL model of instruction (Johnson & Renner, 2012; Strayer, 2007). FL may be suitable for certain subjects such as science (Ruddick, 2012; Snowden, 2012; Torkelson, 2012) and mathematics (Clark, 2013; Strayer, 2007; Snowden, 2012). However, there are also some studies for English instruction (Baranovic, 2013; Snowden, 2012). However, most of these studies seem to be done in higher education (Baranovic, 2013; Pierce & Fox, 2012; Ruddick, 2012; Strayer, 2007; Zappe, Leicht, Messner, Litzinger Lee, 2009). However, research seems to suggest that FL can support students' active and meaningful learning through the building of social skills in group activities and interactions with effective use of technology (Strayer, 2007). Most of these studies show that FL improved achievement and satisfaction (Baranovic, 2013; Clark, 2013; Pierce & Fox, 2012; Ruddick, 2012; Torkelson, 2012).

On the other hand, some studies show that students' satisfaction was lower with FL (Johnson & Renner, 2012; Strayer, 2007). Hence, there needs to be more research on the implementation of FL in secondary schools, and specifically for English writing.

In this study, students' satisfaction will be measured through students' engagement and interaction (Dziuban, Moskal, & Hartman, 2005). Engagement results in increased achievement, positive behaviours, and creates a social environment with interactivity among students, both in and outside the classroom (Taylor & Parsons, 2011). There are three types of engagement: social engagement, which is interest, the sense of belonging and participation in the learning environment; cognitive engagement, which refers to doing tasks on time, and responding to challenges in learning; and behavioral engagement, which refers to attendance rate, as well as willingness to learn difficult tasks (Willms, Friesen, & Milton, 2009; Reeves, 2013). There are three types of interaction in the learning environments: teacher-learner, learner-learner, and learner-content interactions (Moore, 1989). Moore (2013) stated that the learner who expects moderate or high level of interaction in his learning environment, might be very dissatisfied if experiences no learning interactions.

THE STUDY

An exploratory-implementation study to investigate the effects of a module for teaching paragraph-writing for ESL using the FL approach (the PW module) in a Secondary One class of Sudanese students (DeWitt, Alias and Siraj, 2014). The study was implemented in a Sudanese secondary school in Qatar, one of the Schools of Sudanese Community Abroad (SCA). The curriculum and the learning environment in SCA schools is similar to schools in Sudan. A SCA school was selected for this study as it is believed that the teachers and students in this type of school may be more receptive to the possibility of implementing the FL. In this study, a SCA secondary school for girls in the State of Qatar with an enrolment of 250 Sudanese students was selected. This school is considered a typical Sudanese school in terms of infrastructure, where children of Sudanese expatriates working in Qatar are enrolled.

There were two Secondary One classes with 30 students each. One of the classes was randomly selected for the intervention with the PW module, while in the other class, the traditional approach was used. The sample consisted of 14 student volunteers from each of the two classes who had their parents' permission to participate in the study. The PW module was implemented for four weeks. Pre and post tests were used to determine students' performance in the two groups, followed by a focus group interview with 6 students who used the module to gather information on students' satisfaction with the PW module. The pre-test assessed the students' ability to write a 100-word descriptive paragraph on their best friend and the post-test was a similar writing task

for on their favorite person. These tests were validated by two experienced teachers. The students' writing compositions were assessed by two expert teachers, based on a rubric. The assessment scores between the two assessors were compared and moderated to ensure inter-rater reliability was maintained (Seliger & Shohamy, 2000). The pretest and post-tests scores were analyzed using t-tests to determine whether there was any significance difference in students' achievement before and after the intervention. Data collected through the focus-group interviews and postings on the online forum were used to determine the students' attitudes in a non-threatening environment so that students would be willing to share their feelings (Naimie, Chin, Dewitt, Akma & Mohajer, 2013). Participants were interviewed in Arabic, their first language, and the interview was audio recorded, transcribed and translated into English. Directed content analysis was carried out to determine engagement and interaction.

The PW module consisted of four lessons for four weeks. The module was designed to provide the knowledge and skills required to write descriptive paragraphs in English. Each lesson comprises of two modes of instruction: the online instruction, which was an instructional video, and face-to-face instruction of 40 minutes duration in the classroom lesson. The learning management system, "Edmodo", was used as the platform for the online learning environment. The videos were 10-minute duration, accompanied by questions, which were posted to encourage students to reflect upon the knowledge and skills learnt from the videos. The face-to-face instruction in class used discussions and questions, exercises and quizzes, individual and group writing tasks on worksheets and hand-outs.

FINDINGS

Effect on achievement

The results of the independent-samples t-test indicate that the pre-tests scores in paragraph-writing was not significantly different between both the intervention and non-intervention groups, where $t(19.288)=1.520$, $p > .145$. However, there was a significant difference between both groups in the post-test scores where $t(16.409)=2.977$, $p < .009$. The post test scores for paragraph-writing in the intervention group was significantly higher (Mean =11.14, S.D.= 4.975) compared to the non-intervention group (Mean = 6.93, S.D.= 1.817). When tested for equality of variances using Levene's test, the test was significant ($p=0.001$), with unequal variances for the non-intervention and the intervention group (Meier, Brudney & Bohte, 2009). Hence, the PW module seemed to be effective in developing paragraph-writing skill of students in the intervention group.

Evidence from the focus group interview and the online discussion showed the effectiveness of the module. Student A said: "This really helped to improve my English writing skill. After this experience, I realized that writing is a very important." The effectiveness was attributed to the online video lessons which enabled better understanding. Student D stated, "I found that I can understand better from the online video lesson than from reading the textbook." The students gained knowledge and skills as evidenced by student C: "We are more aware about grammar, mechanics, types of paragraphs, and other aspects. We are also able to evaluate each others' writing." Student C also said, "I got the full marks in the English mid-term exam. I attribute this to my learning experience with the PW module." The students agreed that this module was beneficial and improved their performance. Hence, they perceived that FL was effective for learning paragraph writing in ESL.

Students' Satisfaction

Engagement

The students were engaged socially when using the module. There were more social interactions. Student C noted "the class is more active and interactive with this method." The social interactions were stimulating and engaging. The online video lessons prior to class time may have led to the increase in classroom interaction. Student C shares, "I interact more in class because I come to class with background knowledge on the new lesson." The participants felt that they were able to share what they learned from the video lesson better. Student C added "We are more cooperative and we share on the lesson." Student D concluded "I feel that we become closer than before." The researcher also observed that the students were excited and willing to share their knowledge during class time as compared to the non-intervention group. Hence, there was social engagement with the use of the PW module.

Students also responded to the challenges in learning and completed the tasks, indicating cognitive engagement (Willms, Friesen and Milton, 2009). Student A shared, "My teacher and I were able to detect my weaknesses in the language. This is a result of having enough class time to work together. Thus, I work hard to overcome my problems." They were satisfied with their performance in writing at the end of the intervention. Student D stated "I am happy because finally I can write a paragraph in English with minimum mistakes". Moreover, observations showed that the students were enthusiastic in responding to teachers' questions during class as they were actively thinking and cognitively engaged when using the module.

The students also exhibited behavioural engagement as they were positive towards using the PW module. They were more confidence in writing. Student B shared, "Before using the module, English was the most difficult subject in school. I don't write because I am weak in English. Now, I am completely changed. I am more

confident in using and writing English, even outside school.” Student H stated in the online forum “Learning English has become much easier.” The students were able to take responsibility of their own learning even when the teacher was not available. In her online response, student G stated “Now writing becomes much easier than before, and we are able to assess our own work. Previously, we waited for the teacher’s corrections to decide how we performed.”

Finally, all participants were positive about the online lessons for building their prior knowledge before class. In addition, they performed better in their learning activities during class time and were more confident in learning paragraph-writing.

Interaction

During the implementation of the PW module, there were many teacher-learner interactions. The students believed their teacher was paying more attention to them. Student D stated “With the module, homework is done in class and we had the chance for the teacher to answer our questions.” In the online forum Student G also wrote “It is really a great idea to come the next day to class and do the homework with the help of the teacher and the other students. So, the class time becomes enough for completing our tasks.” The students were satisfied by the role played by the teacher during the lesson as compared to the traditional process of delivering lectures had been replaced with more interactive group work and discussions. Student D, said, “With the traditional teaching, the teachers explain the lesson in class and then assign homework for us to do at home. Unfortunately, at this point we face many difficulties in doing the homework by ourselves. Moreover, when we come the next day to seek help from the teacher, we are faced with the limited class time. The teacher won’t be able to discuss the difficult points with us as she has to start a new lesson.” Hence, this indicates that there was more interaction with the teacher in the classroom. As Student C says, they “work together to complete the tasks.”

There were also many learner-learner interactions as students interacted actively in the classroom, and online (Moore, 1989). However, there were very few online interactions as students answered the teacher’s questions directly without any further discussion. This might be due to the students’ language barrier. However, it was noted that shy students responded to questions in the online forum. In conclusion, there were interactions among the students, both online and face to face, with more interactions during the face-to-face session in the classroom.

There was learner-content interaction as students were engaged with the video lessons (Moore, 1989)

Student D “I can understand better from the online lesson than reading the textbook. The content in the video lessons is totally different from the textbook. The textbook is in black and white, which is very boring. The videos are more interesting.” In general, the students were satisfied as they interacted with the EPW module, with the teacher, and among themselves. Student G responded “I am very satisfied with my learning experience with flipped learning.” Student A suggests, “I would like to continue learning with this method. I really prefer if it can be used in all the other school subjects.” Student G also wrote in the online forum “I hope that all the teachers of the other subjects implement this method of teaching.”

CONCLUSIONS

The PW module seems to be effective in improving Sudanese students’ achievement in writing. This could be attributed to the FL concept (Bergmann & Sams, 2012; Pierce & Fox, 2012; Ruddick, 2012). These students were non-native speakers of English but improved in their writing with the use of FL (Baranovic, 2013). However, it is not known if there were other contributory factors besides FL (Clark, 2013).

The students were satisfied with the PW module as they were engaged and were actively interacting (Dziuban, Moskal, & Hartman, 2005). Students were engaged with FL approach. The social engagement improved the sense of community among the students, and they were cognitively and behaviourally engaged as they responded to the challenges in the activities (Taylor & Parsons, 2011). This is consistent with other studies which indicated that FL engaged learners (Pierce & Fox, 2012; Zappe et al., 2009).

Student interactions among other students, the teacher and the content had increased with FL (Moore, 1989). This was similar to other studies (Snowden 2012; Torkelson, 2012), and contradicts Strayer’s (2007) findings that students are unsettled while doing the activities. This might be due to the structured presentation of content and activities before class in the PW module (Strayer, 2007). There was more teacher-learner interactions with the FL as the teacher could give more attention to the students and attend to their learning needs (Snowden, 2012).

Hence, FL using the PW module seemed to be effective for improving students’ achievement in writing. The students were satisfied as they were engaged with the module and that student interactions were increased. However, further studies could be done to investigate whether Sudanese learners in different contexts and with different subjects, might find the FL beneficial (Pierce & Fox, 2012). In addition, further the guidelines and support that are required for teachers to effectively implement the FL approach.

The study has several limitations and its findings cannot be generalized to all Secondary One students in

Sudan. The current study only focused on writing descriptive paragraphs and did not include other communicative skills which may be required for writing. In addition, this is an exploratory-implementation study with a small sample of students, and was only conducted for a period of one month. The study did not take into account teachers' perceptions, which is important. Hence, in future, studies should be conducted in other Sudanese schools, and for teaching other components in ESL, to determine if the FL would have similar results. A more rigorous study with a larger sample could be used to determine whether FL could be effective for learning ESL writing.

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FLIPPED TEKNİĞİ'NİN ÖĞRETMEN ADAYLARININ SOSYAL MEDYA KULLANIM AMAÇLARINA VE SOSYAL MEDYA TUTUMLARINA ETKİSİ

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Geleneksel olarak ifade edilen öğretim modellerinde öğretmen, çağdaş olarak ifade edilen öğretim modellerinde öğrenci merkezli yöntem ve teknikler kullanılmaktadır. Geleneksel öğretim modellerinde öğretmen merkezde olduğu için bilginin öğretmen tarafından öğrenciye aktarılması söz konusudur. Öğretmenler bilgiyi öğrencilere aktarırken Bloom'un bilişsel alandaki öğrenme basamaklarından ilki olan bilgi basamağından başlayarak sırası ile kavrama, uygulama, analiz, sentez ve son olarak değerlendirme basamağına doğru bir sıra ile öğrenme öğretme etkinliklerini oluşturular. Ancak bilgi basamağındaki öğrenmeler tanımları, olguları, sıralamaları vb. özelliklere sahip olduğu için her öğrencinin aynı düzeyde bu öğrenmeleri gerçekleştirmesi beklenmemelidir. Kavrama ise bilgi basamağında elde edilen bilgileri, farklı biçimlerde ifade edebilmeyi, yorumlayabilmeyi ve bilginin kullanılması veya kullanılmaması durumunda neler olabileceğini tahmin edebilmeyi içerir. Öğretmenlerimiz genelde bilgi ve kavrama basamağına ait hedefleri derslerinde gerçekleştirir ve böylece sınıf ortamında uygulama, analiz, sentez ve değerlendirme gibi üst basamaklara ait hedefleri sağlamak için yeterli zaman bulamazlar. Öğretmenler bunun için sınıf ortamında konularını öğrencilere aktardıktan sonra öğrencilerine ev ödevleri, problem çözme, proje vb. çalışmalar vermektedirler. Bu durumda öğrencilerin öğrendiklerini hayatlarında doğru bir şekilde kullanabilmesini sağlayacak "uygulama basamağı" ile ilgili öğrenmeler tam ve doğru bir şekilde gerçekleştiremeye bilmektedir. Flipped tekniği yukarıda ifade edilen durumu tam tersine dönüştüren bir tekniktir. Bu nedenle ifade edilen durumu ortadan kaldıracak bir teknik olarak görülebilir. Çünkü Flipped tekniğinde öğrenciler bilgi ve kavrama düzeyindeki öğrenmeleri kendileri sınıfa gelmeden önce gerçekleştirirler. Bu teknikte öğrenme öğrenciye bilginin aktarımı yine öğretmenler tarafından hazırlanan ders videoları ve makaleler, Excel dosyaları, PDF'ler, görseller, resimler ve PowerPoint slaytları gibi tamamlayıcı materyaller yardımıyla gerçekleştirilir. Böylece bilginin transferi grupla öğrenme alanından çıkarak kişisel öğrenme alanına girmektedir. Her öğrenci kendi öğrenme hızına göre zamanını ayarlayarak bilgi düzeyindeki öğrenmeleri gerçekleştirebilmektedir. Öğrencilerin dersten önce bilgi edinme ve anlama gibi daha alt düzeydeki bilişsel öğrenmeleri gerçekleştirmeleri ve ders sırasında akranları ve öğretmenlerin desteği ile uygulama, analiz, sentez ve değerlendirme gibi daha üst düzeydeki bilişsel öğrenmelere odaklanmaları sağlanır. Özellikle yetişkin olarak kabul edilebilecek bir çağda olan üniversite öğrencileri üzerinde oldukça kullanışlı bir teknik olarak görülmelidir. Çünkü bu yaştaki bireyler okuduğunu anlayabilme becerisine ve eleştirel düşünebilme becerisine sahip bireylerdir. Bilgi ve iletişim teknolojilerindeki gelişmeler Flipped tekniğini daha kullanışlı hale getirmiştir. Çünkü öğrenciler öğrenilecekleri konularda bir çıkmaza girdiklerinde, öğretmenleri ve arkadaşları ile rahatlıkla iletişim kurabilmekte ve hatta bazı sosyal medya ağları üzerinden direkt olarak konu ile ilgili video, yazı, makale ve görsellere rahatlıkla ulaşarak öğrenmelerini gerçekleştirebilmektedirler. Bu durumun da öğrencilerin sosyal medyaya olan tutumlarını ve kullanım amaçlarını etkilediği düşünülmektedir. Bu nedenle araştırma, Flipped tekniğinin kullanıldığı sınıflardaki öğretmen adaylarının sosyal medyayı kullanım amaçlarını ne derecede değiştirdiğini ve bu öğretmen adaylarının sosyal medyaya olan tutumlarını hangi yönde etkilediğini belirlemek amacı ile gerçekleştirilmiştir. Araştırma kontrol grubu olmayan deneysel bir çalışmadır. Çalışma grubunu 2016-2017 Bahar döneminde İstanbul Üniversitesi Hasan Ali Yücel Eğitim Fakültesi, Rehberlik ve Psikolojik Danışmanlık Bölümü'nün birinci sınıfında öğrenim gören ve "Bilimsel Araştırma Yöntemleri" dersini alan öğretmen adaylarından oluşmaktadır. Sınıftaki toplam öğrenci sayısı 106'dır. Ancak 56 öğrencinin dersi alttan alması nedeni ile derse devam zorunluğu olmadığından veriler 60 öğrenciden elde edilmiştir. Araştırmanın

uygulama aşamasında öncelikle bilimsel bir raporun nasıl gerçekleştirildiği (raporda yer alan başlıklar) öğretmen adaylarına aktarılmış (2 ders saati) ve ön-test yapılmıştır. Ardından her bir başlık için ders notları, videolar ve kaynaklar Facebook üzerinden öğrencilere haftalık olarak gönderilmiştir. Bunun yanı sıra diğer sosyal medya ağları üzerinden ulaşabilecekleri kaynaklara da yer verilmiştir. Öğrenciler araştırma konusu belirledikten sonra gerçekleştirilen bir dersin ardından bir hafta sonraki konu için aynı şekilde hareket edilmiştir. Uygulamaya bu şekilde on iki hafta devam edilmiştir. Öğrencilerin derse gelmeden önce konu ile ilgili öğrenmeleri gerçekleştirmeleri sağlanmış ve derste sadece uygulamalara yer verilmiştir. Örneğin problem ve alt problemler konusunu öğrenciler derse öğrenen gelmişler, derste ise kendi araştırma konusu ile ilgili problem cümlesini ve alt problemlerini yazmışlardır. On iki haftanın sonunda öğrencilere son test uygulanmıştır. Ön ve son testte, “Öğrencilerinin Sosyal Medyayı Kullanım Amaçları ve Sosyal Medyaya İlişkin Tutumları” ölçeği kullanılarak veriler elde edilmiştir. Elde edilen veriler bir istatistik programına aktarılmış, öğrencilerin ön test ve son testteki puanlarının ortalaması eşleştirilmiş gruplar t-testi istatistiksel işlemi yapılarak karşılaştırılmıştır.

Elde edilen bulgulara göre Flipped Tekniğinin kullanıldığı sınıflardaki öğretmen adaylarının sosyal medya kullanım amaçlarının öncesi ve sonrası arasında farklılık gösterdiği sonucuna ulaşılmıştır. Öğretmen adaylarının özellikle dersleri takip etme ve araştırma yapma amacı ile kullanmaya yöneldikleri görülmüştür. Öğrencilerin sosyal medyaya ilişkin tutumlarına yönelik puanlarında da bir artış olduğu sonucuna ulaşılmıştır. Kısacası araştırmada sonuç olarak Flipped tekniği öğretmen adaylarının sosyal medya kullanım amaçlarını sosyal medyaya olan tutumlarını değiştirdiği belirlenmiştir.

FLIPPING THE CLASSROOM THROUGH THE USE OF SOCRATIVE, PADLET, AND TWITTER IN AN ACADEMIC WRITING COURSE: A CASE OF PRE-SERVICE EFL TEACHERS IN ECUADOR

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ABSTRACT

This study aimed to use the flipped classroom methodology supported by the technological tools Socrative, Padlet and Twitter in an Academic Writing course of the English Major in Universidad Tecnica Particular de Loja, Ecuador. The purpose of this research was to determine the effectiveness of flipped classroom to strengthen English academic writing skills and to identify students' perceptions regarding the use of technological tools as a means to guarantee competence achievement in this course. For this study, a group of 15 university students and 2 teachers participated. The course was taught during a period of five months on a weekly basis. Qualitative and quantitative approaches were used; thus, diagnostic and exit surveys were applied to determine the effectiveness of the study. The intervention period involved the use of the aforementioned technological tools for the presentation of paragraphs, writing strategies, and essays in academic English. The results showed that due to the application of the flipped classroom approach, students' participation improved because they became more actively engaged in the process of reading, understanding key contents, and designing materials before each lesson. In addition, significant progress was achieved in students' academic writing skills, particularly in aspects such as organizational structure of the text, correct usage of language, punctuation, coherence and cohesion.

Key words: academic writing, flipped classroom, Padlet, Socrative, Twitter.

INTRODUCTION

The new Information and Communication Technologies (ICTs) have an enormous potential in the educational field since nowadays there is a diversity of resources and tools which can be effectively used to innovate the way we teach. Indeed, the use of technology in education is an important process that demands both teachers and students to be always updated (Zainuddin and Halili, 2016). Certainly, teachers should include innovative technologies and resources to teach language skills (Çelik et al, 2012) because they can help students become more enthusiastic about learning EFL skills in the information age (Uluc, 2012).

In the context of language skills, writing is perceived as a fundamental skill that helps EFL students to acquire an appropriate level of linguistic competence (Cabrera, et al 2014). Regarding academic writing, it is considered as an indispensable skill all students need to learn; however, it is usually recognized as a challenging activity. In the same way, Alameddine and Mirza (2016) assert that writing is one of the most difficult activities because it is related to grammar and semantic instruction. In addition, Hyland (2015) emphasizes that nowadays academic writing is extremely important at a university level because it is at the heart of all disciplines. Indeed, it is fundamental for language learners because it is a multidisciplinary activity that involves an efficient use of strategies during students' study process (Munoz-Luna, 2015).

Academic writing can be taught using different approaches; thus, the flipped classroom is an important change in education, which is mainly focused on a variety of learning activities that can take place beyond traditional methodologies (Hachmann and Holmboe, 2014). According to Halili, Razak and Zainuddin (2014), this method is the opposite of traditional learning since it enhances collaboration in the classroom in a way that students construct their own knowledge through effective interaction with limited guidance from the teacher. In the same context, the flipped classroom benefits students because they have the opportunity to devote their time to develop pertinent activities before, during and after the class, according to their needs and levels of

comprehension. This advantage is extremely important in terms of competence achievement because learners who are part of this model can become more active and interactive instead of being passive (Kim et al, 2014). In order to achieve the aforementioned academic writing training through the flipped classroom model, technological tools such as Socrative, Padlet and Twitter constitute fundamental resources that have great benefits in the classroom. For instance, Socrative is a free system that allows teachers to catch students' attention through different entertaining activities such as games, quizzes, exit tickets, etc, which can be displayed in smartphones, laptops, and tablets (Keengwe, 2014). An important advantage of this tool is that it is used by teachers to design a variety of activities and control quizzes effectively. In addition, students' responses can be viewed online as a Google spreadsheet, as an excel file, and as graphs (Awedh, et al 2014; Keengwe, 2014). Regarding Padlet, it is a social media tool in the form of an online wall onto which students share comments, images, hyperlinks and other elements that motivate students' learning and contribution (Ellis, 2015). With respect to Twitter, it is a microblogging social network website which enhances collaboration in an asynchronous way. It also facilitates a peer-modeling and a peer-monitoring process in the classroom (Cheng, 2012).

Previous studies

Some studies have been conducted about the flipped classroom for enhancing students' writing skills; however, just a few of them have implemented innovative technological tools including Socrative, Twitter and Padlet in the teaching - learning process. In this context, Ahmed (2016) studied the impact of a flipping classroom approach on 60 EFL university students who were learning writing. The participants were classified into two groups: 30 students for the experimental group and 30 students for the control group, they were administered writing tests as well as questionnaires to determine their attitude towards flipping. Findings reveal that the experimental group got better results than the control group in the writing post-test due to the use of flipping. Kassens-Noor (2012) studied the use of Twitter as an active, informal, outside-of-class learning tool through an experimental method. The main purpose of this study was to determine if Twitter helped students in learning a particular subject matter and if it offered more advantages than the ones offered by traditional teaching approaches. The results indicate that the use of this social network has potential opportunities in higher education.

Yoon (2017) examined students' perspectives on Socrative in 4 EFL classes. The participants were 114 college students in a Korean university who were administered two questionnaires at the beginning and at the end of the study. Results revealed that even though students were not motivated enough at the beginning of this learning experience, after an intervention period their perspectives on Socrative were positive across the board. In addition, they found the use of this tool to be positive because it catches students' attention and promotes classroom interaction. Also, participants preferred to use Socrative to check comprehension and to submit responses for speaking activities.

Weller (2013) explored the use of Web 2.0 applications, including Padlet, in pre-service teachers' professional learning. A class of secondary school student science teachers in England participated. Two tasks were given to complete using a collaborative online application. Their work was evaluated, as well as their comments about the use of technology. Current trends and practices surrounding the use of Web 2.0 technology and mobile/tablet devices for learning and teaching were also discussed. The results confirm the benefits of exposing pre-service teachers to Web 2.0 technology because they are able to see its uses and advantages in a classroom setting.

Even though there are many studies that analyze the use of Socrative, Twitter or Padlet from different educational perspectives, none of them were focused on integrating these three tools to teach EFL academic writing through the flipped classroom approach in the Ecuadorian context.

Research questions of the current study

This study is based on an innovation project conducted at Universidad Tecnica Particular de Loja (UTPL), located in Ecuador. The project included different flipped classroom stages aimed at enhancing students' academic writing through the use of Socrative, Twitter and Padlet for the presentation of paragraphs, writing strategies, and essay composition in academic English. The research questions to be addressed in this study are the following:

- Is the flipped classroom effective to strengthen English academic writing skills in pre-service EFL teachers?
- How do teachers and students perceive the implementation of the flipped classroom methodology through the use of technological tools?

METHODOLOGY

Setting and participants

The present study was conducted in Universidad Tecnica Particular de Loja, a private university in the southern region of Ecuador. The participants were 15 pre-service teachers (2 male and 13 female) who are studying academic writing as a course in the curriculum established by the English major. In addition, 2 teachers participated in this innovative research.

The students received four hours of academic writing classes a week and were enrolled in the fifth level of the English program. These students have a B1 proficiency level of the Common European Framework of Reference for Languages (CEFR).

Instruments

- A pre-questionnaire that consisted of 10 close-ended questions was applied to students in order to identify their technological skills and perceptions regarding the use of flipped classroom for learning academic writing.
- A post-questionnaire was administered to determine students' perceptions on the use of the flipped classroom methodology through Socrative, Twitter and Padlet for teaching academic writing. This instrument consisted of a combination of 8 multiple choice and open-ended questions.
- A self - evaluation was applied to teachers in order to know their perceptions about the use of the flipped classroom through Socrative, Twitter and Padlet for teaching academic writing.

Procedure

In this study, a mixed-method approach was used; according to Cresswell (2014), the mixed-method approach integrates qualitative and quantitative methods to grant a more complete understanding of a research problem than using them separately. In this way, it was possible to determine the participants' perceptions about the use of the flipped classroom methodology supported by technological tools for teaching aspects of academic writing; these included organization of paragraphs, writing strategies, and essay composition in academic English.

Regarding the technological tools used in this research, Socrative was implemented to evaluate students' knowledge before, during and after the analysis of a specific topic, Padlet allowed us to share information through an interactive wall; thus, students worked collaboratively to create notes and share them. In addition, the social network Twitter was used to share links and tips related to academic writing.

In order to improve the reliability and validity of questionnaires, they were piloted with a similar group of students and amendments were made. After the pre-questionnaire was piloted, it was administered to all the students. At the end of the study, a post- questionnaire was applied, and a self-assessment was administered to teachers. After gathering the data from the questionnaires, Excel tables were used in the analysis of the results, which were compared and contrasted for drawing conclusions.

RESULTS AND DISCUSSION

According to the students' pre-questionnaire results, 86% mentioned that their teachers had never used the flipped classroom when teaching English. On the other hand, 14% of them affirmed that they had previously received instruction through this methodology for learning different language skills. Regarding students' knowledge of the technological tools Socrative, Padlet and Twitter, most of them (93%) recognized Twitter as a popular social network, while only 15% of students had heard about the use of Padlet. With respect to Socrative, nobody knew about this tool and its characteristics.

After the study was conducted, the results of the post-questionnaire demonstrated that 71% of the students perceived the "Flipped classroom" as a very good methodology for learning academic writing skills, while the remaining 29% rated it as an excellent teaching innovation. These results indicate that the aforementioned approach really contributed to strengthen English academic writing skills. In this context, Ahmed (2016) asserts that the flipped classroom instruction not only allows improvement in writing, but it also allows improvement regarding learners' overall attitudes and beliefs towards the writing skill. The figure below shows students' perceptions about essential aspects in which they got better academic results through the use of Socrative, Padlet and Twitter.

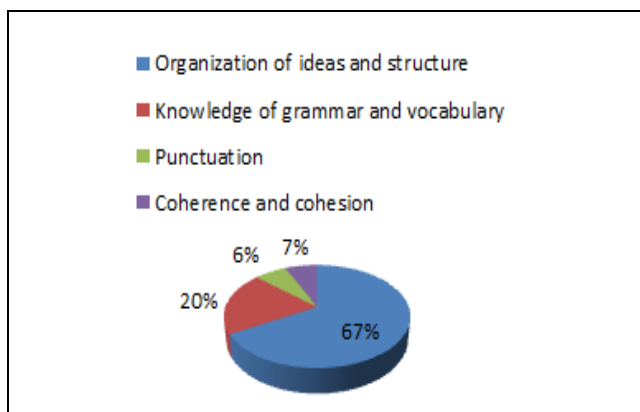


Figure 1. Student's perceptions about academic writing aspects that improved after using Socrative, Padlet and Twitter

In addition, the majority of students (86%) perceived that their writing skills improved in an excellent way and 14% rated them as very good. These results demonstrate that students' perceptions about their own progress in academic writing were significantly positive. According to Alameddine and Mirza (2016, p. 211), "writing strategies are essential for writers to refine their ideas in their academically written productions".

Seventy percent of the students perceived the social network Twitter as motivating, 15% preferred to use Padlet as a tool that facilitates collaborative work, 6% of participants were motivated by the use of Socrative, and the remaining percentage identified other types of tools as interesting. In this context, Kreutz and Rhodin (2016) claim that the use of technology is beneficial for learning because it is motivational for EFL students. Some significant benefits of using social networks when teaching ESL writing involve enhancement of outside classroom interaction, improvement of students' knowledge, greater motivation and confidence for using this language, improvement of learners' thinking and writing skills, among others (Yunus et al, 2012).

Regarding the students' perceptions about the use of the flipped classroom through technology, 57% of them stated that this innovative project increased their interest and motivation for learning academic writing skills in an excellent way. The remaining percentage (43%) perceived it as a very good way to increase their motivation to learn academic English.

In the same way, teachers were asked about their perceptions on the use of the flipped classroom in the context of this study. Thus, they agreed that this methodology, supported by Socrative, Padlet and Twitter, significantly contributed to enhance academic writing skills. Additionally, they claimed that in order for this methodology to succeed, permanent teacher's feedback is crucial before, during and after on-site sessions. In fact, feedback plays a fundamental role in writing development (Miaoa, Badger and Zhenc, 2006).

CONCLUSIONS

The "Flipped Classroom" methodology significantly contributes to the teaching of academic writing skills in English as a foreign language; it improves students' motivation and participation as they become more actively involved in the preparation of materials prior to on-site sessions, and it deepens the review of specific subjects so that students experience less uncertainty toward essay writing.

The characteristics offered by Padlet and Twitter allow students to work collaboratively and share information in order to improve academic writing skills in terms of organization of ideas and structure, knowledge of grammar and vocabulary, punctuation, coherence and cohesion.

Socrative is a very effective tool to evaluate specific academic writing aspects because students have the opportunity to demonstrate their knowledge in an enjoyable way by using individual or group quizzes; also, teachers can observe instant results and offer timely feedback.

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FORMULATING LEARNING METHOD IN HIGHER EDUCATION FOR GLOBAL READINESS

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ABSTRACT

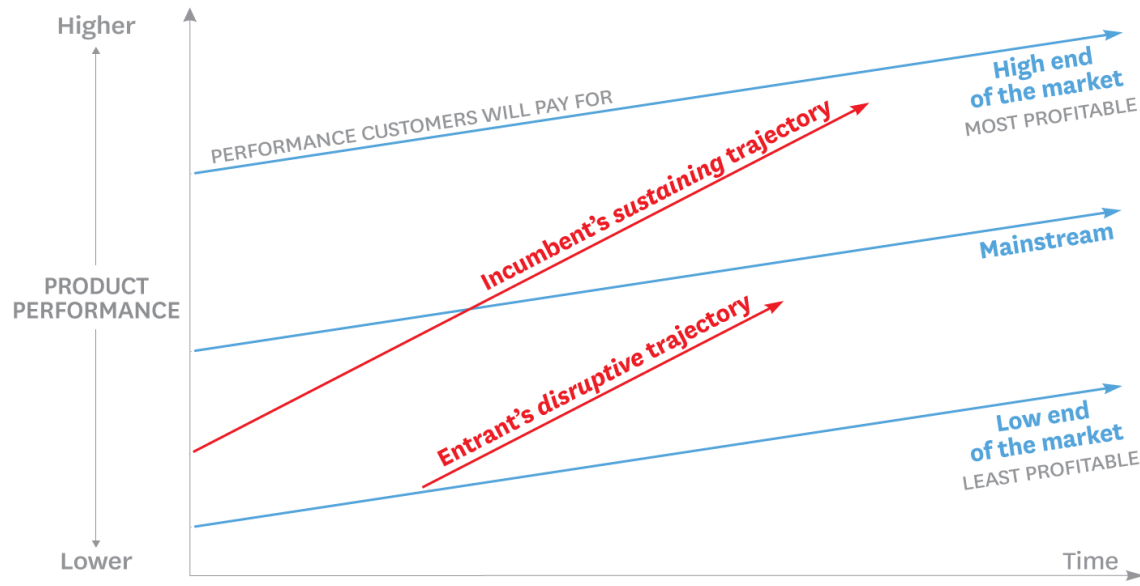
In the era of disruption, where the market emerged and most of organizations try to seek potential talent for future leader, human capital with global mindset is the most valuable asset that must be retained by an organization. Global readiness is the key attribute that must be owned by young generations., how they can have innovative mindset to sustain business organization. This study aims to analyze whether the learning method in higher education could create global readiness mindset. The approach of the methodology is analyzing quantitative data through survey with random sampling at 118 both undergraduate and graduate university students. Descriptive statistics is used to analyze the primary data. The result showed that student perceived global readiness learning method to be very important to be considered in formulating governance model facing the new era in developing a new method for teaching in higher education.

Keywords: Disruption, Learning Method, Global Readiness, Globalization, Higher Education, Innovation

INTRODUCTION

Nowadays, industrialization has shifted again to a 'new direction'. Sometimes in an unpredictable direction. For example, ever since the time when internet was invented, there has been tremendous changing from analog products to digital products. Changes in the environment is very dynamic and the organization is required to be able to adjust for these changes. Capabilities of the organization should be improved as a step of adaptation in order to the sustainability of organization (Kusumastuti, et.al, 2016). We saw the giant camera-maker, Kodak, fail and go bankrupt due to its inability to innovate fast. While the demand of digital camera grew rapidly, and they could not meet the new customer demand (Hutabarat & Huseini, 2017). Then, after internet era, using "sharing economy" jargon, the disruptive era has become. Harvard Business School professor and disruption guru Clayton Christensen says that a disruption displaces an existing market, industry, or technology and produces something new and more efficient and worthwhile. It is at once destructive and creative (Christensen, 1995, Howard, 2013).

The phenomena of disruption is proved to be a powerful way of thinking about innovation-driven growth (Christensen, Raynor, Mc Donald, 2015). Christensen (1997) argues that how successful, outstanding companies can do everything to win the market and yet still lose their market leadership – or even fail – while a new start-up business as an unexpected competitor rises and takes over the market. There are two important parts to this dilemma. Firstly, value to innovation is an S-Curve: Improving a product takes time and many iterations which provide minimal value to the customer but in time the base is created and the value increases exponentially (see figure 1).



SOURCE CLAYTON M. CHRISTENSEN, MICHAEL RAYNOR, AND RORY MCDONALD
FROM "WHAT IS DISRUPTIVE INNOVATION?" DECEMBER 2015

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Figure 1. Disruptive Innovation

Source: Christensen, Raynor, Mc Donald, (2015)

Secondly, incumbent sized deals: The incumbent has the luxury of a huge customer set but high expectations of yearly sales. New entry next generation products find niches away from the incumbent customer set to build the new product. The new entry companies do not require the yearly sales of the incumbent thus have more time to focus and innovate on this smaller venture. We saw how online transportation platform, such as Go-Jek in Indonesia, disrupt Blue Bird Taxi; later they make collaboration to launch Go-Car in order to develop their business bigger.

This disruptive innovation happens not only in the manufacturing sector, but also in the higher education sector. In the last decade, the massive open online courses, or popular called MOOC.

This phenomenon must be realized by the CEO of all organizations. They must seek young talents to enhance their innovation, meet more people and think globally. Furthermore, the organization must understand the global culture itself. Multinational companies from individualist cultures such as USA, Europe, Australia, must understand their employees from collectivist culture such as Japan, China, or Indonesia and vice versa (Sakapurnama, 2013). Otherwise, the term "innovate or die" would happen and they cannot sustain their business.

Therefore, university as a higher education that creates potential talents has a challenge to develop their graduate with the global readiness mindset. Miller (2017) tried to define the global readiness itself, when students are global ready, they are able to meet specific competencies that allow them to be successful in the world around them. However, global readiness is more than simply being able to collaborate or communicate. Instead, these skills are connected to important nuances of cultures, perspectives and equity. It isn't just that students can collaborate with another person, but that they can partner and work within a global community and take action. Students develop empathy and global sensibilities, as well as connect with people of different cultures and communities across our world.

Other experts, try to define what global readiness is. Elings and Oliver (2010) from Delloite Consulting, use term global transformation readiness as the drivers for organization to optimize and standardize their business globally in five areas of transformation, as follows (1) Business model; identify where and how your company operates; (2) Governance model; understand how company's decision-making framework; (3) Data and reporting; define the right level of data and information standardization; (4) Infrastructure; how company acknowledge and reduce complexity; and (5) Organizational capacity and capability; uncover gaps in areas of leadership, experience and knowledge.

Kerkhoff (2016) introduce teaching method for Global Readiness for K-12 Schools. There are four dimensions that link with the concepts. Firstly, Integrated – Including global issues and global learning concepts into the standard course of study within all classes K-12. Secondly, Situated – How the atmosphere of learning provide that each class is positioned in a particular time and place. Considering the context of each class by building relationships and making global education relevant and also utilizing real world content that is relevant to the students. Thirdly, critical – how the process of thinking about causes and effects of own actions and society’s actions or lack of action. This will be encouraging students to question and analyze themselves, texts, and society. Furthermore, reflexivity as part of teacher practice and instruction for students. Lastly, Transactional – Providing opportunities for intercultural dialogue, not one-way action, but two-way giving and receiving, also facilitating experiences where students construct knowledge situation.

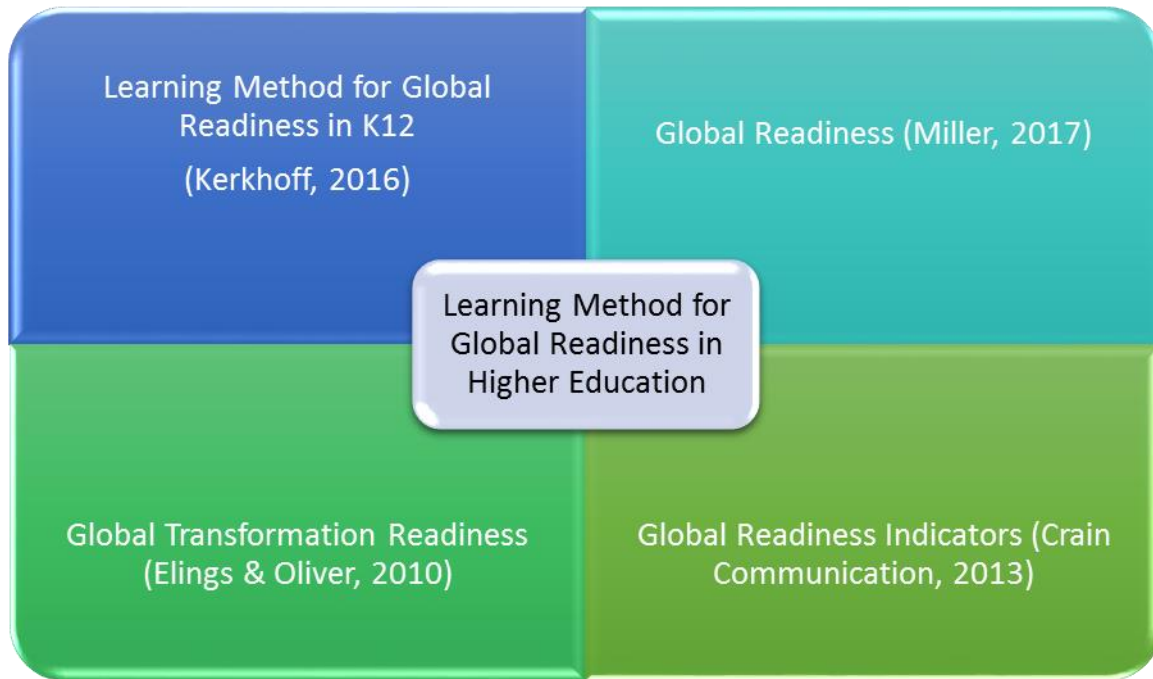
To enhance this exploration in formulating learning method for higher education, writers use other concept that more applied and practically suitable with the industry. According to Crain Communication (2013), one of leading HR Consultant worldwide, define the global readiness indicators within organizations. (see the table 1.)

Table 1. Global Readiness Indicators

No.	Dimensions	Indicators
1	Business Case	<ul style="list-style-type: none"> - Have the program goals been identified and measures of success defined? - Is this aligned to the company strategy? - Who is responsible for delivery of the business case and gaining leadership buy-in? - Is there a standard format within your organization for presenting a comparable global business case of this size?
2.	Change Management Initiatives	<ul style="list-style-type: none"> - What is the level of experience of organizations with comparable complex of global implementations? - What is the level of leadership? - Does your company culture engage new initiatives on a voluntary or mandated participation? - Is there a strategy to adress each global location?
3	Current State and Landscape	<ul style="list-style-type: none"> - How well do you understand your current and projected global supply and demand of Talent Labour? - How accurately can you report and forecast spend by category and geography?
4	Compliance and Governance	<ul style="list-style-type: none"> - Have you identified the breadth of subject matter experts needed (etc. Legal , HR, Finance) - How does your company ensure compliance to a new programme?

Source: Crain Communication (2013)

From those point of views, writers try to construct the operational definition of learning method for higher education in addressing globalization. The model of framework is shown in the picture below.



Picture

2. Model of Learning Method for Global Readiness in Higher Education

source: researcher (2017)

RESEARCH METHOD

This paper uses positivism approach that uses several theories to explore the learning method in higher education in preparing the student for global readiness. Survey has conducted through both online and offline to 118 students within Universitas Indonesia who are either in undergraduate or graduate programme. Accidental sampling is chosen as the sampling technique. This research uses SPSS 19.0 to analyze the result.

RESULT AND DISCUSSION

Based on the data collected from 118 students, 64,4 % of those students are undergraduate while 26,3 % are graduate, both in master and doctorate programme. And the rest that is accounted 8,5% of the total respondents did not answer the question.

Table 2. Respondents Profile

		Programmes			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	no answers	10	8.5	8.5	8.5
	undergraduates	76	64.4	64.4	72.9
	graduates	31	26.3	26.3	99.2
	5	1	.8	.8	100.0
	Total	118	100.0	100.0	

Source: data analyses by SPSS 19.0 (2017)

Another profile of respondents is categorized by sex. 50 students are male or 42,4% of total respondents. And 56 are female or 47,5%. And the rest 12 students or 10,2% of respondents did not give answer.

Table 2. Respondents Profile by Sex

		Sex			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	no answer	12	10.2	10.2	10.2
	Male	50	42.4	42.4	52.5
	Female	56	47.5	47.5	100.0
	Total	118	100.0	100.0	

Source: data analyses by SPSS 19.0 (2017)

From the data collected, majority respondents give opinion in the positive modes. Based on analyses by SPSS Program, most students perceive that learning method in the higher education that prepare student to compete globally agree with the indicators. The most important learning method viewed by the respondents are “Discussions in the context of global issues” and “Discussion of case study in the era of globalization help my understanding the information of the lecture”. Both statements have the highest average on 4,52 from scale of 5. (see Table.3). Thus, most students in university or college require case study as a tool of gaining knowledge in the global context.

On the other hand, the sample of this research has neutral response when judging the statement “Guest lectures from in-bound lecturer cannot build intercultural dialogue”. The mean average of the statement score 2,57 from scale of 5 which has interpretation of neutral (see Table.3).

Table.3 Average of Learning Method Indicators

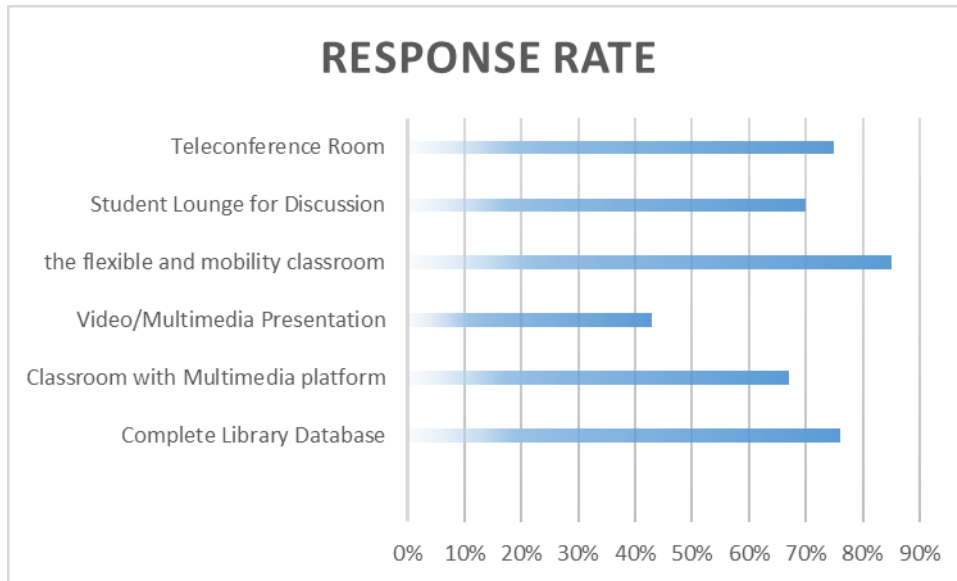
No	Description	Mean	Interpretation
1	In my opinion, the method of learning by discussing the context of global issues in lecture sessions is important.	4,52	Strongly Agree
2	Discussion of case study that occurred in the era of globalization helped my understanding the information of the lecture	4,52	Strongly Agree
3	The lecture assignments in group form are more effective than individual tasks	3,49	Somewhat Agree
4	The task of lectures in a group can open a wider horizon of information	3,95	Agree
5	Group assignment may exercise teamwork	4,26	Agree
6	I think the task of group lectures can build a more tolerant individual character in accepting opinions	4,08	Agree
7	When students must present their assignments, I believe that these activities can train communication skills in public space.	4,47	Agree
8	Video lecturer in lectures can trigger students to think critically	4,01	Agree
9	I believe the lectures by professional can provide insight from theories in the real-world context	4,36	Agree
10	Company visit may facilitate application of theory into the real situation	4,49	Agree
11	Guest lectures from in-bound lecturer can not build intercultural dialogue*	2,57	Neutral
12	Overseas study visit becomes an alternative to enrich global insight	4,30	Agree
13	Evaluation of learning outcomes with classroom test methods is less relevant	3,46	Somewhat Agree
14	Lecture assignment by creating books may endorse creative thinking	3,68	Agree

Source: data analyses by SPSS 19.0 (2017)

*negative statement

Another result that reveals from this research is about the facilities required to endorse the learning method for global readiness and make the learning atmosphere conducive.

Most students choose the classroom flexibility and mobility as top requirement that accounted 85%, followed by complete library database in 76% response rate. The least response rate in this field is about the students being asked to make video or multimedia presentation, only 43% of students perceive that this assignment can make a contribution for the global readiness mindset (see picture.3).



Picture 3. Infrastructures for Global Readiness in Higher Education

Source: data analyses by SPSS 19.0 (2017)

Meanwhile, other infrastructures such as teleconference room has 75% response rate by the respondents. For the details see table.4.

Table.4 Infrastructure for Global Readiness in Higher Education

Facilities	Response Rate
Complete Library Database	76%
Classroom with Multimedia platform	67%
Video/Multimedia Presentation	43%
the flexible and mobility classroom	85%
Student Lounge for Discussion	70%
Teleconference Room	75%

Source: data analyses by SPSS 19.0 (2017)

CONCLUSION

As a result, this research shows that the learning method for global readiness viewed by students strongly agree with having discussion especially about a case study from an industry in the global context, that deliver information regarding the current trends. Most students also perceived that the classroom with high mobility and flexibility will be the catalyst in the learning method for facilitating global readiness mindset.

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FOSTERING PRE-SERVICE TEACHERS' SOCIO-SCIENTIFIC ARGUMENTATION SKILLS WITH VAKE (VALUES AND KNOWLEDGE EDUCATION)

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ABSTRACT

The aim of this quasi-experimental study is to examine the potential of the constructivist teaching and learning approach VaKE (Values and Knowledge Education) to foster pre-service teachers' socio-scientific argumentation skills. VaKE combines values education through dilemma discussion and knowledge acquisition through inquiry-based learning. The written arguments of pre-service teachers (N = 85) before and after the intervention were content analyzed. The results indicate that VaKE contributes to foster the content-oriented quality of arguments. Compared to a traditional knowledge-centered case-discussion pre-service teachers apply more often the acquired knowledge and use more moral considerations in their arguments.

INTRODUCTION

Developing student's social responsibilities through fostering skills of argumentation, critical thinking and decision-making is recognized as necessary in curricula worldwide. Moreover, in the construction of scientific knowledge the significance of argumentation is considered as the core of learning (Duschl, 1990; Ohlsson, 1992). Thus, science teachers play an important role in nurturing their students' argumentation skills (Driver, Newton & Osborne, 2000; Duschl & Osborne, 2002; Osborne, Erduran & Simon, 2004; Roberts & Gott 2010; Sadler, 2004a; Cetin, Dogan & Kutluca, 2014). A possible way to address student's argumentation skills is through discussing socio-scientific issues (McDonald, 2010; Osborne, Erduran & Simon, 2004; Sadler & Donnelly, 2006). Socio-scientific issues (SSI) are social dilemmas that have conceptual or technological links to science and involve ethical and moral implications, as for example global warming, nuclear energy, cloning, genetic diseases or genetic engineering (Sadler, 2004a). According to Sadler (2004a) socio-scientific argumentation requires the aptitudes of scientific knowledge acquisition (e.g., inquiry-based learning), understanding of the nature of science (e.g., reflection on the social embeddedness of scientific progress), and awareness of moral and ethical issues (e.g., moral reasoning). Fostering these aptitudes call for didactical approaches which are based on active learning, co-construction, and discussion (Erduran, Simon & Osborne, 2004; Osborne, Erduran & Simon, 2004; Sadler, 2004a). And it implies shifting away from the role of the teacher as an authoritative figure providing right answers and moving towards the role of a teacher as facilitator of learning (Zohar, 2008) which for example is a characteristic feature of constructivist teaching methods (Loyens & Rikers, 2011).

However, although socio-scientific argumentation is considered important in science education it is rarely addressed in schools and in teacher education due to (i) the overloaded curricula which focus on factual knowledge leaving no time for dialogue and argumentative discourse (Hurd, 2002; Osborne, 2010; Osborne, Erduran & Simon, 2004), (ii) the priority of knowledge transmission modes of teaching and learning in many educational systems that emphasize recall over higher-order thinking minimizing opportunities for discussion and inquiry-based learning (Kim & Roth, 2008; Osborne, 2007; Osborne, 2010; Wells, 1999), and (iii) the teachers' lack of adequate teaching approaches to address socio-scientific argumentation appropriately (Archila, 2014; Simon, Erduran & Osborne, 2006) which consequently leads to problems when they want to implement argumentation (McNeill, Lizotte & Krajcik, 2006). Moreover, teachers often themselves rely on their personal theories in scientific argumentation and do not include evidence as support for their argument (Sampson & Blanchard, 2012). Thus, there is a need to address the development of argumentation skills in pre-service science teacher education (Zohar, 2008). The study addresses this need by investigating the potential of the constructivist approach VaKE (Values and Knowledge Education; Patry, Weinberger, Weyringer & Nussbaumer, 2013) to foster socio-scientific argumentation skills in pre-service teachers. VaKE combines moral education through the discussion of content-related moral dilemmas and knowledge construction through inquiry-based learning.

The research question is whether VaKE can foster the quality of socio-scientific argumentation skills in pre-service teachers. In order to assess pre-service teacher's arguments Toulmin's argument pattern (TAP; Toulmin, 1958/2003) was applied which has proven to be a valuable analysis tool for argumentation (Erduran, Simon & Osborne, 2004).

ARGUMENTATION

According to Toulmin (1958/2003) an argument is defined as an assertion or conclusion and its accompanying justification. Argumentation is considered a central part of informal reasoning which is reasoning that takes place in everyday life when we reason about causes and consequences, about pros and cons, and about particular propositions or decision alternatives. Informal reasoning involves ill-structured problems that have no definite solution, such as moral dilemmas or SSI (Zohar & Nemet, 2002). Formal reasoning relates to the idealized logical-formal arguments used in philosophy.

Toulmin (1958/2003) developed an argument pattern (TAP) for informal reasoning consisting of five main elements which characterize the structure of an argument: claim, data, warrant, backing, and rebuttal (see fig. 1).

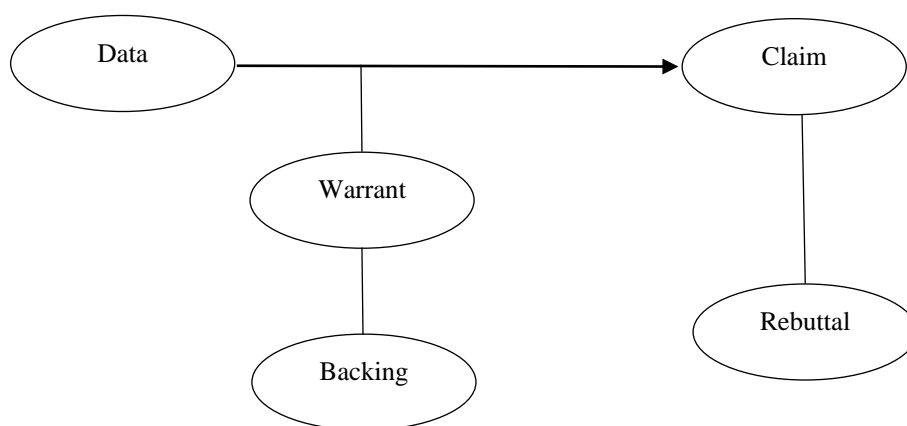


Figure 1. Toulmin's argument pattern (Toulmin, 1958/2003)

In applying TAP to assess the quality of arguments the first three criteria are generally considered to compose a simple initial argument (Erduran, Simon & Osborne, 2004; Zohar & Nemet, 2002). According to Toulmin (1958/2003, p. 89–100) a “claim” is an assertion put forward publicly for general acceptance. “Data” are explicitly stated specific facts relied on to support a given claim. “Warrants” are generalized, hypothetical and often implicit statements which act as bridges and legitimize the step from the data to the claim as an appropriate one. The “backing” lends authority to the warrant and can be expressed in the form of categorical statements of facts or moral principles. It is often stated implicitly. “Rebuttal” refers to a statement indicating circumstances in which the general authority of the warrant would have to be set aside. Consider the following example from this research about the SSI reproductive cloning which represents the different elements of the TAP:

The parents should decide to clone their ill son who suffers from leukemia because he needs organ transplantations to survive. The clone will be the ideal organ donor for the ill son. Life has to be preserved in any case. But the parents should not decide to clone their son if the clone will suffer pain from being an organ donor.

The claim of this argument is “The parents should decide to clone their ill son ...” which is supported by the datum “... who suffers from leukemia and needs organ transplantations”. The warrant “The clone will be the ideal organ donor for the ill son” legitimizes the step from the data to the claim. This warrant is supported by the backing “Life has to be preserved!” which states a general moral principle. Finally, the argument is completed with the rebuttal “But the parents should not decide for reproductive cloning if the clone will suffer pain from being an organ donor”.

Argumentation in socio scientific contexts presents learners with the challenge of justifying a moral claim (e.g.; “The parents should decide to clone their ill son!”). Moral claims refer to prohibitions (e.g., “should not”, “it is forbidden”) or imperatives (e.g., “should”). In contrast, factual propositions refer to pieces of evidence. Such propositions typically exemplify scientific knowledge (e.g.; the datum “Their son suffers from leukemia and needs organ transplantations to survive” and the warrant “The clone will be the ideal organ donor for the ill son”). In socio-scientific arguments moral as well as factual propositions appear (Sadler, 2004b; Zeidler & Sadler, 2007; Zohar & Nemet, 2002). They are related with each other. A sound justification of a moral claim only has a valid form if it includes moral propositions (MacKinnon & Fiala, 2016; Gratzl, 2006). This criterion is based on Hume’s law or the is-ought problem. According to Hume (1738) it is a logical fallacy to derive a moral claim solely from factual propositions. Moral propositions included in a justification typically appear as

moral principles which are (often implicitly) stated as backing of the warrant (e.g., “Life has to be preserved!”). The moral principles are based on some normative moral theory which expose a particular view about what is the nature and basis of good and right. Key moral theories include virtue ethics, deontological ethics and teleological ethics (MacKinnon & Fiala, 2016; p. 12). According to virtue ethics actions are judged in terms of their motive (e.g.; Reproductive cloning is good because the parents intend to save their son’s life – or it is bad because the parents are egoistic.). According to deontological ethics actions are judged in terms of the character or nature of the act itself (e.g.; Reproductive cloning is good because life should be preserved – or it is bad because humans should not be treated as means to an end.). Finally, according to teleological ethics actions are judged in terms of the consequences of the actions (e.g.; Reproductive cloning is good because life-threatening diseases can be cured – or it is bad because the clone will suffer pain from being a donor.).

TAP and its modified versions have enabled researchers to use it to examine the quality of socio scientific arguments in a variety of domains including science in school (e.g., Erduran, Simon & Osborne, 2004) and in pre-service teacher education (e.g., Karisan & Topcu, 2016). Two main quality criteria for socio-scientific arguments can be distinguished (Chang & Chiu 2008; Chang, Rundgren & Rundgren, 2010; Grace 2009; Osborne, Erduran, & Simon 2004; Sadler & Donnelly 2006; Sadler & Fowler, 2006; Sampson & Clark, 2008; Tal & Kedmi, 2006; Wu & Tsai 2007; Zohar & Nemet 2002). The first quality criterion refers to *structurally oriented aspects*. Based on the TAP it includes (i) the number of valid justifications (data, warrant and backings as one category) provided together with the claim, (ii) the branching of the justifications, (iii) the number of valid counter arguments (alternatives to one’s own standpoint), and (iv) the number of valid rebuttals. The second quality criterion refers to *content oriented aspects*. It includes (i) the quantity and quality of content knowledge supporting the argument, and (ii) the reference to moral values or moral principles. A few studies in the context of pre-service teacher education indicate that teaching approaches which include argumentation-based tasks for learners can enhance argumentation skills (e.g., Acer, Patton, & White, 2015; Sadler, 2006; Sà Ibraim & Justi, 2016; Zembal-Saul, 2009; Zembal-Saul, Munford, Crawford, Friedrichsen, & Land, 2002). It is assumed that VaKE represents such an approach.

VaKE (VALUES AND KNOWLEDGE EDUCATION)

VaKE is a constructivist teaching approach which integrates development of moral reasoning through dilemma discussion (Lind, 2016) and knowledge acquisition through inquiry-based learning (Reitinger, Brewster, Haberfellner & Kramer, 2016). The integration of moral reasoning and knowledge acquisition provides the possibility to address the moral goals without neglecting the knowledge goals. The learning process is initiated by a content-related moral dilemma, which involves moral implications and is linked to particular knowledge (Patry et al., 2013). The dilemma triggers a moral question (“What should be done and why?”) and a question related to knowledge (“What do I need to know to come to a satisfying solution?”). Since SSI address moral questions of right and wrong and questions regarding to scientific knowledge (Zeidler & Sadler, 2007; Zohar & Nemeth, 2002) it is assumed that they can be used as trigger for the learning process in VaKE.

Through the discussion of the dilemma and inquiry-based learning the learners try to make an informed judgment. The dilemma discussion is a well-established method to promote moral reasoning in different educational settings including teacher education (Cummings, Maddux, Cladianos, & Richmond, 2010). It is designed to discuss the moral considerations of an issue. Unlike other studies who explicitly aim at fostering learners’ moral development (e.g., Cummings et al., 2010) the dilemma discussion in this study is primarily used to foster the consideration of moral principles in order to formulate valid socio-scientific arguments. Inquiry-based learning is the core method of scientific knowledge construction (Loyens & Rikers, 2011). In contrast to traditional ways of learning inquiry-based learning methods emphasize active student participation and co-construction through cooperative learning. Instead of providing the learners with a question and the answer, they formulate their own questions and explore possible answers based on appropriate ways of facilitation such as challenging questions. Evidence suggests that inquiry-based learning methods foster meaningful learning in teacher education resulting in the application of the acquired knowledge (Wagner, Stark, Daudbasic, Klein, Krause & Herzmann, 2013).

VaKE-education follows a learning sequence consisting of eleven steps (see table 1): A VaKE-unit starts with introducing the content-related moral dilemma and analyzing the moral values which are at stake. The learners become aware that each decision is based on different moral values (step 1). Subsequently they reflect upon their decision and take a position by writing down their own argument (step 2). In small groups they discuss the arguments (step 3). The dilemma discussion is designed to (i) challenge thinking (e.g.; “What is your argument?”); (ii) reexamine assumptions (e.g.; “Do you have any data for your claim?”); (iii) take others’ point of view (e.g.; “What would person X think about this problem?”); (iv) set up logical arguments (e.g.; “What are the premises of your claim?”); (v) respond rationally to counterarguments (e.g.; “What is your argument as a

response to person X's point of view?"); and (vi) consider moral principles (e.g.; "Which consequences will likely occur when deciding for this option?"; "Is your decision generalizable?"; "Does your decision break a universal moral rule?"). The dilemma discussion is based on discussion rules (e.g.; "Each argument is permissible!"; "Do not interrupt when someone else is speaking!"; "Make use of what others have to say when it is your turn to speak!"). Personal attacks are forbidden and all arguments must be formulated in a reversible way, i.e. the speaker would accept to be addressed the same way. Then the results of the discussion are exchanged in class highlighting the most convincing arguments and missing knowledge is collected. The learners formulate their own questions and learning goals (step 4). In small groups they search for the missing knowledge using different sources of information (step 5). They exchange their acquired knowledge and discuss it so that all learners have the same level of knowledge (step 6). After that the dilemma discussion in small groups is continued. The learners apply the acquired knowledge by integrating it into their argument (step 7). In a general discussion, the results of the dilemma discussion are presented and all learners discuss their favored arguments. Challenging questions provided by the teacher (see step 3) stimulate reflection and reasoning (step 8). If there are still open questions, the steps 4 to 8 can be repeated once again (step 9). In the final synthesis, the learners present the solved problem of the whole group. This can be done in didactically sophisticated ways such as through role plays, writing a newspaper, etc. (step 10). Finally, in the generalization the learners deal with similar issues they consider important to broaden the perspective (step 11).

- (1) *Introducing the dilemma*: Which values are at stake?
- (2) *First decision*: Who is in favor, who against?
- (3) *First arguments (dilemma discussion)*: Why are you in favor, why against? Do we agree with each other?
- (4) *Exchange experience and missing information*: Exchange of arguments; what more do I need to know to be able to argue further?
- (5) *Looking for evidence*: Get the information, using any source available!
- (6) *Exchange of information*: Present the information! Is the information sufficient?
- (7) *Second arguments (dilemma discussion)*: Why are you in favor, why against?
- (8) *Synthesis of information*: Present your conclusions!
- (9) *Repeat 4 through 8 if necessary*
- (10) *General synthesis*: Closing the sequence capitalizing on the whole process!
- (11) *Generalization*: Discussion about other related topics

Table 1. Standard steps in VaKE (adapted from Patry et al., 2013, p. 567)

VaKE-education shares many commonalities with SSI-based education. According to the framework of Sadler (2011; Sadler & Murakami, 2014) SSI-based education includes several essential elements which are represented in the steps of VaKE. Essential *design elements* are: (i) Framing instruction around a compelling social issue related to science and featuring this issue at the outset of instruction (represented in VaKE-step 1); (ii) presenting the issue first (represented in VaKE-step 1); (iii) providing scaffolding and appropriate facilitation for higher-order practices, such as for argumentation, reasoning and decision-making (represented in VaKE-steps 3, 4, 7 and 8) and (iv) providing a culminating experience (represented in VaKE step 10). Essential *learning experiences* of SSI-based education are: (i) Engaging students in reasoning, argumentation, decision making, or position taking (represented in the VaKE-steps 2, 3, 4, 7, and 8); (ii) confronting the scientific ideas and theories related to the issue (represented in VaKE-step 6); (iii) collecting and/or analyzing scientific data related to the issue (VaKE-step 5); and (iv) negotiate the social dimensions of the issue (VaKE-steps 3, 4, 7, and 8). According to Sadler (2011) an explicit focus on the moral considerations associated with the issue may not be absolutely necessary.

It is expected that pre-service teachers when discussing SSI according to VaKE will foster the structurally and content-related quality of their arguments because the different steps of VaKE (Patry et al., 2013) challenge them to continually elaborate their data, warrants, backings and rebuttals (Toulmin, 1958) and to integrate factual and moral propositions in order to come up with a valid socio-scientific or moral argument (MacKinnon & Fiala, 2016). Particularly, it is hypothesized that this learning process increases the number of valid justifications, branching of the argument, rebuttals and counter arguments (hypothesis 1) and the number of applied facts (knowledge) and moral principles to ground the claim (hypothesis 2).

METHODS

85 pre-service teachers (four classes; 21 males) taught by four teachers of a teacher education institution in Austria participated in the study. The study was embedded in the course "Values education in the context of social learning" (1 ECTS workload) which pre-service teachers attend in their 2nd year of their education. This course focusses on general methods and views of education and learning including moral education, moral development and moral argumentation. Part of this course was conceptualized according to VaKE. Most of the

participants (81%) were preparing for teaching science. The participants gave informed consent to take part in the study.

A quasi-experimental research design with pretest (T1) and posttest (T2) was applied. The experimental group (EG; two classes; $N_{EG} = 44$; 11 males) was taught according to VaKE and the control group (CG; two classes; $N_{CG} = 41$; 10 males) was taught according to a traditional case-analysis (Merseth, 1996) which includes (i) studying the case individually, reviewing important data and answering study questions provided with the case by the teacher educator, (ii) studying the case in small groups, sharing insights and opinions, and (iii) discussing the case in the larger seminar group under the guidance of the teacher educator. The content-related dilemma in both groups was a SSI-case referring to genetic engineering and is as follows:

Future decision

We live in the year 2030. In a faraway country, there lives a 14-year-old boy. During a routine health examination, the school doctor finds indication of a dangerous disease at this boy. The doctor makes the diagnosis leukemia. For medical treatment, the boy needs blood transfusions, bone marrow transplants and tissue transplantations. Because there are no closely related compatible donors the doctor explains the parents that the only medically sensible alternative is the method of reproductive cloning. The cloned brother of the ill boy would be a genetical copy of their son and the ideal donor for him. The parents always wanted to have another child. They looked at each other. Their son's life is at stake. What should they do and why?

In the CG the focus was on knowledge acquisition; dilemma discussions were not included. Nevertheless, in the CG moral considerations were addressed because SSI include issues of right and wrong. But compared to the EG the discussion of moral considerations in the CG occurred in an unsystematic way. The intervention in both groups lasted four units. All participants conducted the knowledge acquisition partly at home. In the EG the VaKE-steps 9 to 11 were omitted due to time restrictions.

The instrument was an open-ended question asking the participants to formulate their argument to the dilemma ("What should the parents do and why?"). At T2 this question was accompanied by a prompt to use the acquired knowledge to ground the claim. The participants of the EG responded to the open-ended question in VaKE-step 3 (T1) and VaKE-step 7 (T2). The participants of the CG responded after reading the SSI-case and at the end of the intervention. In both groups no time restrictions were given for formulating the argument.

Pre-service teachers' written arguments were content-analyzed based on the elements of the TAP and according to two main criteria (structure and content) of the quality of an argument (e.g., Zohar & Nemeth, 2002). The main criterion *structure* was analyzed according to four sub criteria. The first sub criterion referred to the number of valid arguments according to Toulmin (1958/2003). Each argument was analyzed whether it included a claim with at least one relevant justification (datum, warrant, and/or backing). Responses that included a conclusion with no justifications (e.g., "I think the family should not clone the ill son.") or conclusions with pseudo-justifications (e.g., "I think the family should not clone the ill son because cloning is bad.") were not accepted as valid arguments (scoring range: 0 = no justification, 1 = one valid justification, 2 = two or more valid justifications). The second sub criterion referred to the branching of the justifications (scoring range: 0 = no valid argument, 1 = a simple structure of a claim supported by at least one justification, 2 = a composite structure, in which the justification is supported by another reason, usually explaining why the first reason should be accepted, as for example "The family should not clone the ill son because the clone will suffer pain from donating organs and bone marrow".) The third sub criterion referred to the number of rebuttals (0 = no rebuttal, 1 = one rebuttal, 2 = two or more rebuttals). Finally, the fourth sub criterion was related to the number of valid counter arguments (0 = no valid counter argument, 1 = one valid counter argument, 2 = two or more valid counter arguments).

The second main criterion *content* was analyzed according to two sub criteria. The first sub criterion referred to the number of facts provided to ground the claim. It was distinguished between facts based on civic knowledge, such as legal knowledge or political knowledge (0 = no fact based on civic knowledge, 1 = one fact based on civic knowledge, 2 = two or more facts based on civic knowledge) and facts based on scientific knowledge (0 = no science fact, 1 = one science fact, 2 = two or more science facts). The second sub criterion referred to the moral principles provided to ground the claim. It was distinguished between moral principles based on virtue ethics, deontological ethics, and teleological ethics, each of which was scored according to a range of 0 to 2 (0 = no moral principle, 1 = one moral principle, 2 = two or more moral principles). The first rating of all written arguments was done by the author of this article. In order to assess interrater-reliability a trained research

assistant rated 50% randomly selected responses independently. Interrater-reliability (Krippendorff's alpha) was satisfying (structure: KALPHA = 0.82, content - knowledge: KALPHA = 0.89, and content - moral principles: KALPHA = 0.75). All disagreements were discussed in order to attain a consensus score which was used for all further analyses. Differences between T1 and T2 in the number of mentioned criteria were examined using a Wilcoxon signed rank test with Bonferroni-corrected alpha-level.

FINDINGS

Table 2 shows the mean scores and results of the Wilcoxon test for the structural quality criteria of arguments. It is noticeable that in both groups almost all participants justify a claim at T1 (EG: 97.7%; CG: 100%) indicating that the pre-service teachers are adept in the construction of arguments. The groups do not differ significantly at T1 (Mann-Whitney U-test: $0.10 < p < 0.91$; four items), thus it can be assumed that they are comparable. The results of the Wilcoxon-test reveal that the branching of the arguments significantly increases in both groups, showing medium effect-sizes (r). No significant change between T1 and T2 was found for the number of justifications, rebuttals and counter arguments in both groups.

Criteria	EG						CG					
	T1		T2		Z	r	T1		T2		Z	r
	M	SD	M	SD			M	SD	M	SD		
Justification	1.70	0.51	1.86	0.41	-1.51	0.23	1.73	0.44	1.73	0.51	-0.26	0.04
Branching	0.13	0.41	0.52	0.69	-2.71*	0.41	0.34	0.66	0.76	0.61	-2.79*	0.44
Rebuttal	0.11	0.38	0.43	0.58	-2.52	0.38	0.12	0.33	0.09	0.29	0.00	0.00
Counter Argument	0.29	0.59	0.43	0.58	-0.99	0.05	0.32	0.57	0.27	0.52	-0.47	0.07

* $p_{\text{one-sided}} < 0.006$ (Bonferroni-correction); M mean; SD standard deviation; Z Z-value; r effect size

Table 2. Comparison between experimental group (EG) and control group (CG) regarding structural quality criteria of arguments before (T1) and after instruction (T2)

The results do not support hypothesis 1. Both interventions foster the structural quality of pre-service teachers' arguments with respect to the branching of the arguments. The intervention did not affect the number of justifications, rebuttals and counter arguments.

Table 3 shows the mean scores and results of the Wilcoxon test for the content-oriented quality criteria (*knowledge* and *moral principles*) of arguments. The groups differ at T1 with regard to the criterion civic knowledge ($U = 660.0$; $p < 0.001$) with an advantage of the control group. No further significant differences at T1 were found for the other criteria (Mann Whitney U-test: $0.72 > p > 0.09$; four items). The results of the Wilcoxon-test indicate significant differences for the criteria scientific knowledge and teleological ethics. These criteria increase in the EG. The results support partly hypothesis 2: VaKE fosters the application of acquired knowledge compared to the traditional approach and it increases the use of teleological moral principles compared to the traditional knowledge centered case-analysis.

Criteria	EG						CG					
	T1		T2		Z	r	T1		T2		Z	r
	M	SD	M	SD			M	SD	M	SD		
<i>Knowledge</i>												
Civic Knowledge	0.00	0.00	0.14	0.41	-2.12	0.32	0.37	0.66	0.82	0.79	-2.63	0.41
Scient. Knowledge	0.23	0.48	1.16	0.83	-4.52*	0.68	0.49	0.76	0.85	0.82	-2.38	0.37
<i>Moral Principles</i>												
Virtue Ethics	0.18	0.39	0.34	0.57	-1.61	0.24	0.09	0.30	0.06	0.24	-0.82	0.13
Teleological Ethics	0.41	0.58	1.04	0.77	-3.85*	0.58	0.78	0.69	0.47	0.61	-2.08	0.32
Deontol. Ethics	1.05	0.68	1.02	0.69	-0.96	0.14	0.88	0.64	0.67	0.68	-1.39	0.22

* $p_{\text{one-sided}} < 0.006$ (Bonferroni-correction); M mean; SD standard deviation

Table 3. Comparison between experimental group (EG) and control group (CG) regarding content-oriented quality criteria of arguments before (T1) and after instruction (T2)

DISCUSSION

The results of this study suggest that VaKE provides a possible didactical approach to foster socio-scientific argumentation skills: The continuous elaboration on the individual argument focusing on the integration of facts and moral considerations in order to come up with a satisfying claim can increase the content-oriented quality of the argument. It could also be shown that the integration of values education and knowledge acquisition is not to the detriment of knowledge acquisition. Pre-service teachers who learn according to VaKE do not acquire less knowledge than when learning according to a knowledge-centered approach (see also Weinberger, 2006) rather the opposite is the case with respect to the application of knowledge. It could be shown that the pre-service teachers who learn according to VaKE apply the acquired knowledge and do not rely on their personal theories (Sampson & Blanchard, 2012) to support their claims. Additionally, through the moral dilemma discussion the moral considerations of a SSI are emphasized which increases the use of moral principles, particularly based on teleological theory, to back the warrant. Considering moral principles in the justification of a claim is important to construct valid moral or socio-scientific arguments (Hume, 1738).

Although the results argue for VaKE several limitations which are based primarily on the research design have to be considered. First, the sample size is small which diminishes the representativeness of the results. Second, only one instrument was used to test the hypotheses restricting the validity of the results. Third, a possible selection bias may have occurred indicated by the different level of previous knowledge at T1. Finally, the sustainability of the effects was not examined. Future studies should consider multi-method studies including more participants and follow up tests.

In order to meet the demands of teaching through argumentation, it is considered important that a teacher has first-hand experience with argumentative practices, either in pre-service or in-service training programs, which foster the development of knowledge and skills to assist in the future implementation of argumentation in science classes (Zohar, 2008). The use of VaKE in teacher education provides an appropriate possibility to address this aim despite the overloaded curricula and it also equips the pre-service teachers with a teaching approach they can use later in their classroom to enhance socio-scientific argumentation skills in their students. The question remains, whether teachers who know VaKE really use it in their classrooms.

An important implication from this study is to consider the moral considerations as an essential element of the quality of a socio-scientific argument. Although pre-service teachers are adept to construct arguments, when focusing primarily on knowledge acquisition the moral principles as justification for a normative claim become less important which in turn can decrease the validity of the argument. By using VaKE as a method to discuss SSI the moral considerations as well as knowledge are addressed equally providing the base for constructing valid socio-scientific arguments.

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FOSTERING STUDENTS' CREATIVITY BY DESIGNING THEIR OWN PERIODIC TABLE

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ABSTRACT

Creativity is one of the expected top three skills in 2020 and the one of 7C skills for the twenty-first century. This research aimed to enhance creativity in 112 first year pharmacy students at Ubon Ratchathani University. The students were divided to 28 groups to complete an assigned task to design their own periodic table which was never seen by internet searching. A periodic table in the form of a tree was given to the students as an example. Results showed that the most popular designs were *Chaliew* (a symbol of Thai traditional medicine), fish, robots, and cars (39%, 27%, 22%, and 22% respectively)

INTRODUCTION

It is anticipated that the top 10 skills in 2020 will be complex problem solving, critical thinking, creativity, people management, co-ordination with others, emotional intelligence, judgment and decision-making, service orientation, negotiation, and cognitive flexibility (Luu, 2017). Creativity is the demonstration of original thinking and is composed of fluency, flexibility, originality, and elaboration (Torrance, 1969). It is regarded as one of the top three of expected skills and one of 7C skills for 21 century: critical thinking and problem solving, creativity and innovation, cross-cultural understanding, collaboration, teamwork and leadership, communications, information, and media literacy, computing and ICT literacy, career and learning skills. Those who have high creativity skill will be able to solve problems better than those who have low creativity (Rainwater, 1965).

Scientists give high priority to creativity. Einstein said, "Creativity is intelligence having fun"; "Education is not the learning of facts, but the training of the mind to think"; "Creativity Is contagious. Pass it on"; and "Imagination (or creativity) is more important than knowledge" (Pinterest, 2017). Scientists' inventions are based on their creativity. If they lack this skill, there is no knowledge induced according to the scientific process. Creativity originates from the need and the preparation, not the specific skill or gift but the effort. It is the intrinsic motivation (Marzano, 1988: 141).

Guilford (1967) stated that scientific creativity is the ability of the learner to use scientific theory to widen their ideas, shape their thoughts, and season their brains to produce new valuable ideas. It consists of three types, fluency, flexibility, and originality. Fluency is students' ability to react to problems or situations as much as possible in limited time. Flexibility is students' ability to arrange their ideas into categories. Originality is students' ability to approach problems and situations from different perspectives to those of the majority of people. Much research indicated that science learning management aims to encourage students' creativity by allowing research to be completed in the same ways as those of other scientists.

Scientific creativity also benefits other learning skills. For example, opportunities are provided for students to be active and complete their own experiments, allowing them to gain more confidence and courage to speak with their own voice, even if it is different from others. Moreover, it promotes teamwork skills and democratic learning as they listen to others' opinions. Students become able to think analytically to identify problems and solutions from different perspectives. They develop their thoughts, widen their ideas, and think more profoundly. At the same time, they reflect on these thoughts and ideas, examine the rationale of their work, identify their strengths and weaknesses, and consider their improvement. Their learning achievement increases and attitudes to science learning become more positive as learning activity promotes their creativity and challenges their skills. Students develop the ability to apply their knowledge in their regular lives (Hu, 2013; Daud, 2012; Stojanova, 2010; Vivian, 2004), and to become creative problem-solving persons (DeHaan, 2009).

OBJECTIVES

The research aimed to develop the originality of first year university students and identify the most popular by peer assessment.

METHODOLOGY

The participants were 112 first year pharmacy students at Ubon Ratchathani University. They were divided into 28 groups to complete an assigned task to design their own periodic table without consulting the internet. Students were required to give the reason behind their designs. A tree periodic table was given to students as an example (Fig. 1).

Figure 1. Example of the design of a periodic table

The teaching process to motivate creativity consists of five stages. These are: 1) Fact-finding from nervousness and confusion but still unable to identify the problem; 2) Problem-finding – student is able understand and identify the cause of the problem; 3) Idea-finding – student is able to think and to set a hypothesis, including data collection to test their ideas; 4) Solution-finding – student is able to test the findings of the hypothesis and to produce answers; and 5) Acceptance-finding – student is able to accept the answer (Torrance, 1969).

Evaluation

1. The teacher examined the periodic tables designed by the students to check if their designs were copied by searching on the internet by entering ‘periodic table.’ and shape for example periodic table fish.
2. Students recorded a vote score for their peers’ periodic tables.

FINDINGS AND DISCUSSIONS

These results showed that the most popular design was *Chaliew* (Fig. 2a), fish (Fig. 2b), robot (Fig. 2c), and car (Fig. 2d) (39%, 27%, 22%, and 22%). Chaliew was the most popular because it was a symbol of Thai traditional medicine.

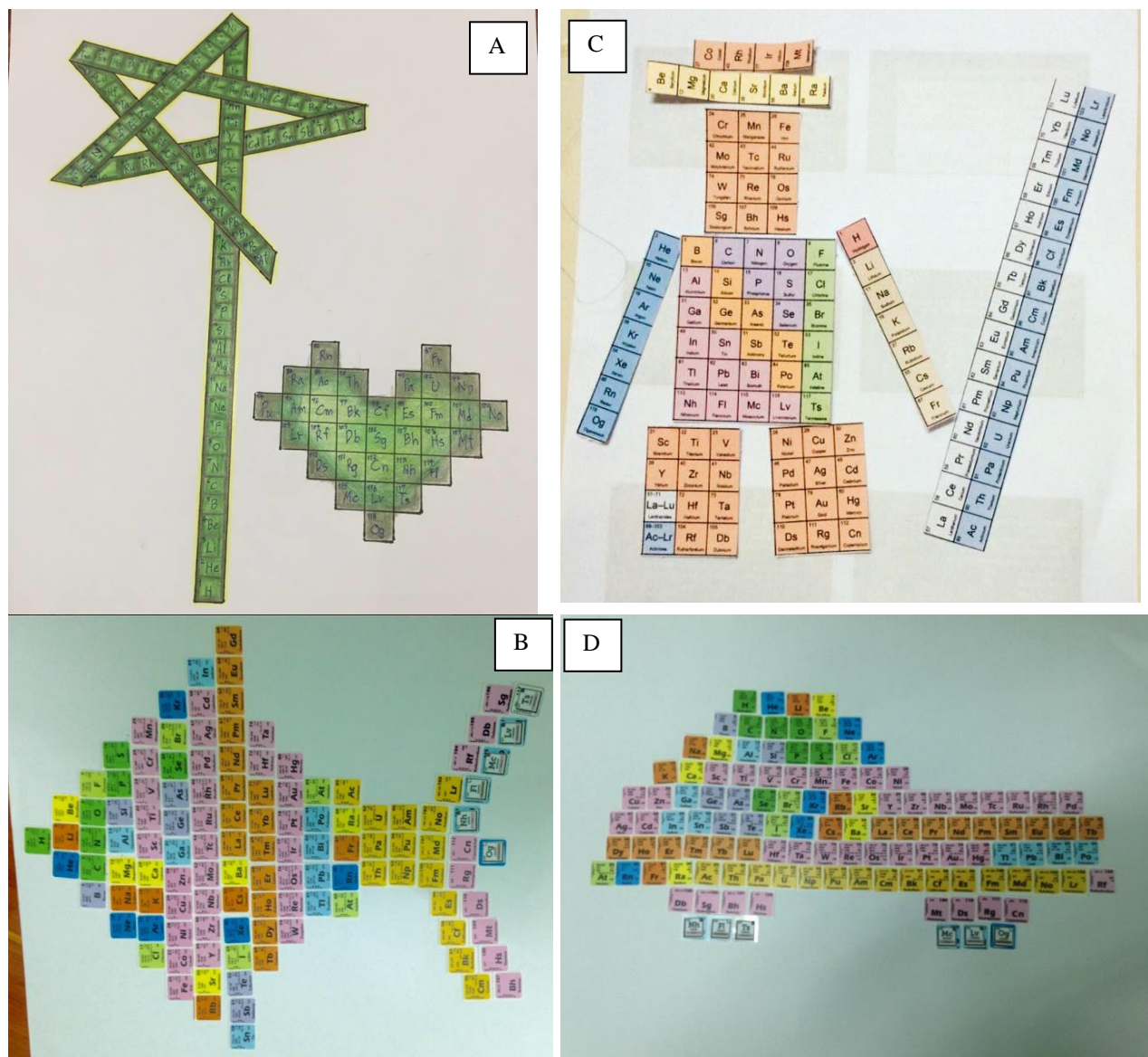


Figure 2. Designs of periodic table by students: (a) Cha-lier, (b) fish, (c) robot, and (d) car.

Fig.2, it is evident that students in every group rated the satisfaction level on the periodic tables designed by the students, ordering from the atom number. Fig 2A, Cha-lier design is composed of a star shape and a heart shape, the symbol of the Faculty of Pharmaceutical Sciences. The reason for this design is shown in Fig 3 and aims to represent unity and harmony of pharmacy students. However, the other students tried to motivate friends to vote their group as well. One observation found is Cha-lier was written by hands while the other students printed the pictures to build the periodic table. It is apparent that apart from Cha-lier group that represents their outstanding originality, they are able to remember the information because they wrote it by themselves. This benefits their memory skill creatively. Therefore, the teacher should add one more condition for students to design the periodic table by hand to increase their memory skills. In accordance with Thorndike theory, Law of Exercise states that learner practice or repetition leads to accuracy (Thorndike, 1966)

We are proud to present a periodic table that represent about our field of study, Pharmacy. We designed something resemble the star called "Cha-licw" ,which is used to protect liquid drug in bolling pot. In the past, A pharmacist will put this Cha-licw on top of the pot to keep high efficiency of the drug. Moreover, The heart logo means unity and harmony of pharmacy student. We are appriciated to my occupation. According to the provide picture ,colour of periodic table is olive green. This shade is symbol of phamacist. #Team15

Figure 3. Capture screen of the reasons why the students designed the periodic table in Cha-licw shape

Some student groups designed the periodic tables in a heart shape (Fig. 4a). According to Levine (1990), the heart is the popular shape internationally. However, students in this research has the different idea to design the periodic table for the electron configuration and adding the recent discovered symbols which are Nh, Mc, Ts, and Og (Fig 2a-d and Fig 4a-b). Levine (1990) also some designs of romantic periodic tables and periodic city. For the periodic Valentine, there is no elements configuration but they use the word, Valentine to connect the elements in the table such as V defines to Vanadium and AI defines to Aluminum.

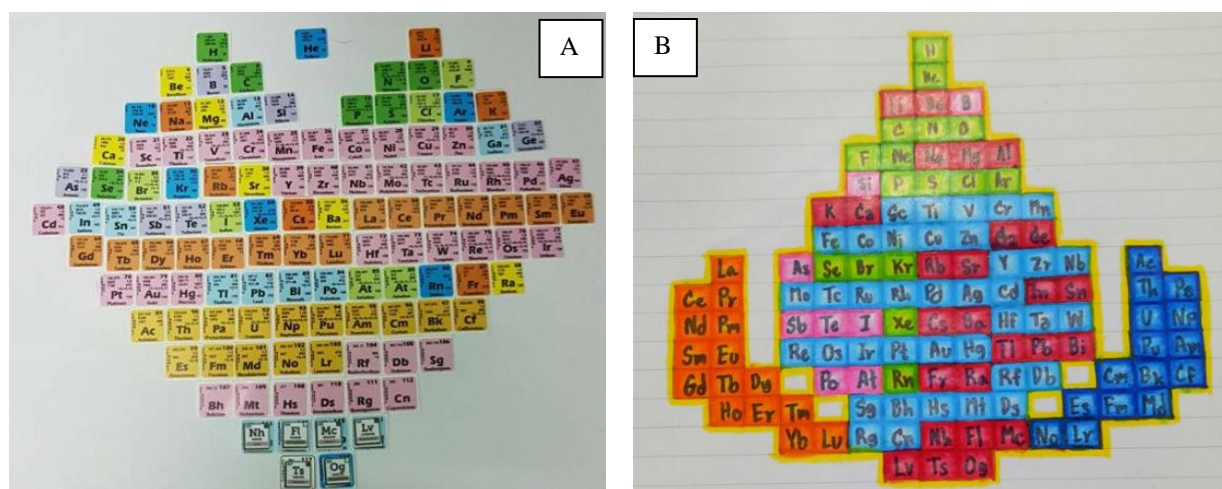


Figure 4. Designs of periodic tables by students – (a) heart; (b) lotus

Some student groups designed and named the periodic tables as "Lotus periodic table" because they got inspiration from the Ubon Ratchathani University" logo. These elements of the periodic table were sorted by atomic mass. In these, red represents metal, green represents non-metal, pink represents metalloids, light blue represents transition, transition that atomic mass 57-71 on the left (orange) and atomic mass 89-103 on the right (blue) (Fig. 4b). This indicated that creativity originates from the effort of students not the specific skill or gift (Marzano. 1988).

CONCLUSION

The teacher assigned the task to promote students' creativity. The students designed periodic tables in their group and every group was able to design creatively. The students were satisfied with the design, Cha-licw was the most popular because it is the symbol of pharmacists.

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GENDER DIFFERENCE IN THE USE OF LEARNING STRATEGIES: A PAKISTANI PERSPECTIVE

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ABSTRACT

This descriptive research study is an effort to investigate gender difference in using learning strategies among Pakistani undergraduates. LASSI (Weinstein, Palmer, & Shulte, 2002) was administrated to sample of 4836 students: 2623 female and 2213 male students from 18 universities. 10 of them were public sector universities and 8 were private sector universities. Sample was selected through stratified cluster sampling. The LASSI was consisted of 80 statements on 5-point scale. There were ten subscales anxiety attitude, concentration, selecting main ideas, time management, motivation, test strategies, information processing, study aids and self testing. Cronbach alpha range was 0.73 to 0.89. Data were analyzed by using SPSS version 15. One way MANOVA was applied for data analysis. Cohen's decision rule was used for effect sizes. Results exhibited that female respondents were significantly better on three scales: selecting main idea, test strategies and attitude while male respondents did not score better on any of the subscale.

Keywords: Gender, LASSI.

INTRODUCTION

Undergraduates enjoy different strategies to enhance their learning during studies. According to Entwistle, McCune, and Hounsell (2002) learning strategies are amongst those variables which influence the eminence of undergraduate students' learning. Mayer (1988) posits that these strategies include "behaviors of a learner that are intended to influence how the learner processes information" (p.11).

Hartman (2002) identified procedural, conditional and declarative as kinds of knowledge which efficient strategy users acquire. Knowing about a variety of strategies is called declarative knowledge, procedural knowledge is about how these strategies be used and the decision about when these strategies be used is the paradigm of conditional knowledge (Carrel, Gajdusek & Wise, 2002).

By and large, female and male respondents demonstrate dissimilar learning behaviors (Sohail, Shahzad & Iqbal, 2012). A mounting body of research investigated the impact of gender on strategy use and most of them reported better female respondents' strategy use than their male respondents (Sohail, 2013). Hyde (2005) advocates that females and males were alike on some mental variables. He also augmented regarding gender age and perspectives do matter. Nambiar (2009) viewed gender as a non predictable reflector of strategy use. Downing (2009) on the other hand reported females' significantly better use of self-regulation strategies and a more encouraging attitude towards academics than their males.

A study calculated correlation among academic success and anxiety and found that mature female respondents showed more motivation than their counterparts (Sizoo, Malhotra & Bearson, 2003). Gender typically relies on biological underpinnings. Two decisive features, different social images and natural distinctions are invoked in it (Downing, 2009). The study in hands considers gender as to discriminate female and female respondents. Their sex, their social and psychological character are the focal determinants.

Sohail, Shahzad & Iqbal (2012) used LASSI on 465 Pakistani students of a university and found that female students outperformed on nine sub-scales but the difference was significant only on three sub-scales which were CON, ATT and TMT. As far as male students were concerned, they were slightly better than their counterparts on STA.

The current study is the continuation of previous study conducted by Sohail et al., (2012), which was conducted with the sample of 465 students of only one public sector university. In the current study, gender differences are taken into account on a large sample from many public and private sector universities of Pakistan.

METHOD

18 universities of the Punjab were selected through random sampling on first stage, 10 of them were public sector universities and 8 were private sector universities. At second stage 4836 students were selected conveniently from all universities. 2623 were female and 2213 were male students.

LASSI (Weinstein, Palmer & Shulte, 2002) consisted of 80 items on five-point scale on three components: will skill and self-regulation. There were ten scales: test strategies, attitude, time management, anxiety, selecting main ideas, motivation, concentration, self testing, information processing, and study aids, Cronbach alpha range was 0.73- 0.89. Respondents' opinions were added to get total score. 40 was the maximum whereas 8 were the minimum score. Means were calculated for both groups. SPSS version 15 was used to analyze data. One way MANOVA was applied. Cohen's decision rule was used for effect sizes for the sack of precision.

FINDINGS

MANOVA facilitated to calculate the outcome of gender as IV on 10 LASSI subscales as DV. After that further Analysis was applied on every DV i.e. LASSI scales. The descriptive statistics are given in Table 1.

Table 1

Descriptive

DV	Male			Female		
	<i>M</i>	<i>SD</i>	<i>N</i>	<i>M</i>	<i>SD</i>	<i>N</i>
ANX	24.60	5.98	2213	24.75	5.92	2623
ATT	25.44	5.73	2213	26.77	5.36	2623
CON	25.11	5.40	2213	26.03	5.24	2623
INP	26.23	5.76	2213	26.32	5.96	2623
MOT	26.67	6.16	2213	27.24	6.40	2623
SFT	25.55	5.37	2213	25.13	5.79	2623
SMI	25.91	5.59	2213	27.09	5.47	2623
STA	25.92	5.61	2213	25.90	5.42	2623
TMT	24.14	5.13	2213	24.78	4.75	2623
TST	25.36	5.33	2213	26.75	5.48	2623

DV= Dependent Variables

The results of MANOVA and univariate ANOVA are given in Table 2.

Table 2.

MANOVA & Univariate ANOVA for Gender wise Comparisons

DV	MANOVA				ANOVA			
	<i>Wilks's criterion</i>	<i>F</i>	<i>df</i>	<i>p</i>	<i>F</i>	<i>df</i>	<i>p</i>	η_p^2
	0.968	15.80	10,4825	.000				
ANX					.77	1, 4834	.378	.000
ATT					69.72	1, 4834	.000	.014
CON					36.12	1, 4834	.000	.007
INP					.28	1, 4834	.592	.000
MOT					9.96	1, 4834	.002	.002
SFT					6.80	1, 4834	.009	.001
SMI					54.95	1, 4834	.000	.011
STA					.02	1, 4834	.892	.000
TMT					19.89	1, 4834	.000	.004
TST					79.02	1, 4834	.000	.016

ANOVA, $p < .005$ & MANOVA, $p < .05$ $\eta_p^2 = ES$

Table 2 reflects that difference is significant among females & males on DV, considering the results for DV one by one, significance difference was found on 3 of the LASSI scales. Further analysis reflected that on 3 scales female respondents' score was significantly better as compare to males.

Table 1 & 2 shows that on ATT, selecting main idea and on test strategies female respondents' score was significantly higher as compare to male respondents. The decisions were taken on the basis of effect sizes for the sake of precession. So the results of the study reveal that female respondents were more efficient in strategy use as compare to males because females scored significantly better on three of the scales: selecting main idea, attitude and test strategies. Male university students scored low on all the subscales.

CONCLUSIONS

The findings showed that the two groups are different for three of the scales. On attitude, test strategies, and selecting main idea subscales, females were better than males. Male students were not significantly better than females on any of the LASSI subscale. Findings reflect that females proved themselves more effective in their strategy use than males.

The results are not different than earlier studies of impact of gender on students' learning strategy use (Braten & Olaussen, 1998; Griffin, 2012; Sohail, 2013, Sizoo, 2003; Sohail, et al., 2012). The findings of this study follow the trend that females possess more traits of being strategic as compare to male students. Studies reveal that females are more responsible, careful, emotional and serious than males (Iqbal, et al., 2010). Griffin, et al., (2012) augmented a noteworthy finding that female students outperformed than males in their academics due to the mediating variable which is the use of learning strategies. Du, Weymouth and Dragseth (2003) also of the view that females seem to be more hard worker, engaged in school environment, and more responsible than boys.

On the basis of the results of the study certain courses, modules/ lectures on strategy use may be introduced at this level to manage this disparity. Male students need to be encouraged to promote productive and effective ways to make them better strategy employer. Findings of this study call for conducting more research to know the reasons of male students becoming less strategy users.

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GLOBAL EKONOMİK KRİZ SONRASI PARA POLİTİKALARINDA GELİŞMELER VE TÜRKİYE

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ÖZET

1980'ler boyunca dünya ekonomisi ölçeğinde uygulanmakta olan liberalizasyon politikaları, beraberinde özellikle son otuz yılda birçok önemli ekonomik krizle karşı karşıya kalmamıza neden olmuştur. Diğer yandan 2007 de ortaya çıkan ve 2008 den itibaren derinliğini daha da arttıran özelliğe sahip bu süreç Büyük Durgunluk olarak ifade edilmiştir. Bu Büyük Durgunluk pek çok ülkeyi özellikle gelişmekte olan ekonomileri de büyük ölçüde etkisi altına almıştır. Gelişmiş ülkelerde uygulanan miktarsal genişleme politikaları gelişmekte olan ülkelerdeki sermaye akımlarındaki dalgalanmalarının da gerekçesi haline gelmiştir. Gelişmekte olan ülkelere yönelik sermaye akımlarının durması ve ekonomideki muhtemel olumsuz etkileri karşısında bu ülkelerde, makro ihtiyati tedbirler gündeme alınmış ve para politikalarının yeniden gözden geçirilmesi gerekmiştir. Bu çalışmada, Türkiye ekonomisi deneyimi, geleneksel ve yeni geliştirilen para politikası araçları bağlamında değerlendirilecektir.

Anahtar Sözcükler: Finansal Kriz, Para Politikaları, Türkiye Ekonomisi

Developments In Monetary Policy After The Global Economic Crisis And Turkey

ABSTRACT

The liberalization policies implemented during the 1980s, the world economy faced several financial crises over the last three decades. On the other hand, the financial crisis that began in August 2007 and intensified in the fall of 2008 pushed the global economy into a severe downturn that some have called the Great Recession. This Great Recession spilt over to other countries has had significant effects on the developing economies as well. The developing economies have faced with especially short term capital inflows due to quantitative easing of the developed countries. The developing economies have taken macro prudential measures against sudden stops of capital flows and their probable negative effects on the economy, and have pressed up to the point of action to revise monetary policies. In this study, the experience of the Turkish economy will be evaluated in the context of the newly developed monetary policy instrument.

Key Words: Financial Crisis, Monetary Policies, Turkish Economy

GLOBAL TELECOLLABORATIVE LEARNING BETWEEN KOREAN AND AUSTRALIAN PRIMARY SCHOOL STUDENTS

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The on-going study is designed to develop an instructional model of synchronous telecollaboration between Korean primary school students and their Australian peers. Korean students learn English as a foreign language (FL), while Australian peers do Korean as a FL. Since April in 2017, 108 Korean primary school students aged from 11 to 12 have telecollaborated with Australian peers with diverse topics of their traditions, such as song, dance, traditional play, etc. Each class consists of three phases: pre-task, during-task, and post-task. For example, regarding their first topic of introducing myself, during the phase of pre-task, the participants made sentences in their target language, shared the files, and practiced their presentation. The second phase of during-task, their first synchronous video-conference class with their international peers, they had a guessing game called “What is my name?”, which they introduced themselves in their target language and asked their partner group of identifying their name. After their synchronous class, Korean participants had time to reflect what they learned and what they missed in the class with their peers, and how they would like to make their work better. The telecollaborative learning experience has helped Korean students achieve key competencies required by Korean National curriculum. At the conference presentation, a short video clip of the synchronous class between the two groups and their presentation materials will be shown.

GLOBAL TRANSFER OF 'THE UGLY INDIAN' PROJECT FOR THE VALUES FORMATION

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ABSTRACT

In the issue 'Global Issues in Education and Research', specifically within the sub-theme 'Cultural Diversity and Inclusive Learning' this article analyzes a case study called 'The Ugly Indian' a proposal of a group of volunteers who work together to clean the India streets in order to improve the self-esteem of the inhabitants and therefore their habitat of life. Besides, this group wants to eradicate the following stereotype: all Hindus are dirty, a stigma that has historically affected their identity, their culture and their social inclusion. The methodology applied is the virtual ethnography through a guided expedition by the 'The Ugly Indian' website by mean of the bibliographic review. As final consideration, this article establishes that amateur projects such as 'The Ugly Indian' can be transferable to any world context and their educational contribution is essential because it is based on the communication-action paradigm and linkage with the community, basic aspects for future professionals training of any discipline and field of study. **Keywords:** Good practices, social responsibility, civic values, attitude change.

Indians do not have the same civic sense as, say, Scandinavians. The boundary of the space you keep clean is marked at the end of the space you call your own.
Suketu Mehta (2012)

Theoretical framework

In a 2016 report, Minister of State of Environment, Forest and Climate Change of India, Prakash Javadekar, had pointed out that 62 million tonnes of waste is generated annually in the country at present.

About that, we can ask the following questions (Jadeja, 2014):

- How many times have you ignored a dirty street?
- How many times have you thrown a piece of garbage on the street?
- How many times have you walked the streets of an Indian city and shaken your head disapprovingly at the levels of filth and dirt surrounding you?
- How many times have you subtly flicked a piece of garbage onto the pavement public area?
- How many times have you told yourself that keeping public spaces clean is the responsibility of the local municipal corporation and not yours?

However, one does not need to look at the data to know just how littered out streets are. The question is what we can do? Can we blame the government or can we wield the broom in our hands to clean up the mess in our city? (Parekh, 2011). What do you call a group of anonymous citizens who come together in a city and clean up dirty streets by themselves? (Mohandas, 2015).

A group of volunteers accessorized with cleaning equipment takes to the streets to scrub their city clean. The gloves, shovels, paint come out and they are spent stripping lampposts of layers of posters, whitewashing over betel leaf stains at bus stops and cleaning the garbage dumped at local landfills (Chatterjee, 2014).

This group believes that together, they can make their city a cleaner place – and they set out to achieve just that. Footpaths with litter strewn on them, open dumpyards, etc. are literally washed clean with the help of citizens and municipality staff; at times, even passersbys join in to help (Chatterjee, 2014).

The result: clean streets with manicured lawns make way for what was previously a heap of filth. Hand-painted walls with pretty designs replace the foul stench of the past. People, both young and old, literally lend a hand in these clean-up drives.

The Ugly Indian (TUI) project is led by people who do not want their identities revealed. The volunteers themselves are largely anonymous as well, but still highly organized. They are working quietly to change the face of Bengaluru by motivating locals to restore eyesores, and they have touched a nerve with communities fed up with littering (Chatterjee, 2014).

Moreover, TUI is a group of anonymous citizens motivated by a desire to clean up our smutty city streets, who decided to take matters into their own hands. The Ugly Indian is transforming India, one city street at a time.

Since the theoretical vision of Stairs 2(012), the Ugly Indian describes itself such as:

This is an initiative, which showcases ways to keep neighborhoods clean and neat. It provokes citizens to take ownership of the problem and empowers them to solve it. Greater numbers of people coming forward and solving the problems in their own neighborhoods is what we consider as success. Being highly active on web 2.0, our message is reaching many across the world. It is already expanding on its own. Our work is a lab to present to the world ‘a proof of concept’. We would like to solve different visible problems and issues in public spaces, which ruin the look, feel and experience of public spaces.

There are interesting case studies put up where *The Ugly Indian* team has managed to completely transform certain shoddy and filthy public properties. One such case is that of a wall that was stained beyond recognition by chewers. The Ugly Indian team painted the wall strategically, urged people not to spit around the vicinity and put up pots with palm plants (Parekh, 2011).

As wonderful as it is to read the various changes they showcase, it is also very interesting to know the people who transformed this public place. The people involved are the garbage staff, the private housekeepers, the shopkeepers, and random passersby. By transforming streets, the Ugly Indian has showed us that such a thing is possible in our country. *The Ugly Indian* see hope, due to things can be changed. All it needs is our will and cooperation (Parekh, 2011).

In words of TUI (2010) members:

We view the problem of visible filth on our streets as a behaviour and attitude problem that can be solved in our lifetime. This can be achieved without spending money or changing legislation or systems. It requires coming up with smart ideas to change people's rooted cultural behaviour and attitudes. Moreover, making sure those ideas work.

No moralising, activism or self-righteous anger is part of the guidelines. Besides, anonymity is the hallmark of the movement. In this sense, if anyone breaks that code and speaks to the media, it would dilute the purpose. They do not talk to the media, or anyone. Nobody is authorized to speak to the media on behalf of TUI (Chatterjee, 2014).

The Ugly Indian's objective is to make the public spaces clean and neat, and to enhance the experience of public spaces. This group is more concerned about the look and feel of these spaces and the embarrassment they cause to all of us. They do not have much experience in solving issues regarding public hygiene and environment. India has elaborate and detailed laws, but their enforcement is poor (Stairs, 2012).

Project beginnings

The Ugly Indian (TUI) project is led by people who do not want their identities revealed. The volunteers themselves are largely anonymous as well, but still highly organized. They are working quietly to change the face of Indian streets by motivating locals to restore eyesores, and they have touched a nerve with communities fed up with littering (Chatterjee, 2014).

The Ugly Indian is an incredibly great initiative, targeted at invoking and engaging Indians to build a better India. In addition, TUI is a Bangalore-based group that has captured the imagination of people in cities such as Chennai, Hyderabad, Goa and Pune. Now they have made an impact in Coimbatore. With the slogan *Kaam Chalu Mooh Bandh* (Stop talking, start doing), they are on a mission to clean filthy bus stands, open dumps, paan-stained walls and dirty roadsides of their cities (Nath, 2014).

The Ugly Indian is about using guilt as the motivating factor to get Indians to take action and make positive changes. They highlight everyday issues and frustrations that millions of Indian face and have now developed a high level of tolerance for – littered pathways, stained walls, open urination, potholes etc. The aim is to shock and move Indians to take action, and still today, they have been pretty successful in their approach (Chaudhary, 2011).

In Bangalore, they have completely transformed certain streets and locations with the help of local residents and are gaining huge traction everyday. The group behind this initiative prefers to stay anonymous and believes that it's not so much about the money and systems but people's attitude and behavior that can make a radical difference in the kind of India we would like it to be (Chaudhary, 2011).

Ugly Indians believe in direct action, with a common-sense problem-solving approach. They aim to make a change from within - one that sustains because everyone wants it and is comfortable with it. They view the problem of visible filth on our streets as a behaviour and attitude problem that can be solved in their lifetime. It requires coming up with smart ideas to change people's rooted cultural behaviour or attitudes and making sure, those ideas work.

For members of TUI, social change begin with an attitude transformation:

It is time we admitted that many of India's problems are because many of us are Ugly Indians. Look at any Indian street, we have pathetic civic standards. We tolerate an incredible amount of filth. This is not about money, knowhow, or systems. This is about attitudes. About a rooted cultural behaviour. The Ugly Indian can take the world's best system and find a way around it. Streets in Indian-dominated suburbs overseas are good indicators of this lack of civic sense. It is time for us to do something about this. Only we can save us. From ourselves (TUI, 2010).

The Ugly Indian is a story about hope and optimism. According to the Ugly Indian members "we are part of the problem and only we can solve it. It means that we believe that change is possible in our lifetime" (TUI, 2010).

In fact, Bengaluru was the first city that started seeing transformations on its streets. From betel leaves stains on walls, to potholes on footpaths, to piled up garbage on the pavements everything is fixed by them (Farooqui, 2017).

Guideline of the project

The main values that guide the Ugly India project are the following:

- No lectures, no moralising, no activism, no self-righteous anger.
- No confrontation, no arguments, no pamphlets, no advocacy.
- Do not step on anyone's toes; do not take sides in any ideological debates.
- Support existing systems and improve their effectiveness for the greater good.
- Treat everyone with sincerity, respect and dignity. The greater good will be an outcome. Get real.

Solutions proposed

The Ugly Indian fellows consider their work as a real solution only if:

- It sustains in the public street for at least 90 days.
- With no supervision.
- Is low-cost (ideally free) and easy to implement and replicate
- Changes the behaviour and attitudes of all concerned
- Creates minimal change in the daily actions of everyone concerned (nobody should lose a job, lose a source of income, or get seriously inconvenienced – because it takes only one Ugly Indian to undo the good work of a hundred others).

Products created

Followers of Ugly India have intervened favorably in the public spaces of the cities since they have created different services that contribute to the hygiene of its inhabitants.

TereBins: these are dustbins provided by TUI for public use. TereBins weigh around 20–25 kilograms (44–55 lb.) and they are meant for paper cups, banana skins, cigarette packets and similar small litter. TUI provides tereBin service – which involves identifying ideal locations, installing the bins, setting up a daily clearing system and integrating with the local garbage clearance system and daily supervision (The Ugly Indian, 2014).

WonderLOO: this is an open urinal that protects the privacy of the users. The loo is unmanned and free to use. As of 2014, some 10 urinals are in operation. TUI, in association with the local BBMP office, ensures that each wonderloo is cleaned twice a day (The Ugly Indian, 2014).

Wonderloo is an open urinal without being nasty or compromising with the privacy of the users. The silent revolution the group has brought in and around MG Road, while remaining anonymous, is something the BBMP could emulate. According to TUI, wonderloos are a successful model, as the absence of a building does not leave any room for unlawful activities. The user-friendly wonderloo has public acceptance and pure functionality (Manjusainath, 2012).

Philosophy

Indian citizens do not hold ourselves responsible for the public filth we live in whether it is dirt on the footpath, paan stains, open garbage dumps, public urination, etc. This is precisely the attitude that TUI is trying to change by mean of a strong sense of personal accountability for our public surroundings, their mission is to *spot-fix* one dirty street at a time (Jadeja, 2014).

The idea behind that is to get citizens to take ownership of the work they do by spot-fixing unclean streets as opposed to labeling and making it about specific individuals and taking away from the actual cause. They want to inspire other Indian cities to follow suit (Jadeja, 2014).

Regarding to TUI associates:

Many people see India as a third-world country. India is bigger than this. Moreover, certainly we deserve to live in a better environment. It is a slow process to have an integrated India, but we are getting there. And though we may be ugly Indians, one thing we are trying to instill is that this is a common problem. We need a public solution. Be the change you want to see in the world.

The Ugly Indian: lead your own way

TUI, whose members prefer to remain anonymous, has been quietly making a difference in Mumbai since 2013. The group is leaderless as the belief is they do not require a face to represent their organization. Names and identities of the *Ugly Indian* remain hidden and they reply to the media only via mail (Farooqui, 2017).

The group refuses to depend and blame civic bodies and maintain that people need to take responsibility for the cleanliness and maintenance of their localities (Mohandas, 2015). After fixing several filthy spots across Bangalore, this activist group is going national. They have change streets, walls, etc. in cities such Mysore, Coimbatore, Chennai, Mumbai and the National Capital Region (Times of India, 2014).

If a voluntary group of citizens can come together and help, beautify and clean cities, imagine what the Power of 49& of the country can do. Get together. Get aware. Make an informed choice (Mohandas, 2015).

Values' campaign

"Want to change the world? Start with your own street," believe The Ugly Indians (Mohandas, 2015). Since 2010, the group has fixed many spots through its campaign *Spotfix*. If people do not want to do the ugly work, drop a message on Facebook and The Ugly Indians will take care of it (Farooqui, 2017).

Spot-fixing, according to the group, involves cleaning of mounds of garbage thrown on footpaths and roadsides, removing posters and stains on walls and painting them clean (Times of India, 2014). This mission is to *spotfix* dirty street by dirty street and inspires confidence throw their ugliness challenge. They choose small stretches each week to clean: pavements piled up with plastic, defaced walls, footpaths rendered unusable by potholes (Hariprakash, 2011).

The Ugly Indian (TUI) lead volunteers to mini landfills and ugly street corners to apply *spotfix*, a temporary cleanup and touchup of local infrastructure to work around an apathetic system caught in red tape and educate an urban community struggling with waste management (Chatterjee, 2014).

Their clean up drives are an inspiration to many, and TUI is an offshoot of Whitefield rising. Now, Indian people is care for local civic communities engaged in cleaning up their neighborhood. Based on the success of TUI in Bangalore, people have also begun their own citizen's clean up drives (Mohandas, 2015).

They say their spot-fixes are low-cost and easy to implement, replicate and create minimal change in the daily actions of everyone concerned. People really like how this spot fix conforms to the idea of not trying to make it an art space but rather just a clean a functional public space. Much easier to execute and maintain (Chatterjee, 2014).

"The best part is the anonymity factor," says one of the TUI members. "We do not have to put a face. The aim is to get people out of their comfort zones to clean their living space." The Coimbatore group consists of lawyers, entrepreneurs, students and activists. For one of the group participants "waste disposal has become a huge crisis. These collective initiatives motivate residents. Unless we manage our wastes, we cannot control the stray dog population in the city" (Nath, 2014).

The volunteers pick up the empty bottles and plastic bags. The TUI volunteers plan to gather once again on the same spot to give the final touches. In their own words, "we hope to move to other places, too. However, with this, we want to sow the seeds of a movement. It is our city, after all. Who else will take the initiative?" (Nath, 2014).

At last count, the Ugly Indians had fixed 104 spots - two per week - mostly around Bangalore's central business district, including MG Road, Brigade Road and Church Street. The group says most people do not even know each other's' names - the work takes place silently. Anonymity is a big attraction - many members are fairly senior corporate leaders. Also part of the operation are 150 bins, maintained and cleaned by the group and seven free-to-use WonderLoos - ecofriendly waterless toilets (Hariprakash, 2011).

For one of the members, "anonymity is a hugely successful strategy. Labels take away all the good work. Then it becomes so-and-so's movement". Other member said: "We even refused funding because we don't

want people to tell us they want their name or logo on it. We want people to take ownership. Which is why they can help by sharing labour, lending skilled masons, painters. Or by sponsoring bins” (Hariprakash, 2011).

The Ugly Indian defines itself as a faceless, leaderless volunteer organization. “We are media-shy and prefer if our work does the talking. In fact, they did not want to be identified. In their words, “we have no physical existence. We don’t need an office, because our work is mainly on the streets” (Kumar, 2011).

The group’s founders may conceal their identity, but they are very open in their criticism of their fellow citizens. “It’s time we admitted that many of India’s problems are because many of us are Ugly Indians-We tolerate an incredible amount of filth” (Kumar, 2011).

The organization follows a straightforward operation structure, wherein members self-select themselves via email and volunteers are filtered. The group also boasts of an equal number of men and women and refrains from calling itself an NGO, preferring instead to be referred to as a group of self-driven and motivated people who come to work and not to socialize (Jadeja, 2014).

Various spot-fixes across the country have been reported and the results are visible. The movement is fast spreading and it is easy to see why. It tackles an issue that is so fundamental to our everyday lives that it is hard to ignore (Jadeja, 2014).

Final considerations

Real world change is happening. The Ugly Indian is just acting. Volunteers come together in their droves and change their local area for the better. They clear and clean up, adding bright licks of paint to once down-and-out facades. This is about creating public spaces for the people that people are proud of, and want to look after (Knowles, 2016).

The Ugly Indian’s name is deliberate. Embedded in the self-conscious name is both a personal acceptance of a condition, and the responsibility to change it. The volunteers responsible for this transformation are ordinary people. To ensure the mission focuses on the work and not the individuals, a policy of strict anonymity is encouraged. The focus is on the results, rather than who achieves them. The Ugly Indians want to get away from ugliness and move towards beautification. The first step in solving the problem is accepting the problem (Rueckert, 2016).

Their action inspires other to follow suit. This revival of community vigour comes from India. Even the country’s government acknowledges that too often public spaces become glorified dumping grounds. Today the movement is impacting thousands more communities (Knowles, 2016).

The Ugly Indian, an uncategorizable Bangalore-based community organization, has a fresh approach towards solving the problem of urban cleanliness; an approach that starts with acknowledging that Indians have abysmal standards of public hygiene; an internalization that “We Ugly Indians are part of the problem and only we can fix it” (Vishy, 2011).

The Ugly Indian is organizing cleanup drives in cities, mobilizing volunteers to spruce up parts of the city where garbage has been dumped, walls have been stained and pavements have crumbled. For TUI members, “it is time we admitted that many of India’s problems are because many of us are Ugly Indians, due to we tolerate an incredible amount of filth” (Durai, 2012).

The group believes that Indians lack civic sense, wherever they live in the world. “Streets in Indian-dominated suburbs overseas are good indicators of this lack of civic sense. It is time for us Ugly Indians to do something about this. We are working hard to beautify India. In consequence, we will become Not-So-Ugly Indians” (Durai, 2012).

TUI has already made a difference in some prominent areas of the city. Volunteers cleaned up one major intersection and monitored it for two weeks. “We identified who dumps there everyday, requested them to stop. Helped them with an alternate system when they could not figure one out on their own. This is all about changing the Ugly Indian’s behavior” (Durai, 2012).

In words of TUI members, “We don’t want to interfere in the daily lives of all these people, we don’t want to affect their livelihood, and we don’t want to lecture anyone about recycling. We want to achieve

our single-minded aim (that the garbage should go directly to the lorry and never reach the footpath) with minimum change in daily behaviour of everyone else concerned” Vishy (2011).

The Ugly Indian cannot over-emphasize how important this is – try to achieve what you want with minimal/no change in other people’s lives. You have to accept that others directly involved might not think like you or have the same priorities. Most are living on the edge, fight for daily survival, and are invisible and faceless to those who read posts like this! Vishy (2011).

In addition, The Ugly Indian, whose motto is *stop talking, start doing*, is showing us that moralising, debating, and blaming will lead us nowhere till we pick up broomsticks and paintbrushes in our own hands and get to work (Kapoor, 2015).

With a name aimed at making people aware of these unsavoury habits, The Ugly Indian began as an attempt to understand why we have such low civic standards and tolerate incredible amounts of filth on the streets. They are deeply concerned about the city’s environmental health and its public hygiene. Initially, the group spent time observing and understanding the systems and building trust with the various stakeholders (Bhagya, 2010).

Creating awareness for the need of community involvement fueled by individual effort in such issues has been the main focus of the project. They believe that people are extremely keen about improving the condition of their surroundings and just need a spark or catalyst to get them going. The Ugly Indian is about giving people this spark. Through the project they want to convey that it is possible for any individual, with no authority, money, volunteers or influence, to create a sustainable change in his or her surroundings (Bhagya, 2010).

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HELPING STUDENTS WRITE BETTER SOCIOLOGY ESSAYS USING CONCEPT MAPS

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ABSTRACT

This study aimed to investigate the effects of concept mapping, a constructivist learning tool on 'A' level students' sociology essay writing. This study was carried out in two cycles, each comprised pre- and post- stages involving four lower sixth students from a sixth form centre in Brunei Darussalam. Collaborative concept mapping was carried out during the intervention stage in both cycles. Objectives of the study were to; (i) find out how concept maps can be used to develop students' conceptual understanding in sociology, (ii) identify the changes that take place in students' sociology essay writing when using concept maps. Essays collected from pre and post stages were compared to obtain findings. Results showed the effectiveness of concept mapping in developing students' sociological conceptual understanding as well as in planning and structuring 'A' level sociology essays. However, findings from this study revealed that students preferred to construct their own concept maps, as it would reflect their own individual understanding of the subject. It is therefore recommended that concept-mapping skills should be developed in sociology lessons so students could construct their own concept maps to improve their sociological conceptual understanding as well as sociological essay writing skills.

INTRODUCTION

This study aimed to investigate the effectiveness of collaborative concept mapping on the students' thinking and writing skills. The study took place in a sixth-form college in Brunei Darussalam. The education system in Brunei is codenamed SPN 21, or in Malay, Sistem Pendidikan Negara Abad 21 (Ministry of Education, 2012). SPN 21 focuses on the development of critical thinking skills among the 21st century learners, emphasising on the process of knowledge building which involves students constructing ideas and understanding through interpretation, analysis, synthesis and evaluation (Innovative Teaching and Learning, 2011). It is argued that sociology can be used as a platform for educators to prepare learners with 21st century skills suitable for 21st century careers as it cultivates creativity, innovation, critical thinking, analytical problem-solving skills and communication skills (American Sociological Association, 2005). Goldsmid and Wilson (1980) postulated that among the learning goals in sociology is to develop the students' critical thinking skills.

However, one of the common mistakes made by students in 'A' level sociology examination is their misinterpretation of key terms and key concepts in the questions (Cambridge International Examinations Learner Guide, 2014). Sociological concepts have definite meanings and these meanings need to be understood by the students for them to be able to understand what is being asked by the essay questions accurately. Concept maps have been extensively employed and experimented as pedagogical tools (Novak & Canas, 2007). The idea of concept mapping was first developed by Novak in the 1960s in his attempt to visually portray the structure of information

(Novak, 1991). Novak (1991) used concept maps to assess children's understanding of science using the graphical tools in concept maps to organize and represent the students' knowledge (Novak & Gowin, 1984). Collaborative concept mapping or constructing concept mapping in a group setting differs from individual concept mapping as it involves two or more individuals constructing the concept map to learn and construct knowledge (Gao, Thomson & Shen, 2013).

The increased significance on writing assignments in higher education could be a reflection of the stronger connection between writing and knowledge production in today's information era (Warschauer & Ware, 2006). However, writing is more than merely weaving words and sentences together. A lot of preparation, which includes planning, brainstorming, drafting and modifying, need to be done in order to produce successful writing (Al-Shaer, 2014).

Ideally, a well-written academic assignment demonstrates more than grammatically correct sentences (Villalon & Calvo, 2011), and it should display the writer's deep understanding through both the producing and evaluating the content (Paltridge, 2004). Negari (2011) investigated the effects of concept mapping on the writing skills of English as a foreign language (EFL) students. He gathered that concept mapping helped boost the students' conceptual understanding and this helped them organize their thoughts using the graphical tools. It was also found that concept mapping could enhance the students' creativity as well as their retention, understanding of content, problem-solving skills and their performance in class (Negari, 2011).

In this study, collaborative concept mapping was used to assist students write better essays in 'A' level sociology examination. More specifically, this study aimed to address the following research questions:

- (1) How can concept maps be used to develop students' conceptual understanding in 'A' level sociology?
- (2) What are the changes that take place in students' sociology essay writing when using concept maps?

METHODOLOGY

The present study employed action research as its research design. The action research took a total of two cycles: (i) The first cycle was a preliminary cycle, which looked at the effectiveness of concept mapping on students' writings for a short answer question designed by the researcher; (ii) The second cycle examined the effectiveness of concept mapping on the students' writing for a short essay question which is obtained from past year exam paper set by the Cambridge Examination Board. Each cycle comprised several stages that started with pre-test, followed by intervention, post-test, informal interview and finally, analysis. Data were derived using pre- and post-tests as well as informal interviews after the intervention took place. In this study, the researcher also played the role of the teacher.

Informal interviews with open-ended questions were also conducted with each of the students. Purpose of the interviews was to gain more insights into the students' thoughts on the effectiveness of concept mapping in developing their sociological conceptual understanding and their essay writing skills. During intervention stages in both cycles, the teacher and the students collaboratively constructed concept maps and these concept maps were drawn on the whiteboard. Collaborative concept mapping is when two or more individuals and in the case of this study, the researcher and the participants engaged actively in creating the concept maps together (Gao, Thomson & Shen, 2013). In the current study, the teacher initiated by asking the students questions and later mapped out their responses on the concept map. The intervention stages focused on the usefulness of concept mapping as tools to assist with the development of sociological conceptual understanding and in organizing their understanding. Students' essays obtained during pre- and post-test stages were analysed and compared to map out the changes that concept mapping has on their conceptual understanding and writing skills.

Participants of the study

The participants of this study comprised four students from the lower sixth sociology class in a sixth form centre in Brunei Darussalam. The participants were between the ages of seventeen to eighteen years old.

Marking Criteria (Pre-test and Post-test)

Students' answers for the first cycle were graded using a marking scheme developed by the researcher as shown in Table 1. Different marking schemes were used in each cycle of the study. The second cycle used a marking scheme obtained from Cambridge International Examination Board as shown in Table 2.

Marks	Requirements
0	No attempt to answer the question.
1	Answers at this level are likely to focus on Functionalism as a perspective with no attempt to link this perspective to the society.
2	At this level, answers contain links between Functionalism and the society. However, no attempt to explain the similarities between society and the human body.
3	An explicit explanation of the Functionalists view on society like a human body but no examples are included for support.
4	Answers at this level are explicit and sustained with sociological examples.

Table 1: Marking scheme for Pre-test and Post-Test in cycle 1

Marks	Requirements
0 - 4	Answers at this level are likely to focus on functionalism in general rather than the concept of social order specifically. A few simple points about functionalist theory would be sufficient to trigger the top of the band.
5 - 8	A sound reprise of functionalist theory, with links to social order perhaps left largely implicit, would be worth 5 or 6 marks. A good descriptive account of the functionalist theory of social order i.e. with little or no assessment, could reach the top of the band.
9 - 11	At this level, answers must include some evaluative commentary that identifies strengths and/or limitations in the functionalist theory of social order. Lower in the band the assessment may be delivered mainly through juxtaposing functionalism with other theories of social order. To reach the top of the band, however, the assessment of functionalist theory must be explicit and sustained.

Table 2: Marking scheme for Pre-test and Post-test in cycle 2

FINDINGS

A total of eight answers for short answer questions from cycle 1, eight essays from cycle 2 and eight concept maps from both cycles were collected. A summary of these answers, essays and concept maps are discussed in the following sections.

Table 3 shows an overview of the marks for all the students for both cycles. It shows the increase of marks in the post-test after the interventions in both cycles for all four students.

	Cycle 1 Tests		Cycle 2 Tests	
	Pre-test (Total marks 4)	Pre-test (Total marks 4)	Pre-test (Total marks 11)	Pre-test (Total marks 11)
Student A	2	3.5	3	6
Student B	3	3.5	5	9
Student C	2	3.5	4	6
Student D	2	3	1	5
Mean	2.25	3.375	3.25	6.5

Table 3: Pre-test and Post-test Scores in cycle 1 and cycle 2

Findings from Cycle 1

Findings from cycle 1 also revealed the ways in which concept mapping was effective in developing the students' sociological conceptual understanding and the changes that took place in their answers after using concept maps. The main sociological concepts that were used in the question were the terms Functionalists, Society and Human

Body. The term Functionalists is a basic sociological concept referring to a sociological perspective, which all sociology students need to understand in order to move forward in the subject. The term Society however is a general term, which is not specific to sociology therefore, students need to understand the term Society in its sociological context and the term Human Body in the question needed to be understood in relation to the sociological concept of Society.

Basing their marks on the marking scheme, the students' answers have developed from containing links between Functionalism and Society but no attempt was made to explain the similarities between Society and The Human Body in the pre-test stage to answers containing explicit explanations of the similarities in the Functionalists' View of Society with a Human Body with supporting examples and evidences in the post-test stage.

Following are the effective ways in which concept mapping helped to develop the students' conceptual understanding in Sociology and the changes they have on their answers as found in the first stage of the study:

Firstly, the findings found the effectiveness of visually linking in the concept map the different sociological concepts to form deeper understanding. Below are excerpts of student A's pre-test and post-test answers in cycle 1 after using a concept map:

Student A's Pre-test Answer:

So, the Functionalists view society like a human body as every parts of society helps to keep society going by perform together.

Student A's Post-test Answer:

Functionalists view society as a human body, which need organs that are interdependent and immune system to perform together and hence it will create healthy body. Without one of them, human body cannot function well, same as the society. If social institution and social forces are absent, society will not function well and leads to dysfunctional in the system. Hence, no social order is created.

In sum, student A's post-test answer illustrates links between the Functionalist View on Society and the Nature of Human Body. Similarly, student D's pre-test and post-test answers showed significant changes after using concept maps, as illustrated below:

Student D's Pre-test Answer:

Every part of the human body works together, which is the same as the social institutions, every part of the institution work together to shaped the society. Functionalists see society as complex system whose parts work together to promote social solidarity and stability.

Student D's Post-test Answer:

The Functionalists views society like a human body because human body has organs or body parts which is same like the society having social institutions. Also, the human body have an immune system which in the society they have social forces.

Both student A and D's post-test answers display the effectiveness of concept mapping in developing answers that reflects deeper thinking and ideas.

Secondly, the findings present the effectiveness of visually expanding the concepts by giving examples in the concept map for more supported answer as evident in the excerpts below:

Student B's Pre-test Answer:

In the Functionalism, individuals are viewed as passive products of social institutions.

Student B's Post-test Answer:

Individuals are passive products of the society for which the society shape individuals via social institutions such as family media, religion and education. In order to keep the social system runs smoothly, social forces such as army and police are applied alongside these social institutions. When

both social institutions and social forces exist in the social system, therefore social order can be achieved.

Student B's post-test answer shows a deeper understanding of various sociological concepts, which included examples of Social Institutions and Social Forces which the student then linked to the concept of Social Order.

Thirdly, findings from cycle 1 also found the effectiveness of concept mapping on visually linking the concepts in the questions to other related sociological concepts to create stronger arguments. Overall, findings from the first cycle and the students' post-test marks have displayed positive results on the effectiveness of concept mapping on developing students' conceptual understanding in 'A' level sociology.

These findings are further supported by the students' responses during the informal interviews. All four students agreed that the concept map had helped them to understand the question as well as the sociological concepts in the questions. Like the other three students, student C found the visual links between the concepts on the concept map to be helpful in helping them understand the links between the different concepts. All four students agreed that the concept map has helped them structure their answer better. Findings from the essays and the interviews during cycle 1 have justified the increase in marks for all four students in the post-test stage.

Findings from Cycle 2

In cycle 2, similar findings were found on the effectiveness of concept mapping on developing the students' conceptual understanding in sociology and the changes concept mapping had on the students' essays. Similar to the findings in cycle 1, there is an increase of mark for all four students in the post-test results after the intervention stage. The number of increase in marks however varied for each of the student. As outlined in Table 3, student B and student D gained the most increase in marks compared to student A and C.

In this cycle, student B scored the highest in the post-test stage in cycle 2. This student's answer developed from a reprise of Functionalist Theory, with implicit links to social order in the pre-test stage worth five out of eleven marks to juxtaposing the Functionalists View of Social Order with other theories with nine out of eleven marks in post-test stage. The link in the student's concept map was also evident in her post-test essay excerpts as shown below which contained juxtaposing views on Marxists and Functionalists view.

Student B's Pre-test Answer:

For Marxists, social order is achieved through the inequalities of power. Marxists view society as divided into two classes: Bourgeoisie and Proletariat.

Student B's Post-test Answer:

Unlike Functionalists who put a great deal of emphasis on collective conscience and consensus, Marxists believe that as long as the ruling class are in a state of false consciousness, social order will be maintained in the capitalist. In order for the society to function smoothly, repressive state apparatuses such as the police are used to keep the order in line.

The student's post-test answer is an evidence of the effectiveness of concept mapping in developing the students' conceptual understanding of the concept Functionalism by visually linking the term to other sociological perspectives in the concept map. This has also led to the student writing an essay containing stronger arguments.

Another apparent evidence of the finding can be found in student D's post-test essay. Student D's pre-test essay focused only on Functionalism in general with neither links to social order nor assessing it with other theories which only gave this student one out of eleven mark. This student's post-test essay contained a sound reprise of Functionalist Theory with links to Social Order and an attempt to assess the Functionalists View with other theories worth five out of eleven marks. When asked if the concept map helped his understanding of the question better during the interview, he responded:

'Yes. It helped me organize what I should write in my essay. Also, it helped me understand that "assess" also means criticize which means I should not only write about the Functionalists view' (Student D).

This shows how concept mapping not only develop the student's understanding of the concepts in the question but it also helped the student understood the question overall. As revealed in cycle 1, the findings of cycle 2 also found the effectiveness of visually expanding the sociological concepts by giving examples in the concept map for more validated claims in the post-test essays.

In addition, the results found the effectiveness of concept mapping in improving the students' essay writing skills as all four post-test essays contain more coherent paragraphs than their pre-test essays. Each paragraph links back to the original theory in the question that is the Functionalists Theory of Social Order. Furthermore, during the interviews, all four students admitted that the concept map was indeed helpful in structuring and organizing their essays. Student A claimed that the concept map showed her which points came first and this helped her to prioritize her points. Student B elaborated more on her response by mentioning how the concept map had helped her to graphically structure her thoughts which in turn helped her structure her essay overall. This is in line with Jacobson's (2004) claim that concept maps are effective tools for meta-conceptual scaffolding as they allow students to visualize their own mental representations and thinking processes (Villalon & Calvo, 2011).

DISCUSSION

Overall, the findings found in both cycles were similar. Concept mapping was found to be effective in developing deeper understanding of sociological concepts by visually linking the main concepts in the questions to other related sociological concepts and theories. This is consistent with Kinchin and Hay 's (2000) assertion of how concept mapping is helpful in forming deeper understanding by linking one's fragmented understanding visually in the map. Drapeau (1998) also postulated how concept mapping helps generate new ideas, connect parts, draw sequence as well as analyze causes and effects an to enhance students' thinking skills. In this case, the findings displayed the effectiveness of concept mapping in developing the students' thinking skills in 'A' level Sociology, which according to Shepard (2005) is called Scaffolding. This is when teachers provide supports in the form of prompts to help students link new information to their existing knowledge, which as claimed, by Novak and Gowin (1984) could have been overlooked before making the map.

Concept mapping was also found to be helpful in expanding the understanding of sociological concepts by adding relevant examples in the map which enabled the students to write more supported answers. This finding is an example of how concept maps can be used to illustrate the different types of links between concepts as claimed by Schwendimann (2006). By relating arguments and claims in their answers to other sociological theories, concepts and examples using concept maps students have developed what Grauerholz and Bouma-Holtrop (2003) termed as critical sociological thinking which according to (2003) reflects one's higher-level thinking abilities. In this way, the study found how concept mapping could be used to develop students' higher-level sociological critical thinking. Additionally, by relating to examples and other sociological perspectives and concepts, Grauerholz and Bouma-Holtrop (2003) introduced the concept of critical sociological thinking to describe the competency to logically and reasonably evaluate sociological arguments or problems by referring to social forces and social context. From the essays gathered in cycle 2, concept mapping was also found to be effective in improving the students' essay writing skills particularly in writing more coherent essay content. A previous study by Negari (2011) concluded that concept mapping helped boost the students' conceptual understanding and this helped them organize their thoughts using the graphical tools. Furthermore, in the interviews, the students complimented the benefits of the visual links in the map in helping the understood the relationships and the links between the concepts in the questions, which in turn helped the students organize and structure their answers.

However, some striking findings also emerged in cycle 2. There were evidences to suggest that the students preferred to construct their own concept maps than constructing it collaboratively with the teacher. For example, in student B's post-test essay, she did not include part of the Interactionists' explanation on Social Order which she had included in her pre-test essay. When the student was asked during the interview about the missing part of the explanation in her post-test essay, she responded that because it was not included in the concept map therefore she did not think it would be necessary to include in the post-test essay. When asked if she would prefer to base the essay on a concept map that she had constructed herself, she said she would have done so as she would have a better understanding of the concept map. However, when asked further if she would employ concept mapping to revise the subject in the future, she honestly replied that she still prefers to write her understanding in words. In addition, student C's post-test essay excluded Marxists' concepts of Ideological State Apparatus, Repressive State Apparatus, Althusser and False Consciousness. These concepts however were included in her concept map. When student C was asked to explain why she excluded these terms in her post-test essay when they appeared in her concept map,

she admitted that she must have forgotten to include them as she was too focused on following the “busy” concept map when writing the essay. This is no surprise as she also claimed that although she understood the essay, there were parts, which she had difficulties putting into words. Like student B, student C also prefers to write essays based on her own constructed concept map.

All four students, who although claimed to understand the concept map constructed collaboratively with the teacher, confessed that they would prefer writing their essays based on concept maps that they had constructed themselves as they would reflect their own understanding. This concurs with Gao, Thomson and Shen (2013) claim on the process of knowledge construction in concept mapping differ from individual to individual based on their domain expertise and concept map procedure. Moreover, when asked if they would use concept map to plan their essay beforehand during exams, two out of four students responded they would not use concept mapping, as it is time consuming.

CONCLUSIONS

This study investigated the effects of using concept maps as a strategy to write ‘A’ level sociology essays among four Bruneian ‘A’ level sociology students. The results showed that all four students scored higher post-test scores. It was found that the use of concept maps was an effective strategy in developing the students’ conceptual understanding. The findings uncovered that the visual links in the concept maps really helped the students to visualize and understand the links and relationships between the sociological concepts, perspectives, theories as well as the links between the concepts or the theories and their examples. This goes in line with Mintzes, Wandersee & Novak’s (1997) conclusion on concept maps being the metacognitive tools which helps reflect one’s thinking using the visual representation of the relationships between the concepts and Negari’s (2011) claim that the graphical tools are useful in helping students organize their thoughts and boost their conceptual understanding.

As seen in the increase of the post-test scores, students’ post-test answers improved after the use of concept maps. Their post-test answers, which were not only longer and contained more details, but also reflected deeper understanding and contained stronger arguments with links to relevant sociological perspectives, theories and examples.

However, despite the effectiveness found on the use of collaborative concept mapping as a strategy to write ‘A’ level essays, it was striking to find that the students preferred to use their own self-constructed concept maps as these would reflect their own understandings of the topic. This finding agrees with Jacobson’s (2004) claim on concept maps being effective tools that allow students to visualize their own mental representations and thinking processes. Nevertheless, based on the results and findings of this study, it is safe to conclude that the use of collaborative concept mapping is an effective strategy in developing sociological conceptual understanding as well as in writing ‘A’ level sociology essays that are on par with the standards set by the Cambridge International Examination Board.

Findings from this study have significant implications for ‘A’ level sociology teaching and learning. The use of concept mapping can help develop students’ sociological conceptual understanding as well as develop their essay writing skills. Furthermore, by taking into account the findings from the interviews with the students, this study recommends ‘A’ level sociology teachers to incorporate concept-mapping in their classes (more specifically as a pre-writing strategy) as this could encourage students to construct their own concept maps to be used as pre-writing tools. This could also potentially help produce more independent learners. The introduction to concept mapping in sociology should start with simple and familiar topic until the students can successfully construct their own concept maps.

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HEURISTIC TEST OF STRUCTURE AND CONTENT WRITING OF THE WEBSITES

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ABSTRACT

In this paper, we analyze and compare the attributes related to the structure and writing of web content of the usability guidelines that are freely accessible. This selection serves as the basis for the development of a heuristic test to evaluate the quality of content published on websites. The test evaluates the content from the dimensions of structure, writing and graphic design. At the end, a complete analysis of the evaluation is presented in a quantitative and qualitative way. Unlike other tests, it will be hosted on the web; and, it can be used by any user specialized in web communication and development.

INTRODUCTION

Web sites are built and classified according to the needs that users seek to satisfy (Alonso, 2008). Usability allows users to properly understand the operation of a product in general, however in the field of computing is to define whether a user can positively or negatively meet their needs when interacting with some computational element (Baeza- Yates, Rivera-Loaiza, & Velasco-Mertín, 2004). The terms of accessibility and usability are often confused, but when evaluating both criteria, only some basic aspects are directly related (Serrano, 2009). Usability and accessibility are part of the quality of software products that interact with the human side to provide a better user experience (Moyano, Gaetán, & Martín, 2016). According to Carrión (2014), the success of a website is achieved if users can make use of its benefits. Therefore, user-centered web sites must be developed, that is, their functions and graphical interface are aimed at meeting the needs and meeting the objectives of their audience (Rodríguez, González, & Pérez, 2017).

According to the experience of Mordecki (2010) the classification of information in a website merits a very arduous work, gray areas are often created and problems of ambiguity, in his study half of the documentation was very difficult to classify. As Benigni (2011) mentions, we must be aware and begin to think in terms of usability and establish strong dialogues with users. In this sense, usability allows us to capture the maximum possible attention of users without feeling lost or trapped in any section of the site.

In a website that lacks usability users will easily lose interest in following it and according to the impact they might end up abandoning it definitively, a good web design seems to reduce the cultural differences between users of different countries that access the same website (Alcántara-Pilar & del Barrio-García, 2016/5). It is important to note that the more user-friendly the websites, the better the chances of improving rankings such as Alexa, among others (Benigni & Zabala, 2015). Alexa ranks rankings of the most used sites without distinction of the type of institution to which it belongs, according to Gonzalez (2013) the quality of a website is not directly proportional to the size of the company and more and more companies are concerned about improve the quality of your website.

For this reason there are usability mechanisms that offer a set of recommendations for those who are in charge of the development and maintenance of web sites in order to perform the tasks proposed in the website, in an efficient and error-free way (Fernández-Cavia, and others, 2013). Neisen (1999), considered one of the parents of usability, establishes that high quality content, frequent updating, minimum download time, simplicity of use, relevance of content to user needs, that the web reflects a network-centric organization are the main reasons for a user to re-visit the website.

Many organizations develop guidelines and standards to evaluate the usability of websites that can be mentioned to ISO, Userfocus, HHS Guidelines, UsabAIPO, among others. ISO standards are the most recognized but those that provide software quality standards are under restriction because they have an acquisition cost and as a consequence very few use them (Mordecki, 2012). It is important to emphasize that none of the usability guidelines can be defined as fixed rules (Carreras, 2012). There are also many contributions regarding the way in which usability should be evaluated and each one analyzes the properties that he / she has deemed appropriate, using his / her own methods to determine the results (Suárez Torrente, 2011).

It is very common to find methods to evaluate the usability of websites, among them heuristic evaluation and user test. The heuristic evaluation consists in elaborating a list of criteria that allow us to calculate by percentage or some quantifiable measure the usability of the site. On the other hand, the user test is based on applying a sequence of tasks or instructions to a particular user to perform them on the website and thus determine the level of usability (Prefasi Gomar, Magal Royo, Garde, & Giménez López, 2010). The results of both methods allow webmasters to take corrective action to give users a better browsing experience on websites.

Web pages should guarantee a minimum of quality characteristics, so that they allow users to have confidence in the contents that are published in them (Pérez et al., 2010), for which it should be emphasized that one of the reasons for that users leave the websites is how their content is drafted. Due to the importance of text and multimedia files to communicate and socialize in a non-face-to-face manner (López-Andrada, 2016). Currently, users not only read on the web but also interact with it, even generating content (Gutierrez, 2008). In a study carried out on web development it was revealed that the users have a different behavior when reading on the screen than when doing it in print, so it was concluded that the content to be published on the websites should be different (Tárano León, 2007). Usually users place the look initially in the footer and in the margins of the text, and then go to examine the main content (Rodríguez López, 2011). Therefore, the content of websites should be clear and concise for the audience and this can be achieved by using webwriting techniques and a well-organized easy-to-understand language. It should be emphasized that there is a large number of users that access information hosted on the Internet, therefore the writing of the information should be addressed to any type of user (Oliván, 2001).

In addition to providing adequately worded content, web sites are an ideal showcase for making themselves known (Vielba & Clemente, 2008), and thus, presenting themselves under a structure that ensures they meet the objectives of the audience in a clear way, without too many depth levels of information, as Maniega-Legarda (2006) states, it is easier to remember few elements at a time in different steps than many in a single page. One of the disciplines that is in charge of the structure, organization and labeling of information elements is the Information Architecture (AI) (Pérez Montoro, 2010). The AI provides the user with an interaction with the information on the website, simply and simply (Mosque Sales & Bentes Pinto, 2016). For a better appreciation of AI, the interfaces of a system must be user friendly and support simple visual elements (Paz Enrique & Cuellar Santos Suárez, 2016) and web design must maintain a strong and consistent visual hierarchy (Gutierrez, 2008). Consequently, the structure of the information must be accompanied by an adequate web design, avoiding any kind of distractions that may cause a delay in the activities that the user wishes to perform on the website.

Although there are evaluation methods for usability, the scenario for the evaluation of the structure and content writing is very different. When reviewing the bibliography and analyzing different investigations, we found studies using software and mathematical formulas to evaluate the readability of websites (Hilera González, Fernández Sanz, & Suárez Morón, 2012) but no new studies have been registered that evaluate the structure and writing web content through human participation and that is applicable to all types of websites. However, a heuristic test can be of greater benefit than software, due to the interpretation provided by the experts and the different recommendations that can generate based on their knowledge and experience.

According to this premise, the purpose of this article is to develop an online heuristic test of free access, which allows users to evaluate the level of structure and content writing of any website. The results will be obtained in a quantitative and qualitative way.

METHODOLOGY

It begins with the analysis of content and synthesis of the information about the different contributions and guidelines proposed worldwide on the structure and drafting of web content, among which are those presented in the blog Usable and Accessible of Careers (2012) and the guidelines of the UsabAIPO Initiative (2004).

After the analysis a method of comparison between the previously analyzed guidelines is applied to determine which will be the basis in the elaboration of the heuristic test and finally the online test is elaborated.

There is no authorized regulation that establishes guidelines to produce quality content and that can be implemented by the different means of communication existing, among these means are located the websites. Each communication medium sets its own guidelines for generating quality content (Mordecki, 2012). Therefore, this study establishes the following characteristics to compare the guidelines: appearance of text, headings and titles, findable content, multimedia, content organization and interface design depending on the content structure.

All the guidelines compared in Table 1 contribute to the present research and are found free of charge on the web.

¹ Access Links To Compared Guidelines:

HHS Guidelines: <https://guidelines.usability.gov/>, Directrices de Userfocus: <http://www.userfocus.co.uk/resources/guidelines.html>, Nielsen Norman Group Guideline: <https://www.nngroup.com/articles/ten-usability-heuristics/>, Swedish National Guidelines for Public Sector Websites: <http://www.standards-schmandards.com/2008/swedish-guidelines-for-public-sector-websites/>, SIRIUS:

<http://di002.edv.uniovi.es/~cueva/investigacion/tesis/Sirius.pdf>, Australia Government Usability:

Checklist: <https://www.finance.gov.au/archive/user-profiling-and-testing-toolkit/usability-checklist.html>, Guía para Desarrollo de Sitios Web del Gobierno de Chile: http://www.guiadigital.gob.cl/guiaweb_old/, Usability Guidelines del MIT:

<http://web.archive.org/web/20110511060055/http://ist.mit.edu/services/consulting/usability/guidelines>, Directrices para sitios web del Estado

Colombiano: <http://www.mariocarvajal.com/archivos/Directrices-de-usabilidad-para-sitios-web-del-Estado-en-Colombia.pdf>, Iniciativa

UsabAIPO: <http://aipo.es/articulos/4/16.pdf>

Table 1. Comparison of existing Guidelines

Guidelines	Text Appearance	Headlines and Titles	Find Content	Multimedia	Organization Content	Design Interfaces
HHS Guidelines	✓	✓	✓	✓	✓	✓
Directrices de Userfocus	✓	✓	✓	✗	✓	✓
Nielsen Norman Group Guidelines	✓	✓	✓	✗	✗	✓
Swedish National Guidelines for Public Sector Websites	✓	✓	✓	✓	✓	✓
SIRIUS	✓	✓	✗	✓	✓	✓
Australia Government Usability Checklist	✓	✓	✓	✗	✓	✓
Guía para Desarrollo de Sitios Web del Gobierno de Chile	✗	✗	✗	✗	✓	✓
Usability Guidelines del MIT	✓	✓	✓	✗	✓	✓
Directrices para sitios web del Estado colombiano	✓	✓	✓	✗	✓	✓
Iniciativa UsabAIPO	✗	✗	✓	✓	✓	✓

To design the structure of the heuristic test, we have taken into account the structure that handles the Integrated Web Usability Assessment Process in the Model Driven Software Development (WUEP), which was built by Adrián Fernández (2009). That is, the heuristic test is classified by sections in which the attributes to be evaluated are presented with their respective description or meaning and as an additional data an example is shown for each attribute.

The User-Oriented Web Usability Assessment System, based on the Determination of Critical Tasks, called SIRIUS was built by María del Carmen Suárez in 2011, which determines the results in a quantitative way and expresses it in percentages. Therefore, in the heuristic test the results of the evaluation are calculated in a quantitative way and expressed in 100, using certain criteria used by the SIRIUS application in its formula to determine its results. It has been considered convenient, to present the results also in qualitative form based on the quantitative calculations that the test performs.

In order to determine the final quantitative result of the evaluation, a formula (1) that calculates the total of the values assigned by the evaluators or experts to the evaluation attributes is elaborated, since to evaluate the usability in a quantitative way there is no particular method that is official.

$$\text{Level}_{\text{STRUCTURE AND WRITING}} = \frac{\sum (\text{Values})}{(\sum \text{N}^{\circ} \text{ATTRIBUTES} \times \text{Value})} \times 100$$

Donde:

- \sum (Values) It is the sum of all values of the attributes that have been evaluated.
- $\sum N^{\circ}$ ATTRIBUTES It is the sum of the number of attributes.
- Value MAX It is the maximum value of the attributes = 3.

In the qualitative result it has been considered to distribute in three to the number 100 because the quantitative answer will be expressed in 100. Therefore, three terms will be used to qualify the final value of the result, which are: Bad, Fair and Good. Table 2 shows the conditions that have been taken into account to determine the distribution of the qualitative results according to the value obtained.

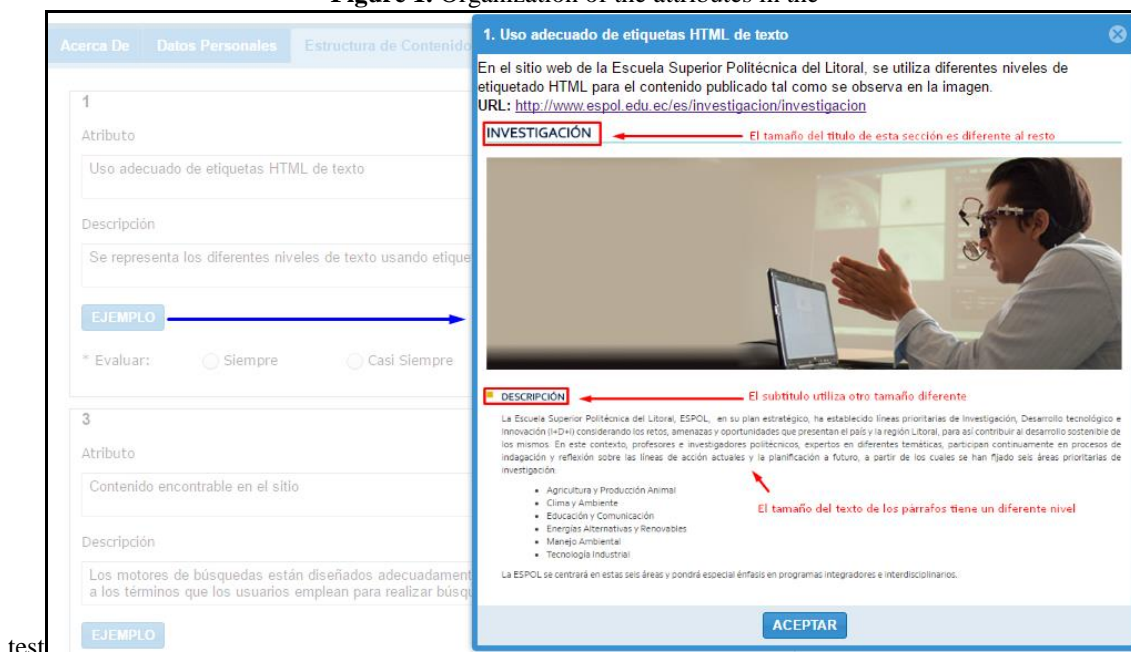
Table 2. Distribution of the qualitative values of the test

Condition / Value	Result
≤ 33	Bad
$> 33 \leq 67$	Regular
> 67	Good

The qualitative and quantitative calculations will be applied to three sections: content structure, content writing and graphic design, ie partial results will be obtained. The graphic design section will be expressed under two terms: Good and Bad, because in this section only two attributes are evaluated.

Each attribute, regardless of the section in which it is located, will have its corresponding description and example, so that the evaluator can properly interpret the terms of the analysis of the evaluation of the websites, as shown in Figure 1.

Figure 1. Organization of the attributes in the



As shown in Figure 2, the test provides the evaluator with three types of responses according to the importance of the attributes and will be evaluated on a scale from 0 to 3, where 0 is the lowest and 3 is the highest. If the answer is Not applicable, the attribute will not be taken into account for the determination of the calculations.

Figure 2. Types of responses used in the test

<p>19</p> <p>Atributo</p> <p>Uso de imágenes con etiquetas clickable.</p> <p>Descripción</p> <p>Presenta etiquetas con hipervínculo en las imágenes que se pueden hacer clic sobre ellas para redirigir a otro lado.</p> <p>EJEMPLO</p> <p>* Evaluar: <input type="radio"/> Sí <input type="radio"/> No <input type="radio"/> No Aplica</p>	<p>20</p> <p>Atributo</p> <p>Uso de video, animación y audio, con significado</p> <p>Descripción</p> <p>Muestra video, animación y/o audio solo para ayudar a transmitir el mensaje de una página web.</p> <p>EJEMPLO</p> <p>* Evaluar: <input type="radio"/> Sí <input type="radio"/> No <input type="radio"/> No Aplica</p>
<p>21</p> <p>Atributo</p> <p>Uso de logotipo de forma consistente</p> <p>Descripción</p> <p>Presenta el logotipo de la organización en un lugar consistente, en todas las páginas del sitio web.</p> <p>EJEMPLO</p> <p>* Evaluar: <input type="radio"/> Sí <input type="radio"/> No</p>	<p>22</p> <p>Atributo</p> <p>Uso separado entre el banner y los elementos de contenidos</p> <p>Descripción</p> <p>No presenta elementos de contenido cerca o dentro del banner que puedan causar confusión al usuario.</p> <p>EJEMPLO</p> <p>* Evaluar: <input type="radio"/> Siempre <input type="radio"/> Casi Siempre <input type="radio"/> Poco <input type="radio"/> Nunca</p>

After evaluating each of the sections, a new tab called Summary is enabled, here the data entered, the answers assigned to the attributes, the partial results by section are presented qualitatively and quantitatively and the overall result. The Summary tab can be edited if necessary, it also has a button that is responsible for saving all the data and submit a report with the information previously named, so the evaluator remains with evidence of the results obtained from their evaluation and this report the site administrator can apply the appropriate changes to your website.

For the construction of the website where the heuristic test is hosted, the following technical aspects have been taken into account:

- Programming Languages: On the Zend Framework server side 1 and on the client side Ext JS 4 Framework.
- Database: PostgreSQL.
- Report generator: iReport 3.7.1.
- Web server: Apache.
- Operating System: Windows 8.1.

RESULTS

The research resulted in the Web application called Heuristic Test of Structure and Drafting of web content hosted at http://gicoweb.utmachala.edu.ec:8081/test_usabilidad/public/aplicacion/evaluar, based on evaluation attributes of the guidelines set forth in Table 1 of this article. The test can be used by any organization, institution, company or researchers to measure the quality of the structure and writing of the information published on the websites. Based on the results of the test, the necessary corrective measures may be taken to improve the structure and writing of such information.

The heuristic test of structure and content writing of websites is classified into four sections: personal data, content structure, content writing and graphic design.

In the Personal Data section, you enter the personal information of the evaluator and specify the website to be analyzed. The other sections are formed by a list of 43 attributes represented in Table 3, which details its description and the characteristic to which it belongs.

Table 3. List of test attributes

No.	Attribute	Description	Characteristic	Section
1	Proper use of html tags (hypertext markup language) in the text	Presents different levels of text using HTML tags according to their hierarchy	Content Organization	Structure of Contents
2	Avoid broken links	Links with invalid routes or nonexistent paths	Find Content	
3	Findable content	Search engines are appropriately designed to present content according to the user's need	Find Content	

4	Organized information	The information is organized in all sections of the site and shows a clear and logical structure	Content Organization
5	Consistency of information needed	Information is available and presented when needed	Find Content
6	Related information groups	The information must be grouped according to its functionality and differentiated from the rest	Content Organization
7	Reduced click usage	Tasks must be completed in as few clicks as possible (maximum 3)	Content Organization
8	Presents quantitative content	Proper use of tables, graphs and visualization techniques for a better understanding of the information.	Content Organization
9	Displays required information	Pages display necessary information without overlapping other information	Content Organization
10	Using colors for grouping content	Identify each section with a specific color that allows to differentiate the different groups of contents	Find Content
11	Publish information for multiple audiences	It presents information according to the type of user that visits the site	Content Organization
12	The home page reflects the main idea of the site	The home page provides the main contents that the site covers in a summarized way	Content Organization
13	Useful content	The published content is related to the needs of users who visit the system	Content Organization
14	Provides descriptive tab titles in each section	Presents a descriptive, unique and concise tab title for each page	Headlines and Titles
15	Using descriptive and unique headers	It shows descriptive and unique headings, that is to say the title expresses of general form the content that presents that section and it differs from the rest of headings	Headlines and Titles
16	Using Descriptive Titles for Rows and Columns	Present table of data with clear and concise titles in both rows and columns	Headlines and Titles
17	Use of simple funds	Uses background images in moderation and simple, especially if they are behind the text	Interfaces Design
18	Using images with clickable tags.	Presents hyperlinked tags to clickable images to redirect elsewhere	Find Content
19	Use of video, animation and audio with meaning	Shows video, animation and / or audio only to help convey the message of a web page.	Multimedia

20	Consistent use of logo	Present the organization's logo in a consistent place on all pages of the website	Content Organization	
21	Separate use between the banner and the content elements	It does not present elements of content near or inside the banner that can cause confusion to the user	Content Organization	
22	Avoid large images in the important content section	It does not fill the entire important content section of the page with an image. Taking into account that at the bottom there may be more information	Content Organization	
23	Ensure images relate to content	The images are representative with respect to the content they belong to	Multimedia	
24	Limited use of images	Use images only when they are critical to website success	Multimedia	
25	Using pictures to facilitate learning	Present images in place of text wherever possible to facilitate learning	Multimedia	
26	Obvious and consistent sequence actions	The step sequences you use to perform an action are orderly, easy to understand, and are maintained throughout the process	Content Organization	Content Writing
27	Avoid slang	No terms are used that any user has difficulty understanding or interpreting	Find Content	
28	Use of dictionary or glossary of terms	Contains a section that allows you to visualize the meaning of terms unknown to the user	Find Content	
29	Avoid non-defined abbreviations in the system	Abbreviations are unknown or are not defined in the system	Find Content	
30	Limit of words and sentences	The sentences have a maximum of twenty words and the maximum paragraph six sentences	Content Organization	
31	Avoid excessive prose text	The lack of prose text allows navigational elements to occupy a central place in navigation pages	Content Organization	
32	Active voice usage	Writing of sentences in active voice and not in passive	Content Organization	
33	Easy-to-understand language	The language used is aimed at any type of user	Content Organization	
34	Using lists	Use lists (ordered, without order and definitions) as appropriate to avoid paragraphs in prose when necessary	Content Organization	

35	Use of content writing technique	The text uses web content writing techniques such as: Inverted Pyramid, Self-similar, Transparent Layers, or any other	Content Organization		
36	Using plain text with black background	The text is black and the background is flat	Text Appearance		
37	Consists of text formatting consistently	The format of the text remains in any section of the website	Text Appearance		
38	Mixed case use for prose text	Use italic, bold, lowercase, or uppercase text when necessary to facilitate quick reading to users	Content Organization		
39	Font size usage, minimum 12 pts	Presents 12 point font type (minimum value) on all pages or sections of the website	Text Appearance		
40	Emphasize important text	Shows a change in the font when emphasizing an important word or short phrase in the text	Text Appearance		
41	Using highlighted text	Highlight highlighted information with up to two different forms on a single page	Text Appearance		
42	Friendly interface	It presents an interface with uniform colors in most of the pages and that match the image offered by the institution.	Interfaces Design		Design Graphic
43	Clean Interface	It shows an interface without visual noise and with a correct use of space.	Interfaces Design		

Source: Self made.

CONCLUSIONS

Undoubtedly, usability is one of the parameters that help improve the quality of websites since it considers the user experience. Usability derives some considerations, including structure and content writing, which in many cases are not taken into account by quality assessment software.

This research provides a different type of evaluation with an emphasis on the content of websites, based on the experience of the expert users when browsing these sites.

Being online and free access is expected to be used by the entire community interested in evaluating the quality of websites and to contribute to obtain effective, efficient and satisfactory sites.

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HOW CAN STUDENTS CONTRIBUTE TO THEIR OWN LEARNING WITH ICT: THE OPPORTUNITIES AND CHALLENGES WITH 1:1 TABLETS IN EDUCATION

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ABSTRACT

This study is on the implementation of ICT, especially using tablets and electronic white boards at different disciplines and its consequent school-wide effects and overall transformation at Turkey Pilot Schools. In this article, we will talk about tablet activities that we designed and explain how we utilize these activities with the learning outcomes of other disciplines by collaborating with the faculty at K-12 level. While we are constructing ICT curriculum and designing our activities, we consider 21st century skills, ISTE standards, students' needs at the individual level, as well as the school culture.

INTRODUCTION

In 21st century (Dede, 2009; Spires, H., Bartlett, M., Garry, A., & Quick, A., 2012) and beyond, developed and developing countries need highly qualified individuals. The schools, teachers, education leaders, policy makers and companies devote serious effort to integrate technology into curricula to harvest such highly qualified individuals. Therefore, the education systems, learning and teaching tools and materials, teaching and learning methods need to transform in order to reach contemporary education. We can easily see that every new technologies based on computers have a transformational effect on education. Even if the results are not good every time, technology integration in education seems essential for 21st century learner profile.

Several research studies show that one-to-one learning technologies have a positive impact on learning and teaching (Bebell & O'Dwyer, 2010; Penuel, 2006; Sclater, Sicol, Abrami, & Wade, 2006). The most motivating and appealing aspect of using one-to-one tablets or laptop or any other mobile technologies is to have access required information at any time any where via internet (Bebell & Kay, 2010). Moreover, the students can create their own class notes by using different software. Therefore information should be personalized (Spires, H. et al., 2012). As a result, they can learn in a meaningful way and they can archive and organize learning materials and projects in the form of an e-portfolio using their tablets, and share it with the rest of the world. This learning environment also makes teaching easier and change the role of the teachers from the only source of information to guiding, advisor, or coach of lesson (Livingston, 2009). Turkish education policy makers also devote an effort to transform education to prepare the individuals for digital age.

THE STUDY: Observations from the Pilot Schools and Interviews

Even though the pilot projects is very new and it is so early to deduce conclusive results, we want to support students, teachers, and principals in the pilot schools in meetings in orders to provide pedagogical perspective. We discussed general opinions, concerns and expectations in our meetings. Some of the opinions of the teachers, vice principals, students were as follows:

LDC Smart Board and Tablet usage in 1-to -1

LCD Smart board has good effects to teaching but it is not user friendly. The design of the LCD smart board (which is integrated with a chalk board and a white board) should change, and area of writing should be expanded. There should be white board instead of chalkboard. When USB port is used for memory stick, the LCD Smart Board's computer is locked even if there's no virus in the memory stick. Teachers have to turn the computer off and on again. Teachers and students lose class time because of technical problems. The anti-virus software of the LCD Smart Board's computer should be controlled. LCD Smart Board should be in teacher's control; there may be a password. The students use the LCD Smart Board in the breaks, and as a result, the calibration settings of the boards change. The speed of LCD Smart Boards is not enough, and menus are very slow.

The problems with LCD Smart Board are effected usage of tablets. Teacher cannot control the tablets with their computers. This situation creates huge classroom management problems. There is a need for classroom management software. The teachers cannot lock the tablets when the students take their tablets to “flight mode”. Students play games using tablets during the lessons, they have difficulty concentrating to lessons.

The teachers should be able to create the exam sheets from the tablets; there should be a classroom management system such that students are able to get feedback and their exam results using their tablets. File sending and receiving, e-mail, forums should be allowed between teachers and teachers, students and students, teacher and students. This can also create a positive impact on communication in the school (Spires, Oliver, & Corn, 2011; Lei & Zhao, 2008; Mouza, 2008). Moreover, the students can share and send their homework and project with teachers and other students. Limited Internet connection permits the students and teachers access some web sites, which are official and permitted by MONE. The security issues, limited access to the Internet, and locked video-camera properties de-motivate the students and teachers’ using tablets in education (Drayton, Falk, Stroud, Hobbs, & Hammerman, 2010). During one of our school visits, we made an open survey by asking students “how many of you brought to tablets to school, today?” at one class of ninth grade students. Just three of thirty-four students had brought their tablets to the school. Interestingly and surprisingly this school was one of the top schools in terms of student achievement. One of the students said that they couldn’t do anything with tablets, since there are no office programs, they are not allowed to use Internet, they cannot use any means of communication, and they cannot use video or camera properties. They have electronic version of textbook and they preferred to bring textbook instead of tablets into class. Tablets are expensive, the students does not want to take the responsibility of tablets. As a result of this, development of e- content is also one of the most important issues in the pilot project.

E-Content Issues in 1-to-1

The tablets have basic software for basic operations such as note taking and e-book reading. The expectations of students and teachers are more than e-books and r-books, more than scanned (or electronic) version of the textbooks. E-content should be enriched: with animations, tests, maps, interactive applications, and interactive test and exam questions. R-books should be available in teachers’ tablets, too. There should be office software to use word processing, spreadsheets and presentations to create projects or other activities. Internet usage area should be expanded (research tools, dictionaries, wikis, etc.), and it should be in teacher’s control. There is a need for information and communication teacher and technology technician support in every school.

Teachers need more and hands-on training for technology integration to their teaching in their subject area. During the interviews, the teachers from the different subjects (e.g., math, science, history, geography, foreign language, etc.) indicate that they need training specialized in their subject to integrate tablet into classroom activities.

Teachers’ Points of View about Tablets in Education in 1-to-1

LCD Smart Board usage is more efficient compared to tablet usage. However, e-content is limited especially for tablets. Teachers’ general view is that tablets are unnecessary. Ministry of National Education gave the first training but it was not sufficient and sustainable. Although they feel unconfident on how to integrate tablets to their courses, they want training on its usage first. The software, the scanned version of the schoolbooks, and e-content in the tablets are not sufficient for integrate into education. The teachers are unhappy and worried about the fast change. The students’ achievement is found to decrease while the teachers and students are striving to integrate tablets to their learning and integration to the courses. Teachers’ another general feeling is pressure about they should constantly use the tablets and the LCD Smart Board. They wonder if the technology is the aim or tool. From that point, I can say that the vision and mission of one-to-one tablet project haven’t been combined, yet in Turkey based on the pilot project.

FINDINGS and CONCLUSIONS

Education leaders, principals, teachers, and students should be made aware of the meaning, impact, opportunities of one-to-one tablet project for teaching and learning. The teachers and policy makers should think and create teaching and learning activities beyond the classroom. Tablets and similar kinds of mobile technologies provide teachers, learner or anybody who want to learn whenever, wherever, they want. They should listen to a lesson

podcast when they you are in a bus, work on their homework in a café house, create a biology video in a botanic garden, or a history presentation on museum visit, have an interview with people on the street about smoking, create an e-portfolio for the class notes and projects, have an exam online and take the quick feedback. The teachers should guide the students with such activities. Otherwise, using tablets or any other technologies will not create much impact on learning and will not motivate the teachers and students. Technology is not a magic tool to readily provide activities; the teachers should create curriculum activities, design learning scenarios by using information and communication technologies.

There are many components to create a one-to-one tablet environment in education. In the future, the pilot projects will be in a much larger scale. It is important to know the obstacles and problems about the project for the further studies and advancement. One-to-one tablet project in education is not one time trial and should be made sustainable (Livingston, 2009). It is necessary to update the software, train the teachers, and develop the curriculum in the education faculties for the teachers' readiness and training in order to achieve goals for the 21st century.

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HOW CAN VISUAL ART WORKS BE USED IN TECHNOLOGY BASED EDUCATION OF “NEW TURKISH POETRY”?

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It is possible to understand a literary work and perhaps find links. The availability of these links can support or help students understand the literary work. Students lacking of necessary cultural background seems to impede their understanding and interpretation of literary texts and thus the education of the New Turkish Literature and Poetry. The appropriate use of technology could benefit literature education and foster student grasp of the literary work. The references in the New Turkish literature (especially in poetry) to visual arts necessitate more concrete representations of those referential words, terms, or imageries which could be made possible via technology. In this presentation, we will give examples of technology usage in new Turkish poetry.

HOW CONSUMER OF NEWS DO SOCIAL NETWORKING ACTIVITY THROUGH CONFIRMATION BIAS, VALUE RELEVANT INVOLVEMENT AND ISSUE RELEVANT INVOLVEMENT: EXPLORING THE IMPLICATION OF NEWS LITERACY

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ABSTRACT

This research studies the correlation between the type of news consumers watch (fake news or factually based news) and news consumer's social networking activities such as clicking 'like', posting and sharing on Facebook, etc., through mediating variables such as confirmation bias and involvement (value relevant involvement and issue relevant involvement). This study presumes some personal factors like bias and involvement are mediating factors that affect social networking activities.

Firstly the research outcome showed that fake news readers didn't have full confidence in fake news that was composed of same subject and different point of view with factually based news (reliability of factually based news : $M=2.99$, reliability of fake new: $M=2.45$). Secondly, the respondents were influenced by confirmation bias independent of the type of news they were shown. A significant difference ($t=5.76$, $df=241$, $P<0.001$) of confirmation bias between factually based news ($M=2.84$, $SD=0.58$) and fake news ($M=2.42$, $SD=0.54$) was presented. Thirdly both news audiences demonstrated value relevant involvement (value relevant involvement of factually based news: $M=2.90$, $SD=0.68$, values relevant involvement of fake news: $M=2.62$, $SD=0.66$). Factually based news is higher than fake news on value relevant involvement and the difference is significant ($t=3.24$ $df=241$, $P<0.01$). However, issue-relevant involvement doesn't relate with either news type (real news: $M=3.68$, $SD=0.75$, fake news: $M=3.55$ $SD=0.70$). The social networking activities of real news audience ($M=2.57$, $SD=0.87$) is little higher than fake news ($M=2.33$, $SD=0.75$). Fourthly, this paper uses the regression analysis on the correlation between the type of news they watch (fake news or factually based news) and news consumer's social networking activities through mediating variables such as confirmation bias and involvement (value relevant involvement and issue relevant involvement). It showed that those exposed to factually based news were mediated by confirmation bias and value relevant involvement ($F=22.432$, $df=118$, $p<.001$) under 34.7% explanation power of social networking activities, and those exposed to fake news were mediated by confirmation bias ($F=11.255$, $df=117$, $p<.001$) under 20.4% explanation power of social networking activities.

The implications of this study are as follows; users are not motivated to do social networking activities on news based on its factual content. Depending on the user's interest of news agenda, user is reliable of the news. News users don't have blind faith in fake news. Regardless of the factuality of news and the personal importance of an issue, users are influenced by bias and value and beliefs to do social networking activities (clicking like, posting, and sharing). Social networking activities are mediated by confirmation bias and value relevant involvement on the both news types. For the implication of news literacy, the result of research shows that news users need to develop critical thinking skills to evaluate evidence fairly and objectively. To reduce confirmation bias, one needs to reduce the psychological defense reaction and seek an emotional change. Value Relevant Involvement is also a defense mechanism to keep one's opinion. Confirmation bias and Value relevant involvement are personal factors that disrupt one's objective attitude for accepting news. It is important to help users fairly understand the news through educational tools such as debate, cooperative work and role playing games. These kinds of educational tools help users avoid misinterpretation, develop strength of interaction and acquire various samples for decision making.

Keywords: New value, News literacy, Confirmation bias. Value relevant involvement, Issue relevant involvement, Social Networking Activity

INTRODUCTION

Social media provides users a choice of stories from different sources that come recommended from politically heterogeneous individuals, in a context that emphasizes social value over partisan affiliation (Messing & Westwood, 2012). Specifically with respect to social media and news consumption, social media news alters the context in which news reading occurs, providing a venue that promotes exposure to news from politically heterogeneous individuals, and which serves to emphasize social value rather than partisan affiliation.

In the 2017 Korea, the disinformation of fake news was spread across social media. Fake news means false or outright hoaxes that masquerade as "real news" in form and structure. Even if there was no factual basis to the news, many people believed this wrong information and shared the fake news with friends on social media. When news consumers diffuse these ambiguous news stories with others through social media, the social influence is amplified leading to detrimental public opinion.

In the social and mobile media-driven digital age, news consumers need to develop critical thinking skills to

evaluate evidence fairly and objectively. The responsibility of determining what is fake and what is real news rests primarily on the news consumers. One solution to news consumer is education about the principles and practices of press through news literacy instruction.

This study aims to research how news users interpret the news and do social networking activity. This research studies the correlation between the type of news they watch (fake news or factually based news) and news user's social networking activities through mediating variables such as confirmation bias and involvement (value relevant involvement and issue relevant involvement). This study presumes some personal factors like confirmation bias and value relevant involvement and issue relevant involvement operate as mediating on factors to do social networking activity. In searching mediating factors, this paper suggests which factors are focused for news literacy.

LITERATURE REVIEW

News Literacy: What is news? Or what is not news?

In the social media environment, the traditional news consumption mode where in people habituated themselves to a trusted source alters into the mode of consumption whereby news consumers can select news from a wide range of sources deemed by friends or fellow internet users to be interesting or important. Users no longer need to select a news source but they select the story itself including social recommendation. News consumers select socially relevant content when presented with an overwhelming number of news stories from which to choose. By this, news consumers restrict their access to the diversity of information and the fragmentation of the media environment polarizes individual-level attitudes (Stroud, 2010). Also it increases ideological homogeneity among party members, perpetuates the support of falsehoods (Kull, Ramsay, & Lewis, 2003), and alters the way consumers of partisan news sources react to threats (Baum, 2011). News consumers of digital media age seem to think socially shared valuable news as more valuable news. The meaning of news value which news consumers nowadays pursue is an important goal for news literacy education.

News values determine how much prominence a news story is given by a media outlet, and the attention it is given by the audience. Various researchers addressed the news value as being primarily composed of timeliness, conflict, popularity and effect, and secondarily as, curiosity, unusual things, visual spectacle and facilitation (Bastian & Case, 1947; Harris & Johnson, 1955; Warren, 1959; Crump, 1974; Golding & Elliot, 1979; Itule & Anderson, 1987; Mayeuk, 1993). Shoemake, Danielian & Brendlinger (1991) argued that newsworthiness indicators could be broken down into three general theoretical dimensions (deviance dimension, the social significance dimension, contingent condition-timeliness and proximity). Schudson (1996) referred to legitimate controversy, deviance and shared values. However relating to the attention audience pays, Whyte-Venables (2012) suggests news may be interpreted as a risk signal by audience. A 'risk signal' is characterized by two factors, an element of change (or uncertainty) and the relevance of that change to the security of the individual. In the view of audience the most important trait of news is personal relevance and interest on the security.

However both media outlets and audience consider news as the combination between facts and importance. Importance of news is easily judged by media outlet and audience. But the facts in the digital news era are not as easy to distinguish. Whether that news is factual or not is not obvious since the digital technology can easily change fake images and news into apparently real images and news. Also, as digital technology makes it easy to copy and distribute fake images, it becomes more difficult for news consumers to judge the news value. Though there are many criterions of news value, the facts are very important criterion of digital news value.

Tuchman (1978) defined the facts as the information being collected using professional techniques and accurately addressing news source and news gathering method. There were ways to verify the objectivity of the facts. That is to quote officially approved news source, use quotation marks and address a quite formal news format. The facts were the main criterion insuring the reliability of news based on accuracy and fairness.

“News literacy is the acquisition of 21st-century, critical-thinking skills for analyzing and judging the reliability of news and information, differentiating among facts, opinions and assertions in the media we consume, create and distribute” (Schneider, 2007). News literacy skills are essential to distinguish between fact and opinion in this ocean of data. News literacy would make students nurture a more informed citizenry. Students must be able to determine bias or the agenda of the writer. Reading out of their comfort zone will help students see other points of view, and be more tolerant and less emotional when discussing issues. In a democratic society, informed decision-making requires that students develop news literacy skills.

Furthermore in the digital information age which refers to an era dominated by increasingly sophisticated digital media devices and transmission systems that have fundamentally altered and personalized the dynamics of information collection, interpretation, and dissemination, and in the contemporary news age in which fake news influences the democratic political order, it is very significant to know what themes and patterns emerge from the consumption of fake news from the standpoint of news literacy. For instance, how do news consumers recognize and interpret news value? When news consumers consider a wide variety of news as reliable news, which psychological mechanism is operating for understanding and acceptance of news? Many studies have investigated confirmation bias which is the desire to prevent and eliminate the psychological dissonance as psychological mechanism for selective exposure (Jonas, Schulz-Hardt, Frey, & Thelen, 2001).

Confirmation bias

People tend to seek information that they consider supportive of favored hypotheses or existing beliefs and to interpret information in ways that are partial to those hypotheses or beliefs. Conversely, they tend not to seek and perhaps even to avoid information that would be considered counter indicative with respect to those hypotheses or beliefs and supportive of alternative possibilities (Koriat, Lichtenstein, & Fischhoff, 1980).

Confirmation bias is the unconscious tendency to acquire evidence consistent with one's beliefs while ignoring opposing evidence. Confirmation bias is a phenomenon wherein decision makers have been shown to actively seek out and assign more weight to evidence that confirms their hypothesis, and ignore or under weigh evidence that could refute their hypothesis (Eagly, A. H., & Chaiken, 2005). Previous studies have shown that people who have strong beliefs and attitudes show a stronger tendency toward selective exposure and confirmation bias (Knobloch-Westerwick & Meng, 2009; Brannon et al., 2007; Hart et al, 2009). Previous empirical studies showed that the confirmation bias is extensive and strong in the information seeking and interpretation. The experimental findings are as follows: the first finding is the restriction of attention to a favored hypothesis (Nickerson, 1998). That is the tendency to give greater weight to information that is supportive of existing beliefs or opinions than to information that runs counter to them. This does not necessarily mean completely ignoring the counter indicative information but means being less receptive to it than to supportive information. The second finding is to treat preferentially the evidence that supports existing beliefs. Preferential treatment of the evidence supporting existing beliefs or opinions is seen in the tendency of people to recall or produce reasons supporting the side they favor on a controversial issue and not to recall or produce reasons supporting the other side (Baron, 1991, 1995; Perkins, Allen, & Hafner, 1983; Parkins, Farady, & Bushey, 1991). The third finding is looking only or primarily for positive cases. What is considerably surprising is the fact that people appear to seek confirmatory information even for hypotheses in whose truth value they have no vested interest. Fourth finding is about overweighting positive confirmatory instances. Studies of social judgment provide evidence that people tend to overweight positive confirmatory evidence or underweight negative non-confirmatory evidence. The last finding is seeing what one is looking for. People sometimes see in data the patterns for which they are looking, regardless of whether the patterns are really there.

The consumers of news seem to seek information that they consider supportive of favored views or existing beliefs and to interpret information in ways that are partial to those views and beliefs. Confirmation bias polarizes individual attitude, increases ideological deviationism, perpetuates the support of fake news, and alters the way news consumers react to news sources and act in the social network with friends.

Involvement: value relevant involvement and issue relevant involvement

The effect of persuasion will be changed according to how one perceives their involvement in an issue. Johnson and Eagly (1989) define involvement as a motivational state that is produced by the perceived link between an attitude and some aspect of an individual's self-concept. There are three types of involvement that each correspond to a particular aspect of the self-concept to which an attitude is linked. Impression-relevant involvement has to do with the self that one presents to others; thus, high impression-relevant involvement indicates a desire to hold a position that will be socially acceptable and thus create a positive public self-image. Outcome-relevant involvement, or, issue-relevant involvement, deals with the actualization of self, or the attainment of particular goals, such that high outcome-relevant involvement with an issue indicates that the issue is important to the attainment of immediate personal goals. Finally, value-relevant involvement deals with the deep element of self-concept which is drawn from social and personal values; high value-relevant involvement indicates a strong sense of a connection between the issue and important personal or social values (Johnson & Eagly, 1989). The more emotionally connected people are to an idea, concept, or value, the more minor differences in beliefs can be viewed as significantly large and perhaps lead to harsh judgments or to have stronger reactions. It concerns those behaviors which hold direct personal consequences at a premium for the individual and as a result, corresponds most closely to vested interest.

Social Networking Activity

Social networking activity, public communication behavior in a specific situation is divided into information processing and information seeking behavior. Interactive communication behavior means seeking and sharing information actively (Grunig & Hunt, 1984). The active communication behavior demonstrates people's social power by expressing their opinion and delivering information which is monitored by mass media, online media and personal communication (Levy, 1987). This behavior is boosted in social media because people try to ensure their position through clicking 'like' or by commenting and sharing news which reflects their values and beliefs (Ma, Lee & Goh, 2014). Social networking activities mean seeking and sharing information actively (Grunig & Hunt, 1984). The interactive communication behavior demonstrates peoples' social power by expressing their opinion and delivering information which is monitored by mass media, online media and personal communication (Levy, 1987). This behavior is boosted in social media because people try to ensure their position through sharing and commenting on news which reflect their value and belief. (Ma, Lee, & Goh, 2014).

Research Question

This study has several questions:

RQ1. How do news users estimate the reliability of factual news and fake news?

RQ2. How does confirmation bias affect news users who read factual news and fake news?

RQ3. How does involvement (value-relevant involvement, issue-relevant involvement) affect news users who read factual news and fake news?

RQ4. How does news user's social networking activity compare when viewing factual news and fake news?

RQ5. What is the correlation between news types (factual news and fake news) and news user's social networking activities through mediating variables such as confirmation bias and involvement (value-relevant involvement, issue-relevant involvement).

Research Methodology

This study utilizes an artificial online news source with the same format and appearance as a real online news source: Huffington Post for this experiment named Voice of Korea. Two news articles, one factual news and the other fake news, are distributed via their respective URLs to surveyors through KAKAO TALK, a famous mobile messenger in KOREA. This study separated respondents (243 persons) into two groups each receiving either a factual or fake news article. After carefully reading the article, they clicked 'next' and then started the post-survey. The demographic features of respondents are composed of males (126 persons, 51.9%) and females (117 persons, 48.1%). This data has been statistically analyzed using SPSS Version 21.0. This study uses exploratory factor analysis to check the validity of survey questions included in each variable. A T-test was used to verify news reliability, confirmation bias, value related involvement and issue related involvement for each testing group. Significance level is $p < 0.05$. Furthermore this study uses Multiple Regression Analysis to verify and ensure the correlation of confirmation bias, value related involvement, and issue related involvement and social networking activities.

Research Result

News user's news reliability of fake news and factual news is 2.99 and standard deviation is 0.67. Average reliability of fake news is 2.45 and standard deviation 0.80. The reliability difference of both groups is 0.54. It was significant as t-value is 5.80, degrees of freedom is 241 and significance probability is 0.000. Fake news users didn't have full confidence in fake news that was composed of same subject and different point of view with factual news. This result implies news users are able to discern between fake and factual news depending on their interest in the issue.

Table 1 News user's news reliability of fake news and factual news

		Case number	News reliability				
			Mean	Standard deviation	Difference of average	T-value	Significance probability
News type	Factual news	122	2.99	.62	.535	5.802	.000
	Fake news	121	2.45	.80			

* $p < .05$, ** $p < .01$, *** $p < .001$

The effect of confirmation bias to news users who read factual news and fake news is indicative that the respondents were influenced by confirmation bias independent of the type of news they were shown. A significant difference ($t=5.76$, $df=241$, $P < 0.001$) of confirmation bias between factual news ($M=2.84$, $SD=0.58$) and fake news ($M=2.42$, $SD=0.54$) was presented. This result implies that people tend to accept news based on whether or not the news supports personal views and belief rather than whether news is created based on the

factual news source. The effect of value relevant involvement and issue relevant to news users who read factual news and fake news shows that both news audiences demonstrated value relevant involvement (value relevant involvement of factually based news: $M=2.90$, $SD=0.68$, values relevant involvement of fake news: $M=2.62$, $SD=0.66$). Factually based news is higher than fake news on value relevant involvement and the difference is significant ($t=3.24$ $df=241$, $P<0.01$). However, issue-relevant involvement doesn't seem relevant with either news type (real news: $M=3.68$, $SD=0.75$, fake news: $M=3.55$ $SD=0.70$). This implies that regardless of news factuality, people select news which is matching with their values and beliefs and the personal importance of an issue does not seem to influence their acceptance of the news.

Table 2 The effect of confirmation bias, value-relevant involvement and issue-relevant involvement to news users who read factual news and fake news

		Confirmation bias		Value-relevant involvement(VRI)		Issue-relevant involvement(IRI)	
		Mean	Standard deviation	Mean	Standard deviation	Mean	Standard deviation
Factual news	122	2.84	.58	2.90	.68	3.68	.76
Fake news	121	2.42	.54	2.62	.66	3.55	.70
Average difference		.415		.279		.135	
T-value		5.758		3.244		1.439	
Significance probability		.000		.001		0.152	

* $p<.05$, ** $p<.01$, *** $p<.001$

The social networking activity of news users who read factual news and fake news is not the same. The social networking activities of real news audience ($M=2.57$, $SD=0.87$) is little higher than fake news ($M=2.33$, $SD=0.75$). The audiences of factually based news are more inclined to diffuse the news through the social networking activities than fake news.

Table 3 Social networking activities of news users who read factual news and fake news

		Case numbers	Social Networking Activity				Significance probability
			Mean	Standard deviation	Difference of ave	T-value	
News type	Factual news	122	2.57	.87	.235	2.245	.000
	Fake news	121	2.33	.75			

* $p<.05$, ** $p<.01$, *** $p<.001$

This paper uses the regression analysis on the correlation between the type of news they watch (fake news or factually based news) and news consumer's social networking activities through mediating variables such as confirmation bias and involvement (value relevant involvement and issue relevant involvement). It showed that those exposed to factually based news were mediated by confirmation bias and value relevant involvement ($F=22.432$, $df=118$, $p<.001$) under 34.7% explanation power of social networking activities, and fake news exposers were mediated by confirmation bias ($F=11.255$, $df=117$, $p<.001$) under 20.4% explanation power of social networking activities.

Table 4 The correlation between news types (factual news and fake news) and news user's social networking activities (like, posting, sharing) through mediating variables such as confirmation bias and involvement (VIR, IRI)

		Social Networking Activity					
		β	t	p	β	t	p
(constant)			1.506	.133		-.057	.954
involvement	IRI	.120	2.115	.035	.101	1.855	.065
	VRI	.463	8.183	.000	.295	4.485	.000
Confirmation bias					.298	4.517	.000
adjusted R^2		.233			.291		
F		37.828***			34.059***		

* $p<.05$, ** $p<.01$, *** $p<.001$

CONCLUSIONS

This paper expected that news consumer would do social networking activities such as clicking 'like', comment and sharing news mediated through confirmation bias and involvement (VRI and IRI).

First, this paper shows that news consumer is able to distinguish factual news and fake news on the proclamation of martial law after the impeachment of President, Park, Geun-hye in Korea. As the result of checking reliability, the reliability of fake news is low. This result shows news consumer doesn't consider all kinds of news as a source of information regardless of information quality.

Secondly, the news consumer exposed to factual news is inclined to sustain internal consistency based on value-relevant involvement. However, issue-relevant involvement doesn't provide this with either news type. This implies that the level of value-relevant involvement and issue relevant involvement is different according to the significance of current issue. On the impeachment of President, Park, Geun-hye, news audience was activated by value of common sense.

Thirdly, the news consumer exposed to factual news is inclined to click 'like', comment and share the news.

Fourthly, the participation behavior as indicated through communication with friends was definitely influenced by VRI and IRI. However, confirmation bias coupled with involvement, especially VRI, boosts the effect of the desire to communicate. In my estimation, this may result from the fact that the impeachment of President, Park, Geun-hye is actually not related to the outcome merits and demerits but rather the democratic value for news audience because it is a massive issue that has shaken the foundations of the nation. News consumer exposed to factual news pursue active communication combining the confirmation bias and VRI but news consumer exposed to fake news is activated by confirmation bias for an active communication on social media. That means they are either ignorant or have a clear purpose of manipulating public opinion.

Finally, both news groups of fact news and fake news are affected by confirmation bias to activate participation behavior on social media. But the news group exposed to factual news is mediated by VRI and IRI and the news group exposed to fake news is influenced only by confirmation bias. News consumer changes their strategy for communication according to the significance of issue and purpose of sharing of news. News literacy needs to focus on orienting news consumer's ideas toward news value and fact check.

Implication of news literacy

Vested interest appears to affect people's tendency to overestimate the extent to which others agree with their beliefs, a bias known variously as the false-consensus or assumed-consensus effect. If people tend to overestimate the number of others who share their beliefs, this tendency will be exacerbated in situations involving personally consequential, or highly vested, beliefs.

As the research findings, users are not motivated to do social networking activities on news based on its factual content. Depending on the consumer's interest of news agenda, news consumers are more likely to believe the news. News users don't have blind faith in fake news. Regardless of the factuality of news and the personal importance of issue, users are influenced by bias and value and beliefs to do social networking activities (clicking like, posting, and sharing). Social networking activities are mediated by confirmation bias and value relevant involvement on the both news types. Confirmation bias is the unconscious tendency to acquire evidence consistent with one's beliefs while ignoring opposing evidence. These findings show that news users need to develop critical thinking skills to evaluate evidence fairly and objectively. To reduce confirmation bias, one needs to reduce the psychological defense reaction and seek an emotional change. Value relevant involvement is the tendency to maintain one's own values, ego and identity. This attitude is also a defense mechanism to keep one's opinion. Issue relevant involvement makes people misunderstand the news. Confirmation bias and value relevant involvement are personal factors that disrupt one's objective attitude for accepting news. It is important to help users fairly understand the news through educational tools such as debate, cooperative work and role playing games. These kinds of educational tools help users avoid misinterpretation, develop strength of interaction and acquire various samples for decision making.

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HOW DO YOU TRAIN PRACTICAL ARTISTS? APPLYING JOSEF SCHWAB'S LEGACY T-TO TEACHER TRAINING

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Josef Schwab defined teaching as a practical art, thus stressing the practical and creative skills of teachers, rather than their theoretic knowledge. This definition also justifies larger autonomy for teachers, who are the practitioners and the masters of this art. In this paper, I present Schwab's basic argument, and then I address the challenge of teacher training, as inspired by this approach. In applying the practical approach to teacher education, I will concentrate on three aspects of the training: the clinical training, the practical aspects of theoretic courses in education, and the study of humanistic disciplines as training for multifocal vision in class.

HOW DOES EXPLAINING CONTENT THROUGH VIDEOS BENEFIT LANGUAGE LEARNERS? ESP STUDENTS TELL US ABOUT IT.

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ABSTRACT

This work aims at analyzing English for Specific Purposes students' perspectives towards the recording of videos as a mean to explain class content. Seventy-five students took part in the study. They recorded one video per week for over ten weeks. Those students who had recorded at least six videos were considered for the study. The participants completed a questionnaire that was composed of twenty-six Likert Scale items. In the questionnaire, students reported their level of agreement on the items. The data was analyzed by conducting a factorial analysis of main components with a Varimax rotation system. Participants' perceptions were grouped in four factors which explain 63, 68% of the variance. The resulting factors show that by explaining content through videos the participants' motivation and academic achievement have improved. The participants have developed personal self-regulated strategies, self-awareness of their learning progress, and environmental self-regulated strategies, indicating, from their perspectives, a positive impact of the strategy in their language learning progress.

Keywords: ESP students, videos, motivation, self-regulation, students' perspectives, self-awareness, academic achievement.

INTRODUCTION

Society is changing and so is education. Nowadays, technology is an important part of people's lives no matter the age. That is why the use of technology is also expanding rapidly in the educational field across schools, colleges, and universities (Pachler, Bachmair & Cook, 2010). Technology has opened up many opportunities for innovative and rich methodologies that allow teachers to do both, motivate students and improve their learning.

Today, there are several technology tools that are being used for classroom activities and homework assignments that have proved to be very successful, such as videos or blogs (Riel & Becker, 2008). Used wisely, these tools can become excellent resources for students to engage in creative and meaningful learning practices, and to demonstrate their knowledge and understanding inside and outside the classroom.

Videos in EFL Classes

Traditionally, teachers of EFL (English as a Foreign Language) classes use videos in their lessons to exemplify the use of grammar or vocabulary, to expose students to authentic pronunciation in English, to develop students' listening skills, or simply, to make the class more interactive and interesting. However, this tool allows students not only to collect information but also to be sources and creators of information for others. For example, students can record videos to demonstrate their understanding of class content, to improve their speaking skills, and to receive feedback from teachers and peers (Alwehaibi, 2015). This tool could even become a meaningful, engaging, and authentic medium for EFL students to communicate in English.

Benefits for EFL Learners

Literature review, as well as action research studies, show that videos are tools that facilitate language learning. According to Brook (2011), they increase student participation in speaking activities, builds students' confidence in using the target language, and enables authentic learning. Similarly, Watkins & Wilkins (2011) mention that using videos inside and outside the classroom can contribute to improve students' speaking and pronunciation skills and promote authentic vocabulary development. Finally, other authors suggest that this tool allows learners to connect the content learned in class (grammar and vocabulary) to their personal experiences, using the language learned, in this case, English (Mangubhai, 2005; Wang, 2005). Therefore, in educational settings, it can be a new and dynamic non-traditional teaching and learning asset.

Language production (e.g. speaking) is an important part of the language acquisition process. That is why using tools like video-making could help students to improve their English skills since it encourages them to speak and experiment with the language learned (Chartrand, 2012). In fact, there are several studies that show the benefits that learners can obtain when using videos for academic purposes in EFL courses. For example, in a study conducted with college students, Hazzard (2006) discovered that the creation and posting of videos assisted students in the improvement of their English language skills. Actually, the author reported that after doing this activity, 82% of her students said they preferred making a video and posting it rather than taking a traditional test - even though much more time and effort was required to create the video - because they could see the benefits that this tool brought to their learning process.

Another study conducted with twenty-four students in a foreign language classroom of Russia showed that video-making projects enhance the pedagogical effectiveness of language teaching. The author, Larisa Nikitina (2010), explains that this project allowed students to think, debate, and act using the foreign language. Additionally, videos can promote learning autonomy, which makes students independent lifelong learners who take responsibility for their educational process and do not rely solely on teachers or classroom instruction. In a study conducted by Bramhall, Radley, and Metcalf (2008), it was observed that the creation of videos based on class content, helped students to become autonomous learners who developed a deep understanding of the subject taught. Therefore, through video-making, students can become active agents rather than passive spectators of the learning process, which contributed to improving their language skills.

Now, what if students make videos explaining the information learned in their ESP/EFL classes each week? How could explaining class content through videos benefit language learning? That is exactly what this study intends to analyze. In this paper, ESP students' perceptions towards the recording of videos as a mean to explain class content are analyzed in order to learn about their opinions towards this activity in regards to the benefits they may obtain from it. Therefore, from students' views, this study introduces a different perspective of video-making in EFL/ESP instruction that needs to be explored.

METHODOLOGY

Setting, Participants, and intervention process

The study was conducted at a government-funded university in Ecuador, during the first academic semester (May-September) of the 2017-2018 school year. We worked with 75 out of 94 students enrolled in the Technical English I (46 students) and Technical English II (29 students) courses offered in the Business Management major. 44 were female and 31 were male. The participants' average age was 22.2, ranging from 20 to 30 years old. The students participated in the study voluntarily.

As the outcome of their autonomous work, the participants developed one video per week for over ten weeks, between May and part of July 2017. In the videos, they recorded themselves explaining the content they had studied in class in the previous week as if they were developing a tutorial or an oral presentation. They described key concepts and illustrated them with examples. The key vocabulary was defined as well. For this study, we decided to work with those students who had developed at least six videos up to when the data was collected.

Data collection and Instrument

Data were collected at the end of July 2017. A structured questionnaire was developed to obtain students' perspectives towards the recording of videos as a mean to explain class content. The questionnaire was administered via Google forms and contained two parts. The first part contained questions of demographic information (age and gender); and, the second part was made up of a twenty-six Likert Scale items. In this part, students reported their level of agreement (*strongly agree (4), agree (3), disagree (2), and strongly disagree (1)*) on the items to determine their opinions towards video-making as a mean to explain class content. The instrument was validated by two external researchers who revised it and reported the effectiveness of each item. Redundant items were removed and others restated.

Ethical considerations

Following ethical protocols, informed consent was taken from the participants. Participants identity was protected by having them fill out the data collection instrument anonymously.

Data analysis procedure

A factorial analysis of main factors with a Varimax rotation system was performed. The IBM statistical software SPSS 22.0 was used for performing the analysis.

RESULTS

The factorial analysis grouped the participants' perceptions into four factors that explain the 63,68% of the variance associated with the construct of the study (see Table 1).

Table 1: Total Variance Explained

Factor	Rotation Sums of squared loadings		
	Total	% of variance	Cumulative %
1	5,922	22,777	22,777
2	4,034	15,515	38,292
3	3,722	14,315	52,607
4	2,879	11,073	63,679

Extraction Method: Principal Axis Factoring.

Table 2: Exploratory Factor Analysis Solution

Items	FACTOR	FACTOR	FACTOR	FACTOR
	1	2	3	4
24. Has increased my willingness of participating in the English class.	,799			
22. Has enhanced my English language learning experience.	,745			
25. Has provided me with more confidence when speaking in English.	,720			
17. Has increased my vocabulary.	,710			
23. Has increased my interest in learning English.	,705			
21. Has helped me to understand the content studied in class better.	,691			
16. Has improved my performance in oral presentations in English.	,649			
26. Has helped me to achieve higher marks in the English class.	,641			
1. Has prompted me to be more attentive in class.	,504			
6. Has induced me to plan my performance in the video.		,727		
8. Has induced me to rehearse what I am going to explain in the video.		,724		
7. Has induced me to organize my ideas to explain a topic in English better.		,662		
4. Has prompted me to identify key ideas of the content studied in class.		,607		
10. Has prompted me to evaluate my English learning progress.		,607		
9. Has induced me to monitor my performance while I make the video.		,537		
3. Has prompted me to review the content studied in class meticulously.		,534		
5. Has induced me to investigate about the topics studied in class in sources other than the ones provided in class.		,533		
11. Has helped me to become self-aware of my ability to speak English.			,850	
20. Has developed my listening skills.			,733	
14. Has improved my pronunciation.			,629	
13. Has prompted me to search for resources and tools to develop my language skills.			,589	
15. Has given me more fluency when speaking English.			,583	
18. Has prompted me to write in English.				,699
12. Has prompted me to look for the help of more knowledgeable peers/outside to improve my performance in the task.				,689
19. Has prompted me to read content in English.				,656
2. Has prompted me to take notes about what is being explained in the class.				,374

The results of the factorial analysis show that by recording weekly videos to explain the content covered in their ESP classes, the participants obtained benefits in four areas (See Table 2) which are related to motivation and academic achievement, development of personal self-regulated strategies, self-awareness of their learning progress, and development of environmental self-regulated strategies.

The first area represents the 22,78% of the variance. This factor is composed of 9 items which are linked to the benefits that the participants obtained in terms of motivation and academic achievement. The nine items denote that by explaining the content learned in their ESP class through videos, students' willingness of participating in class and their interest in learning English increased, allowing an enhancement in their learning experience as well as the development of their confidence when speaking in English. The vocabulary repertoire of students also expanded as students developed the videos. Similarly, the development of videos prompted students' attentiveness in class and contributed to a better understanding of the content, resulting in students' achievement of higher marks.

The second factor represents the 15,52% of the variance. It is constituted of 8 items that imply students' development of personal self-regulated strategies. The participation of students in video-making for content explanation induced them to plan, rehearse, organize, monitor, and investigate about what they would present in the videos. The personal self-regulated strategies that students developed prompted them to review the content studied in class and self-evaluate their learning progress as well.

The third factor deals with the development of students' self-awareness of their learning progress. This factor explains 14,32% of the variance and is composed of 5 items. The items indicate that due to their participation in weekly videos, students developed a sense of self-awareness of their learning progress as they became conscious of the improvement in their listening skills, pronunciation, and speaking fluency. This factor also implies that students became open to searching for resources and tools to develop their language skills.

Finally, the fourth factor, which represents the 11,07% of the variance, is composed of 4 items. These items cope with students' development of environmental self-regulated strategies. The development of this sort of strategies means that students got inspired to write and read in English, take notes during class, as well as to ask for the help of more knowledgeable peers to enhance their performance in the videos.

Undoubtedly, giving students the possibility of explaining the content delivered in class through weekly videos, enables them to demonstrate what they have grasped in those academic encounters and develop their speaking skills as it is asserted by Almewehaibi (2015). One of the main benefits that language learners get, considering the estimation of the factorial analysis, is the increase in their motivation and improvement of their academic achievement. The development of the task encourages students to be attentive in class, contributing to a better comprehension of the content delivered, better results in their performance and consequently, an improved academic achievement. In addition, students expand their vocabulary as they must certainly look for linguistic resources to perform the explanations in the videos.

Chartrand (2012) states that video-making allows students to practice the language learned. As in any oral task, the more one practices, the more confident one feels and the better the outcome. This indicates that because of regular video-making (which implies continuous practice of the language), students tend to feel more motivated and confident to participate and speak in English during class, enhancing their learning experience. This confirms the assertion of Brook (2011) who indicated that videos builds students' confidence in using the target language and increase their participation in speaking tasks.

In their study, Bramhall, Radley, and Metcalf (2008) reported that the development of videos based on class content encourages students' autonomy. In this sense, the factorial analysis also demonstrated that as a result of their work on the weekly videos, students built personal and environmental self-regulated strategies (Maftoon & Tasnimi, 2014) which have a close connection with learning autonomy. The self-regulation of their learning process constitutes then another benefit that students obtain from this task. Since they have to explain the content in a coherent way to make themselves understood by their audience (the teacher in this case), they have to review/read the material studied in class and investigate/read about the topic to expand their knowledge on it.

In addition, the task itself induces students to take notes during the class as well as plan, write, organize, and rehearse (by themselves) what they are going to say in their explication to get a decent outcome. As time passes, they even develop the capacity of monitoring their performance while recording their work and self-evaluate their learning progress. All these conditions prompt students to take ownership of their learning process, turning them into active and more autonomous learners as suggested by Bramhall, Radley, and Metcalf (2008).

The study conducted by Gholam-Reza & Anahid (2014) showed that there is a significant relationship between students' use of self-regulated learning strategies and the development of their language proficiency. The fact of taking control of their learning process enables students to develop a sense of self-awareness of their learning progress, one of the factors yield by the factorial analysis. They become aware of how much they have assimilated in class and therefore, what needs reinforcement. They also become aware of how much their linguistic skills have improved and seek for means to enhance them if necessary. Asking for help of more knowledgeable peers to enhance their performance in the videos becomes a common practice. It also becomes a sign of learning self-regulation as a result of becoming self-aware of their learning progress.

CONCLUSIONS

This study intended to analyze ESP students' perceptions towards the recording of videos as a means to explain class content to learn about the benefits that they as language learners obtain from it. The analysis of the results leads us to conclude that giving language learners the possibility making videos to explain class content not only enhances their linguistic skills (speaking mainly), which was in first place the purpose of the activity. It also impacts the academic, cognitive, and social aspects that interfere with language learning.

Linguistically, students experience an evident and quick enhancement in their language learning making them feel motivated and driven to learn. Academically, students achieve higher scores because the activity requires that the learner becomes more committed to his learning process, in addition to the increase in their motivation. Therefore, putting into practice self-regulatory strategies that bring up their cognitive abilities. Similarly, learners' social skills are also enhanced as students seek the help of more knowledgeable peers to develop the task, enabling them to build connections and a sense of bond among them.

As can be seen, explaining content through videos has a positive impact on language learning in a variety of aspects, becoming a powerful tool for EFL/ESP classes. It encourages learners to take ownership of their learning process and induces them to become autonomous. Foreign language teachers should consider implementing this strategy in their instruction, adjusting it according to the needs of their students.

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HOW STUDENTS PERCEIVED SOCIAL MEDIA AS A LEARNING TOOL IN ENHANCING THEIR LANGUAGE LEARNING PERFORMANCE

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Social media like Facebook has been used for teaching and learning for quite some time. Since it allows for better participation in the learning activities, a fundamental English course at a private university integrated Facebook as a learning platform making it possible for students to do self-study, exchange ideas, give comments, and submit the assignments in order to improve their grammar knowledge and writing ability. This study investigated to see how students perceived Facebook in terms of ease of use, usefulness, and attitude toward the use of Facebook for doing the activities and examined whether these factors were correlated. The participants were 86 first-year students who took an English course in the first semester of 2015 academic year. This study employed the proficiency test and the questionnaire to collect data. The results reveal that overall mean scores of perceived ease of use and perceived usefulness were at a high level, and students had a positive attitude toward the use of Facebook for doing the activities. It was also found student learning performance was positively correlated with perceived usefulness of Facebook and attitude toward doing the activities in Facebook. The perceived ease of use had positive relationships with perceived usefulness of Facebook and attitude toward doing the activities in Facebook. Moreover, attitude was related to perceived usefulness while no relationship was found between perceived ease of use and learning performance. The concluding remarks suggested the possibility to integrate social media in future courses with an awareness of some factors that may facilitate or obstruct learning via online learning environments.

HOW TO CONSTRUCT PARALLEL TRANSLATION CORPORA AS A MEANINGFUL FOREIGN LANGUAGE LEARNING TOOL? FOCUSING ON THEIR INITIAL PLANNING BASED ON TRANSLATION BRIEFS

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The idea that parallel corpora, source texts and their translated texts collected in accordance with specified rules and criteria, can prove to be very resourceful in such research areas as foreign language learning, is widely disseminated. However, few endeavors have been made to highlight the potentials of parallel corpora as a tool with which to help foreign language learners learn and pick up target language vocabulary in meaningful ways. This study exemplifies a case in which a parallel translation corpus comprised of a Korean-language dictionary as the source text and their translated pair serves to enhance the learning efficiency of on-line foreign language learners. The value of such corpus lies in the fact that what is being offered in the translated text is two-tiered. First, equivalents or ‘communicative’ translation results of dictionary terms are provided for so that language learners can quickly comprehend the dictionary senses of given terms. Second, literal translations are also given in order for learners to pick up the exact terms so as to use them in later communications to be conducted in the target language. This paper attempts to explain how this was possible, focusing on the function and role of translation briefs (TB’s). By tapping into an unusual opportunity to look into the translation process of a large-scale government-funded dictionary translation project, how the translators’ decision-making based on TB’s can make translation projects and their results turn into a meaning learning tool. The research focus is on the role of the translator in orchestrating translation processes, including the initial stage of planning, the significance of TB’s in devising translation flow models, and an overall approach to defining the nature of the work required. By way of conclusion, it is emphasized that translation decision-making should be made on the extra-textual level in addition to on the intra-textual level, the apparent sole level existing researches have place their focus on almost exclusively. It is also argued that translation tasks can prove more successful when the translator leads, in close consultation with translation commissioners, the translation process.

HUKUK VE EKONOMİDE YENİ GELİŞMELER

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İktisat öğretiminde matematiğin bolca kullanılmasıyla akademik boyutundan çıkarılıp üniversitelerin lisan düzeyinde gereksiz bir biçimde akademik nosyonun gerektirdiği geniş perspektif ve çok yönlü bakış yerine teknisyen yetiştiren bütün girdilere bir araç olarak temel girdi sağlayan ve kesinlik sunan Matematiksel sayılara boğdurulan araçlarla amaçların yer değiştirdiği teknik bir öğreti hale getirildi. Oysaki laboratuvarı toplum olan İktisat Eğitimindeki yeni Gelişmeler beşeri sermayeyi güçlendiren, onu yakından takip edip yarına bir değer bırakacak değer ekonomisinin yerleşmesi için İktisadın yeni bir anlayışla pozitivist değerlendirmesini esas alan ve uygulamalı bir eğitim anlayışıyla Disiplinlerarası karşılıklı bağ ve bağımlılık çerçevesinde; Hukuk ve Ekonomi gibi Mükîyet hakkı, Anayasal İktisat, Kurumsal Yönetim, Hukuk, Eğitim, Sosyoloji ve psikoloji gibi disiplinler iktisadın çok önemli tamamlayıcısı konumunda başta Davranışsal İktisat, deneysel ve nöroiktisat gibi Uygulamalı ve ölçülebilir Hedonik İktisatı gibi bu dönüşümlerin yeni iktisat öğretiminde kurumsal yapıyla paralel bir iktisat eğitiminin derinleştirdiği, dönüştürdüğü, sorgulanması gerektiği ve yenilerini eklediği öğreteceğimiz iktisadi konunun bütün içindeki yerini, uygunluğunu (relevance) öğretmek zorunluluğu.düşünülmelidir.Bununla birlikte teoriyi bırak uygulamaya bak şeklinde İktisat öğrencileri; Öğrendikleri ile görüp yaşadıkları arasında fazla bir ilgi bulamayan bu öğrenciler iktisat biliminden uzaklaşmalarının yerine laboratuvarı olan toplumun inanç, değer ve varsayımlarını içselleştirip dah anlaşılabilir, hız esnek ve pratik deneyim kazandırıcı iktisat biliminin günlük hayat ile ilişkisini gözler önüne serip kendisinin özne olduğu öğrencilerin iktisat biliminin değerini anlamalarına kaynaklık teşkil edecek yeni bir eğitim ortamı oluşturulmalıdır.

HUMAN-ROBOT INTERACTION: AN EXPERIMENTAL STUDY WITH CHILDREN WITH AUTISM

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Bu çalışmanın amacı otizmli çocukların humanoid robotlarla etkileşimini bir eğitim ortamında ortaya koymaktır. Etkileşim düzeylerinin belirlenmesi, insan robotlarının kullanıldığı daha verimli ve üretken eğitim programlarını mümkün kılacaktır. Çalışma sekiz otistik çocukla yürütülmüştür. Ders faaliyetleri, bireyselleştirilmiş öğretim programlarına göre planlanır ve her bir çocuk için özelleştirilir. Bu dersler sırasında, çocuklarla robot arasındaki etkileşimi incelemek için tüm süreç videolara kaydedildi. Video analizi sonucunda, otistik çocukların tamamının insan robotuyla etkileşime geçtiği belirlendi. Çalışmaların sonuçları katılımcıların robot ile olumlu etkileşimler gösterdiklerini gösterdi.

ICT, MATHEMATICS AND CRITICAL THINKING

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ABSTRACT

The integration of ICT and Mobile Learning in Education is here to stay and evolve with the evolution of Technology and Teaching & Learning.

The aim of this study is to focus on the impact induced by the use of ICT, including mobile devices, on learners' Critical Thinking (CT) through the teaching and learning of mathematical concepts.

The literature is crowded with various interpretations and definitions of critical thinking which makes it a challenging Learning outcome to address and assess. Consequently, CT is broken down to its main constituent skills, which are then targeted and assessed separately.

A list of carefully selected mathematical problems are implemented and assessed within a class of undergraduate liberal arts students.

A comparison between a classic approach and an ICT based approach, while solving the same mathematical problem, is presented. The outcome of this study forms a strong evidence to show that the integration of ICT enhances the development of learners' critical thinking skills.

INTRODUCTION

In the contemporary phase of education, the focus on developing learners' critical thinking skills has captured the attention of educators and researchers in all disciplines. Hence, the literature is rich with research work on Critical Thinking, however, definition and assessment of Critical Thinking is variably presented in the literature. In 2005 Richard Paul, investigated the state of Critical Thinking (Paul, 2005), concluding that: "Research demonstrates that most college faculty lack a substantive concept of critical thinking, though they mistakenly think otherwise". Further corroborating the lack of uniformity in the general understanding of Critical Thinking in education, Martha et al. (Stassen, 2011) stated that: "Critical thinking is an important learning outcome for higher education, yet the definitions used on campuses and national assessment instruments vary".

METHOD

Following a thorough review of literature, the following definition of critical thinking has been developed and adopted for this study: Critical thinking is the ability and the disposition to understand, evaluate, and use information to explore issues, generate solutions to problems, and develop informed judgements.

This has been broken down to its main constituent skills, which are the ability to:

1. Understand and Evaluate (Extract and understand given information)
2. Explore issues (investigate the links between the given data/information)
3. Generate solutions
4. Develop informed judgements of the results.

Generally, current assessment systems in mathematics concentrate on the two middle components: investigate the links between data and provide solutions. To support this statement, the following example is selected from a bank of questions used in recent exams.

Investigated Question

A child, eight years old, inherited an amount of AED100000. The court decided that the money is to be placed in an investment bond until the child reaches the legal age of 18 years, according to the laws of their country. The following offers of investment are presented to you under the assumption that you are the legal representative of the child. You are required to make the appropriate calculations and provide the court with your written recommendations.

I) Show your calculations in the space provided below each investment offer.

II) Present your written recommendation in the available space at the end of your calculations. Note: all investment offers are based on an interest rate of 10%

- a) Simple interest calculated annually
- b) Compound interest calculated annually
- c) Compound interest calculated daily
- d) Compound Interest calculated continuously.

The grading system for this question gave an equal number of points for calculating each investment offer and some further points for stating the highest answer.

The same question was then rewritten by taking out the text shell that comprises the main mathematical question:

Modified Investigated Question

Calculate the future investment of AED100000 for 10 years at an interest rate of 10% in the following cases and name the best one.

- Simple interest calculated annually
- Compound interest calculated annually
- Compound interest calculated daily
- Compound Interest calculated continuously

The two questions were presented to the same group of students as part of a quiz and was repeated with other groups of students, the same grading system was used in both cases. Hence, the following results were observed.

- For the text-loaded question only 25% were able to demonstrate an understanding of the question and solve the problem.
- For the Modified question 65% were able to completely solve the problem.

In analyzing the results of this exercise, the following point is raised:

The ability to understand the text-based question was hindered by language and cultural abilities.

If these skills are not introduced during the teaching of the course, why would they be included in the question?

Furthermore, if they are to be included in the teaching, then they should be included in the assessment/grading scheme.

Linking this finding back to the four constituent skills of critical thinking, when answering the modified question, the students were demonstrating the ability to extract the relevant information from a given problem (1st component) and to create clear links between the data and information (2nd component), enabling them to provide a solution (3rd component). The simplification or de-cluttering of the question, therefore, enabled a clearer understanding and, hence, the quicker execution of the first two constituent components of critical thinking.

Another exam question was designed with the aim of comparing classic and ICT based approaches for solving a given mathematical problem.

Solve the following example using classic algebraic and calculus techniques:

A company making miniature garden fountains has found the cost function (in Dirhams) for making x units per week to be:

$$C(x) = 5750 + 240x - 0.05x^2$$

- Find the marginal cost function.
- Find the marginal cost of making 300 fountains per week.
- Find the cost of making the 301st fountain.

The same question was presented to the same group of students as follows:

Solve 'the same question above' using the your Mobile or any other ICT device and explain the obtained results.

This modification resulted in a 25% increase in the average score for this question; the question was constructed to direct students' thinking into the 1st and 4th components of Critical Thinking; achieved by removing the need to dedicate time to the application of mathematical techniques. The students, therefore, were able to dedicate more time to the analysis of the information and the interpretation of the results.

The outcome of this study forms a strong evidence to show that the integration of ICT enhances the development of learners' critical thinking skills.

In summary, it has been demonstrated that the presentation of the question has a significant effect of the students' ability to correctly answer the question. Language and cultural skills are not taught as part of the course, nor do these skills form part of the assessment. By efficiently structuring the question and thus, removing the requirement to apply these skills, we are firstly, removing a potential hindrance and secondly, more effectively analyzing the use of critical thinking.

The ultimate goal is for the student to be able to provide an informed judgment of the results. Therefore, the removal of the need to spend a significant amount of time (Ennis, 1997) on the comprehension aspect of the

question (a linguistic skill) allows them to spend more time on the application of the other steps of the critical thinking process.

Similarly, removing the need to apply time-consuming mathematical techniques during an exam will afford the student more time to critically analyze potentially complex scenarios or to form judgments on the resulting data. Thus, the assessment will focus on the students' application of the critical thinking process.

It can be concluded from this study that the manipulation of the question can have a significant impact on both, the ability to demonstrate and the ability to accurately assess critical thinking. The incorporation of ICT can encourage the application of the critical thinking process by reprioritizing students' time-allocation to problems; whilst, by the same mechanism, alleviating some of the issues that arise as a result of inefficient question structuring.

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IMPACT OF ONLINE COLLABORATION MODULES ON INTEGRATED LEARNING: CASE OF BIOLOGY AND CHEMISTRY DISCIPLINES

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ABSTRACT

In the present work, we demonstrate the positive impact of online collaboration modules on the integration of learning background for undergraduate students at Al Akhawayn University in Ifrane, in the fields of Biology and Chemistry. During two consecutive semesters, undergraduate students from different levels (freshman, sophomore, junior and senior students) were involved in an online collaboration practice using an embedded platform in the University's Jenzabar portal. During the last month of each semester, students were asked to participate in a forum on integrated science questions such as waste management, ethics in nuclear chemistry, and ethics in biotechnology and cloning. We focused in our analysis on students' cross-knowledge between the two fields of chemistry and Biology, where students enrolled in one discipline had to integrate knowledge from the other discipline, respectively. Students' responses were compared to control sections where the questions were asked directly in the form of homework essay. Our result show that the online collaboration platform gave better results in cross discipline related responses. The breakdown by students' level showed, although statistically not very significant, that Junior and Senior students provide more width in their responses compared to Freshman and Sophomore students from the same class (Both Chemistry and Biology classes being science elective classes, hence students level is heterogeneous in the same class).

We conclude, from our study, that online fora are valuable tools to boost the integration of different but complementary science fields in general, and of chemistry and biology in particular.

IMPACT OF ONLINE HOMEWORK ON STUDENTS' PERFORMANCE AND WORK HABITS IN CHEMICAL EDUCATION

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ABSTRACT

This study examines comparatively the effect of online homework on undergraduate engineering students taking a General Chemistry I course. Two different pools of students taught by two experienced instructors were independently surveyed: one which took classic homework that could be downloaded as a pdf document and the other which took online homework. The feedback of each group was collected through online survey questionnaires administered at the end of the semester in order to assess the impact as well as the advantages and disadvantages of each type of homework, based exclusively on students' perspective. Interestingly, our findings show that not all students are necessarily appealed by online homework and that online homework can impact students' motivation. The effect of the homework type (i.e. classic vs online) on other aspects such as the place, the time and the platform used to do the homework was also analyzed and discussed. The study concludes with recommendations addressed to stakeholders of the Chemical Education community.

INTRODUCTION

In an increasingly internet-driven world, educators of the higher education community need to regularly adapt to modern pedagogical tools in order to keep pace with their students' rapidly changing learning style and work habits. One such tool is online homework. This paper is concerned with the effect of online homework administered on a population of University undergraduate engineering students taking a General Chemistry I course. Impacts of online homework on class productivity,¹ students' motivation,² students' understanding,³ student learning⁴ and other aspects⁵⁻⁷ have been reported in the literature. The focus of our own study however is twofold: impact on students' performance and impact on students' work habits. In previous reports, we proved that one of the essential keys to students' success is students' motivation, especially when they study a course that is outside of their major like in our case. Indeed, first Ouardaoui *et al.* tackled the problem of students' lack of motivation either by taking either a field study approach with non-Science University students⁸ or by integrating ICT with middle school pupils.⁹⁻¹⁰ Later, El Hajjaji *et al.*¹¹ successfully solved the same problem by taking a hands-on approach by devising a lab experiment dealing with difficult concepts covered in the classroom. In this report, we propose this time to affect positively students' motivation, and student's performance in general, by considering yet another parameter: the homework type. The serendipitous observation that our students performed noticeably better in their General Chemistry I course final exam when their instructor switched their homework type from a classic pen-and-pencil based system to a modern web-based system was the initial rationale to consider this parameter. This starting point encouraged us to investigate further this phenomenon by leading a comparative study between a group of students taking classic paper-based homework versus a group taking the online version of that homework. These two groups were taught the same course, during the same semester, by two experienced instructors. Students were then surveyed to collect their feedback and to draw conclusions.

THE STUDY

The incipience of this study occurred in Fall 2013, when we decided for the first time, for pedagogical reasons, to administer in our course online homework instead of paper-based homework. Both homework types were provided to students electronically as a set of 40 multiple choice questions in each assignment. In both cases, homework was sent to students once a chapter was completely covered in class, along with its correction and slides of the corresponding chapter. On the one hand, "*paper-based*" homework should be understood as a printable pdf file containing the homework which is made available to students once uploaded by the instructor on the portal of the University Learning Management System. Once downloaded by the student, the latter is free to print it or not, knowing that this homework is not graded and therefore not due. On the other hand, "*online homework*" should be understood as a comprehensive html webpage containing an html version of the homework, as well as links to various printable pdf files, namely the homework itself, its correction, the slides of the chapter associated to that homework, the course syllabus and the periodic table of the elements. Html files were created by Pearson test generator 7.4 and subsequently edited for customization via Macromedia Dreamweaver 8. Finally, they were uploaded on the instructor's website via ftp with WS_FTP. An example of homework assignment created with this method is shown in **Figure 1**.

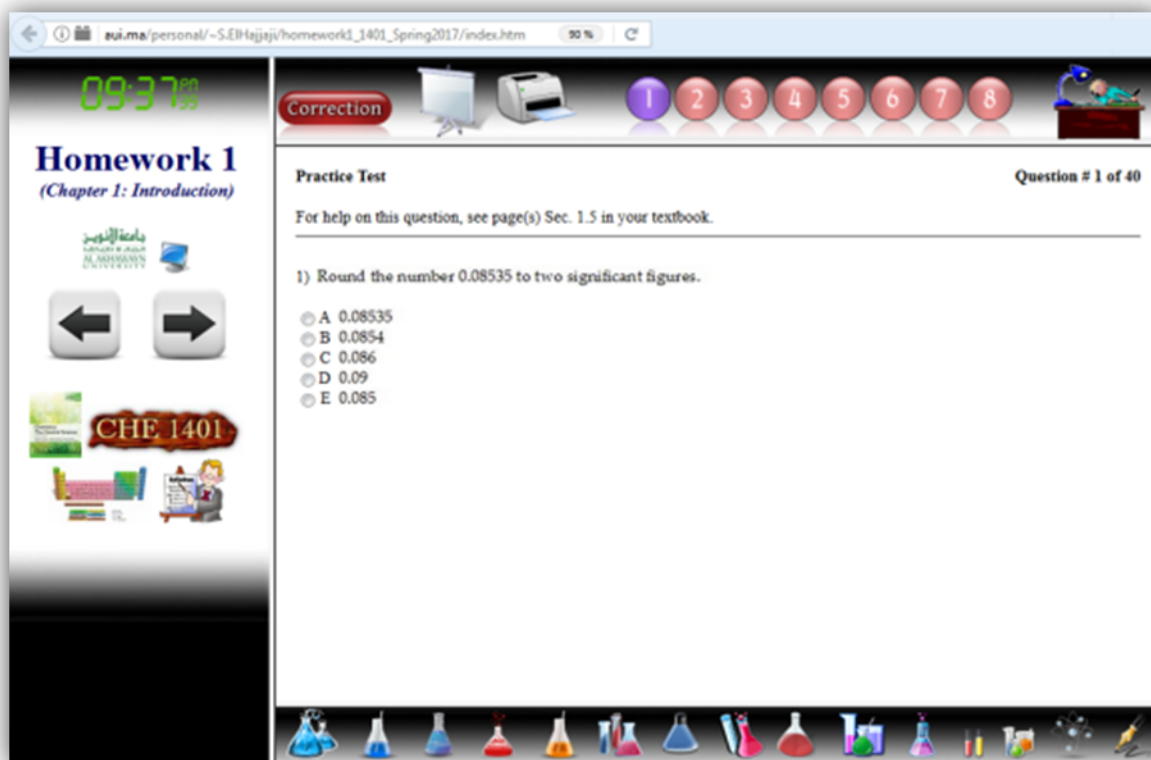


Figure 1: Screenshot of homework 1 in the General Chemistry I course.

In order to assess quantitatively the perception of the two types of homework (paper-based vs online) on our students, an online survey questionnaire was conducted at the end of the Spring 2017 semester.¹⁰ Two distinct groups of students of similar size (25-30) were surveyed; one that took paper-based homework, the other online homework. The response rate was 100% in each case. **Table 1** summarizes the exact conditions of this survey.

	Instructor 1	Instructor 2
Homework type	Paper-based ^(a)	Online ^(b)
Homework assignments	8 (320 questions)	8 (320 questions)
# of students enrolled	30	25
# of respondents	30	25

(a) Homework posted on the University LMS portal as a printable pdf document.

(b) Homework posted on the instructor's website as an html webpage.

Table 1: Conditions of the online survey questionnaire submitted to students taking the General Chemistry I course in Spring 2017.

In this survey, students were asked a total of 8 questions which are listed in **Table 2** below. Two sets of questions can be distinguished; questions Q1-Q4 deal with students' perceptions of the homework type, while questions Q5-Q8 provide insight on students' work habits which may be affected by the homework type. Note that questions Q1a and Q1b were given to students who had taken the paper-based homework and online homework respectively.

Reference	Measurement	Suggested answers
Q1a	I wish my homework was online instead of being posted on the portal as a pdf document only:	
Q1b	I am glad my homework was online instead of being posted on the portal as a pdf document only:	
Q2	Overall, I was satisfied by the quality of the homework assignments this semester	❖ Strongly agree
Q3	If you prefer the online version of the homework over the simple pdf version, please indicate why:	❖ Agree
		❖ Disagree
		❖ Strongly disagree
		❖ No comments
		• Q3a It is user friendly
		• Q3b It is intuitive
	• Q3c It is clear	
	• Q3d It tells me if my answer is correct right away	
	• Q3e It increases my motivation to do the homework	
	• Q3f Other reason(s)	
Q4	If you prefer the simple pdf version of the homework over the full online version, please indicate why	<i>open-ended question</i>
Q5	How do you usually do your homework?	• Q5a On paper, by printing it first
		• Q5b On paper, without printing
		• Q5c Without paper, I just read and answer questions on the screen
Q6	When do you usually do your homework?	• Q6a In the morning
		• Q6b In the afternoon
		• Q6c In the evening
		• Q6d Late at night
		• Q6e Monday through Friday
		• Q6f Saturday
		• Q6g Sunday
Q7	Where do you usually do your homework?	❖ Always
		❖ Very often
		❖ Often
		❖ Sometimes
		❖ Rarely
		❖ Never
		• Q7a In the University computer lab
		• Q7b In the library
		• Q7c In my dorm room, on a desk
		• Q7d In my dorm room, on my bed
		• Q7e At home, on a desk
• Q7f At home, on my bed		
• Q7g In transportation: car, taxi, bus, train		
• Q7h In cafés		
• Q7i Outdoor, on campus		
• Q7j Outdoor, outside campus		
Q8	From where do you usually do your homework?	• Q8a From a University desktop computer
		• Q8b From my own laptop
		• Q8c From my smart phone

Table 2: Questions asked to students who participated to the online survey questionnaire in Spring 2017.

FINDINGS

Table 3 shows the course final exam grades obtained by students when taught the General Chemistry I course by the same instructor, in two different semesters, Fall 2009 and Fall 2013.

		Fall 2009	Fall 2013
Homework type		Paper-based ^(a)	Online ^(b)
Students enrolled		49	36
Homework assignments		8 (320 questions)	8 (320 questions)
Course final exam grade	A	2%	22%
	B	43%	28%
	C	29%	31%
	D	20%	8%
	F	6%	11%

(c) Homework posted on the University LMS portal as a printable pdf document.

(d) Homework posted on the instructor's website as an html webpage.

Table 3: Results obtained by students when taking paper-based and online homework in the General Chemistry I course.

Surprisingly, the proportion of students who got a passing grade (A,B,C) in the course final exam increased from 73% to 81% when switching to online homework, a significant increase. The increase in the A grade is the most noteworthy, starting as low as 2% and ending as high as 22%. As for the proportion of students getting a failing grade (D,F), it fell from 26% to only 19%. These figures clearly indicate that the homework type does have an impact on the students' academic achievement, online homework being seemingly more beneficial than the paper-based one.

The next step was to conduct an online survey questionnaire to a pool of 55 students in Spring 2017. Results of this survey are shown in **Tables 4-7**.

In **Table 4, entries 1-2** indicate that 96% of students, regardless of the homework type they took, stated to have a preference for online homework over the paper-based one. The reason of this preference is given in **entries 5-14**, in which the majority of students have answered that they prefer online homework because:

- it is user-friendly (**entries 5-6**)
- it is intuitive (**entries 7-8**)
- it is clear (**entries 9-10**)
- it tells them if the answer is correct right away (**entries 11-12**)
- it increases their motivation to do the homework (**entries 13-14**)

Note that for each of the factors above, the total proportion of students answering "agree" and "strongly agree" is always greater for students who took the online homework rather than the paper-based one.

Regarding student's satisfaction of the quality of their homework (**entries 3-4**), a substantial gap is observed between the answers given by students taking online homework and those taking the paper-based one. Indeed, 96% of the students taking online homework responded to be satisfied, while this number is only 54% with the other group. Undoubtedly, these answers are directly correlated to **entries 1-2**.

Entry	Measurement	Type of respondent	Results				
			Strongly Agree	Agree	Disagree	Strongly disagree	No comment
1	Q1a	P ^(a)	43%	53%	3%	0%	0%
2	Q1b	O ^(b)	48%	48%	4%	0%	0%
3	Q2	P	27%	27%	37%	7%	3%
4		O	72%	24%	0%	0%	4%
5	Q3a	P	8%	56%	4%	12%	20%
6		O	56%	40%	0%	0%	4%
7	Q3b	P	16%	48%	8%	8%	20%
8		O	44%	40%	4%	0%	12%
9	Q3c	P	15%	54%	4%	8%	19%
10		O	64%	32%	4%	0%	0%
11	Q3d	P	40%	40%	0%	4%	16%
12		O	72%	28%	0%	0%	0%
13	Q3e	P	36%	32%	4%	8%	20%
14		O	52%	44%	4%	0%	0%

(a) P: answer given by students who took paper-based homework

(b) O: answer given by students who took online homework

Table 4: Answers received for questions Q1-Q3e of the survey.

In **Table 5, entries 1-9**, bring further insight to better understand why is online homework preferred by students. Respondents indicated that the online version of the homework is more practical (**entry 4**), it optimizes time (**entry 5**), it is quick (**entry 6**), it is easily accessible (**entry 7**) and that it indicates as a hint which section of the chapter is relevant to the question (**entries 8-9**). Respondents preferring paper-based homework over the online one justify their choice mainly with the fact that the latter is not always accessible because it requires a proper and reliable internet connection (**entries 10-14**). Other justifications include the perception that online homework is less suitable for group work (**entry 15**), that working with pen and paper is better than working on a computer (**entry 16**), that using a hard copy is more desirable (**entry 18**), or that paper-based homework is clearer, more efficient or more accurate (**entries 19-21**). Interestingly, among students who took online homework, not a single respondent proposed arguments favoring paper-based homework over the online one (**entry 22**).

Entry	Measurement	Type of respondent	Answers
1	Q3f	P ^(a)	<i>Homework assignments in pdf format are sometimes misleading</i>
2			<i>It is easier to check the right answer</i>
3			<i>It is much easier to check our answers</i>
4			<i>More practical, makes me remember the answer more than with the pdf version</i>
5		O ^(b)	<i>It optimizes time</i>
6			<i>It is quick</i>
7			<i>It is easily accessible</i>
8			<i>It indicates the section in which the answer is in the chapter</i>
9			<i>It is mentioned which section of the chapter you will find the type of the exercise</i>
10	Q4	P	<i>I prefer the offline version because the online work is not accessible when there is no internet</i>
11			<i>Sometimes we don't have access to the Internet so the whole file cannot be accessed</i>
12			<i>I prefer the pdf version because sometimes the internet doesn't work so we do not have access to the homework</i>
13			<i>Once you download the pdf file, you will be able to work on it whenever you want as opposed to the online version (especially that the wifi is not strong in some dorm rooms) and we will always have the files on our computers or drives</i>
14			<i>I prefer to have it as a pdf in order to save it in my laptop and access it whenever and wherever I want, also I can easily print it to work on it</i>
15			<i>The online version is good but not enough as the pdf version, because when revising with classmates, and we want to review a specific question, we go to it directly and after a certain time we can see the answer on a different sheet of paper, I think that the online version is not practical at all for a group work which we are encouraged to do during our university career</i>
16			<i>Because you have all the questions available. Maybe if we have access to all the questions (online) and can choose the one you want to try, it would be better</i>
17			<i>It can be printed, and I prefer working with a pen and a paper rather than my computer</i>
18			<i>You can easily print the pdf versions and work on them, I like doing my homework using hard copies instead of the online version</i>
19			<i>Because having the homework in front of you is clearer</i>
20			<i>It is more efficient</i>
21		<i>Because it is more accurate</i>	
22		O	<i>no answer</i>

(a) P: answer given by students who took paper-based homework

(b) O: answer given by students who took online homework

Table 5: Answers received for questions Q3f and Q4 of the survey.

Results shown in **Table 6** examine the difference in student's work habits when they are provided with either paper-based or online homework. When asked how they usually do their homework (Q5), students responded very differently depending on the type of homework they were provided with. In **entries 1-2**, 60% of the students who performed the paper-based homework responded to do the latter on paper by printing it first, « always » or « very often ». Comparatively, only 28% of the students who performed online homework gave

that same answer. This trend is inverted however when it comes to do the homework paperless as shown in **entries 3-6**. In **entry 4**, 36% (vs 30%) of students used to take the online homework have declared to do it by using paper without printing it, « always » or « very often ». This figure goes up to 48% (vs 26%) when they are asked if they perform their homework without paper, without printing (**entry 6**). These results clearly show that online homework pushes students to go paperless. When asked when they usually do their homework, students doing online homework seem to do it in the morning and afternoon, more than those taking paper-based homework (**entries 7-10**). The best time of the day though seems to be the evening and the night, for both types of students (**entries 11-14**). As for the best time of the week to do the homework, most students indicated, in order of preference, that they prefer week days, next Saturday, then Sunday (**entries 15-20**).

Entry	Measurement	Type of respondent	Results					
			Always	Very often	Often	Sometimes	Rarely	Never
1	Q5a	P ^(a)	27%	33%	7%	7%	3%	23%
2		O ^(b)	16%	12%	20%	16%	24%	12%
3	Q5b	P	13%	17%	27%	3%	20%	20%
4		O	16%	20%	12%	24%	16%	12%
5	Q5c	P	17%	10%	0%	27%	27%	20%
6		O	24%	24%	12%	16%	8%	16%
7	Q6a	P	3%	13%	10%	3%	27%	43%
8		O	16%	4%	20%	20%	24%	16%
9	Q6b	P	7%	20%	17%	20%	10%	27%
10		O	8%	32%	20%	24%	8%	8%
11	Q6c	P	7%	40%	17%	20%	3%	13%
12		O	16%	32%	12%	28%	12%	0%
13	Q6d	P	17%	23%	20%	10%	20%	10%
14		O	4%	36%	4%	20%	28%	8%
15	Q6e	P	10%	27%	23%	7%	10%	23%
16		O	20%	20%	36%	16%	0%	8%
17	Q6f	P	3%	17%	23%	17%	10%	30%
18		O	0%	20%	8%	40%	16%	16%
19	Q6g	P	17%	17%	17%	20%	30%	0%
20		O	0%	24%	8%	44%	16%	8%

(a) P: answer given by students who took paper-based homework

(b) O: answer given by students who took online homework

Table 6: Answers received for questions Q5 and Q6 of the survey.

In **Table 7**, respondents declare to prefer doing their homework, in order of preference, on the desk of their bedroom, at the University library and at the University computer lab (**entries 1-6**). The vast majority of respondents indicated to dislike the bed of their dorm room, their home, cafés, transportation and outdoor as places to do their homework (**entries 7-20**). Finally, when asked from where they usually do their homework, students responded, in order of preference, from their laptop, from a University desktop computer and from their smartphone (**entries 21-26**).

Entry	Measurement	Type of respondent	Results					
			Always	Very often	Often	Sometimes	Rarely	Never
1	Q7a	P	7%	20%	23%	13%	10%	27%
2		O	12%	8%	12%	16%	16%	36%
3	Q7b	P	7%	23%	20%	20%	7%	23%
4		O	8%	20%	12%	32%	12%	16%
5	Q7c	P	13%	33%	20%	10%	7%	17%
6		O	24%	8%	16%	20%	12%	20%
7	Q7d	P	10%	13%	10%	13%	23%	30%
8		O	8%	4%	12%	12%	20%	44%
9	Q7e	P	7%	10%	3%	10%	13%	57%
10		O	8%	4%	16%	0%	16%	56%
11	Q7f	P	3%	7%	3%	7%	3%	77%
12		O	0%	4%	8%	4%	12%	72%
13	Q7g	P	3%	0%	7%	7%	0%	83%
14		O	0%	0%	4%	4%	4%	88%
15	Q7h	P	0%	7%	0%	10%	0%	83%
16		O	0%	0%	4%	0%	8%	88%
17	Q7i	P	0%	10%	7%	10%	0%	73%
18		O	4%	0%	8%	0%	12%	76%
19	Q7j	P	3%	13%	3%	7%	0%	73%
20		O	4%	0%	4%	0%	8%	84%
21	Q8a	P	3%	23%	23%	13%	13%	23%
22		O	12%	8%	16%	24%	4%	36%
23	Q8b	P	33%	40%	10%	7%	3%	7%
24		O	48%	32%	16%	4%	0%	0%
25	Q8c	P	3%	10%	7%	13%	13%	53%
26		O	4%	4%	8%	8%	24%	52%

Table 7: Answers received for questions Q7 and Q8 of the survey.

CONCLUSION

To conclude, this study has been able to provide evidence that switching from classic paper-based homework to online homework can enable students to perform better academically. When surveyed, the great majority of students expressed their preference for online homework over the paper-based one because it is in their view, user-friendly, intuitive and clear, it provides answers right away and it increases students' motivation. However, though they appreciate it, these students believe that the kind online homework they performed remains perfectible. The major concern attributed to online homework, by students preferring paper-based homework, is the fact that it requires a reliable internet connection. This study has also proved that the homework-type (classic vs online) does affect student's work habits. Students provided with online homework tend to go paperless when performing their homework. Also, our survey showed that most students, regardless of their homework type, prefer to do their homework in the evening or at night during week days, from either their laptop, or from the desk of their dorm room.

Online homework is certainly a great tool that educators, from the Chemical Education field and beyond, should definitely consider adopting in their classes. It is engaging to students, especially in this technological era in which physical digital platforms (computers, tablets, smartphones, etc) have become affordable and widely available.

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Survey submitted to students taking online homework: <https://goo.gl/forms/MSAduGH2zdxwgo53>

SUPPLEMENTARY MATERIAL

Supplementary material for this article can be found online at:

www.aui.ma/personal/~S.ElHajjaji/IETCpaperCode415170SuppMaterial.pdf

IMPACT OF RELIGIOUS EDUCATION ON INVESTMENT DECISIONS: A CASE OF INVESTORS IN PAKISTAN

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Investments, both local and foreign, play an important role in the economic development of a country. Pakistan is a developing country on global canvas, more for the reason of war against terror, rather than its economic struggle. The financial markets in Pakistan have experienced turbulence due to multiple factors. This has lead investors in Pakistan to use non-conventional methods and draw influence from non-financial factors to gauge the suitability, timing, and environment for investing. One of the dominating influence is religious orientation of these inventors. This study finds out the impact of religiosity among investors in Pakistan in order to gauge if religiosity has seeped into financial decision making ability of the Pakistani investors. The findings reveal an interesting comparison and contract of the factors influencing Pakistani investors' investment decisions, and how they draw inference from Islamic religiosity.

IMPACTS OF USING MICROSOFT WORD (MS) SOFTWARE ON IRANIAN EFL LECTURERS' GRAMMAR KNOWLEDGE

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Abstract

The current study was conducted to investigate the effects of using Microsoft Office Word on Iranian EFL lecturers' grammar knowledge and their attitudes towards using them to support their grammar knowledge. To this end, 14 Iranian EFL lecturers, who had M.A. degrees in TEFL, containing eight males and six females participated in this study. The participants were randomly divided into equal groups of control and experimental. The participants in the experimental group worked with Microsoft Word and the participants in the control group worked with pens and papers during the study. The participants were asked to write a text about a specific subject and express their opinions about that subject. The results were collected and perused by the help of the supervisor of the study who had a Ph.D. degree in TEFL for checking the possible grammatical errors or mistakes. The results indicated that Microsoft Word was indeed beneficial to the grammar of the participants of experimental group because they got significantly higher grammar scores than the participants of the control group did. The results of this study offer practical implications for applying computer for language teaching and improvement of EFL learners' writing skill.

IMPLICATIONS OF COMMERCIALLY VENDED FOODS IN AGBOR METROPOLIS, DELTA STATE, NIGERIA

Anthony Ossai UKPENE

ABSTRACT

The practice of vending commercially ready-to-eat foods in the rapidly growing town of Agbor, Delta State, Nigeria, is a major social service to the people where restaurant foods are quite expensive and inadequate. Vended foods enjoy high patronage from the semi-urban populace, provide employment for its expanding number of proprietors, who, without proper regulatory measures, abuse the service provided and engage in unwholesome practices. The food vendors compromise routine sanitary practices through the exposure of some foods to dust and pathogens, as well as rinsing used plates and cutleries in very dirty soapy water. Consequently, commercial food vending practices bring with it some important public health challenges as the foods are cooked and served with contaminated utensils. Furthermore, some food vendors compromise the cooking process, storage temperatures and personal hygiene, thereby serving as veritable agents of food contaminants and spread of food borne diseases. The paper then calls for genuinely articulated guidelines for the management of vended foods in circumstances and environments that would ensure public safety and good health of consumers.

IMPROVING CLASSROOM QUALITY

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ABSTRACT

This study capitalizes on recent advances in the reliable and valid measurement of classroom-level social processes known to influence children's social-emotional and academic development and addresses a number of limitations in our current understanding of teacher- and intervention-related impacts on elementary school classroom processes.

A cluster randomized controlled trial design was employed to (a) examine whether teacher social-emotional functioning forecasts differences in the quality of 3rd-grade classrooms, (b) test the experimental impact of a school-based social-emotional learning and literacy intervention on the quality of classroom processes controlling for teacher social-emotional functioning, and (c) examine whether intervention impacts on classroom quality are moderated by these teacher-related factors.

Results indicated (a) positive effects of teachers' perceived emotional ability on classroom quality; (b) positive effects of the 4Rs Program on overall classroom quality, net of teacher social-emotional functioning indicators; and (c) intervention effects that are robust to differences in these teacher factors. These findings support and extend recent research examining intervention-induced changes in classroom-level social processes fundamental to positive youth development.

IMPROVING EDUCATIONAL QUALITY: INTEGRATION OF A GRADUATE TRACER AUTOMATED SYSTEM FOR AN ACADEME

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ABSTRACT

Technological advancement has offered the field of instruction more practical tools to upgrade quality in education. This tool includes the capability of tracking down graduates as team players in the real world of employment to assess if the educational institution has provided them with the necessary training and skills needed to become employable graduates. In this study, quality and effectiveness of the graduate tracking tool are assessed for the assurance of quality outcome from the system that leads to better decisions on future developments. Using a research questionnaire based on published literature on the information system, the researcher determined the quality of the existing graduate tracer system for the college. The study reveals that the entities such as System Quality, Information Quality, and Service Quality contribute to the effectiveness based on the system's quality. Thus, with the data on hand, the findings show that there is user satisfaction that makes it effective for the state college to integrate the alumni tracer system.

INTRODUCTION

A Graduate Tracer Study is among the requirements of the Commission on Higher Education to evaluate and determine the relevance of the country's educational institutions. A tracer study is an alumni survey used to trace the activities or the employment status of an educational institution, (Milington, C., 2006). It also examines and evaluates the current and career and future job opportunities for graduates. Additionally, the tracer study is a tool that aims to point out the strength and weaknesses of a program through an alumni evaluation tool. The feedback could help the system traced back elements of the program that needs to improve. Schomburg as well said that graduate studies are accessible for the "analysis of the relationship between higher education and work." It can provide employment data of the graduate. The study reveals relevant data on the question "Where are our graduates now" and information on the status of the graduate's employment. Schomburg continues that information "about the kind of work task the relationship between study and labor, and professional values and job satisfaction." is provided as well, (Schomburg, 2003).

In fact, in one research, competitiveness in Central Java Indonesia allows the school to develop strategies to achieve excellent education and produce employable graduates. It later becomes a way to school to develop a branding strategy in higher education as stated by Nelloh, (2010).

Siquijor State College (SSC) is the only state-owned Higher-Educational Institution (HEI) in the province of Siquijor that provides efficient and excellent education. It has produced graduates for several years since its conversion from a vocational into a state college. With this, the need for the adoption of a graduate tracer system to track down graduates has emerged.

As a faculty member of the College of Technology, the researcher helps develop a graduate tracer system to help solve the problems encountered by the institution in tracking down its graduates and provide feedbacks about their status of employment. With the system on hand, this study furthers seeks the assessment of the system's quality and effectiveness to its users.

THE STUDY

This study is supported by Cognitive Flexibility Theory developed by Rand J. Spiro, et. al. (1990). The theory deals with the advance attainment of knowledge that introduced "flexible reassembly of preexisting knowledge to fit the needs of a new situation." (Sprio, J., et. al., 1991). The theory also explains that the cognitive flexibility theory intends to promote the learners' ability to reconstruct their knowledge continually and adapt according to the

situational demands, (Sprio, J., et. al., 1990). Spiro & Jehng emphasized that to achieve the learner's cognitive flexibility is to control the way that learning speaks to and the procedure that works those mental portrayals, (Spiro, J., et. al., 1991). As Boger (2007), puts it, this is essential to the success of the learner in both academe and life. The part of cognitive flexibility in instruction is on how students are educated necessarily impacts the development of their psychological structures that influence understudies' capacity to store data. The purpose of teaching, hence, is to help learners apply their knowledge and adapt their learning to different situations.

However, the role of the school does not end once students graduate. That is why the government mandates that all academic institutions conduct a graduate tracer study to get information from graduates. This data might be substantial for the advancement of the school with regards to quality affirmation.

Guasa (2008) held an alumni tracer system based on social networking Process for Southern Leyte State University (SLSU). It shows that the method of processing the data from the alumni tracer study conducted using manual method be set problems based on the answer of the respondents. With the help of the interviewees, Guasa was able to design and develop SLSU Member Network System (SANS) known as a dynamic web-based program that eases the process of tracing and monitoring graduates. Technology has accomplished its most essential part in enhancing the quality of training. It is prevailing with regards to modernizing the procedure of abilities learning. Presently, technology introduces the internet system for advance communication. The Internet is a vast network that connects smaller networks all over the globe. Currently, the Internet and the Web have evolved into one of the most powerful tools of the 21st century.

The World Wide Web (WWW) in relation with data innovation has discovered numerous applications and turn into an intense, intuitive, and dynamic medium for conveying data. One well-known application has been for instructive utilize, for example, Web-based learning frameworks. As Shelly puts it, the educational website offers challenging avenues for formal and informal teaching and learning, (Shelly, et. al., 2010). Uy, likewise observes that the digital empowerment is becoming stronger the Philippines. Information and Communication Technology (ICT) now serves as an active tool for various countries especially in developing states for strengthening the government and quality of social services, (Uy, 2011).

With the adoption of the state college of the graduate tracer system, a framework must be used to evaluate the systems' quality and effectiveness through the updated information systems success model (DeLone & McLean 2002, 2003). Information systems success is a standout among the most generally utilized ward factors in information system (IS) research. To give a general and extensive meaning of IS achievement that spreads alternate points of view of assessing data frameworks, DeLone and McLean checked on the current definitions of IS success relating measures and grouped them into six general classes.

Consequently, they made a multidimensional measuring model with cross dependencies between the diverse achievement groups. Thus, the researchers consider incorporating the Updated Information System Success Model to the research's investigation findings to create a broad framework.

The said model is composed of six (6) aspects of IS success namely such as information, system and service quality, use, user satisfaction, and net benefits. The arrows exhibit proposed a relationship between the achievement measurements. The model can be deciphered as takes after: A framework can be assessed on data, context, and administration quality; these attributes influence the ensuing use or goal to utilize and client satisfaction. Accordingly, of using the framework, certain advantages will be accomplished. The clear advantages will (emphatically or adversely) impact customer satisfaction and the further utilization of the data structure.

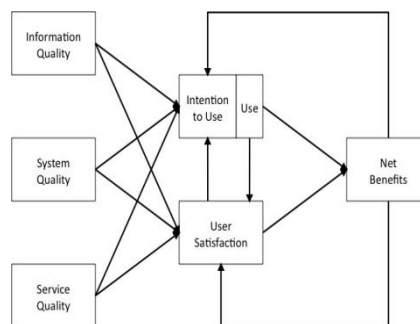


Figure 1. Updated Information Systems Success Model by DeLone & McLean (2003)

In the work of Pitt et al. the Updated Information Systems Success Model by DeLone & McLean was customized to cater customer return settings. The IS framework has been trimmed down to form three quality dimensions that lead to the overall effectiveness of the system, (Acton, et. Al., (2010).

The adjusted structure is represented in the graphical representation as follows:

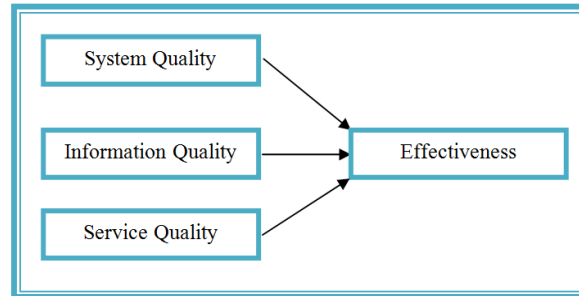


Figure 2. The Factors on Quality of Graduate Tracer Systems' Effectiveness

Hence, the study has adopted this model to determine the effectiveness of a Graduate Tracer System based on multi-level marketing system. The model is consist of different measurements such as network quality which deals with user requirements and satisfaction, information quality which relates to the value of information and service quality which deals about system's performance opposed to users expectation.

METHODOLOGY

The research uses the quantitative approach since it gears to investigate phenomena using statistical data which is treated using mathematical techniques. It uses a survey questionnaire to measure the effectiveness of a Graduate Tracer System. There are 40 respondents identified to participate in the evaluation. During the administration of the questionnaires, the participants are oriented to the different items in the survey so that they will be able to answer it correctly.

After data retrieval, the Likert's scale was used to evaluate the user satisfaction of the software which is followed by the data interpretation.

a. Survey Questionnaires

The adopted survey questionnaire used in the research is composed of four constructs with twenty-one (21) measurements. For System quality, its parameters include navigation and response time, design, system security and availability, functionality and error free transactions. For information quality, the parameters are content variety; complete and detailed information; accurate, reliable and timely information following the appropriate format. Regarding service quality, the parameters include responsiveness, reliability, confidence, empathy, follow-up service and competence. And lastly, to get satisfaction, it was measured by user acceptance only.

Therefore, the parameters used to measure the effectiveness of the Graduate Tracer System adopted by the state college in the survey questionnaire are justifiable. For the analysis, the survey results are treated using a Likert scale with the interpretation of Strongly Disagree, Disagree, Undecided, Agree and Strongly Agree to denote the users' level of agreement or disagreement on the software survey items.

Table 1. Survey Questionnaire on the Effectiveness of the Graduate Tracer System

Construct	Measures	Questionnaires
System Quality	Design	• It has an appropriate design for business type
	Navigation Response	• It has an easy navigation to information
	Response Time	• It has fast response and transaction processing
	System Security	• It transactions secure from exposure
	System Availability	• I can use it when I want to use it
	Functionality	• It has a good functionality relevant to site type
	Error Free Transaction	• It keeps error-free transactions
Information Quality	Content Variety	• It has sufficient contents which I expect to find
	Complete Information	• It provides complete information
	Detail Information	• It provides detailed information
	Accurate Information	• It provides accurate information
	Timely Information	• It provides timely information
	Reliable Information	• It provides reliable information
	Appropriate Information	• It communicates information in appropriate format
Service Quality	Responsiveness	• It anticipates and responds promptly to user request
	Reliability	• It can be depended on to provide whatever is promised
	Confidence	• It instils confidence in users and reduces uncertainty
	Empathy	• It understands and adapts to the user's needs
	Follow-Up Service	• It follow-up service to users
	Competence	• It gives a professional and competence image
Satisfaction	User Acceptance	• My overall satisfaction level with regards to the performance evaluation I use is better than what is expected
		• My overall satisfaction level with regards to the performance evaluation I use is better than I thought it

RESULTS AND DISCUSSION

The research survey is done out of 40 respondents as it assesses as far as its system, information quality, service quality and user satisfaction based on the creation of the research questionnaire. The data are as follows:

A. Table 2. System Quality

Construct	Measures	Questionnaires	Mean
System Quality	Design	It has an appropriate design for business type	4.53
	Navigation Response	It has an easy navigation to information	4.50
	Response Time	It has fast response and transaction processing	4.38
	System Security	It transactions secure from exposure	4.13
	System Availability	I can use it when I want to use it	4.06
	Functionality	It has a good functionality relevant to site type	4.36
	Error Free Transaction	It keeps error-free transactions	4.28
Average Mean			4.32

Table 2 shows the respondents assessment on system quality of alumni tracer system of the state college. The table indicates that the respondents strongly agreed on the system design, navigation response, response time functionally and error-free transaction as supported by the mean ($M=4.53$, $M=4.50$, $M=4.38$, $M=4.36$, and $M=4.28$) respectively. Alternatively, the table shows that among the bottom two are system security and system availability with the mean ($M=4.13$ and $M=4.06$) and has a written description of Agree.

With the average mean of $M=4.32$, the respondent strongly agreed that the system is of high quality. Thus, the application has a desirable trademark on its ease of use and execution.

B. Table 3. Information Quality

Construct	Measures	Questionnaires	Mean
Information Quality	Content Variety	It has sufficient contents which I expect to find	4.26
	Complete Information	It provides complete information	4.43
	Detail Information	It provides detailed information	4.46
	Accurate Information	It provides accurate information	4.32
	Timely Information	It provides timely information	4.60
	Reliable Information	It provides reliable information	4.26
	Appropriate Information	It communicates information in appropriate format	4.21
Average Mean			4.36

Table 3 illustrates on the information quality of the system. The result shows that the Respondent has strongly agreed that the system generates content variety, complete, detailed, accurate, timely, reliable and appropriate information with the mean (M=4.26, M=4.43, M=4.46, M=4.32, M=4.60, M=4.26, M=4.36), correspondingly.

The average mean when it comes to information quality is 4.36 with a verbal description of strongly agrees supports the findings that the information generated by the system is relevant and consistent.

C. Table 4. Service Quality

Construct	Measures	Questionnaires	Mean
Service Quality	Responsiveness	It anticipates and responds promptly to user request	4.38
	Reliability	It can be depended on to provide whatever is promised	4.40
	Confidence	It instills confidence in users and reduces uncertainty	4.43
	Empathy	It understands and adapts to the user's needs	4.01
	Follow-Up Service	It follow-up service to users	4.21
	Competence	It gives a professional and competence image	4.56
Average Mean			4.33

For table 4, the result demonstrates that regarding system quality, the respondents strongly agreed on the system responsiveness, reliability, confidence, follow-up service and competence as supported by the mean (M=4.38, M=4.40, M=4.43, M=4.21 and M=4.56) altogether. On the other hand, the table further exemplifies that only empathy ranks last with the mean M=4.01 and has the verbal description of agree from the respondents.

The average mean of M=3.32 the result illustrates that the respondent strongly agreed that the users are satisfied with the system's implementation.

D. Table 5. Customer Satisfaction

Construct	Measures	Questionnaires	Mean
Satisfaction	User Acceptance	My overall satisfaction level with regards to the performance evaluation I use is better than what is expected	4.55
		My overall satisfaction level with regards to the performance evaluation I use is better than I thought it	4.68
Average Mean			4.62

In Table 5 the study reveals the customer's satisfaction. As a principle in business, "the customer is always right". Thus, the providers must always put into consideration on the prospect customers preference when making products or conceptualizing services. The table shows that the respondents has a high overall satisfaction with the mean of (M=4.55 and M=4.68) and is further supported by the average mean of M=4.63.

The result clearly provides evidence that the implementation of the alumni tracer system is effective.

FINDINGS

The previous study shows that web benefit has been utilized in different areas. It adeptly includes the field of education. However, to assure that the system is well-structured and sustainable, a regular and continues monitoring and assessment is needed, (Benatallah, et. Al., 2002), (Fotrousi, F. (2016).

The result of this study is deemed to encourage the higher educational institution to adopt more technologically advanced tool such as an alumni tracer system that could help them track down graduates as it could provide them with relevant information that could be used to augment practices inside the institution. The result further shows a deeper understanding of the measurement of the quality and effectiveness of an alumni tracer system application.

CONCLUSION

The direction of this study is to evaluate the effectiveness of an alumni system web based application developed using PHP Framework. In general, this paper demonstrates that administration quality is the priority of the respondents having the most noteworthy gotten average mean of 4.62. Then again, System Quality is practically identical with Information Quality with an understanding of strongly agree. With the aggregated mean of 4.41, the review concluded that the application is compelling in perspective of the way that it could accomplish its goals inside the predetermined condition.

The continuous search for improving educational quality is a general thrust of all educational institutions. With the advancement of information and technology, it is but necessary that institutions of higher learning continually embraced this technology. However, on the implementation, the effectiveness of this innovative tool must regularly be evaluated to maintain clientele satisfaction and quality assurance as a whole.

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IMPROVING TEACHING AND LEARNING METHODS OF EFL BY DEVELOPING AND USING CASE STUDIES BASED ON ENTERPRISES NEED IN KOSOVO

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Kosovo being the newest independent state of the Europe, on the way to enhance its education system has taken lot of reforms in a very short period of time. Along with the changes English as foreign language-EFL has been assigned as mandatory subject taught in all levels of education. The interest of learning EFL in universities of Kosovo is increasingly growing after the last war, since it is considered as a prominent aid in economic development. Recently the links between what students learn in university and what enterprises needs emerge are being considered seriously. Therefore towered modernization of the curricula, among other methods the use of case studies is to be strongly encouraged Yin, R.K. (1994) C. This study aims to develop EFL teaching modules of curricula in graduate studies by developing and using case studies in order to enhance teaching and learning, upgrade the curricula in line with the needs of enterprises in Kosovo. It also aims to identify the knowledge and skills needed by enterprises and embed them in the EFL curricula. It has been found that the use of case studies, particularly those based on Kosovar companies, is rather unusual in Kosovo and will require a change in teaching, learning and assessment strategy. Giving that case studies have been proved successful link between faculties and enterprises the development and use of them in teaching will have a profound impact on students' learning experience and their training for the labor market

IMPROVING THE QUALITY OF MARGINALIZED SCHOOLS THROUGH ORGANIZATION DEVELOPMENT: A CASE OF EMRP'S SCHOOL-BASED EDUCATION MANAGEMENT INTERVENTION

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ABSTRACT

This paper discusses a school improvement strategy used to improve the teaching-learning processes in a group of marginalized schools in India and presents a case of EMRP (hereafter referred as Education Management Resource Program), a partnership of a business school with marginalized schools to drive their academic and administrative performance. EMRP is an education management experiment to enable interventions to promote leadership efficiency and to boost academic performance of students of underprivileged schools. This paper approaches the concerns and challenges of these schools and delineates the EMRP strategy of school improvement to help identify the enablers for school development and to recommend constructive approaches to school reform for potential enablers of holistic teaching-learning processes which can ensure quality education within the given constraints. This paper offers a reflection on how a school reform strategy oriented in the administrative management of a school can transform the academic potential of an underprivileged school and posit the school's growth manifold in terms of its academic and institutional development.

Keywords: organization development, education management, leadership, school reform, teaching-learning processes, business school partnership

INTRODUCTION

It is not very often that a business school collaborates with marginalized schools to help them manage their affairs. Education Management Resource Program (hereafter referred as EMRP) is a unique partnership which takes shape when seven schools in Mumbai (India) and eight schools in Ahmedabad (India) are adopted by a business school to impart training in leadership, management and administration to facilitate administrative and academic efficiency. These marginalized schools serve the disadvantaged minority students who are underprivileged and these schools promulgate scorecards which lack scholastic brilliance as compared to their mainstream students. Therefore a partnership was forged between these schools and EMRP, NMIMS which is an education management program of a business school to help implement a program of school improvement which was aimed at helping the school leadership in enhancing the quality of administration and teaching resources while managing student performance in a highly competitive academic milieu. The *raison d'être* of EMRP's school management program was to build management and leadership competencies amongst senior teachers to help school administrators in designing school development plans which will reinforce the curricular offerings. This is a unique organization development approach which supports systemic change in select schools. While conceptualizing the EMRP program, a vision of an ideal school was embedded in its school improvement design, which responded to the challenges faced by the marginalized schools and sought to create a model school which not just improved scholastic performance of its students but which also reinforced a holistic model of academic and extra-curricular development.

It is imperative that school education focuses on managing socio-economic aspirations of its stakeholders. While marginalized schools struggle to provide good quality education to their students, they often lack the resources and the infrastructure to do the job. EMRP was driven to mobilize the resources and provide the necessary support to galvanize the performance of these schools and to enable the stakeholders in achieving their desired thresholds of efficiency. It is thus interesting to explore the strategy of EMRP to boost education management and to provide impetus to the academic development of its constituents. This paper explores the journey of EMRP in shaping the destinies of these marginalized schools through a cross-fertilizing partnership which leads to the emergence of a model school which can compete with premiere mainstream schools. This partnership is a saga of an institution of higher education which collaborates with an institution of basic education to be an enabler of its growth. This maps the synergy of a business school's partnership with schools to foster school-based interventions to create structures, so as to facilitate management administration and to enable the

achievement of higher competencies through institutionalization of academic and leadership enablers. Chua & Mosha (2015, p.1), based on their study of schools in Tanzania, similarly concur that performance of schools can be ascribed to the type of management found in a certain school which allows for functional mechanisms to accelerate teaching-learning.

The EMRP design of school reform

The EMRP strategy approaches school reform through a management practitioner's lens. It picks up school reform as an agenda of improving school effectiveness through improving structures, policies, systems and in-class teaching-learning processes. It emphasizes organizational development as a system-wide change process to initiate deep-rooted changes and to institutionalize such changes for potential development. Organization Development is a theoretical assumption, a method and a value system (which may be covert) for creating improvement in the human side of organization's life and thus improvising the achievement of task-goal of complex organizations (Derr & Demb, 1974, p.11). It helps conceptualize a school as a corporate organization and uses HRD tools and techniques to achieve synergies amongst both external and internal stakeholders. This allows a practitioner an opportunity to use both a structural and an agency perspective for conceptualizing school improvement. A major benefit of such work is that this helps the school stakeholders to grasp the structural and common aspects which facilitate change but a major challenge could be that sense making of school-specific stakeholders such as teachers, along with their individual professional work, may get lost (Blossing, et al. 2015, p. 9). This approach emphasizes school as an organization and attempts a systems design approach of organizational development. It implies that a small or an inconspicuous change may manifest itself in repercussions which are organization-wide and which lead to unpredictable and dramatic consequences. While leveraging upon systems thinking, it is critical to focus upon critical areas which provide a forceful rationale for making such improvisations and mitigates chaos and scattering of limited resources such an approach focuses on few key areas and reduces the number of changes one must direct at any one time and provides a compelling rationale for making these changes. It also reduces confusion amongst stakeholders by carefully restructuring the inter-stakeholder relationships and thus limits the dispersal of inadequate resources. This paradigm allows successful schools to perennially restructure its system to integrate itself into a systems framework (Haines, 2000, p.10). This provides a perspective on how teachers will be held responsible for the student's performance and a principal will compensate the teacher for one's contribution.

EMRP, in its initial diagnostic phase, generated information about the schools and identified system-specific issues and challenges. Each school had its unique ecosystem which needed to redirect its symbiotic interdependences to create synergies which would augment their performance. A need-based school reform program was conceived and each and every school mapped its current position in terms of key result areas such as academic performance of students in school-based as well as public exams, enrolment levels of students, student-teacher ratios, and extra-curricular development of students, infrastructure, academic resources, principal-trustee relationship and parent-teacher relationships. It is significant to note that each aspect of school functionality was carefully picked to be redesigned and to engage stakeholders in holistic school development.

A strategic perspective was introduced to help schools think about macro-level changes through proactive action planning rather than merely combating day-to-day fire fighting. Contingencies of academic and non-academic nature were anticipated and structures were conceived to enable systemic changes through gap analysis and encouraging participants to think of the existing school system in its current state and to plan the transition to a desired state. Moore (2011) observes that understanding where an organization rests currently and what processes it will need to bring about change or transform is the leading step to introduce the change in business processes (p.4). EMRP conducted a gap analysis to help schools understand their current positions and used baseline data to help these schools understand the challenges of such a position. Based upon the current levels of performance, stakeholders were encouraged to design plans for desired expected outcomes. This compelled the school administration to develop multi-year plans to help them to anticipate changes they wish in their school environment and to work in a systemic manner to achieve such change. This helped them develop long-term plans (for as long as five years) to manage process improvements and to influence their outcomes through facilitating both system effectiveness and stakeholder efficiency. Here an important assumption is that change, both planned and unplanned depends upon the assumptions that people who are invested in such change processes make about organization development. Using Schien's analogy of the peeling of an onion, where one can see the external skin of the onion which represents the stakeholder behaviours, but without peeling away the

layers between the external skin, and the core of the onion which epitomizes assumptions, one cannot understand the onion which is representative of the people of an organizational system (McLean, 2006, p. 8). The Organization development strategy of EMRP focused on people behaviours and assumptions of stakeholder beliefs, values and attitudes to refashion the organizational capacity, which included redefining vision and mission and core values of the system. If organization's current culture does not support its strategy then one needs to introduce interventions to transform its culture. Culture may thus be one of the most forceful determinant of a school's culture (Owens, 2004, p. 191). This implies that a school's culture and climate may intermingle with the school improvement process in myriad ways and at all levels of that improvement process (Lindahl, 2006, p.6), and hence culture in terms of people elements and system- specific structural and technological elements will have to be integrated with the strategy for implementing the foreseeable change.

Identifying the Challenges faced by partner schools

While setting the stage for change management, EMRP identified the problems and issues inhibiting organizational efficiency of partner schools. Most schools lack infrastructure and resources to provide quality education to students and hence EMRP had to investigate the challenges which inhibit the development of these schools. It is interesting to note that all schools had several major inhibitors of school improvement which needed immediate attention. High absenteeism rates amongst schools students was a key area of concern as parental indifference and difficult curriculum without adequate resources to aid student learning led most schools to report absenteeism rates that were phenomenally higher than mainstream schools. Many students also dropped out due to lack of interest in pursuing their studies as well as for economic reasons. Often the academic performance of these schools, especially in public exams was abysmal. The board of management did not repose trust in the principal and hence often school principals were not satisfied with their roles and authority structure. At times due to lack of availability of management resources, many schools faced the issue of inadequate planning. In EMRP schools, inefficient classroom management was rampant due to an extremely poor teacher-student ratio. Research indicates that effective teachers take time to implement rules & procedures and do not force these rules and procedures upon students but create these with the students (Marzano et al., 2009, pp.5-6) to improve classroom processes, but EMRP schools could not demonstrate any such participative mechanisms as these schools had one teacher and nearly 50-70 students in each class. Poor school administration with a lack of discipline was a common feature in most of these schools. Since very often senior-most teachers assumed the mantle of school leadership, they often lacked administrative and leadership experience, resulting in inefficient school administration. Conventional teaching methodology, coupled with solely academic emphasis without any extra-curricular development opportunities for students led to school dropouts as well as absenteeism and even lopsided development of students.

Teachers of EMRP schools felt disengaged and were not adequately empowered. There was limited networking with other professional colleagues, and thus most EMRP school teachers were not acquainted with pedagogical innovations, and often worked with conventional classroom resources. The school staff suffered from low morale and were often demotivated with no opportunities for self-development. EMRP strategy had to be oriented in the belief that for effective professional development, schools will have to institutionalize a culture for learning amongst the members of the teaching community (Blandford, 2000, p.8). Infrastructure Management and over-all resource management of these schools left much to be desired with unclean premises and inadequate facilities and maintenance support. EMRP's strategy of school reform would posit its contribution to combat all of these issues and challenges besides introducing structures, processes, systemic interventions and people-centric practices to enable these schools to enhance their competitive advantage by improving quality of education and school management.

Organization Development strategy of EMRP

As an external change agent, EMRP was a catalyst to initiate long-term developmental planning and change and helped EMRP schools adopt numerous system, process and behavioural interventions over several years to implement its school improvement plans. EMRP consultants, along with the principal and senior teachers conducted an organizational diagnosis and identified key problems which a school encountered. This was an important first step in understanding the nature of problems and ascertaining current level of organizational effectiveness. Discussions with important functionaries of the school helped the consultants in diagnosing the current level of organizational readiness for change as well as interventions needed for change (Mcfillen et. al,

2013, p.223). A Gap analysis, conducted by EMRP consultants, revealed major strengths and weaknesses (Brown & Harvey, 2014, p.156) of these schools and helped in ascertaining the role of each stakeholder in school development plan.

EMRP institutionalized several interventions at organizational, group and individual levels to help practitioners achieve pre-identified outcomes. A series of structural interventions were planned such as redefining tasks, structures, work interdependencies (such as forming time-table committees, and Parent-teacher associations) and finally redefining roles and responsibilities of important personnel. Each school was helped in refining its vision and in developing plans for the future. An effective school management plan was developed to help institutionalize behavioural, process and task-based interventions to help schools perform at par with mainstream schools. In the throes of transformation, organic systems continue to engage in self-organizing and sense-making (Rothwell, 2016, p.56).

Training was used extensively to enable key school personnel in achieving the desired competencies in areas of classroom management, leadership, team-building and communication. Continuous training helped in building necessary skills and in weeding obsolescence. Training outcomes could be cognitive, behavioural, affective, and motivational (Gally & Chen, pp.5-6). Self-development of principals and teachers facilitated organizational renewal. Change needs a new way of working and hence needs an organizing architecture, or else it would be difficult to sustain this change. In times of change, organizations will have to transform their structures for strategy renewal. Hence most effective organizations will reorient themselves to boost their employees' capabilities so that talent of their employees is most pertinently used (Gaertz et al., 2002, pp. 3-4).

EMRP conducted organizational mirroring activities with different groups of functionaries of EMRP schools. Interactions amongst various important inter-dependent groups such as examination union, trustees, examination paper-setters, and even Innovative Teachers' Forum (INTEF), helped sensitize these stakeholders to each other's roles and also allowed a process of sorting out assumptions and expectations of one another. This intervention helped in conflict-resolution through dysfunctional mirroring by reinforcing boundary differentiation amongst these groups and individuals and this helped these different role-holders in augmenting their capacity to adapt to their assigned organizational tasks and to acquire greater role sensitivity about role-making and role-taking (Nitsun, 1998, p.245).

The partner schools were encouraged to engage in survey-feedback activities as EMRP recommended that research should aid in generating a dependable database which will lead to effective problem-solving through accuracy in need analysis. A community of school-based researchers was fostered to identify and solve school-specific problems through investigation of problems locally by conducting small independent research studies. These teacher-researchers were responsible for bringing innovative approaches in teaching-learning processes and in recommending solutions to challenging problems. Bernstein (1999) opines that pedagogy is a continued process, wherein an individual creates innovative forms of knowledge or develops current forms of behaviour, knowledge or praxis, and criteria from someone which is considered to be a qualified provider and assessor (p.259). While such pedagogic cross-fertilization allows for curricular knowledge to be applied to everyday life contexts (Koosimile, 2004). School teachers worked collectively to generate resources which could be developmental pedagogic tools and which could be used to enhance the quality of teaching-learning processes in the classroom. They were also the catalyst for implementing change and in facilitating organization development processes.

Institutionalizing Interventions for systemic change

EMRP was the external consultant to partner schools in order to implement Organization Development and to create sustainable change in these organizations. Human resource development was initiated and which focused on reinforcing relationships amongst the different constituents of school while developing people resources. A systems approach to organization development was attempted to engage all the departments of a school in a holistic model of professional development, which made each school think of itself as an integrated whole which will need to act in a synchronized manner to achieve its objectives. Beer & Huse (1972) recommend that structural and interpersonal transformation must complement and strengthen one another. Moreover learning in adults commences with behavioural changes rather than cognitive transformation (p.79). EMRP's organization development strategy includes an array of interventions to promote adult learning and to help the school emerge as a professionally mature organisation. These interventions include an intervention of a core group of teachers, which is a teacher-centric think tank of the organization to empower the teachers in curriculum planning, time-

table setting, innovating pedagogic tools, classroom management, and forging better teacher-student and parent-teacher relationships. Focused training was imparted by EMRP as an education management consultant to help schools achieve higher benchmark competencies in each of the pre-identified areas of performance. Each outcome of these activities was linked to the student's academic performance. A baseline competency indicators were mapped against benchmark competency indicators to demonstrate achievement of necessary levels of proficiency.

Another important in-class structure, which was used to facilitate peer learning was "student cluster". Student clusters allowed a teacher to create clusters of hand-picked students wherein brightest students of the class collaborated with academically slow-performing students. A student with poor academic performance was allowed access to buddy resources to help him cope up with the rigors of school exams. Since peers are accessible and they have insights into the learning challenges faced by fellow-classmates which even teachers' lack as subject-matter experts and thus peers have the ability to understand a laggard student's perspective (Maheady, 1998, p.6). Peer learning was especially useful while teaching subjects in Math & Science disciplines to students who were first generation learners and who had no access to any supplementary learning resources at home. Both core groups and student clusters were interventions which dealt with process and content issues and allowed teachers and students to build structures within the school system to drive long-term change. These quality improvement approaches were essentially linked to a database of baseline data about the participants' past performance and recorded their current performance in an ongoing cycle of data management. This was useful as a school principal could monitor one's school's scholastic performance in terms of strategically available roadmap to address contingencies as needed and to deliver results. This also made available a snapshot of comparative analysis of the school's performance in terms of examination results, attendance, school drop-outs, and teacher-student ratios.

The Parent-teacher association of EMRP was a tool driven to foster better relationship amongst parents and teachers of these EMRP partner schools. Parents attended meetings with teachers to address common issues of concern in terms of academic performance, in-class challenges faced by students, teaching-learning resources, and even issues related to personal adversity of underprivileged groups of students. It tackled issues of students' health and well-being and even dealt with problems such as mental health, malnutrition, and in some cases part-time employment of students after school. This was an opportunity for the school to intervene in the student's home environment to support a holistic development and to specifically deal with parental issues such as illiteracy, alcoholism, unemployment and domestic violence.

An Innovative Teachers' Forum (INTEF) for promoting school-based research advanced reflection and research and helped bring innovative approaches in teaching-learning to schools. A networking opportunity unfolded to teachers and enabled cross-pollination of ideas and dissemination of resources. Often teachers discussed their research and participated in events where invited guest experts exchanged contemporary trends in education. EMRP library was an extension of this intervention which was a repository of important academic resources and which loaned teaching aids, books and other media such as films and audio-visual aids.

Exploring the identity of an EMRP school student

An EMRP school student most often hailed from a poor disadvantaged background without any financial means to provide for education and hence sought education in a school with nominal tuition charges. A representative student profile would be that of one who lives with a large family in a metropolis such as Mumbai or Ahmedabad, with many siblings and uneducated parents who cannot participate in the child's academic development. Often this student has to work as a domestic help, as a garage helper or even as a waiter to supplement one's family income. Some of these students may be indispensable to their family's income as they might have lost a parent early in life. Such children, at times, also suffered from mental ill-health due to unreasonable pressures they faced at a very young age as a consequence of adversity and family circumstances. Quite a few of these students were addicted to chewing *pan* (betel leaves) and *Gutkha* (i.e. *Gutkha* is a powdered mixture of arecanut, tobacco and lime), often exposing themselves to additional health hazards such as mouth cancer. Developmental Psychology framework acknowledges that various contexts and settings in which students are nurtured, for instance, families, communities and schools, all mould their behaviours, attitudes and experiences (Rumberger, 2011, p.8.), and impact their academic performance. Since they could not afford two meals a day, they often attended school on a hungry stomach. They were not motivated to complete their education and often struggled in their academic performance. Their attendance was often frustratingly low and

their parents showed no interest in sharing any responsibility in counselling their children. The teachers often doubled up as a teacher and as a parent as well, thus helping the student to complete one's academic journey responsibly. Despite academic brilliance, some students had to face growing family pressures to give up their studies, as their parent were not interested in contributing even nominal tuition fees. Parents of girl children were eager to get the child married at a young age. There were 30% student dropouts in these schools. Research indicates that the professional capacity of the teacher is critical in defining the learning experience of the students, and is of a greater impact than other factors such as socio-economic background or the curriculum (Darling-Hammond, 2001; Hattie, 2003; Rowe, 2003), and EMRP's research established this fact.

EMRP's Model of School Reform

Using a holistic approach to school improvement, an EMRP school improvement plan involved including all the stakeholders so that every facet of school development is impacted positively. This included both external and internal stakeholder such as teachers, parents, principals, trustees, students and even administrative and support staff. EMRP's thrust was to enable a common understanding amongst these different stakeholders about organizational vision, mission, plans, and strategy and future objectives. A holistic school improvement allowed synergies amongst key stakeholders and also aided in system integration. Principal, as a key administrator, was essentially the pivot of EMRP's strategy and he or she was the change champion for creating the necessary environment for implementing change. School leaders face responsibility pressures in a "results-driven" setting. While external pressures mount, school leaders need comprehension, skill and resilience to reinforce their institutions (Bush, 2013, p.18).

While school leadership was significantly the prime mover of all EMRP strategic initiatives, he or she also had the responsibility to galvanize a team of catalysts who would implement the desired change. EMRP prepared Action Learning Programmes for principals and facilitated training in institution-building to reinforce higher leadership competence amongst school leaders. Moreover, developing leadership capability is the critical factor in nurturing capacity for school improvement (Harris & Lambert, p.8). A slew of interventions such as strategic planning workshops, training programs on decision-making, leadership and other team-building as well as role-driven interventions were designed and implemented to foster role clarity and these interventions were significantly important in moving the school principal's perception of one's role as that of a fire-fighting administrator to a proactive participative leader and an informed institution-builder.

Use of school Management Information System (MIS) in monitoring and evaluating the progress of schools was crucial first step in building systems within the schools to capture information about critical areas of school operations. Schools were guided to capture information about the examination processes and drop -out rates. For instance, all schools were encouraged to capture the academic performance of students in grade VIII & grade IX, so that performance of students in important subjects, such as Math and Science, can be carefully monitored to prevent failures and school drop-outs. In fact, monitoring the drop-out rate through internal MIS helped EMRP schools in reducing their drop-out rates substantially. School staff was trained in capturing the MIS and in accessing relevant information for crucial decision-making. In fact baseline data was used to compare the current academic performance of the schools in pre-identified areas with previous year's academic performance to understand the impact of school-based academic improvement strategies. School MIS provided a framework for review of their existing work and for initiating future changes, as and when needed.

Research was an important facilitator influencing the quality of education in EMRP schools. EMRP encouraged partner schools to undertake research in significant areas of school improvement which were pre-identified during the organizational diagnosis. An exhaustive analysis of examination results was attempted on a periodic basis. This tracked the variability in academic performance in case of each student, the extent of co-relation in performance of the group amongst different components, while closely monitoring the performance of the lower 20% of the class. An efficiency index was developed for system performance as well as student performance.

Triage, a classroom-based teaching intervention, identified the groups of academically weak and very weak students and provided coaching for improvement in academic performance. As a consequence of special coaching weak students improved in their academic performance and very weak students did not show any improvement. With the help of this research, schools redefined their classroom strategies and created class-room structures to modify academic inputs and to enhance academic performance of weak students. Schools were encouraged to study dropout rates of students. It was a common assumption that students drop out due to socio-economic factors since a majority of EMRP School students hailed from underprivileged backgrounds. But

research revealed to the contrary. It was established that a high rate of drop-outs was simply due to uninteresting manner in which academic instruction was delivered or the students found it difficult to cope up with the rigors of the academic routine.

EMRP conducted an organizational climate and health study with schools in Mumbai and Ahmedabad. Since of the 89 participating schools, 15 schools were EMRP schools, it was possible to compare these schools with other schools in terms of their organizational culture and climate. A benchmark for North-West Mumbai schools was set up for organizational climate and health and each EMRP school was compared with the benchmark school. It was an approval of EMRP's school reform strategy as the research confirmed that EMRP schools performed better on key organizational culture and organizational climate indicators as compared to a typical North-West Mumbai school.

CONCLUSION

EMRP schools in Ahmedabad achieved excellent academic performance due to EMRP interventions and also demonstrated a strong potential for organization development through sustained systemic change and by implementing a select interventions in various areas of school improvement. While schools in Mumbai remained focused on the academic performance, schools in Ahmedabad emerged successful in reinforcing school network through a platform for peer networking and exchange of ideas and innovations. These schools showed a dramatic improvement in academic performance with examination results in Ahmedabad moving from a measly 2.5 % to results as high as 60-85%. In Mumbai, EMRP schools showed academic results as high as 99-100%. Extra-curricular aspects of school performance have also been amazingly robust subsequent to EMRP's partnership with these schools. Significant structures to facilitate on-going networking and to create holistic transformations in order to enable schools emerge as an organization have been set up at partner schools. Some of these such as Core groups, Student clusters, INTEF, Teacher Resource Centre, and Examination Union have fructified as hubs of inter-school partnership in collaborative pursuit for excellence in education. School principals have emerged as successful institution-builders and teachers of these schools have morphed into innovative pedagogues. School administration and management has seen qualitative improvement in terms of leadership potential and the school's ability to manage its affairs better. Organization development has reinforced the partner schools' capabilities in terms of structures, policies, processes, systems and even personnel, to help these schools optimize their objectives. This partnership of a business school with a school has been a journey of complete transformation of schools as organizations and has successfully achieved what Kegan (2008) proffers:

...genuinely transformational learning is always to some extent an epistemological change rather than merely a change in behavioural repertoire or an increase in the quantity or fund of knowledge (p.48).

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IN MY END IS MY BEGINNING: ELEARNING AT THE CROSSROADS

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ABSTRACT

The increasingly popularity of eLearning does not refer to a specific educational method of instruction nor method of delivery. The design can have different meanings depending on the sophistication of the educational method employed, the resources made available, and the educator's skills. Unfortunately the application of technology in education does not necessarily equate to effective forms of learning. The literature does not always provide clarity in defining a framework for educational technology initiatives. This paper suggests that such a taxonomy is necessary to establish distinct categories of eLearning between industrial models, bottom-up innovation and top-down institutionally-led changes.

IN SEARCH OF QUALITY STUDENT TEACHERS IN A DIGITAL ERA: REFRAMING THE PRACTICES OF SOFT SKILLS IN TEACHER EDUCATION

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The purpose of this current study was to examine and document the practices of soft skills (communication, IT, numeracy, learning how to learn, problem solving, working with others, and subject-specific competencies) among English as foreign language (EFL) student teachers at one public university teacher education program in Jambi, Indonesia. The study centred on examining the level of soft skills practised by EFL student teachers in their learning process and the level of student engagement in every statement of soft skill components. Data were collected through distributing a questionnaire to EFL student teachers. The findings of the study showed the mean score of soft skills practices in overall (3.28 of 5.00) which was at an average level. A closer examination on more specific skills, five of seven Softskills were practiced at medium level; they were numeracy, learning how to learn, IT and problem solving and subject-specific competencies. However they rated their soft skills in term of communication and working each other at high level. The findings implied that the soft skills were not well-blended and practiced in learning and teaching process at the research site.

INDEX OF SELF-EFFICACY FOR LEARNING HOW TO CONDUCT RESEARCH: PSYCHOMETRIC PROPERTIES

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ABSTRACT

The present research work develops with the aim to estimate the properties psychometrical a scale that measures the self-efficacy for the learning of the research. Took part 1304 university students whose average age was 22 years. The study was realized in three phases: Phase 1: descriptive Valuation of the ítems. Phase 2: Analysis factorial exploratory, and the Phase 3 was the estimation of the Analysis Factorial Confirmatory. As a result an instrument composed of three dimensions-factors explaining 70.03% of the variance associated with the construct under study is obtained. According to Cronbach's alpha of .866 and .864 McDonald's Omega it is considered that the scale presents a high level of confidence.

Key words: learning research; psychometric properties, self-efficacy; University students; Exploratory factor analysis; confirmatory factor analysis.

INTRODUCTION

Thinking that the research is a fundamental axis of the university education, the present study plans like target to estimate the psychometric properties of a scale that measures the self-efficacy for learning of the research, process that constitutes itself in an indicator worldwide considered of occupational training, institutional progress and university position. This research reveals the latent variables involved in the adhesion of the student to the research, since if it is assumed that the ideas are generating of conducts, then to understand the constitution factorial of the construct suggests its potential intervention and adjustment to raise the yield of the student in the execution of the activities inherent in the research. If tutor extrapolates this contribution to the dynamics, the scale will allow identifying explanatory parameters of the performance of the students of different formative programs, doing that the accompaniment of the same ones is more differentiated and focused within reach of the research goals planned.

Although self-efficacy scales were identified in the academic context and its kindness in the prediction of the student success (García, English, Torregosa, Ruiz, Dis, Pérez and Martínez, 2010; Oláz and Pérez, 2012; Adorn them, Target, Gastélum and Muñoz, 2013) its linked collision of a specific way to the research is scarce, being only the published ones by Carot, Carranza, Oláz and Ponce (2012); Díaz, Manrique, Lady's man and Apolaya (2008) and Sander (2005). In this sense, it is considered that the production of this instrument favors the functional exploration of this line of research to the power to have a modality of measurement of the self-efficacy for learning of the research before potential interventions in the context Psycho-educative, where the reflection is promoted on the ideas of efficacy

like way for the benefits securing in the execution of the task as it is brought by the researchs of Paolini and Bonetto (2013).

METHOD.

PARTICIPANTS.

The sample was shaped by a whole of 1304 students of the Academic Unit of Social sciences of the Technical University of Machala, Ecuador. As for the sex, 61.7 % (805) was women and 38.3 % (499) males. The average of the age was 22 years, with a typical deviation of 6.54. The selection of the students was done in function to the ascription career, remaining distributed of the following way: Plastic arts: 3.3 %, Social Communication: 7.4 %, Educational sciences Mention: Physical culture: 7.4 %, Basic education: 8.4 %, Initial Education: 7 %, Teaching in Computing sciences: 4.4 %, Social sciences: 2.3 %, Physics and Mathematics: 0.9 %, English: 1.7 %, Language and Literature: 2.4 %, Educational Psychology and Vocational Orientation: 2,5 %; Clinical psychology: 14,9 %, Jurisprudence: 13,7 %; Environmental management: 9,5 %, Sociology and Political sciences: 5.4 %, Social work: 8.8 %.

INSTRUMENTS

The Inventory of personal beliefs of Research (CREPSI) remained composed by 11 items constructed according to the recommendations of Bandura (2006) about the dimensions and sources of self-efficacy. To answer the items 5 answers alternatives were selected with base in the frequency criterion, since the reiteration of the idea in the conscience suggests the activation of behavioral processes, which in sum reveal the implied logic of the concept of self-efficacy: "ideas that generate conducts". The options remained represented of the following way: To = Never, B = Seldom C = Sometimes D = Most of times E = Always. The allocation of the values continues a sequence of 1-5 respectively for the positive items. In case of the negative items, an investment of the values was realized. The statistical evaluation of the items was realized in three interdependent phases.

Phase 1: it implied the descriptive analysis of every item considering the proportion and/or answers frequency in the categories of each of them, to make sure that every item should be a variable and not a constant. Also there were valued the measurements of central tendency, dispersion and form, to obtain a global vision of the distribution of the information. An interrelations counterfoil was generated policóricas between the items to assure the applicability of exploratory and confirmatory factor analysis. Of equal way normality tests were realized single-variant of every item using the test of Kolmogorov and Smirnov, to assure the applicability of diverse methods of extraction of factors of the AFE, of which it shows itself in this first part the abstracted communalities.

Phase 2: Exploratory factor analysis (AFE) to the obtained information, of applying instrument to 1304 students, in order to reveal the set of latent variables that compose it. The evaluation of the model factorial was realized according to the following indicators (Lloret, Ferreres, Hernandez and Tomas, 2014; Pere and Lorenzo, 2014): a) Estimation of the adequacy of the information for the development of the factor analysis, by means of the test KMO and the test of Bartlett's sphericity; b) Method of securing of factors: Not exaggerated square minimums (ULS), applied on the counterfoil of polychoric interrelation. The selection obeys that the results are not vulnerable to the measurements of the variables (Freiberg, Stover, Church and Fernández, 2013); c) Rotation by means of the oblique method Promin (Lorenzo, 1999); d) Saturation factorial superior to.5; e) 3 to 4 items minimum for factor; f) Average quadratic residue ("Root Mean residual Square" RMSR) by means of closeness with the Kelley criterion; f) Index of fitting criterion (GFI "Goodness of Fit Index"). Additional to it, in this phase there is estimated the reliability of the model proposed, calculated from the alpha of Cronbach and the Omega of McDonalds. Phase 3: Confirmatory factor analysis (AFC) of the structure of the model. This phase confirms the hypothesis that is formed by means of the AFE with regard to the factors and you show that they load in these. Basically the idea is to shape the functioning of the reality from the incorporation of the assumptions and restrictions that are in the population; this way, the model thinks about how to fit from a way reasonably suitably (Cambric, Coenders and Alonso, 2004; Pérez and Chacón, 2000). The model expresses itself graphically in the mail between latent factors - dimensions and the variables

observable (items) so that major adhesion should be demonstrated between them. Every item must saturate in the factor of the one that supposes a valid indicator.

For the calculation of the exploratory factorial analysis, the counterfoil of the information there showed a satisfactory adjustment in the value $KMO = .863$ and the Bartlett's test of Sphericity equal to 4669 ($p < .000$) indicating that the interrelations counterfoil is different from the counterfoil identity. The factorization method employed was the ULS for the robust thing that proves on having estimated factors in adverse situations (Lloret et al., 2014). A solution was obtained factorial shaped by three factors that there explains 70,03 % of the variance associated with the construct in study. The factorial charges observed (see Table 2) are located over .05, indicator of a good definition (Kings, Moon and Case, 2014; Hair, Thatam and Black, 1999).

Table 1: Descriptive analysis of the Items

Items	Mean	TD	Asymmetry	Curtosis	K-S	P Value	Communality
60	3.819	1.001	-.770	.363	9.317	.000	.452
65	3.636	1.336	-.452	-.699	6.846	.000	.534
69	3.928	1.032	-.835	.260	8.415	.000	.537
70	3.985	1.038	-.945	.453	8.580	.000	.728
72	4.006	1.182	-1.083	.564	8.725	.000	.597
83	3.551	1.378	-.320	-.880	6.323	.000	.578
95	3.263	1.200	-.069	-.758	6.333	.000	.606
96	2.291	1.251	.597	-.361	7.476	.000	.740
97	2.551	1.234	.403	-.481	7.309	.000	.624
99	2.805	1.427	.190	-.832	6.334	.000	.550
101	3.118	1.103	-.002	-.542	8.162	.000	.575

TD: Typical deviation

K-S: Kolmogorov- Smirnov normality test

Table 2: AFE Solution

Items	Factor 1	Factor 2	Factor 3
65. I trust in my aptitude to realize good research Works.	.723		
83. I trust in my aptitudes to defend my points of view with regard to a subject-matter in study.	.779		
95. I recognize my aptitudes to develop research processes.	.733		
101. I solve with facility research problems.	.500		
96. My friends say that the research excites me.		.922	
97. My partners look for me so that he explains research topics to them.		.781	
99. I motivate others to take part in research processes		.644	
60. I often leave aside the research activities.			.671
69. The research topics block me.			.721
70. The research readings produce discomfort to me.			.877
72. Investigating bores me.			.735

The Factor 1, remained shaped by four items which content they make it incline towards the exploration of the self-confidence in the execution of activities linked with the research since its contents determine capacity for: to solve problems, to realize research works, to defend points of view, to carry out research processes.

The second factor is structured by three items with orientation to the exploration of the promotion towards the research. The latent variable heads for the promotion and motivation of the research in its significant environment. Finally the third factor is faced towards the estimation of the interest in the research.

As an interest fact observed in these items a writing in inverse sense which is considered at the moment of the tabulation of the answers, but he does not exercise alteration in the composition of the results.

The model factorial exploratory obtained is considered to be exact because.98 observed a high co-change proportion between the items and the proposed model revealed by the index GFI =. Also a RMSR obtained =.0145 which was located below the criterion of Kelley's (.0277), element that ratifies the adjustment of the model to the sample estimated on having suggested low magnitude of residual that they stay without explaining with regard to the self-efficacy perceived for learning of the research.

With regard to the reliability there observes the presence of an alpha of Cronbach of.866 and a McDonald's Omega.864, both with one p value of.001. In an individual way, the factors presented an alpha of.822 for the factor 1;.857 for the factor 2 and.860 for the factor 3. The grades of the Cronbac's alpha and the Omega bear witness to high internal consistency and stability of the grades (Landeau, 2007; Bernal, 2006; Reynoso and Seligson, 2005). In this sense, the instrument has necessary that to throw coherent measurements of a measurement to the following one (Bernal, 2006).

Since it has been demonstrated, the self-efficacy for learning of the research meets linked the self-confidence, from there that the feedback before positive experiences can encourage major personal safety on having faced learning of the research and on the contrary, before negative experiences it is more probable that it diminishes such safety. Nevertheless, the interpretation of the real experience acts like determinant of the evaluation of the same one.

Table 3: Estimation of the values of reliability

Element-whole Statistics				
Ítems	Average of the scale if the element is eliminated	Variance of the scale if the element is eliminated	Corrected interrelation element - whole	Cronbach's Alpha if the element is eliminated
60	33.85	47.428	.402	.819
65	34.03	44.231	.536	.808
69	33.74	46.815	.429	.817
70	33.69	46.517	.450	.815
72	33.66	45.591	.479	.813
83	34.12	43.920	.547	.807
95	34.41	44.166	.580	.804
96	35.38	44.945	.508	.810
97	35.12	45.017	.507	.810
99	34.87	43.784	.544	.807
101	33.84	45.347	.451	.816

Additional to it, the brought values are between the most recommended estimations, which range between.80 and.90 (Oviedo and Field, 2005). The interrelation item - whole corrected shows coefficients indicative.402 and.580 of a positive interrelation moderated between every item and with the whole less the item, which supposes that these reach port to the estimation of the variable (Mulberry trees, 2006). As for the interrelations between them it is had that between the factor 1 and 2 exists one $r = .632$, and between 1 and 3.435, who is considered to be a moderate. Between the factors 2 and 3 brings one r of.339, which is typified as it goes down. For the sake of establishing the stability of the model suggested in the AFE, one proceeded to realize the AFC which results suggest that the factors - dimensions identified reproduce the behavior of the population as for the self-efficacy for learning of the research it refers. In this sense it is considered that the model is as per statistics exact, which is demonstrated in the values showed in the table 4.

Table 4: AFC Adjustment index

Whole adjustment index			Incremental adjustment index				Parsimony index		X^2/gl
<i>GFI</i>	<i>RMSEA</i>	<i>RMR</i>	<i>CFI</i>	<i>NFI</i>	<i>GFI</i>	<i>AGFI</i>	<i>AIC</i>	<i>CAIC</i>	
.977	.035	.042	.945	.916	.945	.961	156.228	322.904	2.621

One of the elements that reinforce the comprehension of this tie is the power predictive of the self-confidence in the functioning of the educational ambience like indicator of learning and yield. When the student presents personal safety he recognizes its fears, confronts the anxiety, one risks to experience potentially adverse situations, tolerates the frustration, makes use of the experiences of formation (Al-Hebaish, 2012; Hecimovich, Styles and Volet, 2014; Rabbit-breeders, Red and Segure, 2010). It is inferred that the yield in learning of the research is going to change in accordance with the grade of possession of the self-assurance and its capacities (Hecimovich et to., 2014).

The model factorial informed that the self-efficacy to learn to investigate turns out to be affected by the tendency that has the subject to promote the research processes. An self-effective individual is capable of persuading socially in favor of its domain area, from there that to the empowerment, shapes the condition and influences the motivation of others for approaching the research and facing him the fears, lacking in commitment, and interest absence in the development of this heuristic practice (Morgenshtern, Freymond, Hong, Adamowich and Mark, 2015). According to Lancu (2015), the promotion of the research is going to be proportional to the perception that the subject has of the real experience, as regards the confrontation of potentially frustrating situations. The effect of this action is straight proportional to the knowledge acquisition with utility contextual. This promotion aspect is going to be a key in the construction of the campaign to raise public awareness to investigate, the aptitude of risks to assume new knowledge and hence the promotion of a scientific culture (Saral and Reyhanlioğlu, 2015). The third and last factor refers to the interest in the processes of research, which the actions entrepreneurship affects in favor of the goals achievement, because he allows to arrange the cognitive and emotional resources in favor of the success (Ortega, 2014), from there that to increase it get ready of strategies that link the student with stages of applicability of the real experience in order that the probable results are inputs for the position of the ideas of efficacy tied to the research (Martyushev, Sinogina and Sheremetyeva, 2015).

On having been constituted by cognitive and emotional elements, the interests allow the development of actions which feedback favors or inhibits the beliefs in the aptitudes to investigate, from there that this concept is key in the educational processes for its incidence in the knowledge construction, in spite of the transformations to which there turns out to be submitted the subject (Vasilescu, Moraru and Savab, 2015; Dubinina, Berestneva and Sviridov, 2015). The studies indicate that the interest of the students is linked to the research with the received motivation and simultaneously they involve the presence of the modeling of the teacher like agent participant in the process (Laleye, 2015; Lamanuskas and Augienė, 2015), which ratifies the coalition of external and internal factors in the construction of the self-efficacy to investigate.

CONCLUSION

The inventory on the auto efficacy for learning of the research, is a scale with format type Likert shaped by three dimensions - factors that there explains 70,03 % of the variance associated with the construct in study. The dimensions that compose it are the following ones: self-confidence for learning of the research, promotion of the research, and interest in the research processes. The model factorial confirmatory is exact in accordance with the psychometric standards established. In accordance with the alpha of Cronbach of .866 and the McDonald's Omega .864, it is considered that the scale presents a high confidence index.

The exploration of this construct is constituted in an ally of the promotion of the university research in Spanish language populations. Revealing the internal functioning of the construct allows the relations development tutors who encourage growth experiences and at the same time they amalgamate the student with the research along its formation process in pre and postgraduate course. With this instrument, spaces

are opened to explore situations of causality and dependence on the latent variables that act like empowering or inhibiting of the relation student - research minimizing to the maximum all possibility of experiencing adverse symptoms associated to “everything except research”.

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INFORMATION AND COMMUNICATIONS TECHNOLOGY ACCEPTANCE AMONG MALAYSIAN ADOLESCENTS IN URBAN POVERTY

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This study was conducted to identify the information communication and technology (ICT) usage among adolescents in urban poverty and their acceptance of using ICT in teaching and learning (T&L) process. The Technology Acceptance Model was used in determining the acceptance of ICT by focusing on factors such as perceived ease of use and perceived usefulness as the two main factors that is much referred for technology acceptance. This case study was conducted using a quantitative and a questionnaire was used to collect data from 50 respondents. SPSS software was used in the form of descriptive statistics. The results showed that majority of the respondents do not spend much time in using ICT at home or even during class session. However, their acceptances in using ICT are positive in T&L process. Based on the findings, suggestions have been proposed to increase the effective use of ICT among adolescents in urban poverty.

INQUIRY-BASED LEARNING FOR A VIRTUAL LEARNING COMMUNITY TO ENHANCE PROBLEM-SOLVING ABILITY OF APPLIED THAI TRADITIONAL MEDICINE STUDENTS

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The recent growth in collaborative and interactive virtual learning communities integrating innovative digital technologies and contemporary learning frameworks is contributing enormously to the use of e-learning in higher education in the twenty-first century. The purpose of this study was to describe the development of a virtual learning community system within the Applied Thai Traditional Medicine (ATTM) instruction context. This started with collecting data from ATTM students (n=303) from eight universities in Thailand. In addition, experts (n=30) in various areas of ATTM, educational technology, and assessment participated in semi-structured interviews. Using the information obtained, an online learning community system guided by the Community of Inquiry (COI) framework which incorporated advanced virtual innovations such as inquiry-based learning (IBL) activities was consequently developed. Test score results of students obtained before studying via the ATTM VCOI system showed that the sample group of 39 ATTM students had an average score of ability in problem-solving at 16.87 with standard deviation at 3.25. After studying with the system, they achieved an average score of 18.41 with standard deviation at 3.05. The results indicate that average test scores were statistically different at a 0.05 level of significance ($t = -2.140$, $p = 0.03$). Furthermore, the results also point to efficacy in regards to teaching, social and cognitive presences. The data collected indicates that use of the ATTM VCOI system can lead to a more collaborative community learning environment that can enhance ATTM students' problem-solving ability and improve the effectiveness of online learning in higher education in general and in ATTM instruction in particular.

Close

IN-SERVICE TEACHER TRAINING NEEDS AMONG BASIC EDUCATION TEACHERS

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ABSTRACT

A teacher engages in professional development program in order to enhance instructional delivery. One dimension of this preparation is the in-service teacher training that schools provide as part of its faculty development plan. This training provides opportunities for teachers to be updated with trends and issues in their discipline at the same time reflect on their teaching practices so they can enhance both their personal and professional characteristics as facilitators of learning. This paper presents the results of the Teacher Training Needs Assessment Survey conducted among the University of San Carlos (USC) Basic Education Teachers based on their In-Service Teacher Training experiences on May 2015. Using the researcher-made survey questionnaire, teachers were asked to rate the five areas being looked into namely: Teaching Learning Activities, Campus Ministry, Guidance, Testing, and Administration. This paper will only highlight the summary results on the five areas of the training. Based on the findings, Teaching Learning Activities was found to be more needed followed by Administration, Guidance, Testing then Campus Ministry. It was noted that there is a need to standardize the teachers' training in order to be relevant and useful for the teachers.

Keywords: In-Service Teacher Training, Professional Development, Teaching Practices, Training Needs, Teaching-Learning Activities

INTRODUCTION

Teacher Training is an important aspect of a school's faculty development plan as it provides opportunities for teachers to upgrade and improve their teaching practices. Teachers bring to formal in-service programs differing attitudes and beliefs born of years of life and work experience, positive and negative, that profoundly affect learning outcomes (Bullough, 2009) and influence the teachers' way of teaching as perceived by their personal experiences (Bollough and Baughman, 1997). The professional life of a teacher is accompanied by a set of expectations such as professional behavior, the ability to communicate, team working, reflecting and learning (Denby, 2012). It is during in-service teacher trainings that teachers reflect on their own teaching practices as that they get to be reminded of this realization. As such, teachers need time to reflect on their teaching practices as these are part of both their personal and professional development that are oftentimes neglected due to magnitude of tasks and deadlines they have to attend to. There is no agreed-on terminology used for in-service professional development programs. "Staff development" and "in-service training" are sometimes used for short-term workshops or short courses that offer teachers information or ideas, often abstract and unrelated to teachers' work (Cochran, Smith & Lytle, 2001). They can be based on the delivery of information by experts to teachers, whose role is largely

passive. “Professional development” or “continuing professional development” (CPD) are used for a continuous, career-long program that encompasses more comprehensive teacher learning and relies strongly on more-active forms of learning, sometimes facilitated in workshops but often in teacher groups at the school or cluster level (Villegas-Reimers, 2003). The “newparadigm” of professional development has moved away from short-term teacher-training events where information is transmitted by an expert to a group of attentive listeners to a more constructivist model (Lind, 2007) where she advocates the constructivist model based on the recognition that learning takes place over time and that active learning requires opportunities to link previous knowledge with new understandings (Cochran-Smith & Lytle, 2001 and Uptis, 2005).

Many in-service teacher trainings do not have clearly defined purposes and direction. In some cases, the training becomes a pre-requisite requirement for teachers before they start the school year but no monitoring scheme has been established if what has been taught or learned from the training is being applied to improve classroom teaching. This is a common observation expressed by both teachers and administrators alike. Tyler (2013) in his book *basic principles of curriculum and instruction* articulated that education is a process of changing the behavior patterns of people. This is using behavior in the broad sense to include thinking and feeling as well as overt action. This when applied to the teachers training, emphasizes the need for a clear articulation of training objectives in order to achieve the desired outcomes. On the other hand, in the book *Models, Strategies and Methods for Effective Teaching* (Lang & Evans, 2006), one of the aspects of teaching is the Professional Development Process. This model called professional development process (PDP) is used to acquire the behaviors and reflection-in-action capability of an effective teacher. In this process, opportunity for continuous professional growth is provided as a personal knowledge about teaching is reconstructed. It focuses on the basic principles and practices of teaching and the development of a strong personal professional self-concept. In this connection, schools conduct in-service training for their teachers as part of the school’s annual calendar of activities in order to provide teachers opportunities to improve their teaching practice.

School-based in-service teacher training are common features not only in American and European universities but also Asian universities like in Singapore and Thailand. To mention, School-Based-Training for teachers and administrators was introduced as a means to provide long term and on-going training at reduced cost (Dr. Varakorn Samakoses, Ministry of Education, Thailand). This has been implemented by Ramjitti Institute of Chulalongkorn University and there’s also Thailand’s Institute for the Promotion of Teaching Science and Technology. High-impact professional learning has three characteristics: 1) a focus on student learning, 2) rigorous measurement of adult decisions, and 3) a focus on people and practices, not programs (Reeves, 2010).

In the Philippines, the term In-Service Teacher Training refers to the school’s faculty development program for teachers to be aware familiarize the school’s policies at the same time improve their teaching skills. Schools regularly conduct annual in-service training for their teachers in order to improve the quality of teaching and learning process, the quality of students’ outputs and outcomes, and the quality of teachers that

both relate to their self-efficacy and professional development. With the recent educational reform, the implementation of the Enhanced Basic Education Act of 2013 (K+12 Educational Program), more teachers need in-service trainings to cope with the demands of the new educational system in the country. In fact, 140,000 teachers undergo training for K+12 program last May 7 to June 1, 2012 (Ronda, 2012) <http://www.philstar.com/headlines/807429/140000-teachers-undergo-training-k12-program>. As teachers attend in-service teacher trainings, they bring with them varied classroom experiences that they want to improve or share best practices on what works in their classes. However, not much has been written nor being documented on how the training has helped the teachers in terms of improving their classroom performance and even their personal and personal self-worth as a teacher.

The purpose of a training needs assessment is to identify performance requirements and the knowledge, skills, and abilities needed by an agency's workforce to achieve the requirements. An effective training needs assessment will help direct resources to areas of greatest demand. The assessment should address resources needed to fulfill organizational mission, improve productivity, and provide quality products and services. A needs assessment is the process of identifying the "gap" between performance required and current performance. When a difference exists, it explores the causes and reasons for the gap and methods for closing or eliminating the gap. A complete needs assessment also considers the consequences for ignoring the gaps. <http://www.opm.gov/policy-data-oversight/training-and-development/planning-evaluating/>Training Needs Assessment, March 16, 2015.

The University of San Carlos Basic Education Department provides a regular in-service training to their teachers annually. This training is usually held during summer particularly during the last week on month of May and would even extend to first week of June. This becomes a requirement to all teachers for personal enhancement and professional development in order to prepare them for the start of the new academic year. The training usually takes about two weeks and the topics vary depending on the need of the school and the availability of resources and speakers. The In-Service Teacher Training is one of the means to achieve the school's faculty development plan that provides professional development among teachers. The in-service training for teachers is a basic component in planning for teachers' professional development. Thus, every year schools provide this training for teachers to improve their classroom practice and their professional competence. It is then important to document, monitor, and evaluate the in service training and solicit feedback from the teachers themselves in order to improve the program and respond to their needs. In this connection, this paper presents the teachers' training needs based on the five areas identified in order to provide feedback on how the training can be improved to help develop both the personal and professional efficacy of the teachers will eventually lead to more productive learning outcomes.

MATERIALS AND METHODS

This study employed the qualitative-quantitative, descriptive research design with the purpose of looking into the teachers training needs based on the five identified areas. These are Teaching Learning Activities, Campus Ministry, Guidance, Testing, and Administration. A researcher-made survey questionnaire was used to solicit data on the teachers' in-service training needs that relate to both their personal efficacy and their professional development. This was the In-Service Teacher Training Needs Assessment Tool that was used to collect the needed data. Part one of the questionnaire solicit the respondent's profile based on their personal profile, professional background and teaching experiences. Part two solicited information on the teachers' training needs based on the five areas. They were asked to rate these areas according to which ones are mostly needed in relation to how they can improve their teaching practice. In addition, they were also asked on how relevant the topics were, how useful were the information in terms of classroom application, and how their personal efficacy both as a person and as a teacher were improved during the in-service training conducted.

The data were solicited during the teacher's In-Service Teacher Training conducted on May 2015 in the University of San Carlos, Basic Education Department. There were twenty four male teachers and one hundred twenty female teachers from the three different campuses (Montessori Academy, North Campus and South Campus) where the needed information were collected. These teachers handle subjects from different learning areas.

RESULTS AND DISCUSSION

The relevance of a teachers' training is in its application to classroom practice. In order to determine the significance of the teachers' in service training in the Basic Education Department of the University of San Carlos in Cebu City, Philippines. There were five dimensions of the training program which were rated by teachers based on what is the most needed to the least needed during their training. Table 1 shows the result of the survey on the teachers' in-service training needs.

In-Service Teacher Training Dimensions

There were five identified areas during the in-service teacher training that were looked into namely: These are Teaching Learning Activities, Campus Ministry, Guidance, Testing, and Administration. Teacher-respondents ranked these areas based on what they believed to be important in improving their teaching practice.

Variables	Frequency	Percentage	Rank
Administration	21	14.583	3
Campus Ministry	10	6.944	5
Guidance	33	22.916	2
Teaching Learning Activities	68	47.222	1
Testing	12	8.333	4
Total	144		

Table 1. In-Service Teacher Training Dimensions

Table 1 shows the summary and the corresponding priority needs among USC Basic Education teachers in terms of the most needed to least needed areas for their in-service training. 47.22 % of the teachers indicate Teaching Learning Activities as most needed compared to the other areas. This is attributed to the fact as teachers they want to improve their teaching performance by recognizing what they really need in their classroom teaching to become more efficient and efficient in their classroom tasks. In organizing in service trainings, schools must take into account the teachers' pre-existing teaching practices and find ways on how to improve their instructional delivery. As such, they should ask the teachers on what aspect of their teaching they feel inadequate so needed scaffolding activities can be designed to be incorporated in the in-service teachers' training. Next to teaching Learning Activities is Guidance which is 22.92 % and followed by Administration which is 14.58 %. Teachers have also expressed their need in handling students' behavior in the classroom thus this ranked second on their in-service training needs. This implies that teachers have difficulty managing students in the classroom due to varied personalities and family background where some problematic behaviors surfaced during classroom interactions. Third in the rank is Administration. Teachers expressed some lack of support among some administrators that deprives them of fully delivering the services intended. This is concretely manifested in forms of intrinsic and extrinsic support. It was noted that for Administration, teachers also expressed the need for open communication between the administrators and the faculty in order to ensure that teachers' academic, professional and even personal needs must also be considered when administrators make decisions for it can also affect the teachers' performance and actuations in class. Fourth in rank is Testing which got 8.33% then least is Campus Ministry which is 6.94 %. Testing is also identified as a needed area for this is where the students' pervious are validated in relation to their present academic standing. Last on their expressed needs which is close in number with testing is Campus Ministry.

CONCLUSION AND RECOMMENDATIONS

Based on the results of the survey conducted regarding the in service trainings conducted every year, teachers expressed their sentiments on how they can best be helped and supported in their quest to improve their teaching ability that will lead to improve student achievement. In response to the challenges expressed by the teacher-respondents in the study, it was noted that teachers need to undertake a more specific training on their expressed needs that will lead to a more productive and meaningful teaching.

The in-service teacher training is an avenue of realization and provides opportunities for teachers to acknowledge their strengths and weaknesses and provide feedback on how they can enhance both their personal and professional development as a teacher. The experience of having such kind of a training is a way of evaluating and monitoring what the teachers need in order that they become effective and efficient facilitators in their classes and can help them perform their tasks successfully in school.

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INTEGRATED MEDIA UTILIZATION FOR CREATIVE TOURISM PROMOTION IN BANGKOK NEIGHBORING AREA – NONTHABURI, PATHUM THANI, AND AYUTTHAYA PROVINCES

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ABSTRACT

The Integrated Media Utilization for Creative Tourism Promotion in Bangkok Neighboring Area - Nonthaburi, Pathum Thani and Ayutthaya Provinces aims to: 1) investigate behavior and need of integrated media, and to develop creative tourism route of Nonthaburi, Pathum Thani, and Ayutthaya provinces in connection with Bangkok area; 2) develop database and integrated media for creative tourism promotion in Bangkok neighboring area of Nonthaburi, Pathum Thani, and Ayutthaya provinces; and 3) evaluate the database and integrated media.

Data were collected from 5 sample groups including 31 locals of tourist area in each province, 20 scholars and experts in tourism industry and marketing communication, 207 tourists both Thais and foreigners, 20 government officers and private sector workers in tourism businesses, and 20 community leaders and local administration executives in the tourist areas. Research tools include: 1) in-depth interview of the community leaders and local administration executives ; 2) knowledge survey of creative tourism focusing on local wisdom, local tradition and culture, local food, and local tourist activities; 3) behavioral questionnaire of integrated media exposure; 4) integrated media for creative tourism including website, mobile application, video, and print media; 5) media evaluation form for experts; 6) opinion survey of integrated media usage; and 7) reflective opinion survey of public hearing.

Results showed that 51.3 % of the tourists received information on creative tourism via smartphone or tablet. Tourists mostly satisfied with property of the integrated media within overall satisfactory level of “good”, especially on ease of access to the information; 2) three creative tourism routes including Back to the Past by the River, Creative Agriculture, and Dessert and Local Food have been proposed; 3) result from integrated media evaluation from experts indicate a level of media quality as good; and 4) evaluation of the integrated media from tourists indicate an overall satisfactory level of good in which production technique and application of the media are appropriate.

Keywords:integrated media; destination image; creative tourism

INTRODUCTION

Tourism is an importance service industry of Thailand’s economic. It makes the income to the country around 500,000 million baht per year (about 12,000 million USD; Ministry of Tourism & Sports in Thailand, 2014), especially, in the concept of creative tourism applying to the tourism. It makes the empowerment, income distribute and sustainable to community.

Integrated Media for creative tourism promotion in Bangkok Neighboring Area - Nonthaburi, Pathum Thani and Ayutthaya Provinces developed under the concept of Participatory development by community based. The community members had participated in the planning, setting of the objectives, creating and designing, distribution, and evaluation of the media. This process involves collaborative learning between the community members and researchers and specialists. This research can help community members learn how to further manage the knowledge of local wisdom in the lifelong.

THE STUDY

The objectives of this study were: 1) to investigate behavior and need of integrated media, and to develop creative tourism route of Nonthaburi, Pathum Thani, and Ayutthaya provinces in connection with Bangkok area, 2) to develop database and integrated media for promotion of creative tourism in Bangkok neighboring provinces, and 3) to evaluate tourists’ usage of database and integrated media for creative tourism of Nonthaburi, Pathum Thani, and Ayutthaya provinces.

The population in this research included group of local people in Nonthaburi, Pathumthani, and Ayutthaya provinces. Ayutthaya was designated as a research center for the provincial group. Sample group consisted of local people in Nonthaburi, Pathum Thani, and Ayutthaya provinces in which the researchers select the sample groups using Multi-stage Sampling listed in the following: 1) simple random sampling consisted of 31 local people from tourist attractions of each province, 2) purposive selection consisted of 20 scholars and experts in tourism industries and market communications, 3) simple random sampling of tourists consisted of Thais and foreigners by using accidental random sampling technique. The sample included 207 tourists within tourism center of each province, 4) purposive selection of 20 officers and operators from government and private organizations that were related to tourism, and 5) purposive selection of 20 community leaders and executives of local government and private organizations that were related to tourism.

The research instruments were: 1) in-depth interview of the community leaders and local administration executives, 2) focus group discussion form of creative tourism focusing on local wisdom, local tradition and culture, local food, and local tourism activities, 3) questionnaire of integrated media exposure for the tourists, 4) Integrated media for creative tourism including Website (www.localcreativetourism.com), mobile application, printed media, and video presentation, 5) media evaluation form for media experts 6) opinion survey of integrated media usage, and 7) Reflective opinion survey of public hearing. Data were analysed by using percentage, mean, and standard deviation (S.D.).

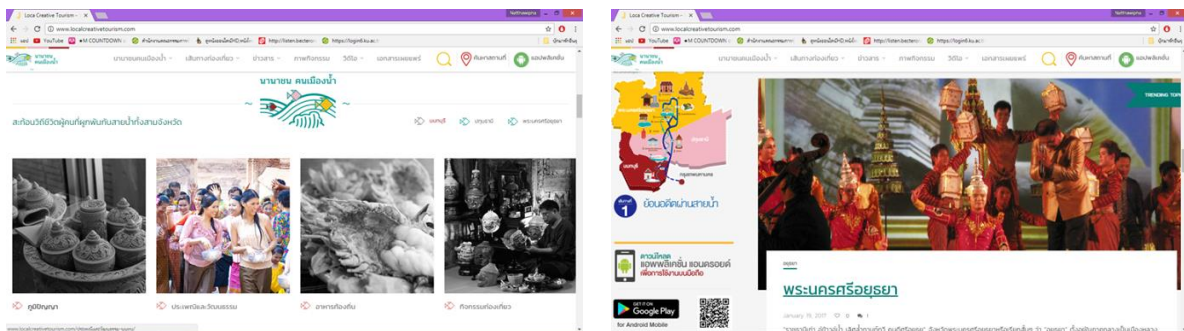


Figure 1 Website URL of the research Project: www.localcreativetourism.com

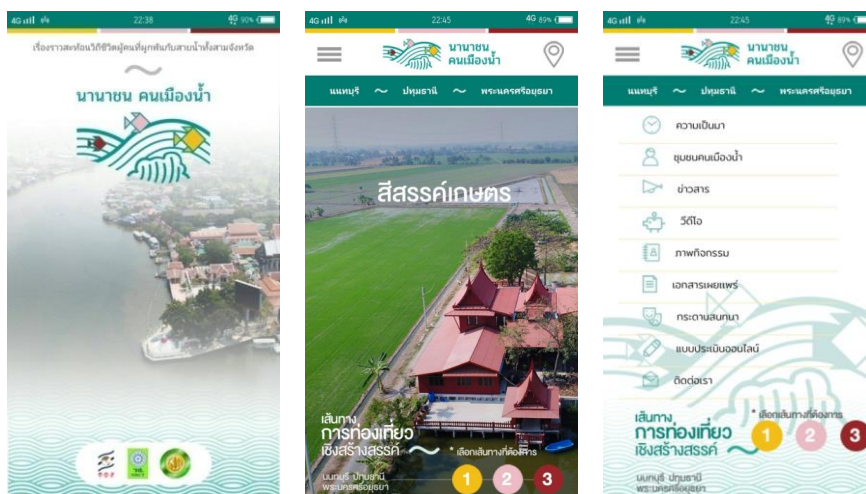


Figure 2 mobile application of the research project.

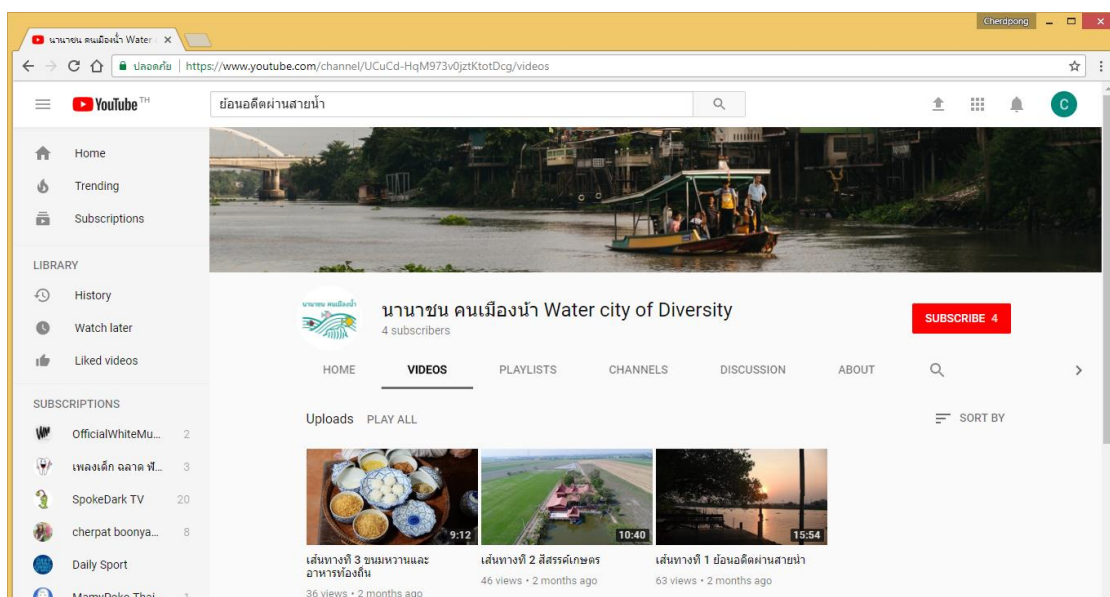


Figure 3 Three video online presentations on the research Website and Application.

- Route one:** Looking Beyond the River
- Route two:** Agriculture on Tour
- Route three:** Colorful Local Food Creatio



Figure 4 Printed media with AR (Augmented Reality) ZAPPA code at the top.

FINDINGS

1. The study of integrated media usage for creative tourism show that tourists have opinion on media exposure and usage for travel planning and decision making on an intermediate level. The most usable media for accepting travel news is smartphone with a percentage of 89.3, followed by personal computer (PC; 45.4%) and notebook computer (35.8%), respectively. For frequency of media exposure on travel news, 30.81% of tourists receives travel news less than once a week with 46.9% receives news at 17.00-20.00. Most of the tourists (70.9%) prefers to tell their travel experiences via Facebook, followed Twitter (11.1%) and YouTube (10.7%), respectively. Tourists are very satisfied with property of the integrated media for creative tourism, especially convenience and ease of access to the information.

2. The research has proposed 3 creative travel routes for development of integrated media for creative tourism promotion. The 3 routes are as followed:

Route 1 Looking Beyond the River (2 days 1 night)

Bangkok – Samkhok Historical City Museum – Wat Sing – Wat Bot – Ko Koet community (overnight stay) Alternative route 1: Baan Hollanda – Japanese Village – Wat Yai Chai Mongkhon (lunch) – Pakkred Pier (Wat Klang Kred) – Ko Kred (Wat Poramaiyikawat) – Bangkok / Alternative route 2: Bang Pa-In Royal Palace + Tonliu Crafts and Arts store (lunch) – Pakkred Pier (Wat Klang Kred) – Ko Kred (Wat Poramaiyikawat) - Bangkok



Figure 5 Route 1 Back to the Past by the River

Route 2 (2 days 1 night)

Bangkok – Wassana Falm – Tan Land – Kong Khong Market (lunch) – Kru Thani House – Ta Cha Yai Sa (overnight stay) + Sai Noi floating market (lunch) – Kratom mushroom farm – Bangkok



Figure 6 Route 2 Creative Agriculture

Route 3 Dessert and Local Food (2 days 1 night)

Bangkok – The Thai House (lunch) – Wat Sarn Jao Market – Ta Nid House (overnight stay) – Klai Wan Thai Dessert – Wat Tha Ga Rong (lunch) – Agricultural Market – Bangkok



Figure 7 Colorful Local Food Creation

3. Evaluation of integrated media for creative tourism in Nonthaburi, Pathum Thani, and Ayutthaya by media experts shows that the quality level of the media is good in all aspects: knowledge management for tourism and travel route, content, searching system, usefulness and usage, and design.

4. The media usage survey from 207 tourists indicates a good level of the media utilization. Tourists are very satisfied with print media ($\bar{X} = 4.45$), followed by video ($\bar{X} = 4.37$), website ($\bar{X} = 4.29$), and mobile application ($\bar{X} = 4.21$), respectively. Tourists' opinion on usefulness and usage of the integrated media are in a level of very good ($\bar{X} = 4.48$). An ability to promote travel news and research on creative tourism as well as an adaptation of content in the media are the most useful with an equal mean value of 4.50. Other qualities include an ability to be used as searching tools for tourist attraction ($\bar{X} = 4.49$), an ability to interact with the media ($\bar{X} = 4.48$), and an ability to be used as information center which directly serves the users' needs ($\bar{X} = 4.45$).

CONCLUSIONS

The knowledge management process used in the research can be applied in a study of basic knowledge within local community as well as its applications so that definite basic knowledge can be established and stored within the database. Finally, the knowledge management can be used as a template for development of the media under community collaboration. Moreover, the according to the results, development of integrated media for creative tourism performed in this research is a convergent media, which increases communication channel for tourists. As a result, tourists can easily access to the media via multi-channel. In addition, community collaboration has been involved in the development of the integrated media resulting in maximizing a need of the community and tourist. Finally, the integrated media developed in this research together with additional media created from community members will improve the local tourisms as well as build sustainable and continuous tourisms in the area.

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INTEGRATING INTERACTIVE WHITEBOARD INTO THE TEACHING OF MATHEMATICS AND THE ACADEMIC PERFORMANCE OF PRIMARY 4 PUPILS IN IBEJU-LEKKI LGA OF LAGOS STATE, NIGERIA

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ABSTRACT

The study examined how interactive whiteboard (IWB) impact primary 4 pupils' academic and gender performances in Mathematics and compared between private and public schools' Mathematics performances using IWB as well. A total of 90 pupils from 327 pupils, aged 8-9 were selected as sample using pre-test, post-test non-randomized experimental and control group respectively. Using t-test statistics for data analysis, results showed that IWB positively impact pupils' Mathematics performance, no gender difference in academic performance of Mathematics' pupils using IWB and schools using IWB performed excellently in Mathematics than schools not using IWB. Recommendations were made based on findings.

Keywords: Interactive whiteboard (IWB), academic performance, gender, private school, public school

INTRODUCTION

Most pupils lacking motivation often view Mathematics as quite difficult and one to be afraid. Tomlinson (2000:3) has it that "pupils in the Elementary grades vary greatly and teachers will have to attend to the differences if they want to maximize their individual potential... else, pupils may become confused, frustrated and unwilling to participate in the learning process." The implication of such learning experience often results in poor academic performance of pupils and could transcend into their next level of Education.

In reality, such experience has been the case in Nigeria over the past few years especially in Mathematics. According to the Head of West African Examinations Council (WAEC) National office in Lagos, Nigeria, Mr. Charles Eguridu, "a marginal decline in performance of candidates in 2014 WAEC examinations indicate a current trend of mass failure in Mathematics and English Language" as shown below:

Source: <http://www.vanguardngr.com/2014/08/mass-failure-as-waec-releases-mayjune-exam-results/>

Today, schools are increasingly using interactive white boards (IWBs) to enhance Mathematics instruction due to its great benefit from multiple representations and animations. In 2005, from a national survey in England, 49% of all primary school teachers and 77% of mathematics teachers in secondary schools use IWBs in their lessons respectively (Hodge, S. & Anderson, B. 2007).

Nevertheless, several views are held on enhancing learning with IWBs. From the development, one may ask: what is the enhancement potential of IWB integration to pupils' academic performance in Mathematics? Is there gender-related difference in academic performance of pupils taught Mathematics using IWB? Is there any difference between the academic performance of pupils in private and public primary schools taught Mathematics using IWB and those taught without using IWB? The following objectives were considered in the study:

- To find out what significant impact IWBs have on pupils' Mathematics performance.
- To find out if gender difference exist in academic performance of pupils taught using IWB for Mathematics lessons.
- To find out if there is any difference in academic performance of pupils in Mathematics between private and public primary schools taught using IWB.

Year	2012	2013	2014
Five credits (including Math and English Language)	38.81%	36.57%	31.28%

INSTRUCTIONAL STRATEGIES AND ACADEMIC PERFORMANCE

Basically, we have “traditional” and “modern” instructional strategies. According to Yusuf, (2004), the traditional method of learning using blackboard, chalk, slates, stones, and so on is a practice still common in most Nigerian schools regardless of students with different learning abilities. Gambari, (2010) believed that such approach is a major factor in poor academic performance. Other instructional strategies for teaching include technology application, software and so on (Boni, 2007). Liao (2007) concluded that computer-assisted instruction (like IWB) had a positive effect on students’ performance than traditional instruction. He found that different instructional approaches were used in computer-assisted instruction. The research provides evidence that with different types of media and methods used in computer-assisted instruction, there are more improved levels of academic performance. Again, it showed that high ability students’ performance is recorded with modern instructional tools as against the traditional strategy. These results were not only seen in Taiwan, but also in the United States.

Suzanna, S. (2011) began to investigate instructional strategy of differentiated instruction and how Howard Gardner's theory of multiple intelligences (MI) could assist teachers to accommodate the learning needs of all students and differentiate instruction resulting in greater academic performance in elementary grades K-6, hence, the use of IWB. Again, a report on interactive whiteboards from London's Institute of Education said statistical analysis showed no impact on pupil performance in the first year in which departments were fully equipped (Kurbel, 2001: 133-136). Aytac T. (2013) observed 202 students’ views in primary and high schools in Ankara, on problems faced during IWB use, gender difference and duration of IWB use via t-test and one-way ANOVA where no significant differences were found in terms of gender performance and IWB use but a clear difference between primary school and high school students’ views about the use of IWB was shown. Also, it observed that students had a positive attitude towards IWB use. Also, Armstrong et al., (2005) argued: ‘to date, no absolute properties of an IWB have been identified that would allow one to predict the effects they have on teaching, and the use of IWBs alone cannot lead to enhanced teaching.’ One of the most compelling studies that showed a negligible effect of IWB on academic performance is Higgins et al. (2007). No significant difference was found in test scores between schools using IWBs, and schools not using IWBs after a 2 year study. Christophy & Wattson (2007), in a comparative study showed that a group of high school students who learned abstract terms in chemistry using IWB actually received lower scores on a multiple choice test of knowledge in comparison to the group that learned traditionally (without the IWB). Similarly, Schuck & Kearney (2007) claimed that little or no difference was found in the national test scores in mathematics and science in UK primary schools between IWB and non-IWB classrooms.

Based on a study conducted by the London Institute of Education with the funding of the DfES to evaluate "the Schools Whiteboard Expansion project", Somekh, B. (2007) opined that interactive whiteboards associated with little significant impact on student performance in Mathematics and English and only a slight improvement Science at Key Stage 3, while in the same schools, the use of interactive whiteboards was found to have negative effects for Mathematics and Science, but positive effects for English at Key Stage 4. The authors cite several possible causes for the Key Stage 4 findings which include: According to https://en.wikipedia.org/wiki/Interactive_whiteboard, “a Type II statistical error, disruption to teaching methods leading to reduced pupil performance when IWBs were installed.”

GENDER AND ACADEMIC PERFORMANCE

Previous studies are of divergent views on gender and academic performance. While some claim that there is no significant gender difference among academic scores, others conclude that girls do better in school than boys vice versa. Ifamuyiwa & Akinsola (2008), Annetta, et. al. (2009), reported that gender has no effect on academic performance of students in physics and mathematics respectively. Mlambo, V. (2011) designed a study to identify and analyze some determinants of academic performance in an introductory biochemistry (AGRI 1013) course plagued by chronic high failure rates in a first year programme at the University of the West Indies, St. Augustine campus. Using a random sample of 66 registered students (representing a 40% sampling fraction) to generate data on demographics (gender and age), the author added that though learning preference, entry qualifications and their effects, gender, and age were determined on academic performance, none of those factors significantly impacted academic performance (Mlambo, V. 2011).

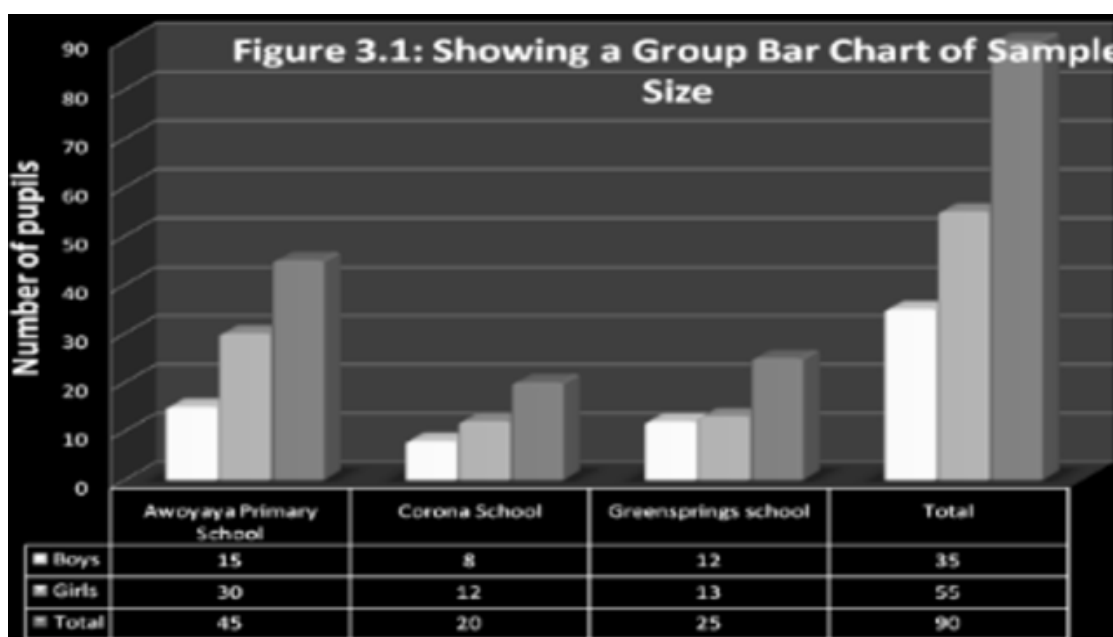
SCHOOL TYPE AND ACADEMIC PERFORMANCE

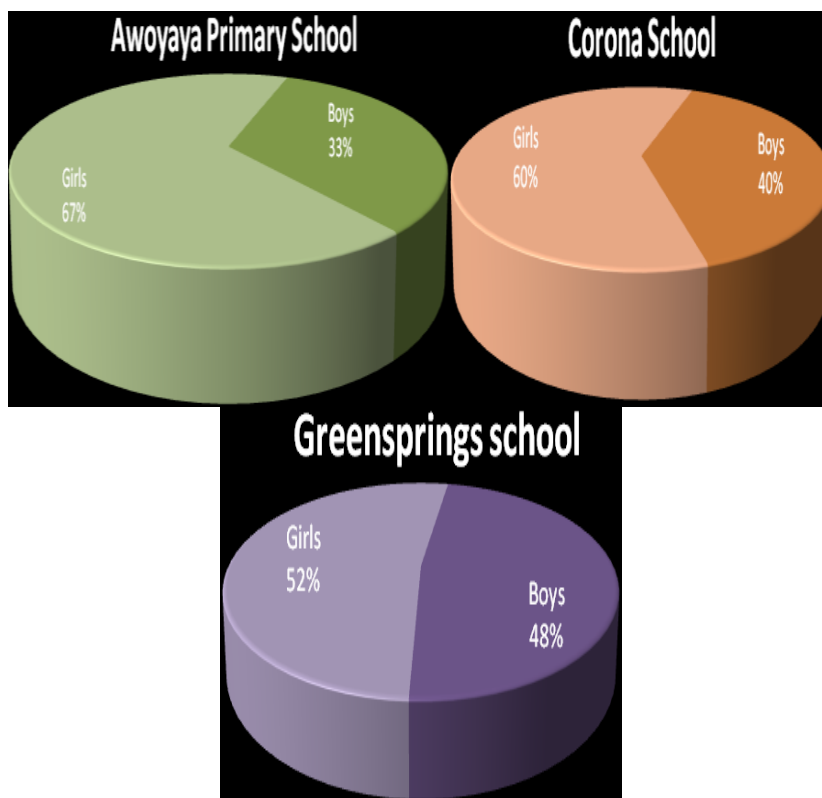
Akinyele, G.A., et. al. (2008), investigated the influence of school type, population of school and socio-economic status of parents on secondary students and their academic performance. Three hypotheses were postulated and tested at 0.05 level of significance using 680 students of public and private secondary schools in Akinyele L.G.A. of Oyo State, Nigeria selected through a simple random technique between the age ranges of

14-18 years with a mean age of 15.7 years. Result of data analysis using zero-order correlation and t-test statistical procedure indicated that the parental SES, school type, school population and general school environment can make a significant contribution to students' academic performance. Eshetu, A. (2015) carried out a Comparative Study of Private and Government Schools in Dessie Administrative Town, North Central Ethiopia using ANOVA to dissect mean differences based on school services satisfaction level and Chi-square test to establish relationships between school types with facilities and activities. The t-test results revealed that private schools have scored statistically better than government ones.

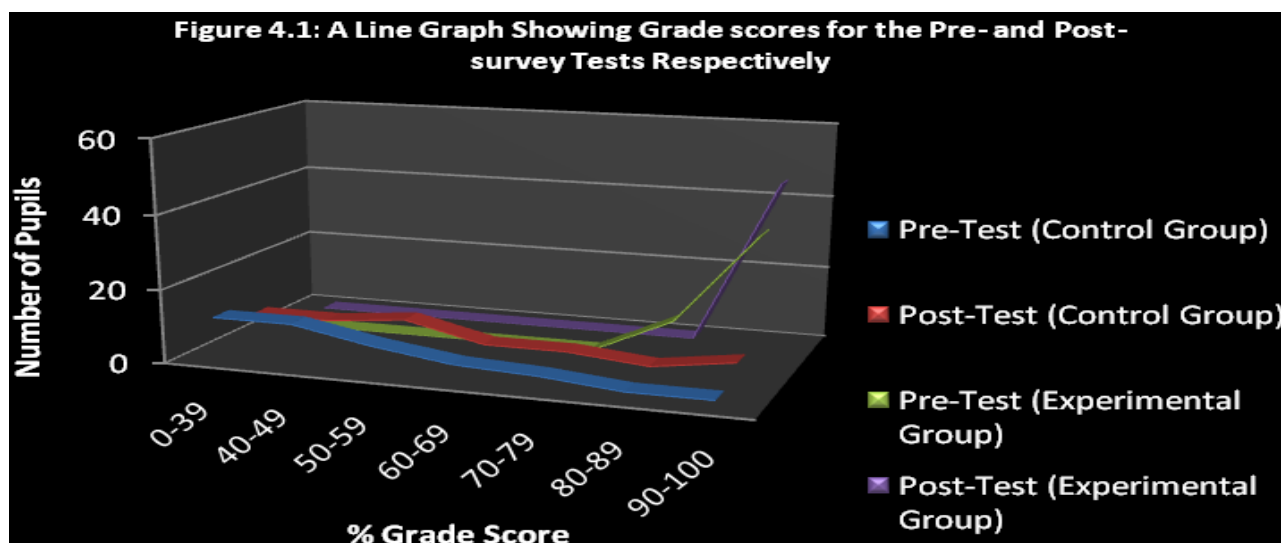
RESEARCH DESIGN AND DATA ANALYSIS

The study used a pre-test, post-test non-randomized experimental group (private school) and a control group (public school). Participants in the study were from three Elementary Four classes with similar ability and makeup. The first group: Awoyaya Primary School (control group) was observed using traditional teaching method (black board) while the second group: Corona School and Greensprings School (experimental groups) used IWB/ whiteboard to teach Mathematics respectively. A purposive sampling without replacement was adopted. A total of 90 pupils, aged 8-9, from control group and experimental groups were selected as sample from a target population of 327 Elementary primary 4 pupils in all the schools observed.





Data Analysis



Result Presentation

Table 1:

T-TEST RESULT FOR EXPERIMENTAL GROUP USING IWB

	Pre-T	Post-T	Diff.	Mean	N	Std. Dev. (SD)	Std. Error Mean (S _a)	Df.	t _{critical}	t _{calculated}
Experimental group (E)	4,258	4,413	155	3.44	45	4.09	0.61	44	1.68	5.64

From the result shown in Table 1 above, the tabulated value ($t_{critical}$) = 1.68 while the calculated value ($t_{calculated}$) = 5.64; indicating a significant difference in academic performance of pupils' Mathematics using interactive whiteboard.

Decision: Since the critical value is lower than the calculated value, we reject the null hypothesis (H_{10}) and accept the alternative hypothesis (H_{11}).

Table 2: T-TEST RESULT OF GENDER PERFORMANCE BY EXPERIMENTAL GROUP USING IWB

	Diff	Mean	N	Std. Dev. (SD)	Std. Error Mean (S_d)	Df	$t_{critical}$	$t_{calculated}$
Experimental group (E)	144	3.2	45	12.1	1.04	43	2.02	0.68

From the result shown in Table 2 above, the tabulated value ($t_{critical}$) = 0.68 while the calculated value ($t_{calculated}$) = 2.02; indicating no gender difference in pupils' Mathematics performance using IWB.

Decision: Since the table value is greater than the calculated value, we accept the null hypothesis (H_{20}) and reject the alternative hypothesis (H_{21}).

Table 3: T-TEST RESULT OF PRIVATE AND PUBLIC SCHOOL'S PERFORMANCE USING IWB

	Diff.	Mean	N	Std. Dev. (SD)	Std. Error Mean (S_d)	Df.	$t_{critical}$	$t_{calculated}$
Experimental group (E)	289	6.43	45	17.1	1.17	43	2.02	13.44

From the result shown in Table 3 above, the tabulated value ($t_{critical}$) = 2.02 while the calculated value ($t_{calculated}$) = 13.44; indicating a significant difference in academic performance of pupils' Mathematics between private and public schools using interactive whiteboard.

Decision: Since the table value is lower than the calculated value, we reject the null hypothesis (H_{30}) and accept the alternative hypothesis (H_{31}).

SUMMARY OF MAJOR FINDINGS

Statistically speaking, the following served as major findings of the study:

- IWB integration does impact pupils' Primary 4 Mathematics performance.
- There is no significant difference in pupils' Mathematics performance between male and female using IWB for lessons. The experimental group recorded 100% scores by both gender during the post survey test in both Corona School and Greensprings School respectively where IWBs were used.
- There is a significant difference in pupils' Mathematics performance between private and public Primary schools using IWBs to teach Mathematics.

IMPLICATIONS OF THE STUDY

In reference to the study, the following implications were deduced:

- That IWBs usage enhance pupils' grasp of basic Mathematics concepts in schools.
- IWB integration into Mathematics was a right step in a right direction to curb a growing trend of poor performance among pupils.
- As an instructional tool, IWB guarantee and promotes effective teaching and learning as well as academic excellence in primary schools.
- Different learning needs, personalized performance benchmark, active learning behavior and motivation are reflective of IWB integration; leading to mastery of basic Mathematical concepts.
- Regardless of gender or school type where IWB are used, basic Mathematics concepts are easily grasped.
- More public and private schools integrating IWB into teaching Mathematics will yield large turnout of excellent academic performances especially at the Elementary level.
- A solid Mathematics foundation established via IWB integration in teaching aids pupils' in excellent academic performance beyond the Elementary level.

RECOMMENDATIONS

Recommendations made based on the discussion and research findings of the study were as follows:

- Public and private primary schools are encouraged to use IWB to teach Mathematics.
- Government, Administrators and other organizations should provide IWB to schools.
- Adequate teachers' training on use of IWB be provided.
- Teachers are encouraged to share their thoughts on IWB integration.
- Schools with excellent academic performance record in pupils' Mathematics should be recognized and motivated by government, NGOs, corporate and private organizations periodically.

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INTEGRATING TECHNOLOGY FOR CURRICULUM DIFFERENTIATION: USING TABLETS

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Literature for education calls for a differentiated curriculum to cater for the wide range of student differences in any classroom. However, existing classroom conditions, for instance, large class sizes make it difficult to implement the differentiated curriculum. Using technology can enable a differentiated and inclusive curriculum to be implemented in this context. Research has shown that using tablets in classrooms provides a useful implementation tool for curriculum differentiation. However, attitudes and beliefs of teachers are as important as experimental studies to understand the advantages of using tablets to ensure the differentiated curriculum and its implementation, because differentiation is achieved by means of practitioners. Participants' ideas on using tablets in classrooms for differentiating the curriculum were documented in a focus group that includes ICT teachers who use tablets, ICT experts and academicians and a pre-service teacher. Questions included topics like the need for differentiation, the advantages and disadvantages of using tablets for implementing the differentiated curriculum, teachers' attitudes on using tablets. They pointed out that differentiation via technology is able to meet the different needs of different students. They reported that technology was a useful tool for differentiation. However, they all agreed that a successful organization was needed to be able to include technology to the existing curriculum.

INTEGRATION OF IPAD-BASED M-LEARNING INTO A CREATIVE ENGINEERING MODULE IN A SECONDARY SCHOOL IN ENGLAND

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Mobile learning (M-learning) has become a popular topic in educational research, in previous research there have been many studies on attitude to M-learning directed towards staff, parents and students; however, limited research has focused on the comparison between teachers and students in the context of creative engineering and their respective opinions on issues of M-learning (iPad-based), comparing with other stakeholders' opinions. The study investigates the integration of iPad-based M-learning into a creative engineering module in a secondary school in England, applying a problem-based learning pedagogy. By using a case study approach involving semi-structure interviews, group interviews, and observation, the research participants, this research found that all of whom were involved in the creative engineering module, have a relatively objective and rational opinion of the affordance of the iPad, and the teachers were generally positive about the benefits of iPad-based M-learning in terms of discussing how it has changed learning as a whole. The results also challenge previous claims that the outcomes of M-learning are difficult to assess, thereby advocating a case-to-case assessment of the outcomes of M-learning. Some limitations of iPad-based M-learning were first discovered. The school's iPad policy integrates building of an online platform, evaluating teachers' belief in iPad-based M-learning and the expectations of students, irregular teacher-student communication, teachers' and students' self-training to facilitate iPad-based M-learning. However, the formal training in iPad use provided by the school was not well thought of by the research participants.

INTEGRATION OF PROCESS AND PRODUCT APPROACHES IN ENGLISH CLASSES AT COTOPAXI TECHNICAL UNIVERSITY

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Resumen: El objetivo principal de esta investigación cualitativa fue determinar la influencia de la aplicación de un enfoque de método dual, la integración de los enfoques del proceso de escritura y el enfoque denominado producto en el desarrollo de la habilidad de escritura de los estudiantes como lengua extranjera. El estudio se llevó a cabo en la Universidad Técnica de Cotopaxi durante el período académico de abril- agosto de 2017. Después de un análisis crítico de las características, los beneficios y desventajas de los dos enfoques antes mencionados, se llevó a cabo una implementación pedagógica en los estudiantes de A1 en las clases de inglés, con 11 estudiantes. Se utilizaron como instrumentos de recopilación de datos las rúbricas, las composiciones escritas de los estudiantes y la corrección de los profesores. Los resultados muestran que la integración de los dos enfoques son adecuados para desarrollar la habilidad de escritura en el nivel A1. Las composiciones escritas de los estudiantes, desarrollados utilizando con el proceso y el producto como enfoques son significativas para guiar el desarrollo de la escritura. Por lo tanto, se sugiere que los maestros implementen un enfoque de método dual en el que comiencen a enseñar la escritura utilizando el enfoque de proceso de escritura para ayudar a los estudiantes a generar ideas y a comenzar a escribir combinado con el enfoque de producto para desarrollar competencias lingüísticas en sus composiciones de escritura. Esta combinación mejora la habilidad de escritura de los estudiantes y la calidad de escritura también. Mientras que el primer enfoque ayuda a los estudiantes a generar ideas y organizar esas ideas en una composición de texto, el segundo ayuda a expandir su estilo de escritura.

Palabras claves: enfoque del proceso de escritura, enfoque de producto, estudiantes de lengua extranjera, desarrollo de la habilidad de escritura

Abstract: The main aim of this qualitative research was to determine the influence of applying a dual method approach, integration of process and product approaches, in the development of EFL students' writing skill. The study was carried out at Technical University of Cotopaxi, during the academic term April - August 2017. After a critical analysis of the characteristics, the benefits and the drawbacks of the two approaches mentioned before, a pedagogical implementation was carried out in A1 English classes, with 11 students. Rubrics, student's written compositions and teachers' correction were used as data collection instruments. Results show that the integration of the two approaches are suitable to enhance writing skill in A1 level students. Students' written compositions developed with the process and the product approaches are more meaningful to guide the development of writing skill. Therefore, it is suggested that teachers implement a dual-method approach in which they start teaching writing using the process approach to help students learn how to generate ideas and begin their writings combining with the product approach in order to develop linguistics competences in their writing compositions. This combination enhances students' writing skill and the quality as well. While the first approach helps students to generate ideas and to organize those ideas into a text composition, the second one helps to acquire linguistic knowledge and expand their writing style.

Keywords: process approach, product approach, EFL students, enhance writing skill

INTRODUCTION

The development of the writing skill must result in the ability to create logical and coherent compositions to convey information, ideas, feelings and messages. Regardless of whether the composition is a brief memo or a long drawn out research analysis, teachers should help students to write quality-writing compositions with the purpose of communicating effectively. The literature reviewed the analysis of the

benefits and drawbacks of each approach allow us as researchers and education professionals to understand the importance to know when to apply the process approach and when to apply the product approach to ensure that students develop long-lasting and strong writing skill.

At the Language Center of Cotopaxi Technical University, we have begun to implement the dual-approach method to ensure that EFL students hone two important and specific skills: the former being the generation of original ideas; and the latter being the organization of those ideas into fully developed compositional texts. These steps are essential because when EFL students face a writing activity, they tend not to know what to write or how to express the ideas that they do have in a logical sequence. Thus, teachers should support EFL students with extensive practice and feedback in class as well as at home. Regarding this, many teachers ask themselves how to help their students to reach the point at which they are able to compose various works with complete accuracy. The answer is simple: teachers should apply an integration of the process writing approach and the product approach to help students be aware about the stages adequately and provide them success in writing. Pre-writing activities lead EFL students to come up with ideas and organize them creatively, providing them with confidence as they start writing (Shorofat, 2007). In addition, it is important to make students familiarize and practice controlled, guided and free writing activities to give students a general idea about the linguistic knowledge.

Once EFL students are able to generate and organize their thoughts, they may begin to create their first drafts, in which teachers must guide them throughout feedback in order to polish and perfect their composition as much as they need. It is here where teachers must act as guiders of grammar, spelling, punctuation and vocabulary to make clear and quality compositions. Additionally, when EFL students are exposed to writing process activities, the students' progress in writing skill acquisition becomes obvious. The next crucial component by the end of the process EFL students will be more aware of their ability to write and their confidence in themselves as their writing skills will be much stronger.

According to our experience at the Language Center, the expansion of writing ability with the help of different texts is relatively simple at this point because EFL students have already learned how to develop their own ideas and they must only organize those ideas with the provided format. At this process, teachers should focus on revising linguistic knowledge, but with the purpose of conveying clear meaning and expression.

Oczkus (2007) contends, "modeling writing alone is not sufficient to produce effective writers; it also need to generate ideas and organize them" (p.27). It is clear that giving students the words, the structures, and the models of the text is not enough to effectively enhance writing. It is paramount that teachers provide students with both approaches in tandem in order that students can be able to produce appropriate linguistic knowledge, appropriate structure and outlines to eventually become independent writers.

It is important to help teachers learn the stages of the process writing approach and the product approach as alternatives to develop writing skill so that they can guide students in developing writing skill.

There are 5 stages of the writing process (Tomkins, 2004).

- **Prewriting:** It is a planning stage for writing that permit students to generate ideas and organize them. Teachers can use brainstorming, mind mapping or graphical organizer to come up with ideas and organize them. It is a crucial stage that students must be familiarized in order to start writing.
- **Drafting:** In the draft stage, students are expected to write the ideas into paragraphs on a piece of paper. The main activity is to organize the content.
- **Revising:** This stage consists of the students' review of the written draft, sharing the draft text with a writing group that was formed in the classroom, and rearranging the content according to feedback from

friends in the writing group. In this stage, the students might expand the text with new ideas or remove the parts that they think unnecessary.

- **Editing:** The content is checked by the teacher and in this stage spelling rules and punctuation, which are called the mechanical aspect of writing, are checked.
- **Publishing:** This is the last stage of the writing process. In this stage, the students publish their writing task making other students read it. It is necessary that teacher guide all the process to have good results in their writing ability.

Badger and White (2000) mention that there are four specific stages in the product approach to follow when producing writing compositions (p.153).

- **Familiarization** aims to make learners aware of certain features of a particular text. At this stage, the model compositions are given to learners to focus on grammar that teachers want to teach.
- **Controlled writing** is where learners practice new language in a limited way. They rehearse grammar or vocabulary by completing exercises or writing sentences in an isolated way. It requires only the manipulation of the language learned.
- Guided writing is the next stage in the product approach. The aim of the guided writing is that students can write compositional texts using the language previously taught.
- **Free writing** is a stage where students are motivated to write a letter, story or essay on their own, but using the language that was taught before. Writing freely does not mean that students develop writing skills they are still dependent on teachers.

These stages will help teachers to follow and guide the writing activities and students to develop writing skill and be motivated to produce writing.

That is why the objective of this research was to determine the influence of applying an integration of the process approach and the product approach in English classes to develop EFL students' writing skill.

METHODOLOGY

The main aim of this research was to determine the influence of applying the process and product approaches to enhancing ELF students' writing skill. An action research was carried out with a group of 11 beginning students (A1 level) of the Language Cultural Center at Cotopaxi Technical University in Ecuador, during the academic term April-August 2017. The study involved six phases.

- a) The Problem Identification Phase. – In this phase, the researchers analyzed the problems that the students had when writing a writing composition. The main problem was students' poor writing skill. Student's had difficulty in completing a writing assignment because they did not know to how to start the writing activity because they had complications to generate ideas and the organization of those ideas. It was analyzed the causes and the effects taking into account literature review and the teachers' experience. This inquiry allowed identifying that students' and teachers did not apply an approach to help students guide their writing process in classes.
- b) The Diagnosis Phase. – The researchers applied a pretest during this phase. It consisted of assessing a writing composition in classes. This diagnosis was conducted in beginner English students level "A1." The writing composition was graded by using a writing rubric that was adapted from Rcampus (2017) and it was taking into account the descriptors of standards developed by the Council of Europe (2001) in the Common European Framework for the Basic A1 level.
- c) The Planning Phase. – The process begun in May when the researchers started to identify and formulated the problem that student had related to writing. Then, the researchers review relevant information about the two approaches to help students guide their writing. Students participated in this study voluntarily. First, the researchers discussed the purpose of the study with the students, and their role in the study. Then, the activity started as part of their learning process
- d) The Action Phase. - Once the researchers identify the process and product approach as an alternative to develop writing skill in beginner English students level A1 at Cotopaxi Technical University, the researchers put into practice the proposal of "a dual method approach, combination of the process and product approaches to students. These writing activities were done according to the unit topics from the "Speed up Book". The researcher's role was to present systematically the strategies beginning with the ones Tangpermpoon (2008) suggests to generate ideas such as

brainstorming and mind mapping, etc. During the process, the researcher followed the 5 steps to guide the writing process. The researcher also focused on structuring to select the most suitable ideas for the first drafting. Then, the researcher and the students discussed the order of the ideas. Peer-feedback, editing, teacher's feedback and permanent evaluation were other important factors that the researcher developed during this learning process. Once the students are aware of the writing

Writing Criteria	Ideas	Organization	Grammar	Spelling	Punctuation	Vocabulary	Outline
Average score in the Pre-test (over 5 points)	2,09	2,18	2,64	2,64	2,00	2,55	2,00
Average score in the Post-test (over 5 points)	3,95	3,95	3,95	3,95	3,95	4,10	3,70
Improvement	1,86	1,77	1,31	1,31	1,95	1,55	1,70

process, it was time to teach them how to write an e-mail. It was used the product approach because we use a model of an e-mail and some specific structures to write in it as Badger and White (2000) suggested. All writing compositions were done in classes with all the process until to get the final product. The students' role were to follow the steps and do extra practice as homework at home, selecting similar topics as we have practiced in classes.

- e) The evaluation phase. - A post-test was applied in order to evaluate the pedagogical implementation. It was graded an e-mail based on students' 'experience on vacation. The writing composition was graded using a writing rubric, which was adapted from Rcampus (2017), and it was taking into account the descriptors of standards developed by the Council of Europe (2001) in the Common European Framework for the Basic A1 level. The evaluators were two teachers with wide experience in teaching English from the Language Center at Cotopaxi Technical University.
- f) The Reflection phase. - The researcher analyzed the gathered data from the collection of the pretest and the posttest (final products). The teacher's role was as a guide and facilitator to develop students' writing skill during all the process. The main result will be presented in the following section.

RESULTS

After the pedagogical implementation, using the process approach and the product approach, all students have improved significantly their writing compositions in the components: ideas, organization, grammar, spelling, punctuation, vocabulary and the e-mail format. They are shown in the following results.

Chart 1: Descriptive Statistics: Results of the Pretest and the Posttest in writing compositions

The results showed that the application of the process approach and then the product approach contributed positively in the improvement of writing skill. In the component, 'ideas' there was an improvement of 1, 86 marks. In the component 'organization' 1, 77, in grammar and spelling 1, 31, in punctuation 1, 95 marks. In vocabulary 1, 55 and e-mail format 1, 70. It is worth mentioning that the improvement was more in the component of ideas and organization. These aspects were more emphasized in teaching writing as part of the process approach. There was also a high improvement in punctuation, which is part of the product approach. The components of grammar and spelling improved, but not as the rest of the components.

DISCUSSION

The researchers proved that the use of the process approach and then the product approach contributed positively to enhance writing skill in EFL students at Cotopaxi Technical University. The comparison of the average score achieved using the pretest and the posttest determined the improvement that students have had in all the writing components (ideas, organization, grammar, spelling, punctuation, vocabulary and the outline during the pedagogical application. As the same investigation of Cavkaytar & Yasar

(2010), states that the explanation of the writing process stages and modeling as product approach contributed greatly to the students' writing effectively.

The teacher started teaching students prewriting. The teacher modeled brainstorming and planning structure on the board about personal information and then it was asked students to practice with a member of their family. It was also used some pictures to help them think and come up with ideas. All of these permitted that students can be conscious of the process to start writing. Then the teacher taught them how to organize those ideas. The teachers asked them to number the ideas according to the importance and sequence. It really contributed to analyze with the students the order of the ideas to write into a paragraph. The students showed a positive attitude towards these activities because they were not so long. Related to this topic, Ariza (2005) proved that brainstorming really help students to generate ideas and that using pictures was the best technique. In our study, we use pictures to develop creativity in their writing. These steps are crucial in developing writing skill as many researchers mentioned.

Another improvement was in grammar, spelling and punctuation where the teacher's role was indispensable to develop these components. They were taught using the product approach. The teacher made students to familiarize with the structures and vocabulary of the provided texts. Then students had to produce some sentences related to the topic (controlled writing). These sentences were just a list of examples that were not formed into a formal paragraph to explain main ideas. Then, they moved to the guided stage to construct a piece of writing based on a picture related to the topic. At the free writing stage, the students described their own topic. These helped to develop the use of grammar spelling and punctuation, but they were just some list of sentences, which later contributed to write paragraphs and small compositions according to their level.

At this stage, they had a general vision about the use of grammar, spelling and punctuation. After students learned about grammar spelling and punctuation at the same time, it was appropriate to start writing and improve these components in a writing composition. Regarding this, Chin (2000) states that effective grammar instruction begins with what students already know about grammar and it helps them use this knowledge as they write. As students revised and edited through peer-feedback and teacher's feedback, they improved their language usage and then they writing skill. The teacher used peer- feedback, asking students to check for organization, grammar, spelling, punctuation, and circle where students have to check again.

Therefore, when they had their writing compositions back, they asked the teacher why the problem was. It was time for teacher's feedback. The teacher explained the common mistakes to the whole class so they can correct them. This process really helped develop the three components and writing skill. Regarding this, the investigation of Ashok (2012) strongly recommends that the teaching of writing could be successful when we teach using peer correction followed by teacher correction. The teacher acting as a facilitator in peer-feedback and teacher's feedback contributed to improve their writing skill positively and to acquire grammar, spelling and punctuation through real writing compositions. In the same context Correa, Martinez, Silva & Torres (2003) demonstrated that positive feedback contributed that students improved their pieces of writing in the following categories: content: improvement of ideas, grammar and spelling. Also, many researchers suggested that punctuation and grammar should be checked as an end of the process, not as final process because they are not the purpose of written communication, but they are important as part of the means of communicating a message.

Another important component that was improved was vocabulary. Students did not have problems to use vocabulary according to the topics when writing their compositions. To develop vocabulary it was used the product approach steps (Familiarization, controlled writing, guided writing and free writing. These steps helped students practice writing exercises, which goes from simple sentences to complex sentences. These activities permitted to develop vocabulary and paragraphs to enhance writing skills. Regarding this, Barrantes & Olivares (2010) in their investigation showed that applying techniques (Starting to Think, An Interesting Inventory, Writing TS, Writing Supporting Sentences, Let's Assess, along with Fun with Grammar) contributed to practice vocabulary and develop paragraphs, which are essential to enhance

writing skills. The techniques mentioned above are related to the steps of the product approach that many researchers used to develop vocabulary through repeated exposures in various writing activities. However, the investigation of Pigada & Schmitt (2006) indicated that more vocabulary acquisition is possible from extensive reading.

Once students knew all the writing process, they wrote an e-mail using just the modelling text to complete the writing task. They needed to learn specific structures related to the outline of the e-mail. It was easier because they simply copy the structures already established for the outline. For the body of the e-mail, the students apply the process approach that they have learned before. It is clear that is important to use both the process approach and the product approach to enhance writing and expand their writing style.

We had some difficulties in students' time to study English; they had lost of activities to do in their careers so their time is limited to practice English that is why little writing activities were sent at home. Another trouble was at the moment to evaluate the students writing compositions. Teachers focus so much in grammar and spelling and they sometimes do not focus on the rubric presented. They evaluated according to their perception, it is two or three errors, and it is not a good writing. Teachers focuses so much in grammar, spelling when giving a score to the writing compositions even though the errors do not interfere in the message. Teachers want a writing composition without errors and that is why those components were the lowest in the improvement.

It is essential to change teacher's perception about writing, the teaching and the evaluation to make students feel that they are doing well in their writing activities otherwise they will be frustrated to write.

CONCLUSIONS

The results show that the integration of the writing process approach and the product approach in EFL students A1 level language at Cotopaxi Technical University are effective in developing writing skill. This integration permits that students can learn by practicing and modelling in order to fulfill writing activities inside and outside classes, according to their level. Brainstorming, planning structure, editing revising are the key to be successful in writing because students know how to start and complete writing assignments in English classes at Cotopaxi Technical University. Also, familiarization, controlled writing, guided writing and free writing contribute as part of the product approach to have a general idea about mechanics(vocabulary, grammar, spelling and punctuation),but peer-feedback and teacher's feedback help students at Cotopaxi Technical University to internalize this learning and improved the way they have to be used in a writing task. Modelling is another crucial aspect that contributes to expand students' writing styles. It is easier to followed specific structures as an outline of the e-mail. This process allows EFL students at Cotopaxi Technical University to be confident, motivated when they start writing. Working using a balanced integration of the writing process approach and the product approach, teachers will have better results in enhancing writing skills and improving EFL students ' motivation to continue scaffolding this skill.

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Appendix 1. Scoring Rubric

WRITING RUBRIC

Objective: To evaluate students’ ability to write short compositions on a given topic.

Student’s name: _____ Evaluator:
 _____ Title: _____ Date: _____

Source: Adapted from Rcampus (2017)

Appendix 1. E-mail rubric

Objective: To evaluate students’ ability to write an e-mail to a friend on a given topic

WRITING CRITERIA	EXCELLENT 5	GOOD 4	FAIR 3	POOR 2	SCORE before	SCORE after
GREETINGS AND PURPOSE OF WRITING	The student uses an appropriate salutation and write the purpose of the writing	The salutation and the purpose of the writing is clear	The salutation has a mistake with names and the structure to write the purpose of the writing is not clear	There is no salutation and purpose of writing		
IDEAS	All the ideas were expressed effectively and describes the purpose message	Ideas were expressed in a pretty clear manner and the message content was understood (last vacation)	The ideas were somewhat clear and the message content was difficult to	The ideas were not clear and it does not describe the message content (last		

	content accurately (last vacation)		understand (last vacation)	vacation)		
ORGANIZATION	Clear and logical organization of content	Logical organization of content	Some evidence of organization content	Limited evidence of a logical organization content		
GRAMMAR Past tense	Contains a maximum of 3 grammar mistakes which do not really interfere in understanding the message.	Contains more than 3 grammar mistakes, however, they do not really interfere in understanding the message.	There are some grammar mistakes that interfere with meaning most of the time.	There are lots of grammar mistakes that really interfere with meaning.		
SPELLING	A maximum of three spelling mistakes which do not obscure the meaning of the word.	More than three spelling mistakes, however, they do not obscure the meaning of the word.	Spelling mistakes makes a little difficult to understand the message.	Too many spelling mistakes that makes it difficult to understand the message.		
PUNCTUATION	A maximum of two punctuation mistakes or omissions which do not interfere with the meaning.	More than two punctuation mistakes or omissions, however, they do not interfere much in the meaning.	Lack of punctuation makes the message quite confusing	There is no punctuation which makes the message confusing.		
VOCABULARY	Vocabulary is used appropriately most of the time.	Few errors in the use of the appropriate vocabulary. However, they do not interfere in conveying the message.	Inappropriate use of vocabulary, however, they do not interfere much in conveying the message.	Inappropriacies in vocabulary use which interferes with message conveying.		
CLOSING AND SIGNATURE	The e-mail contains appropriate phases according to their level for the closing and signature part	The e-mail contains phases according to their level for the closing and signature part	The e-mail contains not so good appropriate phases for the closing and signature part	There is no closing and signature part in the e-mail		
TOTAL SCORE						

Source: Adapted from Rcampus (2017)

INTERACTIVE TEXTBOOK - A NEW TOOL IN OFF-LINE AND ON-LINE EDUCATION

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Implementation of ICT in the educational process has allowed us especially in the last decade to fully develop cognitive and psychomotor skills of students. A typical example is the use of multimedia, through which the learner gradually formed and developed their skills in the area of sensory perception. The paper is focused on one of the modern tools of education geography for interactive textbook for grammar (high) schools. The new generation of interactive IRS systems allows not only listen to audio files of the book, but the book also communicate with the computer. This function can be used in on-line teaching process, where the teacher receives immediate feedback regarding the work of students in class. The new generation of interactive textbooks it can perform the function of the voting equipment. Talking books as exercise books are intended primarily for testing and practicing curriculum.

INTERNET-OF-THINGS (IOT): INNOVATION FOR TRANSFORMING THE HIGHER EDUCATION

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ABSTRACT

The contemporary educational landscape is influenced by modern technology. Today's education seems quite different as compared to the conventional methods of teaching and learning. The use of smart technologies is proliferated to higher education and universities. The current change still seems ordinary since the sea change in the use of Internet-of-Things riches to the critical mass. The collected information through devices, processes and connected people enriches and enhances the value of the information and allows administrators and educators to transform data into actionable insight. The advent of replete development in IoT technologies, universities not can design safer campuses create smarter lesson plans, keep tracking of important resources and much more. Internet of Things technology keeps the strength to impact all the diverse aspects of the higher educational learning.

Both universities and higher educational institutions trying to discover new ways of teaching methods, innovative class room projects, engaging students in the relevant discussions and lesson plans through contemporary technology. Education is transformed in the recent era with the processes of flipped classroom techniques enabling and facilitating students to watch lectures through You Tube Channels or live video feeds. Online discussion forums help students to get in contact with each other and discuss what they have learned. University's campuses are adopting an approach of connecting all resources with each other such as from car parking system to attendance gathering, computer labs with cloud computing, student ID with finger prints, availability of recorded video lectures at anytime, anywhere and for anyone to build an ecosystem. The exploration of education via IoT unleashes new directions of university education and the current research aims to identify the potential impact on students learning experience.

key words: Education, University, Innovation, Internet-of-Things.

INTRODUCTION

The pervasive interaction between environments, people and objects are enabled through the technological revolution of Internet-of-Things (IoT). The embedded sensors and actuators gather the data and transmit it to relevant specialized applications to get it processed and make it actionable. The contemporary industry has acknowledged the importance of IoT as a potential ingredient of bringing valuable change in business and industrial processes (Wang, 2014). This advent has also led the physical environments to become more interconnected to form smarter surroundings. Every aspect of our lives is changed in regards to the economy, accuracy, efficiency, and sustainability. Several industries such as smart cities, smart homes creation, environment monitoring, management of energy, education, traffic management, airport traffic control management, healthcare systems and weather forecast systems have already leveraged IoT in it. Educational institutions are trying to promote sustainability by leveraging the data and streamlining their day-to-day processes.

A number of universities have already established the use of wearable devices and smart objects within their classrooms. The enormous amount of data is produced inexpensively via enabling technologies of sensors, chips, and actuators (Gluhak et al., 2011). The effect of IoT in contemporary universities is focused on this

research and this is classed in two sections. Section one discusses the education business model with respect to higher education whereas section two explains the practical notion of IoT in teaching and learning enhancements, students healthcare management, classroom management techniques, campus security and attendance monitoring system. Many of the things encompassing us assemble data about us without our acknowledging it: things installed into objects, worn on our bodies, controlled by sensors, produced for knowledge, and made for information gathering limit and correspondence (Bahamondez et al., 2011). Every one of these things conveys through the cloud, decide, and share data. This is the Internet of Things. Given the fast improvement of the IoT, it is critical that we perceive its key qualities and plan for its inescapable effects in advanced education. The way that advanced education underpins teachers with the IoT in learning conditions will altogether influence how we as a general public capacity, impart, team up, and move into a universe of expanding interconnectedness.

Envision a situation where a learner enters a classroom and an IoT device he holds consequently enlists his participation. When they are situated, in light of their action in the class, a customized message is pushed to their email or shrewd device to incite them energetically for that day shape a gathering for that day's exercises, post to a dialog board, and transfer a task. They can open a program and keep an eye on the measurements for a craftsmanship show they posted in an assigned territory on campus to perceive what number of individuals have filtered the QR code to communicate with the piece (Joyce et al., 2014). Barely any instructive foundations effectively join innovation into adapting, in particular, connect and associate with each other. Also, fewer educators share information, with the exception of research ventures. Huge appropriation of innovation in instruction is required with the goal that the energy of IoT can be acknowledged and learning can turn out to be more true and important through engagement past the classroom. Instructive locales and organizations can never again depend exclusively on their center abilities and educator learning. Rather, they should grasp, not restrict the devices that students bring into the classroom and enable learners to utilize them as learning apparatuses to catch knowledge speedier and quicken learning. The multiplication of cell phones will likewise empower instructive organizations to gather information to decipher a student's practices and exercises. Utilized keenly, such information will bring about customized learning focused to singular needs, learning styles, and yearnings.

HIGHER EDUCATION AND INTERNET-OF-THINGS (IOT)

The disruptive influence of the replete development of technology has changed the paradigm of higher educational institutions from knowledge-transfer semantic to self-directed and active collaborative model. This influence has made universities to think their existing models of teaching and learning and adapts modern techniques. Teacher's provision of personalized contents, improved student outcomes, lectures contents creations and students engaged in learning are few certain aspects; those could be seen influenced by IoT (Kathleen, 2010). The innovation in education is driven by several strategies, tools, and technologies of visualization, social media, internet, learning, digital strategies and consumer adaptations. Education is supported by internet in diverse ways considering IoT is a subdivision of this technology. The solutions provided by IoT enable both universities and higher education institutions to collect mass data from wearable devices, sensors, and actuators to perform meaningful actions (Susan et al., 2001). These technologies of embedded sensors and QR codes enable students to explore their environment more efficiently.

Learners can access the contents and material at any time and from anywhere. Lecturers can use the smartphones and wearable devices to enhance teaching and learning, student engagement and student satisfaction. An intelligent environment equipped with software and hardware modules is classified as a smart classroom. Face recognition algorithms, sensors, cameras, projectors are few examples of IoT environment in the classroom. These modules determine and monitor the diverse range of parameters such as student's achievement and performance, concentration, and their physical environment. The potential impact of IoT on higher education has been acknowledged by various higher education and industry experts in regards to the issues related to data ownership, privacy, and security. One of the major benefits of IoT in education is the unique and personalised interaction with learners (Puret, 2014). Learners could send alerts to their administrators when they are struggling academically come across learning issues. It would help learners to get recommendations on academic topics as well as resolving other issues.

The IoT presence cannot be neglected in the universities as this is already witnessed in the form of temperature controlled devices, light power, security cameras and access to a building. The teaching and learning could be improved in the classrooms with the use of smart objects (Lounkaew, 2013). The role of IoT encompasses energy savings, student's health and safety monitoring, optimisation of campus and classroom environments as well as enabling the remote presence of students. The embedded IoT in the campuses has coined a new paradigm of connected campuses proving students the opportunity of enhanced and improved teaching and learning. Everything gets connected in IoT and facilitates administrators for campus management. The current

application of IoT in universities is delivering smart education to the new generation. Students become co-creators of knowledge when IoT is incorporated in education. It also replaces data-driven decision-making with the ad-hoc decision-making process. One size fits all model of static instructions in the classrooms is replaced via replicable, scalable and recordable instructions and customised crowd-sourced curriculum. Valuable features are integrated with the adoption of IoT in contemporary education models.

CLASSROOM ACCESS CONTROL AND SECURE CAMPUS

The University of Wisconsin in Madison developed an IoT Lab that backings the college mission. Learners can team up with workforce and industry individuals in the lab as they create inventive utilizations for the IoT. Given the potential advantages, of which these illustrations speak to a hint of a greater challenge, it won't be some time before campus assets are called to help imaginative employments of the IoT in learning situations. Instructors must comprehend the suggestions, difficulties, and impediments of the advancements associated with the IoT so we can better help the personnel, staff, and learners will's identity utilizing it and enable them to understand the "specialty of the conceivable" (Kim & Kim, 2015).

From the university building to the college, teachers must build up a solid information base about how to use the IoT to upgrade the nature of training and plan learners to be dynamic supporters of, and recipients of, this instructive joining. For instance, devices interfacing safely to information, substance, and learning frameworks can empower and enhance learning administrations that progressively adjust to students' needs as they develop and instructors' needs as they refine their educational module. An instructive situation unequivocally centred on supporting learning with the IoT could be amazingly valuable; it would be known as the Educators' and Learners' Internet of Things, or ELIoT. As the IoT alternatives develop, so will the ELIoT choices. The ELIoT will give students and staff access to various wellsprings of learning and showing information in a way that enhances instructing, the educational modules, and learning (Donitzky et al., 2014).

Access to laboratories, classrooms and other places in the universities are few niche challenges in the recent era and these could be managed through integrating latest technologies in it and to make it the secure and safe place for students. To improve university security, Near Field Communication (NFC) and Radio-frequency Identification (RFID) are two IoT enablers which could form IoT infrastructure to simplify access control (Kim & Kim, 2015). NFC is used to create a classroom control which collected student's attendance through connected sensors and results displayed on both the university TV panels and the web-based application. It is also proposed that RFID tags could be used for monitoring the student's attendance and with the use of defencing technology, their locations could be tracked within the campus (Song, 2014). An evolutionary access control system based on IoT architecture and NFC tags; is implemented by Sookmyung Women's University (SWU) in its campus which has transformed the traditional campus to a smart campus.

Sookmyung University has designed a smart "app" for its students, which could assist them to know which desks are available in the library and they can reserve them. Using the app, students could not only just mark their attendance but also register for certain rooms and auditoriums in the university. This integrated messaging system has slashed the IT budget of Sookmyung University enormously and now students are sent notifications through "app" instead of traditional method of emails (Puret, 2014). Cisco Physical Access Control technology is implemented by Bournville college in several areas and buildings of the campus to control access. The main campus includes 400 doors and this single "app" has simplified their management process. The foot traffic in the communal areas, offices, and classrooms is also monitored and notifications sent to the building management system (Donitzky et al., 2014). After the implementation of IoT infrastructure, it is found out that 95% of students have agreed that the new system has provided safer and secure environment.

HEALTHCARE APPLICATIONS AND STUDENT'S HEALTH MONITORING

A wide range of healthcare applications are developed and they play a major role in preventing the diseases and monitoring patient's conditions. The IoT implementation has not only benefitted to reduce the health care cost but also enhanced the quality of healthcare. Monitoring and determining the student's health is a key element in educational establishments (Everett, 1983). The theme of healthcare monitoring is to ensure the student performance is not affected by his/her health. Use of wearable technologies in healthcare is the common application of IoT determining physiological signals in a non-obtrusive and invasive manner over a long period of time (Kathleen, 2010). Fitness bands and smart watches are most common examples in the recent era. The students at risk of high blood pressure could be monitored through RFID technology. Wearable technologies assist eHealth solutions to implement effective and inexpensive solutions. The IoT technology keeps student records of blood pressure symptoms, electrocardiography results, prescriptions and all previous medical history which constitutes the health information (Joyce et al., 2014). This does not only applied to traditional classroom settings but also for online learning students. The physical education progress and satisfactory health are

monitored through wearable technologies and several universities are testing the effectiveness and outcome of these. Back and neck pain is more dominant in online learners, so these wearable technologies would count the time and notify to the students to get up and move. It is also observed that learners are more motivated to do exercise when wearing latest smart watches and wearable technologies. It could also be said that the latest technologies have an influence on students to perform better (Lounkaew, 2013).

ENERGY MANAGEMENT AND GREEN CAMPUS

The sustainable future can be obtained through monitoring the eco-system and energy management applied through IoT (Kim & Kim, 2015). As a result, Smart Grid is introduced by several governments in the form of IoT energy management application. The element of intelligence could be added into this by energy companies to balance energy usage and power generation effectively. Energy consumption will be gathered automatically through specialised actuators and sensors to improve reliability, efficiency and economy of the system in place (Wang, 2014). Forecasting weather conditions are predicted and analysed by the system operators through grid statuses. A similar concept is used by the university campuses to develop green campuses which controls energy usage, water usage and reducing CO2 emission. The sole purpose is to provide healthy environment for teaching and learning to students. The foundation of green campuses has always been introduced to deal with air conditioning systems and managing computers to save energy (Joyce et al., 2014).

INTERNET-OF-THINGS (IOT) AND TEACHING AND LEARNING

The stress is on to make learners ready for an inexorably focused work environment in a hyper-associated world. With the IoT, organizations can enhance instructive results by giving wealthier learning encounters and by increasing ongoing, noteworthy understanding into learner execution. Regardless of whether it's a tablet they brought from home or a university-issued portable PC, more learner learning is occurring on remote devices. These online lesson designs can possibly highlight exceptionally captivating intuitive substance. Be that as it may, they additionally can possibly "crash" obsolete internet systems (Susan et al., 2001). To plan, university's must move up to secure, rapid remote systems that can suit transfer speed serious projects being kept running on a huge number of devices. This venture will pay off in spades. With e-learning applications, learners can work at their own pace, which enables the instructor to give a one-to-one guideline to the individuals who require it most (Bahamondez et al., 2011). Moreover, appraisals can turn out to be more consistent, less manual and time-serious. Teachers never again need to review each exam or sustain Scantron sheets into a machine. Rather, they can invest energy concentrating on the learning exercises that have the greatest effect on learners. At last, when associated with the cloud, these e-learning innovations can gather information on learner execution, which would then be able to be utilized to enhance lesson designs in future university years.

IOT IMPACT CHAIN

Stakeholders	Customers	Channels
Students	organizations	Online teaching
Parents	Student's social media networking	Wearable technologies
Community	Learning management systems	Scholarly journals
Government	Dealing with Media	Media
University Staff	Messaging and email systems of University	

Table 1: "IoT Impact Chain"

Universities and higher education institutions are under-expanded strain to guarantee their campuses are safe. A surge in university crises in the course of the most recent quite a long while, alongside the developing feelings of trepidation over tormenting and viciousness, mean it's more essential than any other time in recent memory to

guard learners (Kim & Kim, 2015). The IoT's capacity to track items, learners and staff, and to interface devices crosswise over campus (es) conveys another level of safety to establishments. A GPS-empowered transport framework implies that transport courses can be followed, with the goal that guardians and directors can know where a given transport is at any given time. Notwithstanding influencing the university to travel safer for learners (and significantly less unpleasant for guardians), learners can be informed when the transport is close to their pickup area; not anymore sitting tight outside for a late transport.

ID cards and wristbands enable instructive associations to store the last-known area of a learner or guest, guaranteeing the correct individuals are getting to the correct ranges on campus. They additionally empower cashless instalments at the university cafeteria or campus store, which makes a more streamlined exchange and can possibly debilitate tormenting and robbery (Puret, 2014). At last, the connected campuses correspondences enables staff to respond all the more rapidly in a crisis circumstance. By associating tablets, cell phones, and two-way radios, staff can right away talk, message or send an email to some other device in the system. For instance, a security watch who spots a battle can tell instructors and overseers quickly, with one straightforward activity. Presently, help can come immediately, and a heightening of savagery can be kept away from. The IoT stands to significantly change the way foundations work, ensuring profitable resources and upgrading learner learning at each level. Notwithstanding the prompt advantages laid out above, instructive establishments can bridle long haul an incentive from these advancements by breaking down the subsequent information to better arrangement asset portion, educational module and safety techniques in the years to come.

CONCLUSION

The overall research educate about shaping smart classrooms and campuses using Internet of Things (IoT) applications. The IoT paradigm is divided into several sections which have determined the sustainable impact on campuses and classrooms. The higher educational institutions have massively been changed since Internet of Things (IoT) applications allow various objects to communicate with each other. The objects range from controllers to sensors and connectivity among them to provide a central paradigm of communication. Different educational parameters could be measured using big data, wearable technologies, augmented reality and cloud computing techniques in this platform. These technologies have created a new link between the educational environments and the students to provide useful information. The application of IoT in education is classed into the following aspects of class room access control, improving teaching and learning, monitoring student's healthcare, real time eco-system and energy management.

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INTERPERSONAL RELATIONSHIPS AND SCHOOL QUALITY

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ABSTRACT

Studying interpersonal relationships in a school provides a significant contribution to an understanding of the quality of the school, because its quality may be considered through the sum total of all the inter-personal relationships within the school as an institution. Educational practice is increasingly taking notice of the problems in interpersonal relationships which arise within a school. The teaching relationship fundamentally takes place between the student and the teacher, but relationships within the school go beyond the framework of that relationship. Therefore, in this study four key relationship dimensions are identified: the relationship between parents and teachers; the relationships between students; relationships between students and teachers; and relationships between teachers. The order in which these relationships are listed does not express the criterion of the importance of these relationships for the quality of the school, but rather the quantitative criterion of the accessibility of scientific research and insights into its results. The relationships that have been researched most are the parent-teacher relationship, and relationships between students. The relationships between students and teachers has been somewhat neglected, and in the opinion of the authors, it is the most complex of these relationships. The relationships between teachers are the least researched. The relationship between parents and teachers may be traditional or contemporary, and it positions the subjects in terms of superiority and inferiority. The relationship between students is considered through peer relationships, in terms of popularity and friendship. The relationship between students and teachers is considered within the framework of attachment theory. The relationships between students express different dimensions which we could summarize as two dimensions of positive relationships (collegiality and intimacy) and two dimensions of negative relationships (disengagement and frustration).

Keywords: relationships in school, school quality, students, teachers, parents

INTRODUCTION

Relationships in education are a major challenge for both scientists and practitioners, and are a subject of interest for studies in school pedagogy. Educational practice is increasingly taking notice of problems in relationships between students, between students and teachers, between teachers and parents, as well as between teachers working in the same school. People have a need for contact and they express and experience their own personality in relationships. People are built up by making contact with other people. It is possible to consider a relationship in terms of: I-I, I-you, I-another. Relationships in a school within the I, you and another dimensions are linked with the emotional reactions of each of these subjects. Emotional reactions that we could define as positive or, according to some authors, "pleasant" (Milivojević, 2008) contribute considerably to the quality of a relationship. If we include in this consideration the dimension of intimacy, we can distinguish the relationship patterns of optimality, adequacy, neglect, distancing and confusion (Potom, Lynch and Cicchetti, 1997; according to Širanović, 2016). Problematic interpersonal relationship patterns which reflect on the quality of the school are patterns that lack positive or pleasant emotional reactions, seen in neglected and distancing relationships. Researching interpersonal relationships in a school begins by researching the atmosphere of the school and the quality of the school. Some research into the atmosphere of schools indicates the connection between the quality of relationships in the school and the quality and/or effectiveness of the school (Tarter, Hoy, 1988). An indicator of this connection are the feelings of confidence in the interpersonal relationships between teachers, job satisfaction, inclusion in the life of the school (Domović, 2004). As an indicator of the quality of the school we also see the positioning of students within the school hierarchy, where in a humane school students are not positioned or defined merely as a role, but also as developing persons. The didactic and methodological concept of such schools shows their paedo-centric determinants, and learner centred education. The results of research indicate that one of the most important prerequisites for the quality of a school is the personality of the teachers and the teaching relationship between the teacher and the students (Bašić, 2015).

Regardless of the fact that the pedagogic relationship fundamentally takes place between the educators and those being educated, schools abound in relationships which go beyond the bounds of this relationship. We have found four key relationships in schools to be extremely important and significant, and worthy of careful observation. These are:

- relationships between parents and teachers
- relationships between students
- relationships between students and teachers
- relationships between teachers.

Relationships between parents and teachers

By comparing the relationships between parents and their child, and between parents and teachers, we can see similarities. The relationship between the parent and the teacher depends on the relationship between the parent and child, and their attitudes. Jones and Ignelzi (2000) analysed the relationship between parents and teachers, and differentiated them in relation to the beginning and the end of the child's education. At the beginning of education, the parents carefully monitor their child's development and success; expectations are great and they are disappointed by their first failures. Great demands are placed on teachers; they must be good, patient, fair towards the child... At first parents take up a slightly competitive stance towards the school. In school the child encounters a new authority - the teacher, whom the parents, more on an unconscious level, begin to see as a rival. Parents begin to feel abandoned, sadness arises for the time when all the child's needs were met within the family. Parents experience the beginning of the child's education as a separation, the beginning of the child's individualization, which is a blow to the previous balance in the family. This is the reason for the unconscious ambivalent attitude of parents towards their child's education in general. As a result of this, parents may often be inexplicably critical towards the school. This may reflect poor cooperation between parents and teachers, but through good cooperation these initial problems can be overcome. The relationship between teachers and parents also changes in relation to their changing roles. We may differentiate between the traditional role and the new role in their relationship. The traditional role of a teacher requires them to be knowledgeable. They have to claim to know even if they are uncertain. They keep to their role of expertise, they demand obedience and respect of their position as experts. The new role of teachers also presumes the teacher's expertise (or knowledge), but it also expects them to respect the knowledge the parents possess (which is relevant and important). Teachers are expected to connect with the thoughts, feelings and perceptions of the parents. The traditional role of parents is as receivers. This means that they leave it to the teacher as a professional, and thereby gain a feeling of security based on trust. They only need to follow the advice of the professionals. In the new role the parent becomes a co-worker. They join the teacher (the professional) in resolving many situations, and so gain a feeling of greater inclusion and effectiveness. In this way they are not completely dependent on a professional, but they also take responsibility and control. (Kolak, 2006). Jurić (1994) points out that parents connect with teachers through practical and specific connections, in the very precise interests of the school, through the goals of the education of their child. As long as the child is successful in school, relationships with teachers most often are not questioned. But if problems arise, the parents change their attitude to the school and egotistical motives come to the fore. Conversations between teachers and parents revolve around failure in the school, they increase the tension between the two educational partners (parents and teachers), especially if the school emphasizes the educational and social responsibility for up-bringing and education. For many parents enrolling their child in school is their first contact with a school and teachers since the time when they were students themselves, and the memory of school for many adults is not particularly pleasant. Whatever their memory is like (although they are now adults) their relationship to school and teachers is not indifferent. Moreover, the imbalance in this relationship is increased by the fact that parents are deeply aware of the teacher's power to make their child's life in school pleasant or unpleasant. For this reason they often "dance to the teacher's tune" (Seap, 1993; according to Fuller, Olsen, 2000), out of fear of the teacher making use of that power. In these circumstances it is difficult to build a completely equal relationship. Moreover, most parents and many teachers see the school as the teacher's territory (not the parents'). Therefore they do not feel at ease in school and take on the role of guest, and they see the teacher as the authority and expert in teaching and learning. If the relationships between parents and teachers are unbalanced and unequal like this from the very beginning, it

will be hard for communication between them to be two-way and as between partners. In this case communication comes from the superior position of the teacher, to the inferior position of the parents.

Relationships between students

The school is a place where students establish quite intensive social contacts and where the influence of peers begins to have a strong effect on their behaviour, that is, on their social, intellectual, moral and emotional development. The importance of the influence of peers on the development of individuals has also been confirmed by research, as expressed by Mijatović (1999), whose results show that in equal proportions of 30 per cent the development of each new generation is influenced by the family, the school and the environment - peers. The theoretical model of peer relationships by Bukowski and Hoza (according to Klarin, 2006) was a turning point in research into peer relationships. This model distinguishes two levels of social interaction of importance for relationships between students in a school. The first level is the expression of group relationships with peers, which is a one-way relationship and is linked to peer acceptance. This dimension tells us about the popularity of a student, and is a general, group-oriented and one-way construct, as a reflection of the relationship of peers towards an individual student. The second dimension of this model is the specific, mutual, long-term and two-way relationship, which is a reflection of experience between two individuals, and it is characterized by loyalty, intimacy and mutual attraction. These and many other authors call this kind of relationship *friendship*. Differentiation of these two levels of social interaction is in line with the motivation of students to meet various social needs. Students meet their need for belonging in peer groups, through attraction and desirability, and their need for intimacy and closeness in a relationship with a friend (Klarin, 2006). Coie's classification (2007) distinguishes five categories of students in terms of their interpersonal relationships. These are: popular children, rejected children, neglected children, controversial children and average children. Other authors (MacDonald, 1991, Legault, 1993, Torrey et al. 1996) distinguish four categories in terms of the degree of preference or rejection of students by their peers. A student who has a large number of negative nominations is a rejected child. A student who has a small number of positive nominations and a small number of negative nominations is an isolated child. We say that students who have a large number of negative and positive nominations are controversial. A student with a large number of positive nominations is known as a popular (star) student. Popularity has a positive effect on relationships between students. Neglect and rejection comprise the negative side, which relates to unpopular students. Neglected students are rarely chosen as friends, they are shy and isolated. Sometimes these students develop their own individuality in their solitude, but if a feeling of loneliness arises alongside their neglected social status, they may be liable to suffer from depression and emotional indifference. In contrast to them, rejected students show maladjusted forms of behaviour, such as aggression, withdrawal, solitude, and school failure. Their status in the group and in interpersonal relationships is very important for students. The knowledge that they are accepted makes them happy (Kolak, 2010). Empirical findings show that there is a bi-directional effect between peer relationships and school achievement. This means that the quality of peer relationships affects school achievement and, vice versa, school achievement affects the quality of peer relationships (Krnjajić, 2002). Peer relationships influence not only current but also later academic, behavioural and emotional development. Accepted students are often more successful academically, whilst the status of rejection is linked with academic difficulties and poor achievement in school. Peer rejection is a relatively stable characteristic on the basis of which difficulties in the coming years may be predicted, such as repeating years, leaving school early, unexcused absences, adjustment problems... (Spasenović; 2003).

Relationships between students and teachers

In contrast to the relationships considered above within the school system, research into the relationship between students and teachers in the learning process are still rare. The student-teacher relationship is considered within various theoretical frameworks, and one of the most frequent is the attachment theory, which conceptualizes this relationship as the continuation of the parent-child relationship. The quality of this relationship within this theoretical framework is considered in three dimensions. These are the dimensions of closeness, conflict and dependency (Pianta, 1999). Closeness presumes a high level of warmth and openness in the student-teacher relationship; conflict defines interaction, with contradiction and coercion, and dependency is aimed at excessively dependent behaviour by the subjects in the educational process. It is presumed that the success of teaching and learning itself depends greatly on the quality of the interpersonal relationship between the student

and teacher (Klem and Connel, 2004). A good relationship between teachers is also described by some authors in terms of patience/impatience and gentleness/harshness (Devine, 2003). Taking into consideration the dimension of influence (dominance/submissiveness) and the dimension of proximity (cooperation/opposition), Brekelmans et al (1993) distinguished typical interpersonal relationships between teachers and students as the following types: directive, authoritative, tolerant/authoritative, tolerant, uncertain/tolerant, uncertain/aggressive, repressive, and drudging. The ideal in spiritual and scientific pedagogy is a teacher-student relationship characterised by closeness, that is, a teacher-student relationship characterised by an intensive emotional relationship and the holistic development of the student, with the emphasis on personality. One of the best-known ways of measuring the student-teacher relationship is using the Questionnaire on Teacher Interaction, which was originally developed in The Netherlands (there are also American and Australian versions), which measures students' perception of the quality of the interpersonal relationship with the teacher, the students' self-perception of their own behaviour, but also the teacher's perception of ideal behaviour (Šimić Šašić, 2016).

Relationships between teachers

This relationship, in comparison with all other relationships, has been consistently neglected and has been researched least. Regardless of the fact that it is not directly related to the student, it has a significant effect on the quality of work in a school and its effectiveness, as well as on job satisfaction. A lack of cooperation and interaction with colleagues, and the tendency of teacher towards individualism and isolationism are mentioned as serious problems within these relationships in schools (Bilić, 2016). Barth (2006) distinguishes four types of relationships between teachers: parallel play, adversarial relationships, congenial relationships and collegial relationships. Halpin's dimensions of the organizational climate of schools (according to Domović, 2004) indicate four dimensions of teacher behaviour which also reveal their relationships with other teachers. One of these relates to teachers' tendency "not to be present" in school. It describes those staff who do their job superficially, and this dimension is known as "*disengagement*". The dimension "*hindrance*" relates to the teachers' feeling arising from unnecessary burdens, mainly imposed by the principal. The dimension entitled "*esprit*" denotes the relationship of staff who meet their social needs in the school and at the same time enjoy their achievements at work. The dimension "*intimacy*" relates to teachers who enjoy friendly interpersonal relationships. This dimension describes the satisfaction of social needs which are not necessarily connected to the realization of tasks. Relationships between teachers may be considered within three very clear dimensions (Hoy et al, 1991). These dimensions are: collegial behaviour, intimate behaviour and disengaged behaviour. *Collegial behaviour* between teachers is characterized by enthusiasm, acceptance, mutual respect, a feeling of enjoyment in working with their colleagues, and a feeling of pride in belonging to the school. *Intimate behaviour* in terms of the relationship between teachers signifies cohesion and a strong social support network, where the teachers know each other well. Close friendships grow, as well as strong social support for each other. In *disengaged behaviour*, problematic relationships are characterized by a judgemental, critical attitude and dissatisfaction. There is a visible lack of cooperation and common goals, as well as a lack of focus on work and relationships. These dimensions have been developed as the fruit of research by authors focusing on elementary schools. The same team of authors focused on the same research goal in order to examine the interpersonal relationships between teachers in secondary schools and, as a result of that research, they also distinguished three dimensions which they called: *engaged teacher behaviour*, where the teachers support one another and enjoy working together, *frustrated teacher behaviour* characterised by mutual interference and distraction, and relationships characterized by mutual irritation, annoyance and interruption, and *intimate teacher behaviour* characterized by close friendly relationships between teachers, accompanied by regular socializing, with a strong and cohesive network of social relationships.

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INVESTIGATING SCHOOL EFFECTIVENESS IN RURAL SETSOTO MUNICIPALITY AREA (FREE STATE PROVINCE, SOUTH AFRICA): A STRATEGY FOR SCHOOL IMPROVEMENT

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ABSTRACT

This case study investigated how the schools in rural context in the Setsoto Municipality Area in the Free State Province, South Africa, maintain their effectiveness. Principals of rural schools have to manage rural schools offering multi-grade teaching and learning without any form of training offered. Despite efforts by Department of Education to improve rural schools effectiveness, rural schools have persistently presented a different set of challenges. Data were collected by means of questionnaire and interviews with five Principals managing rural schools in Setsoto Municipality area. Collected data were analysed using the content analysis framework. In this study, trends in rural education in developing and developed countries as well as challenges of Principals and teachers most whom have or no training in managing multi-grade teaching in rural context are explored. The findings of the study revealed, among others, a need for training rural school principals on how to manage their schools effectively and efficiently. The study also proposes an establishment of functional district rural school clusters led by Professional Learning Committees (PLCs); a network at Districts, Circuits and Cluster level where multi-grade principals can share their experiences and challenges with each other. While the study was conducted on a small scale with a few principals in rural schools, it lays a solid basis for understanding school effectiveness in rural schools of similar contexts.

Key words: school improvement, multi-grade teaching, rural school.

INTRODUCTION

School effectiveness refers to the level of goal attainment of a school (Willims and Somers, 2001; De Volder, 2012). School effectiveness is defined as the process by which, the school accomplishes its objectives (Makoelle 2011; Willims and Somers, 2001; De Volder, 2012). Therefore schools with high effectiveness are referred to as effective schools. Also, Lezotte (2013) defines an effective school as a place where students can feel safe, physically and emotionally. It must be a supportive community where learners and the teachers of all backgrounds can focus on teaching and learning. Lezotte (2013:2) further advocates the method of positivity in support of effectiveness of rural schools: “ *teachers, parents and mentors need to encourage a learning environment in school age kids by treating school as sacred place, where higher respect and positive attitude prevailing.*” Rural school effectiveness is defined in terms of features of good schooling.

Enhancing school improvement and maintaining school effectiveness in rural context presents different challenges than in urban context because rural education has unique set of challenges such as rural school usually experience challenges such as: Poor teacher’s status; Poor career advancement; outright neglect of teachers in rural schools; Lack of qualified teachers in rural schools and Problems of recruiting and retaining teachers (Gordon, 2012, Legotlo, 2014, National Education Evaluation and Development Unit (NEEDU), 2013). Teaching in rural schools could be challenging due to, amongst others, poor funding, inadequate preparations and training of teachers; poor infrastructural facilities, instability of academic calendars and a threat of HIV/AIDS.

The role of the educator districts has raised the issue of whether or not its support to schools actually enhance rural schools effectiveness. Chinsary (2002) states that, if the districts provide adequate support to schools, they are likely to do better than expected. Currently, very little support is given to the rural schools; therefore to improve the situation, the districts should provide management training to rural School principals by building the capacity of School governing Bodies and by training teachers in curriculum delivery (Department of Education, 2009a).

The fact that numerous rural schools are regarded as less functional rural schools cannot produce the expected results calls for the identification of strategy, guideline and practice that the Rural Schools Directorate could put in place to ensure that more of the Rural Schools perform at the expected standard (Department of Education 2009a:14). Clear guideline need to be given to Principals of the less functional rural schools to ensure improvement in the quality of teaching and learning and subsequently to improve rural school effectiveness.

South African Perspective on rural schools effectiveness.

Before the introduction of Curriculum and Assessment Policy Statement (CAPS) rural schools were fully utilizing the same policy as the public schools for curriculum delivery even though their context are not the same. Majority of rural schools in South Africa are practising multigraded teaching and learning approach(MGT) where one teacher teaches more than one grade at the same time, that is, managing or teaching different content at different levels in the same classroom in one class (Centre for multi-grade education, 2012; Basic Education Department, 2010; Gomes, 2013). CAPS introduced the multigrade toolkit for rural schools teachers and principals for effective curriculum delivery purpose, however, the situation regarding curriculum delivery in rural schools prior to the introduction of CAPS is still problematic, given the negative experiences of the past for the attainment of good results by the learners.

This study sought to investigate practices which contribute and enable effectiveness of the schools in the rural Setsoto Municipality Area, Free State Province in South Africa. Based on the stated objective, the following research questions were formulated:

- How do rural schools in the Setsoto Municipality Area in the Free State Province maintain their effectiveness?
- What can be done to enhance rural school effectiveness?

THE STUDY

The literature study provided a picture of practices employed to maintain school effectiveness particularly with schools in rural areas. Masitsa (2005) argues that a literature study is intended to support statements and points of view with research evidence, as empirical justification requires reference to other research. The literature consulted in this study provided a theoretical framework against which the findings were interpreted and discussed.

A mixed method approach was used in this study to investigate how rural schools in Setsoto Municipality Area in the Free State Province in maintain their effectiveness. This approach enabled the researchers to capitalize on what is normally viewed as the strength of one method in away that compensates for what typically been viewed as the weakness of the other (McMillan and Schumacher, 2014).

Participants involved in this study comprised five(5) principals purposively sampled from rural schools in the Setsoto Municipality Area, i.e. two primary rural principals, two rural intermediate principals, and one rural secondary or combined principal in the Setsoto Municipality rural school. The five rural school principals selected had more managerial experience in the Municipalty area compared to the rest of the principals in that municipality area. Three of the participants, Principals A, B and C were heading relatively well resourced and functional schools whereas two other Principals (D and E) were from poorly resourced and less functional schools. Data were collected by means of questionnaires as well as the interviews with these principals. This was done to elicit the facts about reality of the phenomenon being studied (McMillan and Schumacher, 2014; Leedy and Ormrod, 2014) A study using more than one method is fuller or more compressive than the one using only one method (De Vos, Strydom, Fouche and Delport, 2007, Cohen, Manion and Morrison, 2010). Compressive questions were formulated and constructed such that they may be tailed, coded and analysed as accurately as possible to solicit information pertinent to the study. Content analysis was employed (De Vos, Strydom,

Fouche and Delport, 2011; Gall, Gall and Borg, 2007; Berelson, 1991). Data were organised, checked for accuracy, categorized and then analysed in accordance with the themes and categories that began to emerge from the study.

FINDINGS

The five rural school principals selected comprised two females and three males. All five principals did not have any formal training in managing rural schools and multigrade classes.

The following themes emerged from the study:

Basic functionality and staff development (management and curriculum).

The study revealed that the management style of the principal and staff development influence the effectiveness of rural schools positively (Hattie and Alderman, 2012).. These include proper planning, well implemented year plan, democratic style of management and continuous teacher development sessions, induction of newly appointed educators, motivation of staff and learners, marketing, conflict management, control of work, cooperative learning, reflective teaching, professional training committees, employee wellness, principal diary, communication, quality management, interpersonal relations, inclusive education, teaching and learning, staffing, peer tutoring, management trainings and development sessions i.e. (establishment of functional district schools cluster led by PLC's, a network at Districts, Circuits and Cluster level) where multi-grade principals can share their experiences and challenges with each other as well as share teaching and learning materials (Lezotte, 2013, Makoelle and Malindi, 2014).

It is evident that departmental collaboration, proper record keeping, regular visits by MGT Learning Facilitators and the involvement of principals in the running of the rural schools all have a profound influence on rural school effectiveness (Mvubu and Hlalele, 2012; Gomes, 2013).

When asked about the value of the importance of planning in advance, quoted verbatim, Principal B from a relatively functional school stated that:

"I have to plan for the day, term and year, this means determining daily objectives, medium-term plan and long term plan, then organize resources both for human and physical, lead by giving clear direction and instructions, then making follow-up to see that they are carried out. Again as principals we should establish functional Professional Learning Committees (clusters, circuits, districts) for capacity building purposes".

While Principals E from a less effective rural schools seemed unsure and responded as follows:" it seems *seems as if waste my valuable time. I work when I am in my office*'.

Regarding management styles and decision making process all three principals from functional schools, that is 60% agreed that they adopt a democratic style of management and sit down in meetings and make decisions together with their staff (team work is emphasized) while the two principals principals of less functional rural schools indicated that they adopt an autocratic style of management and make decisions alone.

Holistic development of the child

Holistic development issues such as safety of the learners, discipline of the learners, treatment of learners, overcrowding, Learner Governing Body (LGB), National School Nutrition programme (NSNP), learner transport, Health Programmes, Safety and protection programmes and alcohol and drug prevention and management programmes are pivotal to rural school effectiveness (Makoelle and Malindi, 2014, Mulkeen, 2005). To substantiate this, a verbatim quote from a principal from a privileged school regarding safety and protection programmes:

"We do care for the learners by means of clothes, food and psychosocial services".

In contrast, for Principal E, caring of learners concepts are not defined. He indicated that: *"We struggle to care for the learners because it is difficult to get donations from the community private companies, not to mention the private companies".*

Table 1: Safety and Protection Programmes

Participants	Area	Strongly agree (N)	%	Agree (N)	%	Partly agree (N)	%	Disagree (N)	%
Functional (A, B and C)	Safety and protection programmes	2	40	1	20				
Less functional (D and E)	Safety and protection programmes			1	20	1	20		
Total		2	40	2	40	1	20		

From table 1, two principals of functional rural schools, that is 40%, strongly agree that they do develop and implement safety and security policies and programmes concerning safety and protection of learners. i.e. the adopt a Cop programmes are well implemented. Two (one from functional and one from less functional school) 40% agree and one principal (20%) from a less functional school partly agree.

The less functional rural schools do struggle a lot to address issues of safety of their learners because the schools are not fenced. The rural schools' SGBs also struggle a lot to hire security officials and install alarm systems due to financial constraints.

Infrastructure development and Resources

The findings of the study validate the research literature in that, infrastructure development and resources aspects such as classrooms, water, sanitation, vegetable garden, renovations, fencing, electricity, physical resources, e- mail service, e-learning specialists, training in computer literacy and ICT integration contribute in enhancing teaching and learning (De Volder, 2012; Lezotte, 2013; Mulkeen, 2005; Wicken, 2011).

It was clear that developed infrastructure do motivate learners to attend rural schools to the fullest and this leads to the profound influence on the effectiveness of the rural school. For example quoted verbatim a principal A; of a functional rural school said:

“The classrooms managed some rural schools are in good conditions. By contrast, less functional rural schools classrooms are not in good conditions. Some have leaking roofs, electrification is not done properly and the floors have potholes.”

Table 2 :Resources

Participants	Area	Strongly agree (N)	%	Agree (N)	%	Partly agree (N)	%	Disagree (N)	%
Functional (A, B and C)	Resources					1	20	2	40
Less functional (D and E)	Resources			1	20	1	20		40
Total				1	20	2	20	2	

As reflected on table 2 above, it is clear that, 40% of rural schools managed by rural school principals are not well resourced and rural schools managed by fully functional rural school principals are well resourced. The rural schools managed by less functional rural school principal do not have enough resources due to financial constraints.

Community involvement and development.

This theme focuses on community involvement and development aspects such as partnerships, stakeholders, school governing bodies (SGB), rural school development plan, meetings, policy development ,project management, learner disciplines, Quality Teaching and Learning Campaign (QLTC), vision and mission statements, teacher recruitment, financial management, fundraising, conflict management, school committees, parental involvement and progress assessment tool. Community structures do play a pivotal role as far as rural school effectiveness is concerned (Makoelle and Malindi, 2014). In support, principal B asserts:

“I always involve the school communities fully to ensure effectiveness, e.g. learners, parents, general workers, private organisations and QLTC structure members at my school”.

Table 3: Community involvement and Quality Teaching and Learning Campaign (QLTC)

Participants	Area	Strongly agree (N)	%	Agree (N)	%	Partly agree (N)	%	Disagree(N)	%
Functional(A, B and C)	Community involvement & QLTC	2	40	1	20				
Less functional (D and E)	Community involvement & QLTC	1	20			1	20		
Total		3	60	1	20	1	20		

Information on table 3 above, reveals that 40% of principals of rural schools do work collaboratively with the Quality Teaching and Learning Campaign (QLTC). All the principals involved in the study indicated that they do ensure that QLTC structures are fully functional. Examples of QLTC structures are: the principal, RCL, Councilors, the Clerks, Nurses, Traditional healers, social workers, police-man, etc.

Ethical issues

The following ethical issues illustrated by Creswell (2009) were addressed:

Informed consent: Consent was obtained from the participants of the study and permission to conduct research was sought from The Acting Director of Thabo-Mofutsanyana District as well as the rural schools concerned.

Anonymity: The right of participants to be anonymous was protected, both in the structure of the questionnaire and the interview schedule as well as in the analysis of the results.

CONCLUSION

The study revealed, among others, a need for training rural school principals on how to manage their schools effectively and efficiently. There is need for a clear policy about multi-grade schooling to enable the Departmental Officials at all educational levels to cope with the quest or direction. The fact that the teachers and principals are trained for the mono-grade setting and are unprepared for the multi-grade teaching environment only increases confusion. Models for multi-grade teaching can be developed with the assistance of UNESCO or the World Bank. Rural school principals and teachers should be able to use computers and mobile technology in teaching in their classes The study also proposes an establishment of functional district rural school clusters led by Professional Learning Committees (PLCs); a network at Districts, Circuits and Cluster level where multi-grade principals can share their experiences and challenges with each other.

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INVESTIGATING THE IMPACT OF GAME-BASED LEARNING ON STUDENT ENGAGEMENT AND PERFORMANCE WHEN LEARNING ABOUT EARTHQUAKE HAZARDS

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ABSTRACT

We investigate the benefits of game-based learning, in contrast with traditional classroom learning, in terms of motivating and engaging students and improving their information recall and conceptual understanding. We first review game-based activities and learning, focusing on how digital games are motivating, engaging and fun for young people. This suggests that game-based activities could support education by enhancing engagement. We then investigate the use of a game to teach physical geography in the classroom. Seventeen to twenty Year 9 students played a simulation game that involved taking measures to protect a population from earthquake hazards, and receiving scores. The students answered a GCE 'O' Level geography examination question on earthquake countermeasures before and after playing the simulation. Students' answers improved after the simulation, and good performance in the simulation correlated with good answers. Students also reported improved understanding of and engagement in the topic. Finally, we make recommendations for game-based learning.

INTRODUCTION

This study investigates the impact of game-based learning on students' engagement and performance in reducing hazards caused by earthquakes. The study took place in the small country of Brunei Darussalam, wherein teaching and learning are generally described as highly traditional and examination oriented (see, for example, Rashid & Jaidin, 2014; Jaidin, 2009; Burns & Upex, 2002; Azharaini, 1986; Attwood & Bray, 1989). The introduction of a new education system in 2007 was aimed at making significant changes in the ways in which teaching and learning were to be delivered in Brunei. The new education system, called the Education System for the 21st Century (SPN 21), focuses on the development of 21st century skills in lessons across all subject areas, and at the same time, it focuses on strengthening students' content knowledge. SPN 21 highlights the use of information and communication technology (ICT) in teaching and learning. In this way, the introduction of SPN21 has changed the education landscape of teaching and learning in Brunei. The new generation of students in Brunei is no strangers to using technologies in their daily activities. They are the young generation, labeled by Prensky (2001) as *digital native*, who are all *native speakers* of the digital language of computers, video games and the Internet. They are exposed to digital technologies such as tablets on which they play games and pods, search engines such as Google and Bing with which they look for information, and social media platforms such as Facebook and Instagram with which they communicate and socialize. According to statistical studies (such as the Kaiser Family Foundation and EU Kids Online), playing video games is a common activity of young people when at home. Previous studies on game-based learning suggest that playing video games provide young people with motivation, engagement and fun elements. Therefore, the authors of the present study note the potential of using game-based activities in physical geography lessons to enhance students' engagement in learning. One of the concepts that the second author found typically challenging for students to explain in a GCE 'O' Level geography examination was earthquake hazard. A review of the relevant literature on game-based activities and learning is now presented to provide a contextual background for their use in geography lessons.

VIDEO GAMES AND YOUNG PEOPLE

Playing video games is a popular activity among young people, and are a significant source of entertainment. The popularity of video games began when Atari, a game-based company, released its home video game console called Pong. Video games then evolved from the home video game console to the handheld console with the birth of Nintendo Gameboy. With the help of the Internet, video games can now be played online. With this online gaming, video game companies have designed multi-user domain and multiplayer online role-playing games. Both types of games are capable of supporting large numbers of players at one time, and allow a player to play a game simultaneously with other players from all over the world. Now, the new wave of video games called casual games (Juul, 2010) provides players with more flexible gaming experiences. With the availability of powerful portable technologies combined with the growing bandwidths of mobile networks (Froscheur et al., 2012), casual games can be played on smart phones and tablets. This type of video game has created a *gaming culture* among young people.

Indeed, in today's world, video games have become an integral aspect of students' lives. A survey conducted by the Kaiser Family Foundation (2009) found that, on average, students between the ages of eight and eighteen years spent approximately 90 minutes per day playing video games (cited in Rideout, Foehr, & Roberts, 2010). Additionally, EU Kids Online (2011) conducted a survey in which they asked children which online activities they engage with, and all respondents stated that 'when they begin to use the Internet, the first things to do are schoolwork and playing games' (Livingstone et al., 2011). A recent survey on Teens, Video Games and Civics (2015) found that almost all teens in the study play games. The survey found 97% of teens play computer, web, portable, or console games. The results of these surveys suggest that young people spend their time playing video games. In regards to the popularity of video games among young people, it would be worth exploiting the positive effects of video game, especially in teaching and learning processes.

In the USA, a recent survey entitled *Top Social Media Platforms for Teens (Ages 13 to 17 Years)* and conducted by the Pew Research Centre (2015) found that 71% of the 1060 teenagers who participated in the study are Facebook users, 52% are frequent Instagram users and 33% are Google+ users. It was found that most Internet users are teenagers between the ages of 13 and 17 years. Motivation and engagement are the most commonly cited reasons for considering using video games in teaching and learning (Williamson, 2009; Salen, 2008). It is obvious that video games provide motivational factors, and these factors lead to the engagement of players in playing video games. The appeal of video games is linked to the flow theory of Csikzentmihalyi (1990). Flow theory refers to an experience so gratifying that people are willing to do a task for its own sake, with little concern about what they will get out of it, even when it is difficult or dangerous (Csikzentmihalyi, 1990 p71). According to Pavlas et al. (2012), the elements of flow theory coincide with components of video games that engage players and help them to be fully immersed in the gameplay activities. Such elements are the task to complete, immediate feedback, clear task goals, a balance of skills and challenge, and a sense of control over actions. These elements were also stated by another game scholar, Malone (1986), who argued that students like the idea of initiating and receiving feedback on their online actions, which affects the course of their gameplay. Malone (1986) added that this feature of games provides motivation for students to play. The gamer receives feedback instantly, allowing them to further explore the gameplay. Such feedback could be in terms of scores, rewards and completed game levels and acts as recognition of the gamer achieving the goal of the game.

Games are also built with clear goals (Dickey, 2005) that lead the player to feel enjoyment when playing the game, with a clear goal allowing a player to change their game play to improve their performance and reach their goal (McClarty et al., 2012). Without goals, players do not know what the objective of the game is or how to complete the task. This is an important element of effective video game design. According to Tamborini and Skalski (2006), the information that the gamer receives often becomes an additional trigger that sustains his or her interest in the game. This interest often develops into 'an immersion', which refers to the gamer's sense of presence or integration within the game (Tamborini & Skalski, 2006). This feature is considered the hallmark of all digital games. It is linked to attainment of the highly pleasurable state of flow during the game play (Kickmeier-Rust & Albert, 2010). With this entire feature, the game has supplied the mind of the student with a new engaging experience, and this engagement may lead to their achievement. The interaction between players and the game is another reason behind the addiction to play games (see for example, Renkl & Atkinson, 2007; Ritterfeld, Shen, Wang, Nocera, & Wong, 2009).

VIDEO GAMES AND ENGAGEMENT

Motivation and engagement are the most commonly cited reasons for considering using video games in teaching and

learning (Williamson, 2009; Salen, 2008). It is obvious that video games provide motivational factors, and these factors lead to the engagement of players in playing video games. The appeal of video games is linked to the flow theory of Csikzentmihalyi (1990). Flow theory refers to an experience so gratifying that people are willing to do a task for its own sake, with little concern about what they will get out of it, even when it is difficult or dangerous (Csikzentmihalyi, 1990 p71). Pavlas et al. (2012) note that the elements of flow theory coincide with components of video games that engage players and help them to be fully immersed in the gameplay activities. Such elements are the task to complete, immediate feedback, clear task goals, a balance of skills and challenge, and a sense of control over actions. These elements were also stated by another game scholar, Malone (1986), who argued that students like the idea of initiating and receiving feedback on their online actions, which affects the course of their gameplay. Malone (1986) added that this feature of games provides motivation for students to play. The gamer receives feedback instantly, allowing them to further explore the gameplay. Such feedback could be in terms of scores, rewards and completed game levels and acts as recognition of the gamer achieving the goal of the game. Games are also built with clear goals (Dickey, 2005) that lead the player to feel enjoyment when playing the game, with a clear goal allowing a player to change their game play to improve their performance and reach their goal (McClarty et al., 2012). Without goals, players do not know what the objective of the game is or how to complete the task. This is an important element of effective video game design.

VIDEO GAMES AND LEARNING

There are many indications that video games provide learning experiences to learners. Video-game scholars (e.g., Gee (2003), Prensky (2006), Shaffer (2006) and Squire (2011) have described in detail how video games have positive impacts on teaching and learning. For instance, Gee (2003) provide 36 learning principles of video games, which fall under three categories. These categories are the *empowered learner*, *problem solving* and *understanding*. The term '*empowered learner*' refers to players taking responsibility in designing and creating the virtual world of the video game. '*Problem solving*' refers to players being able to and eager to solve problems in the video game owing to the well-ordered increase in problem complexity. '*Understanding*' refers to players being able to understand the overall concept of the video game through the experience on playing the game (Gee, 2005 p. 4). One example of Gee's learning principles of video games in the category of *understanding* is players learning to participate in "semiotic domains" made up of signs and symbols, which include digital artifacts of text, images, sound and characters used to create meaning. Gee (2003) mentions that the term "semiotic domains" is an area or set of activities where people think, act and value in certain ways (p. 19). Players can learn artifacts, words and symbols that have meanings that are specific to a particular set of domains and contexts. However, although the domains are situated in meaning, Gee (2003) argues that they can be a good precursor for learning, because mastering a particular domain facilitates learning in another domain. Another example is being a character, which falls under the category of the empowered learner. Gee (2005) mentioned that the player can become committed to video game characters. The player has the opportunity to take on a new role and experience worlds in which they learn and problem solve (Barab, 2009). The characters might be, for example, scientists, doctors, and chefs, and the player is required to adopt one of the roles and interact with characters playing other roles in the environment. To stay in the game, the player must know what kind of virtual responsibility he or she will take. The better a player can manipulate a character, the more the player invests in the game world. The knowledge creations for such roles are important to young people in terms of their future learning. In playing, a player creates another part of his or her digital identity; e.g., in the case of the character of a prince (Palfrey & Gasser, 2010), the player learns how to behave and live like a prince, even though it is only in a virtual world.

In educational settings, games are typically in the form of experiential exercises that transport learners to another world (Gredler, 2004). The nature of these games provides opportunities for students to apply their knowledge, skills and strategies in achieving the goals of their assigned roles. Gredler (2004) outlined four purposes of educational games: (i) to practice and/or refine already-acquired knowledge and skills; (ii) to identify gaps or weakness in knowledge or skills; (iii) to serve as a summation or review; and (iv) to develop new relationships among concepts and principles.

Prensky (2006) argued that game-based learning is a suitable approach for teaching in the current educational context. In his argument, Prensky (2006) noted that today's learners have changed. Students have indeed changed radically. Students as a user of the digital technology demand more engaging experiences than just chalk and talk in the classroom. In addition, computer games can provide a new way of motivating students to learn. Motivation is important because learning requires effort. Game-based learning can motivate students because students of digital generations are used to the mechanics of gaming, and to them, the process may feel more like playing than learning

without them realizing that they are doing both at the same time. Features of a mainstream recreational game are identical to those of an educational game in some ways. An educational game transports the student to another setting, requires maximum student involvement in learning through an active response, and puts the student in control of the action. In the end, both the recreational game and educational game are games with an objective, which is to win. According to Gredler (2004), to address the features of a game is to analyze the surface structure and deep structure of the game. In brief, the surface structure of the game refers to the observable mechanics of the game and the deep structure refers to the psychological mechanism of the game. Both features are important in transferring students to another setting, they require maximum student involvement through active responding, and they allow the student to control the action (Gredler, 2004).

Educational games most importantly are designed to be a competitive exercise. The objectives are to win through the action of the player. This provides rewards through the player's own governance using the mechanics of the game and their psychological thinking. In the end, educational games must serve a purpose besides being an exercise. The purpose of game-based learning in the classroom is to increase student interest and provide opportunities for students to apply their understanding of the learned lesson in a new context. The current problem in the field is the lack of well-designed games for different classroom settings.

GAME-BASED LEARNING IN GEOGRAPHY LESSONS

Integrating video games in geography lessons is not a new phenomenon. Squire (2004) mentioned how elements in a game called *Civilization III* can be used to learn concepts found in history and geography lessons. Such concepts were government types (anarchy, despotism, monarchy, communism, republic and democracy) and terrain types (such as grassland, mountains and river valleys). According to Squire (2005), to play *Civilization III* successfully, players must understand each concept and its importance in building an empire. By understanding these concepts, students were able to play *Civilization III* successfully, and at the same time, they learned history and geography lessons. Tüzün et al. (2009) used video games in teaching geography concepts of world continents and countries. Their study focused on how three-dimensional computer games increase students' achievement and motivation. Their findings suggest that computer games can be used to help students in learning about geography, specifically the topic of world continents and countries. They also suggested that the students in their study demonstrated statistically significant higher intrinsic motivations. Depending on the design and quality of graphics, games can be used by educators to capture students' attention and achieve learning outcomes. According to data presented by the Pew Research Centre (2015), most students are also gamers in their spare time, and as such, may find games as a more interesting way to learn concepts that are abstract and complex in certain subject areas such as the sciences, mathematics, history and geography. In the case of Brunei, a majority of the student population can access the Internet via smart phones and gadgets at home and thereby have many opportunities for game-based learning.

THE STUDY

Two research questions framed the course of the present study, namely: (i) *How can game-based learning be used to sustain students' engagement in learning earthquake hazards?* (ii) *To what extent can game-based learning improve students' marks in answering items on earthquake hazards in GCE 'O' Level Physical Examination papers?*

In order to address these research questions, the second author conducted action research in a government secondary school in Brunei Darussalam. Quantitative and qualitative data were collected through pre- and post-tests, as well as focus group interview with the students. A group of seventeen Year 9 students aged between 15 and 16 years old participated in the study.

Traditional pre-test and post-test were used to evaluate the students' understanding of the topic before and after playing an online game created by International Strategy for Disaster (ISDR) in collaboration with a game company called the Player Three. The online game can be found through the following link <http://www.stopdisastersgame.org/en/playgame.html>. It is a simulation-based game where the objectives are to minimize the risk of disasters and save lives. Students can choose different types of disaster to handle. More specifically, the game aims at teaching students how to build safer villages and cities in terms of protecting against disasters. By playing the simulation game, students were able to learn about how certain locations and construction materials of houses can make a difference when disasters strike and how early warning systems, evacuation plans and education can save lives. Students were asked a series of questions on earthquake hazards at the beginning (pre-test) and then again at the completion (post-test) of the lesson. The main purpose in conducting the pre-test and post-test is to measure changes, if any, in the students' knowledge about managing earthquake hazards (Colosi & Dunifon,

2006). The pre-test and post-test were designed using actual GCE 'O' Level Physical Geography examination questions. Both pre-test and post-test focused on managing the impact of a natural disaster, specifically earthquake hazards. Students involved in the study were required to write answers in paragraphs explaining how the impact of natural disasters could be minimized.

In the present study, game-based activities were used as an approach to explore one of the topics taught in Year 9 geography in the Brunei syllabus. Games, aside from being used as entertainment, can potentially be used to trigger interest and sustain students' engagement in a lesson. The current generation of students is as familiar with cell phones, laptops, and iPods as with spiral notebooks and pencils (Mc Hugh, 2006). The use of games and the integration of games with teaching is therefore a new way of encouraging students to be more interested in learning.

The teacher started the lesson by introducing the online game to the students and explaining the goal of the game. The lesson took place in the school's ICT room. Each student was allocated a computer to use throughout the lesson. Students were given the opportunity to ask clarifying questions before they played the simulation game. The teacher also explained that they could ask more questions during the lesson. The students were given ample time to explore the online simulation game. Embedded in the game was the 'level of difficulty' setting that allowed students to control levels of activities that they chose to explore. This particular feature was very helpful to those who were new to the concept of the online simulation game. It also enabled students who were more experienced and advanced to choose more challenging tasks. In so doing, the lesson provided opportunities for differentiated learning. Another interesting feature of the online simulation game is the opportunity to compete with other players from different parts of the world. An important feature of the game is the opportunity to role-play different characters, which requires the implementation of a player's action plans and strategies. The ISDR game was designed using real time strategy (RTS) and thus provided students with opportunities to develop map observation skills and to design a plan of actions to reduce the impact of natural disasters. To play the game, students used a cursor to command and create actions, such as constructing buildings, improving building structures and outlining strategies. Every action that the students used to play the game affected the outcome of the game; i.e. whether they will be able to minimize risks and save lives. Researchers such as Aha, Molineaux and Ponsen (2005) noted that these games are typically characterized by large state space, huge decision space, and asynchronous interactions, and these features make the game interesting to play. Most RTS games are used in a military setting (e.g., Command & Conquer and Warcraft) but there are also RTS games that cater for non-military contexts, such as Civilization and The Sims City. These games using RTS features provide interesting and realistic challenges to students as they learn about risk management relating to natural disasters. In addition, RTS features in games allow students to empathize with and play different characters when trying to solve a real-life problem faced by society. Specifically, the game was designed for students to take the role as town planner. The game is self-explanatory as it provides tutorials, instructions and guides throughout the course of the game. The game lets students choose different types of hazards and different settings of difficulty.

In the study, the students selected an earthquake hazard with an easy level of difficulty. Throughout the game, if the students chose correct strategies, a key fact appears, describing the reasons behind why such strategies would be implemented. This provided students with the knowledge and information that could be used to explain the strategies in a GCE 'O' Level examination for physical geography. The student's role in the game was to plan and construct a safer environment for the population. As the town planner, they were required to assess the hazards and tried to limit the damage when an earthquake strikes. The students tried to protect as many people, buildings and livelihoods as they could against a possible earthquake. They made a choice of housing, upgrades and defenses available to reduce the earthquake hazards. There was also a mission objective in the game that the students were to provide accommodation for 600 people, build a hospital and a school, and retrofit at least 10 old buildings. In addition, the game presented a few challenges. All of the choices for upgrades, housing and defenses required specific funds. The game provided students with a budget of only \$50,000 and allowed them 25 minutes to complete the objective; for example, if the budget was spent before 25 minutes, then the earthquake simulation started earlier than expected. Students had to choose the best strategies for reducing the earthquake hazards and saved as many people as they could within the funding limit set. Students were challenged to score at least 25,000 points. To keep the activity interesting, the teacher announced that the student achieving the highest score while opening all the key facts was to get a reward. Additionally, scores were recorded during the game and students could attempt to set world-high scores. The students were given two chances to play the game and the game scores were recorded for the purpose of research.

FINDINGS

Findings of the current study are outlined in this section. Results of the pre-test are discussed first, followed by the results of the post-test to illustrate changes that took place in the study, and finally, the students' descriptions about their experiences playing the online game are outlined.

Number of Students	Marks Obtained
7	0
9	1 to 2 marks
2	3 to 4 marks
0	5 to 6 marks
0	7 to 8 marks

Table 1: Pre-Test Results

Table 1 presents the number of students obtaining certain marks in the pre-test. The result of this pre-test is unsatisfactory in terms of the students achieving good marks. The students had already learned the topic before the study was conducted. However, the students had not undergone any game-based learning prior to the study. The pre-test was used to assess the students' understanding of the topic and they were given 10 minutes to answer one question. When marking the pre-test papers, it was noted that the students who obtained zero marks had mostly left the answer space blank. This suggests that the students did not make any attempt to answer the question. Some students made an attempt to describe the conditions that happened after an earthquake incident. Such an attempt, however, was not an answer to the test question, which was to explain ways in which earthquake hazards could be minimized. Some students were also found to have confused the question with a question about volcano hazards, which are different from the hazards caused by earthquakes. Students who obtained marks ranging from one to four provided simple strategies with which to reduce earthquake hazards. An example of their answers is as follows: *[...] do not live near an area that is prone to earthquakes and find a safe place to hide*. It was also found that some students were capable of suggesting good strategies such as *doing earthquake drills by hiding under a table* and *to install a warning alarm system or alert system to alert the population*. Extra marks were given if the students provided more than one strategy and gave full explanations on how the strategies would be successful in reducing or minimizing earthquake hazards.

Number of Students	Marks Obtained
0	0
4	1 to 2 marks
6	3 to 4 marks
5	5 to 6 marks
2	7 to 8 marks

Table 2: Post-Test Results

The post-test was conducted after the students had their second try at playing the game. The students were asked to answer the same one question asked in the pre-test and again given 10 minutes to answer. The post-test results were satisfactory (see Table 2). In the post-test, no one scored zero points. This marks a great improvement compared with the pre-test results. Students who obtained one to two marks gave simple answers taken straight from the game without in-depth explanations to justify their decisions. The students also used random facts that they found in the game without evidence of an in-depth understanding of the content. For example, students simply wrote 'wooden hut', 'town centers' and 'hospital' without further explanation. Another finding of the post-test is the use of themes to outline strategies for minimizing risks. The use of themes to outline strategies was not evident in the pre-test results. Throughout the game, players can unlock key facts, which give them information on why certain strategies are used in a particular area. Students used these key facts to answer the test question. The students also used themes such as 'education', 'buildings' and 'warning' in their answers. They were also able to give more in-depth answers using the information they obtained from the game-based activities that they had completed. The post-test results showed that seven students scored five marks and above, and one of the students managed to score a perfect eight full marks. The student who scored eight marks showed a good display of understanding and provided answers beyond the information that was given in the game activities.

During the focus group interview, when asked about how the game was played, the students described the strategies they used to play the game. This included preventing people from dying and one student explained that the goal was 'to save people from calamity', which is the correct answer. Overall, the students understood that the main goal of the game was 'to save as many people as we can by implementing various strategies, which can include upgrading buildings and building shelters'. All students were able to describe the 'upgrading of building' as one of the preventive measure. One student mentioned the use of 'budget' in applying various strategies. The term 'budget' was one of the key aspects as all strategies required money to be implemented. The students were also able to recall most of the strategies that they used in the game, such as 'upgrading the old building (retrofitting)', 'setting up an alarm system that provide a warning', 'setting up a radio system to alert the population', 'teaching students about the disaster', and 'creating a hospital and school'. All students agreed that it is much easier to remember the strategies by playing the game than by reading notes. When the students were asked if they were able to do the game activity as classwork and homework, they all agreed that they were able to do it, with the exception of one student who mentioned 'only if they had an Internet connection', while one student added the comment 'only if the game is fun'. Another student mentioned that it was important to read the instructions before playing the game and to follow the instructions carefully as this could lead to a higher score in the game.

In terms of challenges, one student commented that the time allowed was too short but she also understood that both the time limit and budget were a part of the challenge that the game provided. Some students mentioned that the game was challenging but at the same time they were learning something from it and it was a rewarding experience. One student said, *it was like skipping class but we were still learning.*

CONCLUSIONS

The present study demonstrated the effectiveness of game-based learning. Comparison of the results of a pre-test and post-test show appreciable increases in student performance. Most students are able to write longer answers and can explain certain strategies. The game activity gave students an opportunity to play the role of a planner aiming to protect a population from earthquake hazards. This aligns with Gredler's (2004) idea of experiential exercise in that the educational game transports learners to another world. If students are able to apply their knowledge, skills and strategies in order to achieve, then it can be argued that game-based learning is not just a school activity but also a firsthand experience allowing the development of new skills. The effectiveness of game-based learning can be seen through the design of the game. Gredler (2004) also emphasized the design of an educational game. The present study revealed that the ISDR game could be used as an activity to refine already acquired knowledge. The game helps students identify their weaknesses and improve their understanding of the topic and allows students to summarize and review their knowledge, which improves the relationship between students and the concept of the knowledge. This is evidenced by the post-test result, where students were able to write longer answers. In addition, the ISDR game rewarded students with key facts if the students choose appropriate strategies; this gave students a sense of accomplishment in their actions and thus provided motivation to provide better answers. In this way, the use of a scoring system generated competition among students, who wished to score more highly than their friends.

Lastly, the most important aspect of effectiveness in learning is engagement. The present study showed that the students were interested in a game that had colorful graphics and involved upgrading and building. Tambroni and Skalski (2006) found that such features are the hallmarks of educational games. This level of immersion provides students with a new engaging experience that will further interest the gamer. In the present study, all students were able to discuss strategies in a focus group, showing their level of engagement in the game. Discussions in the focus group interview also revealed that students found the game more enjoyable and interesting to play compared with the normal reading of notes or normal classroom exercises. The students were motivated because they see game activity more as fun rather than a serious learning activity, such as a test quiz or an exam. Prensky (2001) suggested that computer games could provide a new way to motivate 21st century students. Malone (1981) agreed, stating that feedback on actions received by students affects the students' course of gameplay and gives students a sense of reward.

Meanwhile, there are features in games that can potentially demotivate students, as some game designs tend to highlight failure. In the focus group discussion, some students complained that they disliked how the game showed a fail report at the end if the student did not achieve a high score. Nevertheless, some students viewed the fail report as part of the challenge that they could try to improve in their next attempt. Overall, it is undeniable that game-based learning generates remarkable motivation and engagement. Students nowadays are accustomed to the use of technology and the digital educational game captures that essence. The important issue is the game design, and indeed, the use of a game to fully engage a student in learning is congruent with the kind of learning that should take place in the 21st century.

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INVESTIGATION OF COMMUNICATION SKILLS AND ATTITUDE TO TEACHING OF THE STUDENTS OF PRIMARY SCHOOL TEACHING

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The main purpose of this research is; evaluate the relation between communication skills and attitude to teaching of the students of primary school teaching, and examine the variability's if it differs or not according to gender, type of education, class, and the will to choose the profession and the reason in a meaningful way. The sum of students whom attended to this study is 355, 195 female and 160 male, whom are studying at different grades at Çukurova University Department of Primary Education Teaching. For collecting the needed data "The Scale of CommunicationSkills" and "The Scale of Attitude to Teaching" has been used. The indications determine that the communication a skills does not differ due to gender but the attitude to teaching is meaningfully in favor of females. Secondary education students have relatively high communicational skills than the first education students. The attitude of the students being teachers does not show difference due to their type of education. The results show that the communication skills and the attitude of being teachers of fourth grade students differ meaningfully in a positive direction. A meaningful disparity has been detected, communicational skills and attitude to teaching, between the students whom choose the profession willingly. It has been detected that, "The ones choose the profession because they love it" have meaningfully high communicational skills and attitude to teaching than the ones whom have any other reasons.

INVESTIGATION OF SLEEP QUALITY PARAMETERS TO IMPROVE COGNITIVE PERFORMANCE IN CLASSROOM TESTS

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ABSTRACT

Potential ways to improve classroom test performance were explored through finding the correlation between sleep quality and cognitive performance in young adults. Participants were asked to track their sleep using a smartphone application, take an online cognitive test the following day and submit their results through an online form. Parameters of sleep such as total hours of sleep and hours of deep+REM sleep were measured using a built-in accelerometer in smartphones. The online cognitive test measured reaction times and accuracy of answers. Preliminary results show that more hours of deep+REM sleep lead to faster reaction times and higher accuracy.

INTRODUCTION

Sleep quality is an understudied area and often overlooked factor of cognitive performance. This can lead to a possible neglect in ensuring sufficient sleep, especially amongst high school and university students, which can result in a gradual decline in academic performance unknowingly. A poll conducted by the [National Sleep Foundation](#) established that 63% of surveyed Americans were getting insufficient sleep. A study conducted by June J. Pitcher (1997) investigated the difference in performance between sleep deprived and non-sleep deprived participants. Pitcher et al. split their participants into two controlled groups, one sleep deprived and one non-sleep deprived. Participants in the sleep deprived group were not allowed to sleep for 24 hours and participants in the non-deprived group had a set time for going to sleep and waking up. The participants were then subjected to the same test and results were compared. Some disparities in test scores were observed in both groups. Another study by Megan Lowry (2010) found that average amount of sleep per night was significantly correlated with GPA. Lowry required participants to fill out a self-evaluated survey on their past night's sleep and submit their GPA. In addition, K. Ahrberg et al. (2012) also investigated the interaction between sleep quality and academic performance, having their participants fill out a survey. The Pittsburgh sleep quality index, a numerical index derived from self-answered questions related to sleep habits, was used in the survey. The answers from the survey were compared to students' GPA. Using GPA to investigate the relationship between sleep quality and academic performance is influenced by individual IQ and the acquired GPA cannot be deemed to be a function of sleep quality exclusively. Furthermore, the work of Dewald et al. (2010) is a very comprehensive study of the influence of sleep quality in children and adolescents. The study investigated the effects of sleep quality, sleep duration and sleepiness on school performance as well as the possible influences of parameter assessment. It looked into different results based on age and gender as well as the relationship the two categories had with sleep. However, their methodology was quite different as no direct data was collected in their work. Instead, they used the data and results of other articles for their study. By looking at the way sleep was assessed in other papers, Dewald et al. noted that larger effects were found for studies using subjective sleep assessment methods. The data for all of the above-mentioned work on sleep quality and cognitive/academic performance were measured through surveys, which required self-evaluated answers. This approach can be considered very subjective. In all surveys, participants were asked elementary questions such as the time they slept, woke up, the number of all-nighters they pulled in the past week, their thoughts on their quality of sleep, and how they felt the next day. Such basic questions do not provide enough information because they are not specific, and the possibility of participants recalling past data inaccurately exists. In addition, data collected via such self-

evaluated means have the following demerits: (i) they are non-statistical, (ii) they are prone to distortion based on participant mood, (iii) they suffer from bias, either being too lenient or too severe. Therefore, this research was conducted using technology-assisted data collection methods to investigate how sleep quality affects cognitive performance. A sleep tracking application and an online cognitive test were used for the data collection. Recent advances in technology have made collection of sleep data through smartphone devices more accessible to the public, thus allowing for quality sleep related statistical data to be collected easily. Three sleep parameters and four cognitive performance parameters were identified and their correlation studied. The major difference between academic and cognitive performance is that academic performance is derived from formal academic examinations testing school curriculum, while cognitive performance measures general problem solving and reaction behavior. The selection of cognitive performance over academic performance is that cognitive performance has the merit of isolating the sleep quality factor by eliminating other factors such as IQ. The rest of the paper is organized as follows: Section 2 describes the methodology, Section 3 analyzes the collected data using the Pearson Correlation, and Section 4 discusses the obtained results.

METHODOLOGY

Measurement of Sleep Quality

The study commenced with a systematic evaluation of several different sleep tracking applications to identify the most appropriate application. The sleep tracking applications considered were:

- i. Sleep Cycle by SleepCycle
- ii. Sleep Better by Runtastic
- iii. Sleep Time Free by Azumio
- iv. Pillow by Neybox
- v. Sleep Bot by SleepBot
- vi. Good Morning Alarm Clock by Apalon

The selection criteria was as follows: the chosen application had to be available on smartphones with different operating systems using a freemium model, previous history data had to be available on the phone, and the following sleep metrics had to be directly measureable:

- i. Length of total sleep, T_s
- ii. Length of deep sleep, D_s
- iii. Sleep efficiency, $S_{efficiency}$

Length of total sleep is simply the sleeping duration of a subject. The length of deep sleep is defined as the duration of deep sleep. Both of these metrics are measured using the accelerometer embedded in the phone. An accelerometer is a sensor that measures movement by detection of acceleration in the x, y, and z planes. Thus, with the phone placed next to the subject's pillow, the subject's movement during a specified interval of time can be measured. Measured movement is inversely proportional to the quality of sleep: greater movement would indicate lighter sleep, and less movement would indicate deeper or REM sleep. REM sleep stands for Rapid Eye Movement sleep, which is the deepest state of sleep a subject can obtain. The sleep efficiency $S_{efficiency}$ is calculated by the sum of the hours of light sleep L_s and deep sleep D_s divided by length of total sleep T_s and finally multiplied by 100.

$$S_{efficiency} = \frac{(L_s + D_s)}{T_s} \times 100$$

where the length of light sleep L_s is the difference between total sleep T_s and deep sleep D_s .

Based on the above selection criteria, the "Sleep Time Free" application was selected for measurement. For consistency, all participants were required to use the "Sleep Time Free" application for data measurement. Participants were asked to track their sleep a total of 4 times per person and limited to 2 times a week.

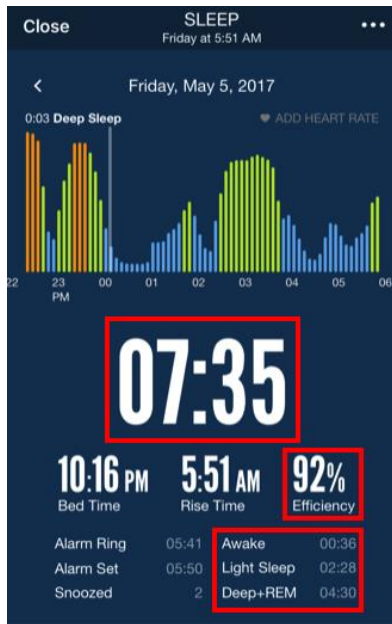


Figure 1: Screenshot of the “Sleep Time Free” application showing measured data

Measurement of Cognitive Performance

Selection of an appropriate online cognitive assessment was carried out next based on identified requirements. The following five candidate assessments were identified:

- i. [Test My Brain](#)
- ii. [Mental Speed Test](#)
- iii. [My Brain Test](#)
- iv. [Stroop Effect Test](#)
- v. [Mouse Accuracy](#)

Similar to the sleep tracking applications, the online test was chosen based on the fulfillment of certain conditions. Stipulated conditions were:

- i. IQ-free questions i.e. those questions that measure cognitive performance and mental quickness exclusively
- ii. Results showing speed and accuracy
- iii. Questions of sufficient complexity such that participants’ sleep would be bound to affect results i.e. excluding simple questions that even sleep deprived participants could answer correctly

The assessment selected was the “My Brain Test”. This assessment comprises of True or False types of questions to state the correspondence between a graphics-noun pair, shown in the figure below.

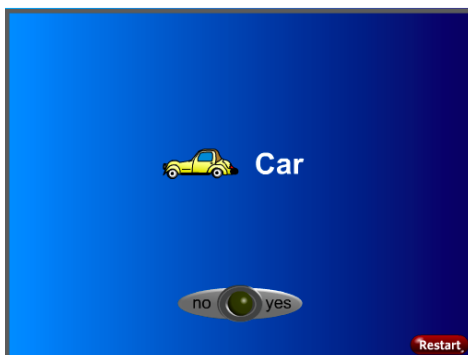


Figure 2: Example question of the “My Brain Test” that measures mental quickness

Specifically, the test displays a picture and word pair, and participants choose “yes” or “no” depending on the pictorial and literal correspondence. There are also trick questions labelled “reverse”, where a non-matching pair has true correspondence and a matching pair has false correspondence. There are 21 questions in each test.

Parameters derived from cognitive performance were average reaction time, percent accuracy, standard deviation of average reaction time, and score. This is shown in the figure below.

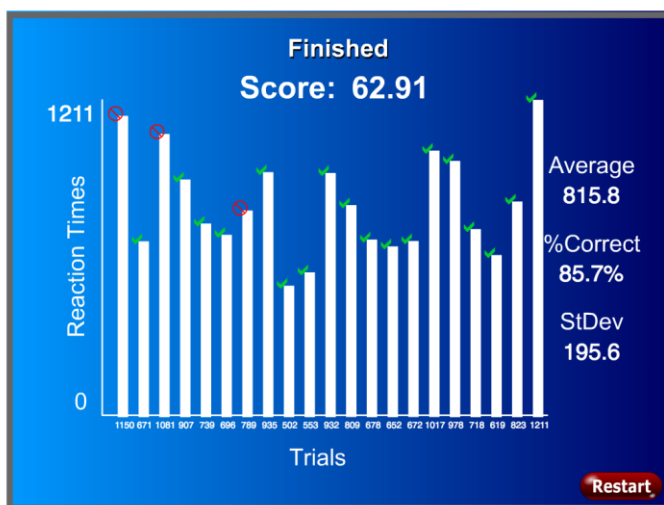


Figure 3: Example result of the “My Brain Test”

Population Surveyed

Our research had 12 participants, the age bracket being fourteen to fifty years old from mostly academic backgrounds. 58% of the population were male and 42% of the population were female. The mean age was 26.7 years and the median age was 24 years. The data collection was done in Tokyo, Japan from March to August 2017.

The data collection was primarily carried out through online means. Participants were required to enter their sleep quality data, collected using the “Sleep Time Free” application, through an online form and submit a screenshot of their results from the “My Brain Test” cognitive test. The usernames of participants were kept consistent through multiple submissions to make analysis of individual data possible. In order to be able to objectively analyze and track individual sleeping patterns and make individual-specific conclusions, multiple individual responses were necessary. Thus, the survey population was kept low but multiple responses were supplied by each participant, ranging from 3 to 15. In all, a total of 70 responses were collected.

RESULTS

Using the collected data, the correlation between the sleep parameters and cognitive performance parameters were determined. Results are summarized below.

The Pearson correlation was utilized to establish the correlation between each of the two sleep parameters with all of the four cognitive performance parameters. Correlated pairs were:

- i. Sleep Efficiency (E) and Average Reaction Times (Average RT)
- ii. Sleep Efficiency (E) and Percentage Accuracy
- iii. Sleep Efficiency (E) and Score
- iv. Sleep Efficiency (E) and Standard Deviation of Average Reaction Times (SD)
- v. Deep Sleep (DS) and Average Reaction Times (Average RT)
- vi. Deep Sleep (DS) and Percentage Accuracy
- vii. Deep Sleep (DS) and Score
- viii. Deep Sleep (DS) and Standard Deviation of Average Reaction Times (SD)

The graph of Figure 4 below displays the combined correlated pairs outlined above for five individuals represented by the five individual colored bars.

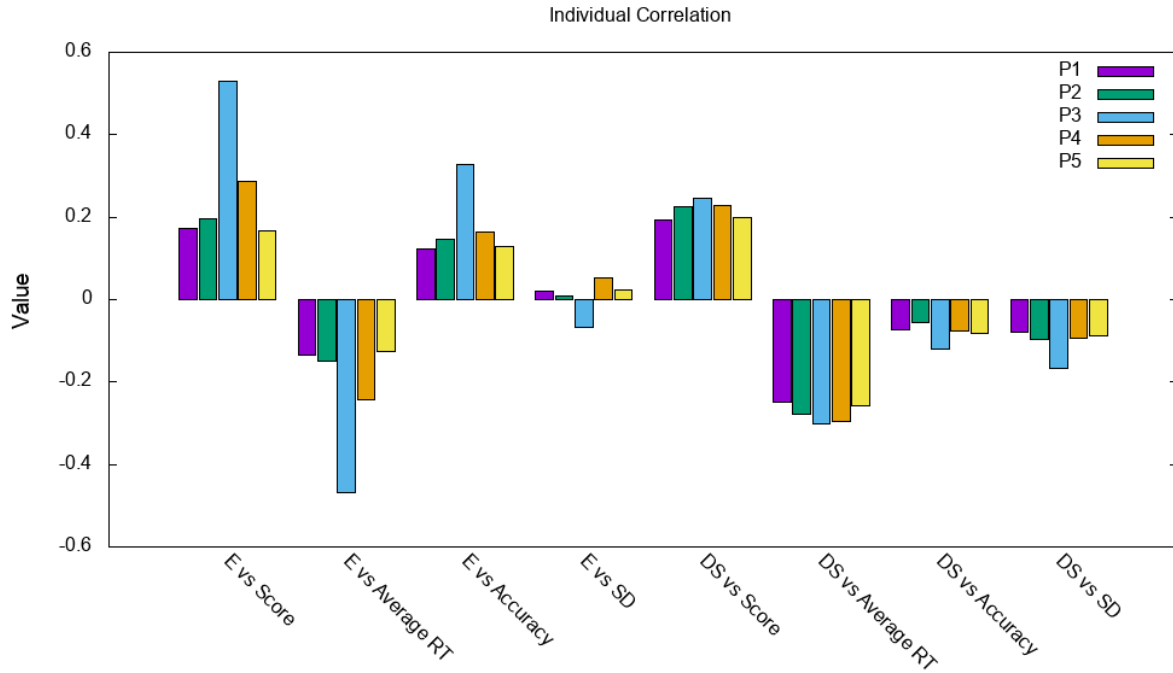


Figure 4: Graph of Individual Sleep Performance Correlation

As evident from the graph above, the correlation of Deep Sleep and cognitive performance parameters on the right half of the plot were tightly correlated, while Sleep Efficiency and cognitive performance parameters exhibited weaker correlation i.e. the correlation magnitudes varied significantly.

Figure 5 displays the average correlated pairs outlined above for all participants represented by the purple colored bars. The error bars indicate standard deviation.

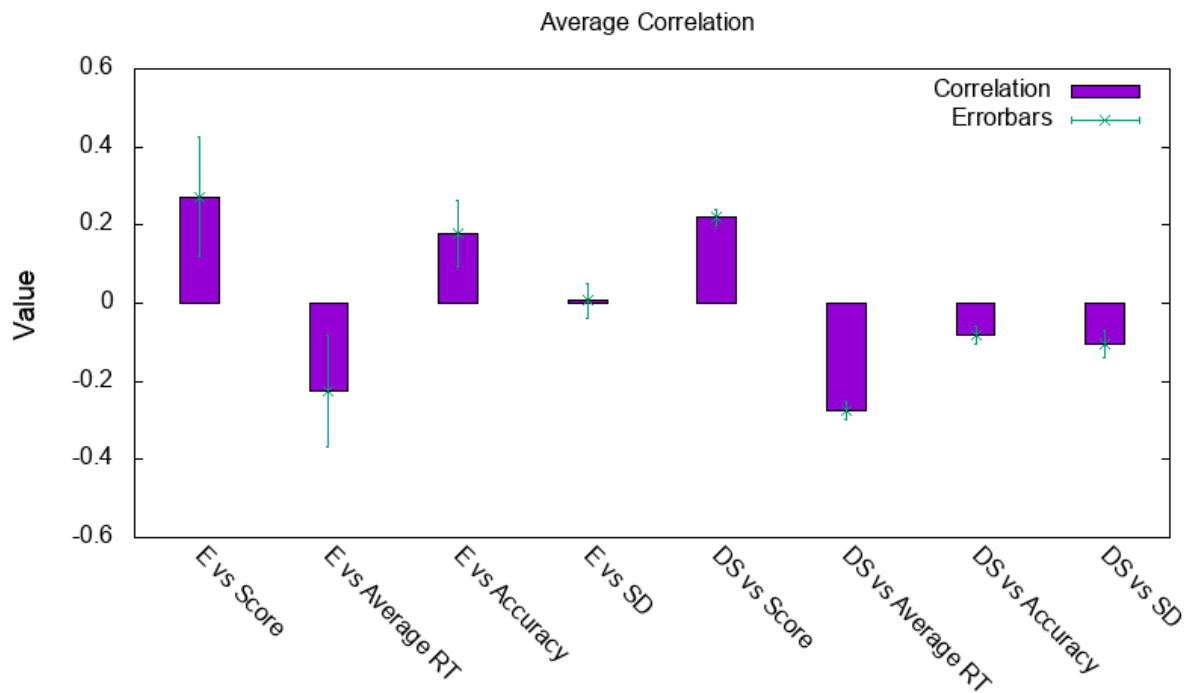


Figure 5: Graph of Average Correlation

As seen in the above graph, error bars of the Deep Sleep and Cognitive Performance parameter pair are smaller, indicating that the individual data was more consistent which is in agreement with the first graph.

The correlation between the sleep parameters and cognitive performance parameters of all participants is given in the tables below.

	Cognitive Performance Parameters	Correlation Value
Sleep Efficiency (%)	Average Reaction Times (ms)	-0.126
Sleep Efficiency (%)	Accuracy (%)	0.129
Sleep Efficiency (%)	Score	0.168
Sleep Efficiency (%)	St. Deviation of Avg. Reaction Times (ms)	0.023

Table 1: Table of Correlation Values between Sleep Efficiency and Cognitive Performance

	Cognitive Performance Parameters	Correlation Value
Deep Sleep (min)	Average Reaction Times (ms)	-0.259
Deep Sleep (min)	Accuracy (%)	-0.082
Deep Sleep (min)	Score	0.199
Deep Sleep (min)	St. Deviation of Avg. Reaction Times (ms)	-0.088

Table 2: Table of Correlation Values between Deep Sleep and Cognitive Performance

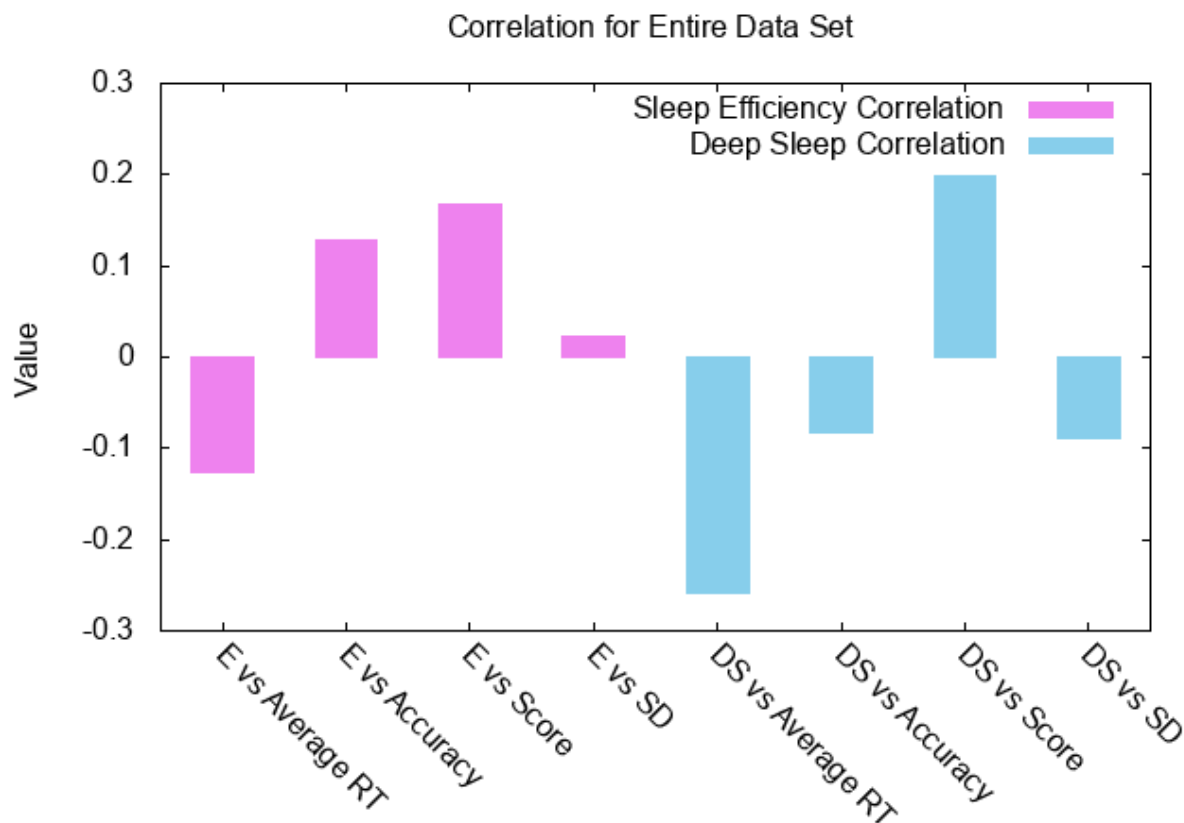


Figure 6: Graph of Correlation for Entire Data Set

By calculating the correlation between Sleep Efficiency and various factors, certain patterns in terms of Sleep Efficiency and cognitive effectiveness can be identified. The sign of the correlation value determines correlation type. A negative value indicates an inversely proportional correlation while a positive value indicates a directly proportional relationship. Specifically, the correlation between Sleep Efficiency and Average Reaction Times is **-0.126**. This medium negative correlation implies that a higher Sleep Efficiency results in faster average reaction times on the cognitive test. For the Sleep Efficiency and Accuracy correlation pair, a medium positive correlation of **0.129** was obtained. This implies a higher Sleep Efficiency results in a higher accuracy on the cognitive test. Similarly, the medium positive correlation between Sleep Efficiency and Score is **0.168** which suggests that a higher Sleep Efficiency will lead to a higher score on the cognitive test. On the other hand, a correlation value of **0.023** was acquired between Sleep Efficiency and Standard Deviation of Average Reaction Times pair.

Both the correlation values of Deep Sleep vs Average Reaction Times and Deep Sleep vs Standard Deviation of Average Reaction Times exhibit a medium negative correlation, with values of **-0.259** and **-0.088** respectively. This is interpreted as a longer duration of Deep Sleep resulting in faster reaction times, as well smaller standard deviations of the average reaction times. The correlation between Deep Sleep and Score is **0.199** is a medium positive correlation, implying that a longer duration of Deep Sleep results in a higher score on the cognitive test. The correlation between Deep Sleep and Accuracy is **-0.082**. A visual representation of these results is given in the graph of Figure 6.

CONCLUSIONS

Sleep quality related data was collected using a sleep tracking application and the correlation between sleep parameters and cognitive performance was investigated. It was determined that a longer duration of Deep Sleep and higher Sleep Efficiency would result in faster reaction times and a higher score. In addition, higher Sleep Efficiency would result in higher accuracy on the cognitive test. From the results, it was determined that the correlation between duration of Deep Sleep and cognitive performance parameters were more similar among individuals. Since the calculation of Sleep Efficiency includes total length of sleep, total length of light sleep, and total length of deep sleep, results show that out of the three durations, deep sleep is most important in terms of affecting cognitive performance. Thus, it was concluded that Deep Sleep could possibly affect cognitive performance more consistently than Sleep Efficiency. Based on these results it is reasonable to conclude that ensuring better sleep quality is one potential way of improving cognitive performance in classroom tests.

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INVESTIGATION OF TEACHERS' POINT OF VIEW ABOUT REFLECTING THE QUALITY OF SCHOOL LIFE FOR CLASSROOM MANAGEMENT

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ABSTRACT

This is a qualitative study investigating the teachers' view about the influence of the school life's quality for the teachers' classroom management behavior. The research involved 10 participating teachers, three of whom working at a primary school, four of whom working at a secondary school and three of whom working at a high school in the town of Tercan in Erzincan. The data was collected through interviews and analyzed by a descriptive content analysis. According to the results of the study, positive feelings about the school encourage teachers to be more active while negative feelings cause them to employ more interventionistic human and behavior management methods. Positive relations among teachers enable teachers to make interdisciplinary connections more easily whereas negative relations cause depression and decrease the efficiency of the lesson. Good communication between teachers as well as between teachers and students empowers teachers to become more active in teaching and more positive in classroom management while communication problems cause teachers to move away from the students and to react more authoritarian. The structure of the syllabus forces teachers to conduct their lessons test-oriented, which leaves emotional impressions such as anxiety, stress and tiredness on the teachers. A negative attitude of the school administration towards the teachers causes teachers to be more authoritarian and to execute their lessons not effectively while negative behavior towards the students causes them to be more protective about the students and impedes discipline.

Key words: Quality of school life, Classroom management, Teacher

INTRODUCTION

The aim of education-teaching activities is to provide students' gain the targeted behaviors previously and gain them as a healthy individual to the society. The main duty of the teachers in this process is to implement teaching activities and manage the classroom in an effective way by arranging the classroom environment in this direction. Classroom management is generally defined as removing the working barriers of students and teachers (Erdoğan, 2003), providing curriculum, teaching method, time, location and coordination of students (Sarıtaş, 2000) and making teaching-learning process effective (Martin & Yin, 1997). According to Martin, Yin and Mayal (2008), classroom management is established from three dimensions as management of instruction, behavior management and people management as constructional. Management of instruction includes preparation of course activities. Providing the sitting arrangement in the classroom and time management. Strategies related to preventing human behaviors before realizing is in the content of behavior management. People management includes strategies which teachers use while developing their relationships with their students. Implementation of teaching activities in an irregular classroom environment becomes difficult, the students' attention is lost, participation in the activities decrease and academic success falls. (Doyle, 1986). Because of this reason, training of teacher candidates and students to make them successful in the class management has a great importance.

Classroom management is a multi-directional, difficult and complex duty. Because teachers may be affected from many variables in or out of the classroom directly or indirectly and may exhibit different attitudes and behaviors while managing their classrooms (Aydm, 2004). Because of this reason, the way of teachers' managing their classrooms, individualistic properties, academic experiences, beliefs towards education and attitudes towards classroom management is frequently subject of many researches. (Ekici, 2008; Foxworthy, 2006; Güvenç, 2012; Güvenç & Güvenç, 2014; Okut, 2011; Oğuz, 2013; Saeedi, 2016; Sridhar & Javan, 2011;

Tuna & Savaşçı, 2016). According to Martin, Yin and Mayal (2006), teachers exhibit three certain attitudes as interventionist, non-interventionist and interactionalist while managing their classrooms. The teachers with interventionist attitude are the teachers who establish an authority on the students, control their students' behaviors with a punishment or an award. Non-interventionist teachers believe that students can manage their behaviors by themselves. They do not impose their rules and present them opportunities to correct their behaviors. The teachers with interactionalist attitude share the responsibilities with the students by including the students in taking decision process. The teachers may exhibit different attitudes at different dimensions of classroom management. However, is observed that they frequently exhibit a more dominant attitude (Martin, Yin & Baldwin, 1998).

School and classroom cannot be thought different from each other. Classroom is a piece of school and teachers and students spend most of their time in this living area. Because of this reason, living quality of the school in which the students and teachers spend thousand hours of time increase in education more and more. Quality of school life is mostly defined as "School satisfaction" and "happiness situation existing at the result of experiences at school" (Karatzias, Power & Swanson, 2001). This comprehension is established from three dimensions as student satisfaction, studies of students at school and reactions of students towards their teachers (Epstein & McPartland, 1976) later new dimensions are added. For example, Johnson and Stevens (2001) examined school living quality by focusing on support given to the students, relationships, innovations and participation in the new decisions taken, on the other hand Sari (2007) took the dimensions of school living quality as feelings related to the school, school management, teachers, status and teaching programs. According to Mok and Flynn (2002), positive and negative feelings towards school has a power of affecting school life quality, success of a person and general life quality which are directly related with self-trust of the individual. In the related researches show that academic success, life satisfaction, self-respect, ownership of school feelings of the students who perceive school quality positively increase, absenteeism at school and problematic behaviors decrease. (İnal, 2009; Javaal, 2007; Jimmieson, Hannam & Yeo, 2010; Mok & Flynn, 1997; Hunt-Sartori, 2007; Lee, Zhang & Song, 2011; Leonard, 2002; Xu & Zhao, 2012; Huang, Benson, Zhu & Sardeshmukh, 2014; Zeynivand, Hashemi, Aghdam & Ahmadi, 2014). The researches which examine school life quality in the frame of teacher perceptions have been so limited and they are oriented to determining school living quality perception of the teachers (İlmen, 2010; Kesici, 2010; Korkmaz, 2009; İnal, 2009). A research examining what have been effective at school living quality perception of the teachers and their reactions about the school could not be reached. However, school quality pointing formal and informal living qualities of the school states an environment in which they feel themselves happy and safe, satisfied from the social relationships and teaching implementations for the teachers sharing the same environment and for the students. In other words, teachers' feelings towards school establishes their perceptions related to their school living quality ideas on their feelings towards school, how valuable they feel themselves at school, quality of their communication with managers, teachers, students and parents and their ideas and ideas about the teaching implementations (Sari, 2007). Because of these reasons, there has been a need for a research which examine the ideas deeply how the school living quality in which the teachers work and classroom management behaviors affect them.

METHOD

The model of the research

This is a qualitative study investigating the teachers' views about the influence of the school life's quality for the teachers' classroom management behavior.

Working group

The research has been realized with totally 10 teachers including three elementary school, four secondary school and three high school teachers working in Tercan district of Erzincan. Quality of School Life Scale (QSLS) which has been developed by Sari (2007) has been implemented to the teachers working at elementary, secondary and high school teachers in the center of the district to form the working group and looked for how the teachers perceive living quality level of their schools. Later, ten teachers who work at different levels with maximum diversity sampling and as a volunteer and who perceive school living quality lower and higher have been determined. Five of the teachers are male, five of them are female. Their total working periods change between 1-16 years, five of them works at secondary school, three of them at high school and two of them at

elementary school. The branches of teachers working at secondary school are English, Turkish, Mathematics and Science; the ones at high school are Mathematics, Music and Turkish literature language. The ones working at elementary school are classroom teachers.

Data collection instruments and data collection

Research data has been collected with an interview form developed by taking expert idea in the direction of QSLs dimensions by the researchers. Questions on feelings related to school, relationships with school, communication with students and parents, school management, teaching program and of quality of teaching implementations take place in the interview form. The interviews have been realized in guidance and teachers room on the dates and time which the teachers determined, they have been completed in 25-30 minutes. Sound-record device has been used during the interview by taking the approval of the interviewers.

Data analysis

Descriptive content analysis technique has been used in data analysis, firstly sound records have been printed and 98 pages of text have been taken as data. General frame for coding has been determined in the direction of interview questions, detailed codes existed at the result of examination of codes. Written texts have been read by the researchers one by one, "reading" and "returning to literature" procedures during coding have been reviewed. The safety of coding has been calculated by Miles and Huberman's (1994, p. 64) formula, orientation between the coders has been found as .85. In case of being different coding, the researchers decided together what the coding will be. Lastly data has been arranged in the tables to describe the frequency of revision of the codes. While the findings are explained, quotations from the teachers' statements have been made directly and codes such 1EL and 6Kİ have been used (For example; 1EL male working at high school; 6Kİ female teacher working at elementary school).

FINDINGS

1. Feelings of teachers towards school and their views about the effect of it on classroom management behaviors

Firstly, teachers' feelings towards school, the situations which make them feel these and how they affect their behaviors in the classroom have been asked. Eight teachers have been generally happy, two teachers have been unhappy, all participants gave examples of situations which cause them to feel positive or negative feelings. Table 1 summarizes the explanations of the teachers.

Table 1: Feelings towards school and their effect on classroom management behaviors

Feelings towards school	f	Effect on classroom management behaviors	f
<i>The situations which felt positive feelings</i>			
A warm school environment/orientation between teachers	4	Being more cheerful and positive in the course	6
Students' being pure	2	Feeling teaching will	3
Love and respect of students	1	Being more patient	2
Love and respect to the teachers in the society	1	Making the course more joyful	2
Feeling yourself strong	1	Having positive relationships with the student	1
Orientation between the teachers	1	Having fun from the course	1
Warm relationships which keep distances	1	Giving examples related to the students	1
Working wish of students	1	Implementing positive discipline	1
Preferring the school by their wish	1		
Occupation love	1		
Being a small settlement	1		
Being a small school	1		
<i>The situations which felt negative feelings</i>			
Negative attitudes of school managers	3	Being angry	5

Students' being uninterested to the lesson	2	Giving rigid reactions to the students	4
The students' readiness level is low	2	Following a teacher centered process	4
Being a group between the teachers	1	Not having communication with the students	4
Teachers' not completing their work	1	Sulky face statement	3
Showing rigid reaction to the male-female relationships	1	Explaining the course unwillingly	2
School's not being clean	1	Having monotonous course	2
Uninterested parents	1	Not caring the students	1
Administrative gaps	1		
Country longing	1		
Not having a team spirit	1		
Not developing yourself as vocationally	1		

As seen in Table 1, a warm school environment/orientation, students' being pure are the basic factors for the teachers in establishing positive factors towards school whereas negative attitudes of school managers, students' being uninterested to the lesson, the students' low readiness level are the basic factors for the teachers in establishing negative factors towards school. Positive feelings related to school provide the teachers to be more cheerful and positive in the lesson, negative feelings cause them to be angry and tense and giving rigid reactions to the students by following a teacher centered process. Two quotations from the teachers' ideas are as below:

"...I think that when I enter the lesson in an environment full of laughter I am happier. I am more positive. I become more joyful. I do not get angry even if the student makes a negative thing" 2KO

"...I am so much unhappy because of the students' level. I think that my students go backward ...I cannot do anything. Because of this reason I became an ordinary teacher. I am so unhappy because of the attitudes of the managers and their communications with us"10KO

2. Quality of the relationships between the teachers and views how they affected classroom management behaviors

The explanations which the teachers made why they thought the relationships between the teachers have been positive and negative are summarized in Table 2.

Table 2: Quality of the communication between the teachers and its effect on classroom management behaviors

Quality of the relationships between the teachers	f	Their effect on classroom management behaviors	f
<i>The situations which felt positive feelings</i>			
Making cooperation preparing plan and programs, taking the same decision, etc.)	6		
Making idea exchange	4	Providing objectivity	1
Activities out of the school	3	Being relaxed in the lesson	1
Activities in the school	3	Explaining the course in safety	1
Having close relationships	3	Not hesitating while doing something	1
Helping each other	2	Making the course more joyful	1
Making extra studies	1	Being happier in the classroom	1
Not seeing each other's deficiencies	1		
Providing transition between the disciplines in the course	1		
Making equal duty distribution	1		
Realizing the responsibilities	1		
Moving in orientation	1		
<i>The situations which felt negative feelings</i>			
Being in groups	3		
Not solving the problems	1	Not focusing on the lesson	2

Not taking decision together	1	Getting angry	1
Not having support from the school managers	1	The course's being bored	1
		Not having positive communication	
Being the managers one-sided	1	with the students	1
Having a crowded school	1	Sulky face statement	1
Different point of views toward education	1	Depression	1
Not having cooperation	1		
Not having idea exchange and share	1		
Not being accepted	1		
Not making social activities	1		

As seen in Table 2, making cooperation, making idea exchange, making activities out of the school or in the school, having good relationships with the teachers are the positive situations whereas being in groups, not solving the problems, not being accepted, etc. are the negative situations. The teachers stated that when they are in positive communication with other teachers make them feel safer in the classroom and they did not hesitate while doing something; but when they lived the problem of focusing on the course, they entered the classroom angry and with a sulky face their communication with the students are affected in negative way. Here are sample quotations:

"...Whenever there is a real problem, even my uninterested friend tells that we can solve the problem together and asks how he can help me. The school we work is very important because we are mostly at school. When my student tells about another teacher, I can evaluate it objectively" 3Eİ

"... I do not feel alone, I explain the course in more trust and I am more comfortable as I know that there are people whom I can take help in building relationships between the lessons" 8KO

"...sometimes things which the students should not hear are heard by them, this makes us depressive when we hear about these in the lesson, this decrease our motivation for the course ...I go on with the lesson, but the course becomes very boring, the time does not pass for me, the lesson also becomes more boring for the students" 7GEL

In this content, another question asked to the teachers is what behaviors which they do not approve and they appreciate and how these affected classroom management behaviors. The explanations of the teachers are summarized in Table 3.

Table 3: The effect of behaviors which are appreciated and not approved by teachers on classroom management behaviors

Behaviors of teachers at school	f	Their effect on classroom management behaviors	f
<i>Appreciated behaviors</i>			
Spending too much effort for students	3	Joking with the students	1
Having positive dialogues with the students	3	Motivating students for the course	1
Developing yourself academically	2	Being comfortable in the classroom	1
Spending time with students out of the lesson	1	Implementing different activities	1
Knowing their children	1	Using different stimulants in the lesson	1
Being successful in their fields	1	Using resource books	1
Not being oriented to violence	1	Concretization of abstract subjects	1
Making idea exchange with the teachers	1	Presenting the subject visually	1
Building empathy	1	Solving extra questions	1
Being interested with students like a father and a mother	1	Making research	1
Making religious education	1	Knowing student better	1
		Being able to protect the distance between the students	1
Set the distance between the students	1	Taking as an example	1

Not appreciated behaviors

Having communication with the students in social media/excessive friendship	3	Trying to help to the students (listening, trying to solve their problems etc.)	4
Insulting the student/ speaking rudely	2	Passing the complaints about the teacher over in the lesson	2
Putting arbitrary prohibitions for the students	2	Trying to take the attention of the students for the lesson	1
Entering the classroom lately/getting out of the classroom earlier	2	Ignoring	1
Behaving rude to the students	1	Being in hard situation in the lesson	1
Deviation from the subject of the course	1	Not being adapted for the course	1
Not developing yourself on your field	1	Being tense in the lesson	1
Judging the student without listening	1	Trying to persuade the student	1
Orientation to violence	1	Not being able to manage the classroom	1
Not taking the development courses seriously	1	Playing game during or before the lesson	1
Not caring the education	1	Stating the ideas clearly	1
Intervention in the clothes of the students	1		
Establishing homogenous (male/female) classrooms	1		
Male teachers' being remote to the female students	1		

As seen in Table3, the teachers appreciate spending too much effort for students and having positive dialogues with the students. Behaviors such as developing yourself academically, spending time with students out of the lesson, knowing their children, being successful in their fields, not being oriented to violence follow this. For example, 1EL stated his appreciate about his colleague as *“We have a German teacher. I saw how a classroom teacher should on him. He made activities with his students, he went to picnic with them, he takes videos of them since the beginning of the year. At the end of the year all students will be able to watch this video. He went to one of his student’s house who will be graduated, only to say goodbye. I appreciate this man.* 2KO stated his ideas as *“Some of our friends are interested with the students too much. When a student has a problem, he can directly share with them. This is a very nice thing, because sometimes some students beware from their teachers.”* Having communication with the students in social media, insulting the student, putting arbitrary prohibitions for the students and entering the classroom lately/getting out of the classroom earlier are the first behaviors which the participants do not appreciate for the teachers. For example, 3EĪ made an explanation as *“The thing which I did not appreciate is judging the child without listening. They should listen him/her whether he is right or not. Why did he do that, what promoted him to this behavior. May be, we created this situation”*, 8KO stated the unapproved behavior as *“I do not approve my colleagues’ punishment system. A ball crashed his car and playing with ball is prohibited. I am so uncomfortable about this subject. The children were too sad today”*. The teachers’ explanations related to the effect of these behaviors on classroom management are given as below:

“I cannot stay like that when my friends try their best for the children. I take photocopy from the extra resources for them, I give some of them as homework. I make researches in Internet” 9EO

“... when a teacher kids physical behaviors of a child, a change occurs on me when I see the face of that. I began to behave better to the children.” 1AEL

“My teacher, A teacher behaves me like this but why do you behave me in another way. He tries to hide my faults, why do you try to show them? We are unwillingly stuck in a different situation” 5EEL

3. Quality of communication with the students and views related to how they affected classroom management behaviors

Table 4 summarizes the explanations of student feedbacks which make them feel well when their communication with the students have been good, their problems and their reflections on classroom management behaviors.

Table 4: Quality of communication with the students and their effect on classroom management behaviors.

Quality of student-teacher relationship	f	Its effect on classroom management behaviors.	f
<i>Student feedbacks</i>			
Telling their teachers their love and greeting their teachers, etc.	2	Practicing the activities comfortably	
Being respectful to the teachers	2	Authority based on love	2
Sharing their problems with their teachers	1	Having an efficient course	1
Trusting their children	1	Giving award	1
Not telling lie	1	Giving examples from daily life	1
Studying for their lessons	1	Explaining the course with a smiling face	1
Telling that they love the lessons	1	Not disturbing the lesson	1
Being comfortable while stating themselves (hugging the teacher, being with the teacher)	1	Making the students active in the lesson	1
<i>Living problems</i>			
Abusing the good will of the teacher	4	Decreasing communication with the students	6
Prejudices related to the course	2	Sulky face statement	5
Students' being angry	2	Unwillingness about the lesson	5
Academic failure	1	Being in authority/continuous intervention	3
Students' being jealous of each other	1	Teacher centered education	3
The students' having an attitude against the teacher	1	Getting angry with the students	3
The students' swearing to each other	1	Giving reaction in an unexpected time	2
Difficulty of communication between male students	1	Having eye contact	2
Being disrespectful to each other	1	Using different methods and techniques	2
Discussion of students with each other	1	Making the course joyful	1
		Having time problem	1
		Depersonalization against the students	1
		Showing more performance	1
		Not seeing the behavior	1
		Not reaching the aim of the behavior	1
		Punishing the classroom	1
		Threatening (sending to the administration)	1
		Taking attention with technology usage	1
		Using daily problems	1
		Leaving the game in half	1
		Using time better	1

As it is seen in Table 4, the students' telling their teachers their love, being respectful to the teachers, sharing their problems with their teachers are the dominant situations which make teachers feel that they have good communication with their students. For example, 3E1 made an explanation as "*The students can explain their problems to me without any hesitation.*"

They know that their teacher does not hit them, insult them. I always listen to them...They try not to tell lie as they know that I will be unhappy”, 4KO gave examples from his students’ behavior as “... there era some students who tell that they loved Mathematics because of me. I know the others that if my lesson is free they want to enter my lesson”. Reflections of positive communication on classroom management has been stated as practicing the activities comfortably, authority based on love, giving examples from daily life, explaining the course with a smiling face, making the students active in the lesson. The communication problems living between the student and teacher are sourced from abusing the good will of the teacher, prejudices related to the course and students’ being angry. The teachers stated that decreasing communication with the students, having a sulky face statement, unwillingness about the lesson cause communication problems with the students. Here are some quotations:

“When I have a strong relationship with the students, I can implement every kind of activity comfortably, the course becomes more efficient” 4DKO

“I suddenly become cold against students; I think that I did not behave so closely. My course explanation will get away at that moment. I have the course only by writing on the blackboard and try not to have communication with the students after the lesson.” 9EO

“...they adopted themselves as I do not understand or I cannot do. At that moment, they leave the course and only start sitting... This makes me angry. I get angry out of my control. I can give negative reactions even in the classroom environment” 4KO

4. Quality of teachers’ communication with parents and their views related to how this affected classroom management behaviors

Five teachers emphasized that they have good relationships with the parents (speaking on the phone, interview at or out of school face to face, home visits) and these shares awakened the will of observing the student in the classroom environment healthier and teaching. For example, 3EĪ explained this situation as “*Very interested parent causes to make more observations on me. I observe all of my students, but I observe the children of interested parents more*”. 7EL stated his idea as “*...when you know the family of the teacher, you feel that you know the child better... you become more wishful, you teach him things which he can benefit in the future*”. Five teachers who have problems with the parents stated the reasons as reactions which show against low grades, not coming to school, being insensible to the education of the child, intervening in the teacher’s duty, choosing the teachers whom they will be in communication according to their branches etc. Negative reflections of parents against these behaviors in classroom management have been stated as developing negative attitude against the student, not wishing to explain the course. Not making extra courses, being angry. Explanations from some of the teachers are given below:

“... the students can carry an event at school in a different way. As this causes misunderstandings, an antipathy is established... I try to give deficient right of speaking to that student and I punish him in this way. This causes decrease in the motivation of the student. Also, mine too” 5EL

“...I try to be more careful while I discuss with a student whose parent I know. May be this is not true but I beware that they think falsely about me” 8HKO

“I have negative point of views for the children with whose parent I have problems, I approach the student with some different attitudes, this is out of my control. I try to find his fault such as controlling whether he did his homework or not, or he studied or not” 10KO

5. Quality of teachers’ school management and their views related to how this affected classroom management behaviors

All of the teachers evaluated that managers behaved negatively to the students and six of the teachers told that they behaved negatively told the teachers. The explanations have been summarized in Table 5.

Table 5: Behavior styles of school managers to the teachers and students and its effect on classroom management behaviors

Behavior styles of the managers	f	Effect on Classroom Management Behaviors	f
<i>Positive behaviors against the teachers</i>			
Listening their problems	4	Entering the classroom with self-trust	2
Supporting them	4	Coming to school by willing	1
Being fair	2	Finding the opportunity of thinking deficiencies	1
Not seeing the deficiencies	1	Being patience /understandable	1
Providing resource	1	Listening to the students	1
Having time in teachers' room	1	Using different techniques/methods	1
Making warnings to the teachers	1	Feeling strong	1
Being modest	1	Giving the course in an efficient way	1
Being understandable	1	Being relaxed in the classroom	1
<i>Negative behaviors against the teachers</i>			
Not having communication	3	Being more authorizer in the classroom	2
Not giving support	3	Having problem because of lack of material	1
Speaking with a hard voice	2	Trying to solve the problems by self	1
Not leading anyway to the student	1	To be obliged to use an official language	1
Decreasing the teacher respectability in the view of student	1	Scolding the students	1
Bring lived problems forward continuously	1	Will of getting away from school	1
Approaching the events emotionally	1	Sulky face statement/angriness	1
Trying to force his decisions	1	Giving less examples in the lesson/ making straight explanations	1
Not taking the ideas of the teachers	1		
Not being open to the critics	1		
	3	Not providing discipline in the classroom	2
<i>Negative behaviors against the students</i>			
Anger/ shouting/ bawling out	3	Being more protective	2
Excusing negative behaviors	1	Being obliged to satisfy the students	1
Not having communication with the students	1	Not having the course	1
Being uninterested to the students	1	Trying to speak with the students	1
Not having information about the students	1	Warning the students by sending them to the managers	1
Not being tolerant	1	Living distractibility	1
		Motivation decrease	1
Exhibiting inconsistent behaviors		Being obliged to be interested with everything	1
Violence implementation			

As seen in Table 5, the main behaviors perceived as positive in manager behaviors are listening their problems, supporting them and being fair. 6KĪ stated that entering the classroom with self-trust, coming to school by willing, being patience /understandable against the students are because of the managers' positive behaviors and told that "He asks us while taking a decision. He drinks tea at every break with us in the teachers' room, he asks whether we have a problem or not. When you know that the managers support you, you enter the classroom with self-trust" and 8KO told that "Whenever he wants to tell something he does not tell it with a command. He requests it. I am so glad about it. I never saw that any of our request is rejected by him". Six teachers who evaluated the teachers' behaviors as negative stated these as not having communication, not giving support, speaking with a hard voice, decreasing the teacher respectability in the view of student.

The teachers who stated that these kinds of behaviors cause the students to be more rigid mentioned that they had sulky face statement, they got angry, they wanted to get away from the school as soon as possible. For example, 1EL stated his idea on this subject as *“I told that we should buy different instruments for the school, w make the music room different, we had money, but I could not take any support, when I could not buy these, I was affected negatively”*, 10KO stated his idea as *“As I cannot state myself, I do not make any effort to correct the situation. I want to get away from the school as soon as possible. But I never reflected my anger to the students. But my mode is low and I am in depression.”*

The teachers stated the negative behaviors of school managers to the students as shouting, getting angry, excusing irrelevant behaviors, being uninterested, implementing violence and not speaking with the students and 4KO told that *“The children are being hit by the managers, they are being insulted by the teachers, they are being educated without love. I Know that I heard a stick sound after I left the classroom”*. 9IEO stated as *“...to interfere with the negative situations, he becomes uninterested. This causes the children’s spoil”*. 10IKO told that *“...An imbalance is existent in the attitudes of the managers to the students...Unfortunately every behavior is met with an excuse in our school.* The teachers who stated that these kinds of behaviors oriented them to protect the student mentioned as not providing discipline in the classroom, speaking with the students by living the lesson, satisfying them. Two examples are given below:

“I cannot get angry with the students. Because I think that as they have been continuously pushed and beetled, they need love. They need a smile, joke, may be some love. Because of this reason I am more moderate on this subject.” 4DKO

“Excuse of our manager every king of behavior of the students affects me negatively. Because the students get spoiled more. Sometimes you want to warn as I will send you to the manager. They tell that the manager does not do anything, you can send. The attention of the students who focus on the course is cracked. The course is less efficient.” 9EO

6. Views of teachers related to how educational program and implementations at school affect classroom management behaviors

The explanations of the teachers who stated negative ideas about the educational program related to the problems being lived at school and their effect on classroom management behaviors are summarized in Table 6.

Table 6: The effect of educational program and quality of implementations at school on classroom management behaviors

Educational program	f	The effect of it on classroom management behaviors	
			f
<i>Attainments</i>			
Being above the student level	3		
Being too much	2		
To put the social/ emotional developments of the students on the back burner	1		
Making relationship with the other courses hardly	1		
<i>Content</i>			
The subjects’ being abstract	2		
Having irrelevant units	2		
The subjects’ being at basic level or too much detailed	1		
False knowledge	1	Using different resources	5
Subject explanation is complex	1	Having the anxiety of giving all program	4
Giving importance to some subjects more than the others	1	Being obliged to solve test	4

<i>Learning-Teaching process</i>		Making continuous subject research	2
The activities are insufficient	2	Being stressed	2
Making activity without giving information	2	Having difficulty in limiting the subject	2
The activities' being not relevant to the level	2	Giving additional materials to the students	2
Having less examples	1	Giving the subjects, which are necessary for the exam	2
<i>Evaluation</i>		To be obliged to relax the program	1
Having insufficient exercises	2	Orienting the students to the out of school activities	1
Having one type of question in the course books	1	Tiredness	1
<i>Problems being lived at school</i>			
Being the course books insufficient	4		
Having less course hours	3		
Giving the subjects, which are necessary for the exam (solving test)	3		
Having too much course hours	1		
Not opening courses from basic courses	1		
Not giving importance to the elective courses	1		
Being the course hours insufficient	1		
Not having projection	1		
Moving the student exercise books away	1		
Inconsistency of resource books	1		

As seen in Table 6, the negative situation related to the educational programs are being above the student level, being too much, the subjects' being abstract, the subjects' being too much detailed, the activities' being not relevant to the level, having one type of question in the course books. For example, 5EL stated his idea about the attainments as *"I have problems on the reality of attainments. For example, there is an attainment as "writes an essay" ..but the child even does not what an essay is, it is impossible for him to write"* 9EO made explanation as *"the activities are not relevant to the level. Something is missing for the children"* 4KO told that *"The exercises are in the form of classical type, I do not find them adequate. You explain the course to the students with classic questions, then they enter the test exams"*. The problems being lived in the implementation of the educational programs are stated as being the course books insufficient, having less course hours, giving the subjects, which are necessary for the exam. The effect of this situation on classroom management system is using different resources, having the anxiety of giving all program, being obliged to solve test. Two samples from the explanations of the teachers are given below:

"The program in 8th grade is too tense, the subjects can be understood better if experiment is done, but as there is TEOG exam, we cannot lose time with experiment, we have to make students solve tests." 10KO

"We try to solve tests without learning the subject. We can miss something out of our control and this situation makes me stressed" 9EO

DISCUSSION, RESULT AND SUGGESTIONS

It has been determined at the result of the research that warm environment at school established positive feelings towards school for the teachers; the negative attitudes of the managers, uninterested students and low readiness level established negative feelings. Positive feelings provide the teachers' being more active in teaching, negative feelings cause them to be more intervening in human and behavior management by creating anxiety. This result can be explained by the importance of ownership of school. According to Pagano (1991), all individuals want to see themselves as a member of the group they have been in and to belong to the society they live in to have a comfortable and safe life. The researches which are realized support this idea, stress being lived in the institutions and negative attitudes of school managers affect job satisfaction of teachers and their teaching effort. (Alıç, 1989; Mete, 2006). According to Erden (1998), the teachers feel themselves more successful and safe when they work with the students who are in effort of learning, obeying the directives, having responsibility, their teaching motivation increases and they become more effective in teaching. So, negative feelings sourced from academic success of the students can be because of thinking that they could not take the result of their teaching.

According to the results taken, academic and social shares affect the relationships between the teachers and provide the transition between disciplines in their courses easily. This is an expected and requested result. Because academic dialogues are important in the frame of increasing the quality of teaching and knowledge of teachers on teaching (Cranston, 2002) and developing their professionalism (Wang & Haertel, 2001). Orientation of the attributes which are appreciated and observed on other teachers being more active in their courses presents the importance of colleague observation. Colleague observation is the process of observation of teachers' each other's education-teaching implementations, sharing related to the implementations and making evaluations related to these (Bozak, Yıldırım, & Demirtaş, 2011, p.73). The teachers participating in the research does not even observe each other in the classroom environment, their reflection of positive feelings in the classroom can be explained with trust feeling. According to Hanna (1988), trust felt to the colleague plays an important role in the observation of the colleague and it becomes more effective. So, these results can be commented as unity feelings being lived at school develops the trust feeling between the teachers through the time. Reflection of teachers' negative behaviors on the other courses as student complaints and discipline problems are the indicators showing that discipline problems can be because of teachers' behaviors and attitudes. According to Edwards (2004), negative behaviors such as excess forcing, punishment of the teachers can cause the students' show reaction to the teachers.

It has been determined at the result of the research that positive communication with the students provide the teachers be more active in teaching and positive in discipline, communication problems remove the students from the teachers, cause them give more authorized reactions and being more passive. The reason of this may be as the teachers thought their good will may be abused. The teachers are not machines without any feeling. However, the teachers' getting angry, not considering, punishing the classroom, threatening makes the negative behaviors of the students worse and cause the events to realize again (Burden, 1995). According to the results taken, the structure of the education program and implementations at school force the teachers take decisions at this direction. According to Boys (2000), the students evaluates whether an activity work for them before doing it and at the end of this evaluation they give the decision of participating or not participating in it. Standard programs are inadequate in meeting the learning needs of the students and giving opportunity of developing themselves in the direction of their skills. Even though some teachers are in search of some solutions to eliminate the deficiencies in the educational programs, their solutions are generally related to the preparation of the students to the exams. So, when the solutions do not give opportunity of doing some meaningful things for the students, being uninterested to the course and sustainability of the academic failure is inevitable (Şanlı, 2015). The research showed that negative behaviors towards students by the school managers caused teachers to protect the students; negative parent communication caused negative relationships with the students. In two situations, it can be told that the teachers cannot behave impartial in relationship management. In the direction of these results, it can be told that life quality of teachers has been an important variable which affects classroom management behaviors and the teachers can take emotional decisions about the classroom. In this direction, the proposals below are given;

- Taking care of improvement of program and schools of Ministry of National Education, assignment of school managers who have effective leadership attributes,
- Making effective guidance on effective studying, care, motivation, determining an objective,
- Having a planned and regular studies supporting cooperation and idea exchange between the teachers (workshops, guidance studies, social activities),
- Giving training to the teachers on classroom management, feeling management and academic ethics (sample events, drama, playing role) .

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IRANIAN ESL STUDENTS' LANGUAGE LEARNING STRATEGIES: A LOOK AT PROFICIENCY, AND GENDER

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ABSTRACT

This article reports on a study of language learning strategies used by 50 ESL students from Iran. The aims of the study were to observe and survey the frequency of strategy use and to discover how it is influenced by the learner's proficiency level and gender. The SILL questionnaire (Strategies Inventory of Language Learning) by Oxford was administered. It contained 6 categories: memory, cognitive, compensation, metacognitive, affective and social. Results from the survey signifies that metacognitive strategies were most frequently used, while memory strategies were used to the contrary. Statistical analysis revealed that significant differences were to be found in the use of cognitive and compensation strategies among learners at three proficiency levels. Gender also was a key figure on influencing the kinds of strategy used; female students reported to use affective and memory strategies more regularly than male counterparts. Results of this study could help teachers identify appropriate strategies to facilitate the learning of a second language by Iranian learners. It also could assist teachers with being more sensitive and about the new and mostly unknown strategies to their students. **Keywords:** Language learning strategies, Direct strategies, Indirect strategies, Gender, Level of education, Proficiency

INTRODUCTION

Over the past few years, there have been many studies of learning strategies used by language learners. These studies have been conducted mainly to find out what strategies learners use, as well as what factors affect these choices so we can know more to help them enhance their perception of English. Since we have numerous studies, it is difficult to compare findings because of two obvious reasons. One reason is that most of the studies have been conducted on mixed groups of students with different backgrounds and experiences. More importantly, studies have reported that the effect of variables such as language proficiency and cultural background are involved in this issue. Findings indicated that successful language learners engage in purposeful language learning and tend to use more language learning strategies than the ones that are less effective. Learning strategies have considerable potential for enhancing the development of oral skills in English as a second language. Learning strategies are used by "good" language learners to assist them in gaining command over required skills (Naiman, Frohlich, Stern, and Todesco 1978), and are positively associated with language acquisition (Politzer and McGroarty 1983). Subjects are ESL students in Iran. The overall aim of this research is to identify learning behavior tendencies and patterns that are representative of this growing group of ESL students. We hope to better understand students' needs and, in particular, help them develop appropriate strategies that may enhance their language learning. Data was collected through surveys and observations on the assortments of learning strategies used for various types of language learning activities by ESL (English as a second language) students. In this research, we report the initial findings from one study which surveyed the learning strategies employed by students. We also examined the influence of two variables – language proficiency and gender – on strategy use, in addition to determining the frequency of use.

2. Review of Literature

2.1. Viewpoints on Language Learning Strategie

Many research have described language learning strategies as “... strategies that contribute to the development of the language system which the learner constructs and (which) affect learning directly” (Rubin, 1987, p. 23). Oxford (1990) further defined language learning strategies as steps taking to facilitate the acquisition, storage, retrieval and use of information. O’Mally and Chamot (1990) studies viewed learning strategies as “the special thoughts or behaviors that individuals use to help them comprehend, learn or retain new information” (p. 1). The term ‘strategy’ in the context of language learning refers to a specific type of action on behavior reported to by a language learner in order to improve performance in both using an learning a language (Naiman , Frolich, Stem & Todesco 1978; Wenden & Rubin 1987; Oxford 1990). Good and successful learners can improve their learning process by exploiting the strategies and make the less effective students follow the same pattern.

Some have provided evidence which strongly indicates that learning strategies interact with other variables to affect language proficiency (Gardner and MacIntyre 1993). As we know, there are various factors affect the use of strategy by learners. Oxford (1989) list is a great example of different factors in learning, which consisted of the followings: language being learned; duration; degree of awareness; age; gender; affective variables such as attitudes, motivation level/ intensity, language leaning goals, motivational orientation; personality characteristics and general personality type; learning style, aptitude; career orientation; national origin, language teaching methods, task requirements (Goh 1997).

Learning strategies assist learners in becoming effective in learning process as well as applying to a language, more importantly enable them to self-direct these endeavors.

2.2. The Aim on Language Learning Strategies

This study exposed language learning strategy use of English learners, looked at the relation between second language proficiency and language learning strategy, and estimated any differences in strategy use by gender. So important is the role of strategy use in learning a second language that some theorists have included it in their models of second language learning (e.g. McLaughlin 1987; MacIntyre 1994) (Goh 1997).

2.3. Classification of Learning Strategies

Number of literatures defined language learning strategies as strategies that language learners build in order to cause the development of the language system which affect learning process shortly (e.g., Rubin, 1987; Stern, 1975; Wenden, 1987). Regarding to the numerous studies that have been conducted in the past decades, long list of strategies have been recognized. (e.g., Rubin, 1987; O’Malley and Chamot, 1990). Also Oxford reported that there were at least dozen different classifications. In general, the strategies categorizes in four groups, i.e. strategies that unable learners to (Goh 1997):

1. Comprehend, store, retrieve and use information
2. Manage and direct their learning through reflection and planning
3. Control their emotions
4. Create opportunity to practice that target language with other people

Oxford (1990) proposed that strategies are mainly divided into two categories; direct and indirect.

Direct strategies necessitate mental processing of the target language. There are three main groups of direct strategies. These groups process the language differently and for various goals.

- a. Cognitive strategies: These include processing the target language in order to clarify the meaning through processes such as reasoning and analyzing.
- b. Compensation strategies: These allow learners to fill the gaps in their knowledge and skills. For instance, guessing meanings and gesticulation.
- c. Memory strategies: These include mental processes used in organizing information in order, forming coalition, and evaluating.

Indirect strategies, from the other point of view, uphold and bring about language learning often without interacting the target language straightforwardly.

- a. Metacognitive strategies: These allow learners to organize, examine, and direct their own learning as well as to supervise their errors.
- b. Affective strategies: These enable learners to rule their emotions, sentiments, and stimulus through anxiety reduction, self-encouragement, and self-reward.
- c. Social strategies: These help the learners to communicate with other people in order to improve their learning through questioning, collaborating.

3. THE STUDY

This study was conducted to focus on the learning strategies of ESL students from Iran. More explicitly, we wished to provide answers to the following questions:

1. Do language proficiency and gender have any impact on the use of these strategies?
2. What kind of learning strategies do Iranian students tend to use more frequently?

4. METHODS

4.1 Participants

The subjects were 50 students from Iran. Their average age was 20, and they have previously studied English. The subjects reported having studied English for sum total period of time ranging from six months to three years. For the purpose of this study, the students were categorized into three levels of proficiency: Advanced, Intermediate, and Beginning, based on an IELTS sample test which was conducted to assess their reading, speaking, listening, grammar, and composition. Learners engaged in the test of English proficiency for 2 – 3 hours in the classroom. When ranked by these levels on tested proficiency with English, there were 12 Beginning, 23 Intermediate, 15 Advanced learners. The test was moderately balanced among males (n=18) and females (n=32).

Table 1
Demographic description of subjects

n

%

English Proficiency		
<i>Beginning</i>	12	24.0
<i>Intermediate</i>	23	46.0
<i>Advanced</i>	15	30.0
Gender		
<i>Male</i>	18	36.0
<i>Female</i>	32	64.0

4.2 Instruments

The instrument used in this study was the 50-item Strategy Inventory for Language Learning (SILL) (version 7.0, ESL/EFL student version) devised by Oxford (1990) (see the Appendix for a copy of the SILL). This questionnaire examines the learning strategies that participants perceive themselves as using.

The SILL instrument contains 50 short statements each describing the use of one strategy. Regardless of the fact that some issues prevalent upon self-report questionnaires, “can provide information from a large population, and the information can be compared and interpreted objectively through statistical data analysis” (Park, 1997, p.212). Additionally, as Oxford and Burry-Stock (1995) state, such methods of data collection are easy and quick for administration, cost-effective, and nonthreatening.

In the SILL, language learning strategies are categorized into six groups for appraisal: Memory strategies for receiving and transmitting the data, Cognitive strategies for comprehending and creating the language, Compensation strategies for overwhelming restrictions in language learning, Metacognitive strategies for programming and scanning learning, Affective strategies for managing sentiments, motivation, and Social strategies for collaborating with others In language learning.

The choices were given numerical standards that proved the extent of the tendency of the participants towards the items of the questionnaires, on a five-point Likert scale ranging from 1 (“Never or almost true of me”) to 5 (“Always or almost true of me”). For the SILL questionnaire and scoring procedures, visit Oxford (1990, p. 293-300).

Numerous studies have shown reliability coefficients for the SILL ranging from .85 to .98 making it a trusted measure for evaluating students’ reported language learning strategy use (Bremner, 1998; Oxford and Burry-Stock, 1995; Park, 1997; Sheorey, 1999; Wharton, 2000).

In this study, we avoided distributing the Persian translation to the subjects on account of the questionnaire was worded in very simple English. Anyhow, we encouraged participants to ask us to clarify statements or words which they failed to comprehend. We also gave them carte blanche to refer to the dictionary whenever needed. Due to the fact that the statements were easy enough to understand, there were only a few questions from the participants.

4.2 Data Collection

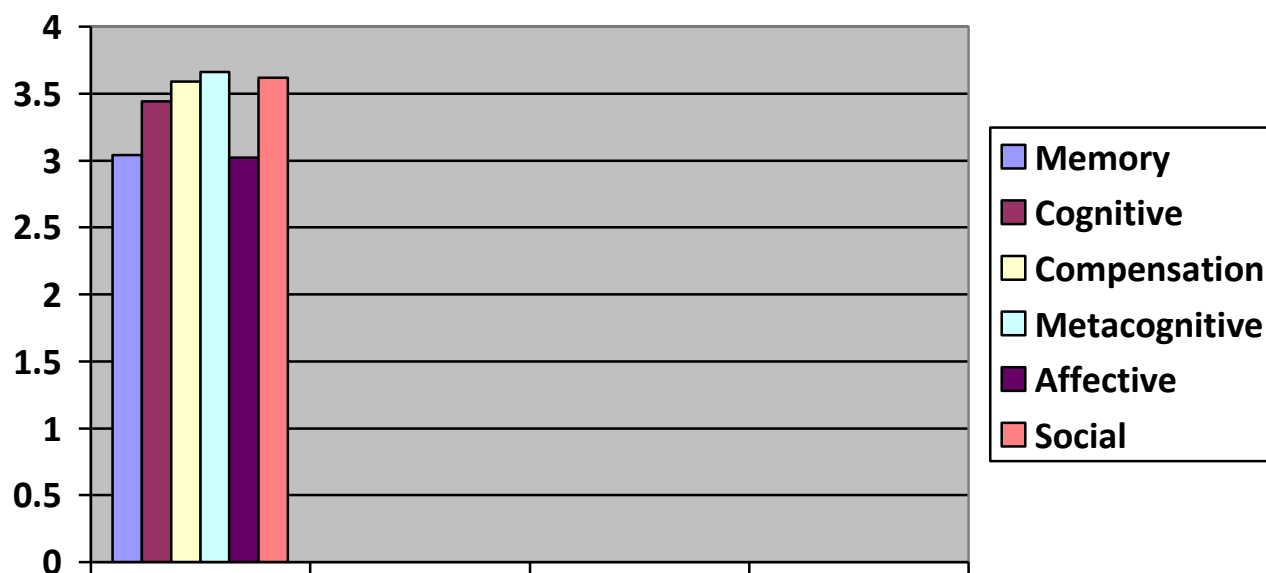
The SILL was executed to students during a regular class by teachers. The students were told that there were no true or false answers to any question and that their secrecy was guaranteed and their replies would be exclusively used for research purposes. They were also guaranteed that their involvement in the test would not have any effect on their grades, and they could halt cooperation anytime. Nonetheless, everybody chose to cooperate. Data analysis involved the computation of this descriptive statistics (mean, standard deviation, and frequencies) in order to collect information or data about demographics of the participants and to compute strategy use. In order to settle any variation in strategy use relative to English proficiency, gender, an analysis of variance (ANOVA) was conducted using these factors as independent variables and the six categories of strategies of dependent variables. The Scheffe' post-hoc test was used to explore where nay significant differences in strategy use lay.

5. RESULTS

5.1 Overall Strategy Use

The Scheffe' post-hoc test exposed statistically significant difference in the use of memory affective strategies compare to cognitive, compensation, metacognitive or social strategies (Hong-Nam, 2006). These four categories ranked high in use ($M=3.4 - 5.0$). The least preferred strategies were affective ($M=3.02$) and memory ($M=3.04$). The most preferred group of the six strategy categories for participants was metacognitive strategies ($M=3.66$) followed by social strategies ($M=3.62$). Compensation strategies ($M=3.59$) and cognitive strategies ($M=3.44$).

Figure 1
Means Profile of SILL Categories



As can be seen from figure 1, the Iranian students reported using metacognitive strategies more often than any other kinds of strategy. Metacognitive strategies are administrative processes that regulate learning, and involve strategies for programming, scanning, and evaluating. Based on a preliminary analysis of the student's responses, it showed that one the most common metacognitive strategies were noticing their English errors and using that information to assist in enhancing their English learning.

One of the results that aroused from our study shows that memorization was the least regularly used strategy among the participants. This shed a light on the fact that students spent remarkably more time managing their learning than saving and remembering new information. This result seems to be in contrary to the commonly accepted accounts of the leaning strategies of Iranian learners.

Albeit Iranian learners are accustomed to memorization than comprehension, the findings of this study revealed that learners made very little use of specific methods to improve their memorization. Some of the memory strategies mentioned in the questionnaire are: connecting the sounds of new words to an image or picture, making a mental picture of a situation in which a word might be used, using rhymes, physically acting out a word, and remembering new words or phrases by remembering their location on pages, the board, etc. We justify that the subjects probably did not know about these methods.

Our conjecture later on was verified when we interviewed twelve students about their strategies for learning new vocabularies. The students reported that despite their efforts for memorizing new words, they did not use any of the methods in the questionnaire at all. They relied on remembering new words by rote. For instance, some students said that they devoted most of their time memorizing words consistently and repeatedly.

The data exported from the SILL analysis implied that not all learners employ learning strategies very often despite our discoveries.

5.2 Effects of Language proficiency

Another goal of our study was to examine whether learners of different language proficiency alter in their use of learning strategies.

When participant data was sorted by tested English proficiency (Beginning, Intermediate, or Advanced level) data analysis exposed statistically significant differences for the use of metacognitive strategies. Compensation strategies were used more by the Intermediate level participants than the Advanced level. ($F=5.04$, $p=0.01$). The most preferred strategy category for student in Beginning and Intermediate levels were metacognitive strategies ($M=3.51$ and $M=3.77$). The Advanced group used social strategies as the most frequently used strategies, ($m=3.67$). The least preferred categories for Beginning and Intermediate groups were affective strategies ($M=3.21$ and $M=2.92$), and for Advanced level was memory strategies ($M=2.97$).

Table 2

Descriptive statistics for the variables and F-test for main difference between the six strategy categories

<i>Variable</i>	<i>Mean</i>	<i>SD</i>	<i>Minimum</i>	<i>Maximum</i>	<i>Rank</i>	<i>F</i>	<i>Significance</i>	<i>Difference</i>
Memory	3.04	0.42	2.00	4.22	5	20.79	0.00	Mem, Aff
Cognitive	3.44	0.43	2.64	4.71	4			< Cog,
Compensation	3.59	0.49	2.50	4.67	3			Com, Met,
Metacognitive	3.66	0.48	2.56	4.67	1			Soc
Affective	3.02	0.53	1.67	6.33	6			
Social	3.62	0.51	2.33	5.00	2			
Total	3.40	0.55	1.67	5.00				

Mem (Memory strategies), Cog (Cognitive strategies), Com (Compensation strategies), Met (Metacognitive), Aff (Affective strategies), Soc (Social strategies)

5.3 Use of Strategies by Gender

This study explored a statistically significant difference in the use of affective strategies between males and females ($F=3.98$, $p=0.05$). Females reported higher use of affective strategies. And also the results revealed that females ($M=3.45$) engaged in strategy use more often than males ($M=3.34$). Males prefer the use of metacognitive ($M=3.65$) and compensation strategies ($M=3.62$) most, and affective strategies the least ($M=2.87$). Female participants reported using social ($M=3.70$) and metacognitive strategies ($M=6.67$) most and memory strategies the least ($M=3.06$). Table 3 displays results for the use of language learning participants were grouped by gender.

Table 3

Summary of variations in use of strategy categories by gender

<i>Variables</i>	<i>Male</i>		<i>Female</i>		<i>F</i>	<i>Significance</i>	<i>Difference*</i>
	Mean	SD	Mean	SD			
Mem	3.01	0.37	3.06	0.46	015	0.70	M < F
Cog	3.34	0.39	3.53	0.44	2.73	0.10	
Com	3.62	0.51	3.57	0.48	0.13	0.72	
Met	3.65	0.52	3.67	0.46	0.03	0.87	
Aff	2.87	0.53	3.14	0.50	3.98	0.05	
Soc	3.54	0.49	3.70	0.53	1.25	0.27	

Total	3.34	0.55	3.45	0.54	3.13	0.08
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Mem (Memory strategies), Cog (Cognitive strategies), Com (Compensation strategies), Met (Metacognitive), Aff (Affective strategies), Soc (Social strategies), M= Male, F=Female.

* $p < 0.05$

6. SUMMARY AND CONCLUSION

We realized that these learners choose to use metacognitive strategies more than the other ones.

Memory strategies were informed to be the least strategies used by learners. We also found out that there was a highlighted distinction between genders regarding the use of compensation and affective strategies. Furthermore we discovered that there's a crucial difference in the use of cognitive and compensation strategies by learners at elementary and advanced degrees of proficiency. Teachers need to be clear in building declarative knowledge that assists students in having a deep comprehension of the impact of languages learning on their lives. The least strategies used by participants in this paper were memory and affective strategies. These learners have revealed that in spite of their endeavors to remain calm when they were skeptical about speaking English, their concern about making an error made them refuse trying to speak. Asian countries have more tendency to listen to others rather than engaging in a public discussion. As the learners taking part in this examination were Iranians, their upbringing and previous school experiences may have impacted upon their demeanors in this area (Politzer, 1983; Reid, 1987).

At first, inferior use of memory strategies were stunning, however, additional investigation of the literature exposed that different studies have also found opposing results and discoveries to this may be too common hypothesis that Iranian students have very effective fondness of memory strategies rather than communicative strategies as an example of collaborating with other people, asking and seeking help, and working with peers (Al-Otaibi, 2004; Bremner, 1998; Politzer and McGroarty, 1985; Wharton, 2000; Yang, 1999).

Yet another probability is that memory strategies shall be explained distinctively in various studies. In 1985, Politzer and McGroarty found that memory strategies had a great popularity amongst ESL learners. They limited memory strategies as routine memorization of words, phrases, and sentences. In the contrary, the least used memory strategies in the SILL for the present study were not even remotely connected to routine memorization, rather they were approaches such as acting out new vocabularies, using rhymes, and creating mental images. It might be probable that these approaches were less appealing and popular with adult and mature learners and therefore not employed as much or at all. High ranked memory strategies approaches were reviewing English lessons regularly, and using words and phrases in sentences.

In 1994, Paris et al. recognized three styles of knowledge obtained as learners' progress from beginner to advance in their classic work on strategic reading: declarative knowledge, procedural knowledge, and conditional knowledge. Declarative knowledge is depicted as knowledge about learning activities and personal skills. Procedural knowledge is knowledge about how to best learn. Knowing how to scan a text for finding answers to objective questions is a good example of procedural knowledge. As both of these kinds of knowledge are unavoidable to assist a learner along the path from beginner to advance, they are not sufficient enough on their own. Conditional knowledge, as the third kind, completes the hierarchy of strategic learning by permitting the learner to manage his or her learning by selecting the accurate strategy for the proper activity (Hong-Nam 2006).

Anyway, intermediate level learners have procured a point in their education and learning where have acquired adequate vocabulary and capability with the L2, in the direction of some procedural knowledge to be able to move backwards and influence on how effectively their learning process is working

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IS AMERICA FAILING A LANGUAGE? THE CASE OF FRENCH LANGUAGE

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INTRO/ MOTIVATION

Much attention has been paid lately to the “linguistic Achievement Gap” between our nation “ American” and others “called European”. It's become the focal point for reform programs to discuss the problem of language learning failure between american students learning French language. Clearly, we must fix our system. But how? What do the other nations have that we don't? Is mother tongue become the barrier from learning languages? The Problematic was that english language is causing a problem to american students in the process of learning French. It became a main factor that limit the learning process and it might also be a barrier from learning certain rules. This research aims to look at the nature and source of difficulties in giving certain examples.

CONTRASTIVE HYPOTHESIS

Klein (1989) claims that “SLA (Second language acquisition) is determined by the structure of the first language”. his theory of Contrastive Analysis (CA) theory assumes that when there is a positive transfer, from a language to another, of similar structures exist in both languages and there is a negative transfer or interference, from a language to another, of different structures in both language. This theory helps us in explaining the source and nature of the errors that the american students make. It also helps us in founding strategies to avoid doing the same mistakes. Mistakes done by the students can be in several fields such as: Phonologie, lexicology, morphosyntaxe...etc. We take for examples some lexical and other mistakes.

Negative Transfer		<u>Ex. False friends</u>	
Ex: Lexical interference: <u>spelling</u>			
<u>English</u>	<u>French</u>	<u>English</u>	<u>French</u>
person	personne	rest (to relax)	rester (to stay)
adult	adulte		
group	groupe		

ANALYSIS

American students who are learning French as second or foreign language tend to rely on their native language “English” in the process of learning which cause them problems and the question of interferences or negative transfers come to the surface. Klein (1989) explains the learning processing, regarding it's positive or negative sides, in a very clear way, he says “... close or similar tasks in two languages are easy to understand, different tasks produce a negative transfer which is “errors””. Similarities between English and French are considered “positive transfer” which simplify the learning process, such as vocabularies and certain tenses. Differences cause negative transfer “interferences” and they should be considered as obstacles and therefore the problem should be fixed and not only bypass it. Corder (1981) agrees with Klein that that linguistic system acquire by the students in their childhood simplify or complicate the learning of foreign language. Corder adds that any comparison between the two systems can help in finding the keys to help students acquire the new language easily. It is important to consider Corder's advises in finding the keys to help students overcome the difficulties, because as Larruy (2003) says “ the weakness of the contrastive theory in explaining the linguistic side of the language acquisition does not help students in appropriating the errors”.

In the chart below, we are trying to show the differences between the French and English systems, these differences, as previously noted, caused the students to do negative transfer “errors” during the process of learning the French. This chart was pulled from online source which we find easy to follow.

Major Differences Between French and English Grammar

Verb Differences			
<p><u>Three Past Tenses</u></p> <p>Imparfait: Events that occurred repeatedly or to "set the scene"</p> <p>Passé Composé: For specific events that took place at a specific time</p> <p>Passé Simple: For formal written writing</p>	<p><u>Future and Conditional Tenses</u></p> <p>French has its own future and conditional tenses</p> <p>This means French doesn't use helping verbs like "will" to signify the future in a sentence like "I will go".</p>	<p><u>Reflexive Verbs</u></p> <p>In English, it is not necessary to repeat the pronoun when something is performing an action on itself ("I brush my teeth")</p> <p>In French, the reflexive pronoun is required. (E.g. <i>Je me brosse les dents</i>, meaning "I myself", or "I, me brush the teeth.")</p>	<p><u>Subjunctive Tense</u></p> <p>A mood for sentences implying wishes or uncertainty or obligation, and similar variations</p> <p>Exists to a much greater extent in French than in English and must be used and recognized</p>
Other Differences			
<p><u>Nouns and Adjectives</u></p> <p>Every noun is masculine or feminine and singular or plural, and adjectives must match the nouns in both areas</p> <p>Adjectives usually go after nouns instead of before</p>		<p><u>Pronouns</u></p> <p>Indirect and direct object pronouns go before the verb, not after</p> <p>A plural "you" exists and also serves as a polite way to address a single person</p>	

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In the process of learning French as foreign language, learners find that some cues are easier to pick up than others, such as which consonants are common in starting and ending words. An example is the “z” sound, which is a common end to words in English but is not often found at the beginning of words. Other cues, such as intonation, are harder to master and are more likely to be influenced by a speaker’s native language. Tremblay points to English where a stressed syllable is a strong indication that a new word is beginning. But in French the opposite is true; prominent syllables tend to be at the end of words. An example of confusion is the French phrase for cranky cat, which in French is “chat grincheux.” For a brief second, the phrase can sound like the English pronunciation for “chagrin,” a word with French origins. If we also consider that French language give importance to the gender of words, where English does not treat words based on gender, we notify that this cause problems to americans students because they have to learn the gender of each french word. Then, they also have to agree the adjectives with the nouns and these adjectives should also agree with the noun gender.

This research paper is an introduction for a longer research that help in examining the differences between two languages in an effort to identify problem areas for language learners. The identification of positive and negative transfer meant that a detailed examination of the two languages needed to be undertaken to point out where students would have problems. By examining the languages and identifying the problem areas, educators could then predict the elements of negative transfer and drill these elements to form the “correct” habit.

After analyzing the error system and showed few examples, we would like to offer few dimensions that we find it is so valuable to consider. 1) Propensity: The learner must feel the need to learn the language. Propensity covers the totality of factors that induce the learner to do it, e.g. social integration, communicative needs, attitude, education & promotion. 2) Access: The learner must have sufficient access to samples of the French language. The language processor cannot operate without a) language input, and b) opportunities for communication. 3) The structure of the process: The learner must acquire a solid body of knowledge in several interrelated domains, e.g. phonological, morphological, syntactic, lexical knowledge. Each successive stage of learning requires the maintenance of a delicate balance among the elements of these domains. With the transition from each stage the learner must establish a new balance.

We also like to offer few Solutions that might be the keys for students to overcome the errors and simplify learning:

- 1) Educational system: Teachers and students should be provided with better material and textbooks that simplify the learning and point out the problem of interferences. Existed materials lack of any clarification to the problem.
- 2) Teachers: The teacher is the monitor inside the classroom and All French teachers in American institutions know English very well (natives and foreigner), they should draw the attention of the students to the similarities and interferences between the two languages.
- 3) Students: Students should follow established rules to overcome the problem in the first three stages of the learning. They should also recognize that there are interferences between the two languages.

CONCLUSION

The native language of our students caused them obstacles in the process of learning the French language. The French language system is far from the English language system, therefor negative transfer happens in many tasks of learning. The examples given in this paper show how the mother tongue of our learners play an important role in acquiring the french language. The mistakes found in student's papers are Interferences which due to negative transfer or negligence to the foreign language system, so we think it is an easy problem to fix. With more attention and focusing on rules, problems will be solves and less mistakes will be made.

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ISSUES AND IMPEDIMENTS FACED BY CANADIAN TEACHERS WHILE INTEGRATING ICT IN PEDAGOGICAL PRACTICE

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Teachers in many schools struggle to integrate Information and Communications Technology (ICT) as part of their teaching practice. Among the issues faced by teachers when attempting to integrate ICT into their classrooms are gaps in ICT knowledge and skills, lack of training and inadequate support and scaffolding. Other issues include inability to translate training into pedagogical practice and curriculum design and lack of access to current hardware and software. Research in the field addresses the exponential pace of technology development and obsolescence as well as the financial and educational implications of teaching and learning in such an environment. Teachers are core to the integration of ICT in the classroom and hence are often under pressure, since ICT integration is not just about having the right hardware and software; it is deeper and covers many layers. Integrating ICT requires a harmonious synchronicity of content, teacher knowledge, compatible theoretical framework and suitable pedagogy all at the appropriate stage of knowledge acquisition. This review explores the current obstacles to ICT integration in the Canadian classroom as well as the issues faced by educators related to these obstacles.

KAMU DİPLOMASİSİNİN TOPLUMLARARASI İLİŞKİ İNŞA ETME GÜCÜ VE TÜRKİYE’NİN ÜLKE MARKASININ OLUŞUMUNDA KİTLE İLETİŞİM ARAÇLARININ STRATEJİK ROLÜ

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ÖZET

Kamu Diplomasisi vizyonu toplumlar arasında uzun vadeli ilişki inşa edilmesini hedeflemekte, ülkelerin sahip oldukları yumuşak güçlerini kullanarak kalıcı işbirliklerinin kapısı aralanmak istenmektedir. Yeni uluslar arası sistemde ülkelerin sahip olabileceği en değerli algı; itibarlı, güçlü, saygın, güvenilir ve dürüst ülke imajıdır. Bu algı, ülkeler için son derece stratejik değer taşımaktadır. Ülke markası oluşumunda sahip olunan “yumuşak güç” unsurları son derece etkilidir. Kitle iletişim araçları, kültür, bilim, sanat, spor, eğitim vb. gibi yumuşak güç kaynakları, kamuoyları ile etkili ve uzun vadeli iletişim ve etkileşim kurmaya yardımcı olmaktadır. Bu araçlarla kurulan ilişkiler sonucunda hem ülkenin algısı olumlu anlamda inşa edilmekte, hem de bu olumlu algıdan yararlanılarak yeni ilişkiler kurulmakta, başka alanlarda işbirlikleri geliştirilmektedir. Kitle iletişim araçları yumuşak güç unsuru olarak son yıllarda daha fazla öne çıkmakta, kamuoyunu etkileme ve yönlendirme gücü nedeniyle ülke markasının oluşumunda stratejik bir değer taşımaktadır. Makale, kitle iletişim araçlarının bu stratejik değerini kamu diplomasisi perspektifinden çeşitli boyutlarıyla ele almakta, ülke markası oluşumuna yaptığı katkıları incelemektedir. Bildiride ayrıca Türkiye’nin kendi ülke markasını inşa ederken kitle iletişim araçlarından nasıl yararlanması gerektiği de tartışılmaktadır.

Anahtar kelimeler: Kamu Diplomasisi, Ülke Markası, Medya, Türkiye

GİRİŞ

20. yüzyılda propaganda olgusu ülkelerin elindeki en önemli stratejik araç iken, bu yüzyılda kamu diplomasisi öne çıkmaktadır. Çünkü bu yüzyılda küreselleşme sürecinin de etkisiyle önemli paradigma değişimleri yaşanmış, toplumlar arası iletişim ve ilişki kurmanın önemi artmıştır. Geçen yüzyılın propaganda anlayışının ve işleyişinin artık günümüzde geçerliliği yoktur. 21. yüzyılda iletişim araç ve yöntemlerinin yaygınlaşmasıyla birlikte, kamuoyu olgusu öne çıkmış; imaj, algı ve itibar kavramları önemli hale gelmiştir.

Yeni yüzyılda devlet dışı yeni aktörler sahneye çıkmış, bunlar küresel ilişkilerde etkin olmaya başlamıştır. Devletler arası ilişkiler, ulus devlet düzleminden çıkmış, hızla uluslar arası bir düzleme kaymıştır. Bu yeni uluslar arası düzenin en önemli unsurlarından biri de kamuoyudur. Bu süreçte kamuoylarının gerçekçi ve doğru şekilde bilgilendirilmesi, dolayısıyla ikna edilmesi önemli hale gelmiştir (Yavaşgel, 2004: 1).

Küreselleşme sürecinde dış politika konularında oluşan irade artık sadece devlet temsilcilerinin iradesi değildir, çok farklı siyasal ve kültürel unsurlar da bu iradeye katkı sunmaktadır (Canbolat, 2009: 4). Sivil toplum örgütleri, kanaat önderleri, bilim, kültür ve sanat insanları artık yeni uluslararası düzende hem politikaların oluşumuna, hem de uygulanmasına destek vermektedir. Yeni uluslararası düzenin ve anlayışın buna imkan vermesi, farklı fikirlerin, özgün bakışaçılarının kararlara yansımaları kolaylaştırmaktadır.

Küreselleşme süreci uluslar arası sistemde başta ekonomi ve siyasal konularda karşılıklı bağımlılığı artırırken, iç politika ile dış politika arasındaki sınırları da ortadan kaldırmıştır (Sönmezoğlu, 1989: 488). Yeni uluslararası sistemde iç politik gelişmeler aynı zamanda dış politikanın da bir parçası haline gelmiş, dış politikanın yapım süreci de iç politikadan doğrudan etkilenmeye başlamıştır. Yeni uluslar arası sistem; çok kutuplu bir niteliğe sahiptir. Bu durum ülkelerin birbirleriyle ilişkilerinde askeri, sert ve realist yaklaşımların etkisini azaltırken; idealizmin, kültürel ilişkilerin, diplomasiinin ve etkileşimin önemini ise artırmaktadır. Bütün bu gelişmeler devletler ve ülkeler için dış politikanın uygulanmasında toplumsal, küresel ve politik arka planların (yumuşak güçlerin) göz önüne alınarak yürütülmesine meşruiyet kazandırmaktadır (Canbolat, 2009: 8).

Görüldüğü gibi bu yüzyılın temel olgularından birini kamu diplomasisi ve beraberinde getirdiği yeni paradigmlar oluşturmaktadır. Bu yüzyılda rekabet üstünlüğü sağlamak, yumuşak güçlerini etkili şekilde kullanarak kalıcı ilişki inşa etmek, dolayısıyla marka değeri oluşturmak ve kitle iletişim araçlarından etkin şekilde yararlanmayı hedefleyen ülkeler mutlaka kendi kamu diplomasisi politikalarını planlamalı ve uygulamalıdır.

KAMU DİPLOMASİSİ OLGUSU

Kamu diplomasisi, hükümetlerin yabancı kamularla ülkelerinin fikirlerine, ideallerine ve ülke çıkarlarına hizmet edecek şekilde sempati oluşturma amacıyla kurdukları iletişim sürecine vurgu yapmaktadır (Signitzer, 2008: 206). Kamu diplomasisi; dış politikanın biçimlendirilmesi ve uygulanması için kamunun tutumlarını etkileme amacı taşımaktadır. Kamu diplomasisi, geleneksel diplomasiinin dışında kalan, hükümetlerin diğer ülkelerde kamuoyu oluşturma çabalarını, ülkeler arasında sivil toplum örgütlerinin etkileşim içinde olmasını ve kültürel iletişim süreçlerini kapsamaktadır (Morrow).

Hükümet ve sivil toplum kuruluşları, kamu diplomasisi anlayışında, görüşlerini yabancı sivil toplum kuruluşlarına ve kamuoyuna aktarabilme imkanı bulmaktadır (İnan, 2012: 64).

Küreselleşme sürecinde iletişim teknolojilerindeki hızlı gelişmeler diplomasiyi de derinden etkilemiş, kapsamlı dönüşümlere yol açmıştır (Tiedeman: 8). Soğuk savaş döneminde “devletten - devlete” yürütülen diplomatik ilişkiler, paradigma değişimi ile birlikte “toplumdan - topluma” yürütülen bir ilişki biçimine dönüşmüştür. Yeni uluslar arası düzende medya, kamuoyu, sivil toplum örgütleri, uluslar arası kuruluşlar gibi pek çok yeni aktör sahneye çıkmış ve bunlar karar alıcıları doğrudan etkilemeye başlamıştır.

Kamu diplomasisi anlayışında geleneksel diplomasiden farklı olarak başka ülkelerin hükümetleri değil, hükümet dışı aktörleri ve kamuoyları hedeflenmektedir. Ülkeler, kamu diplomasisi vasıtasıyla yabancı ülke vatandaşları ile kendi vatandaşları ve kurumları arasındaki diyalogu yaygınlaştırma imkanı bulmaktadır. Yabancı kamuoylarını bilgilendirmek ve etkilemek, bu etkiyi geliştirmek, yanlış anlamaları ortadan kaldırmak kamu diplomasisinin amaçları arasında yer almaktadır (Doğan, 2012: 13).

Hükümetlerin ve sivil toplum örgütlerinin kendi görüşlerini kamuoyuna ve yabancı sivil toplum örgütlerine aktarmalarına imkan tanıyan kamu diplomasisi (İnan, 2012: 64), aynı zamanda hükümetlerin yabancı kamularla ülkelerinin fikirlerine, ideallerine ve ülke çıkarlarına hizmet edecek şekilde iletişim kurmalarına, sempati oluşturmalarına da yardımcı olmaktadır (Signitzer, 2008: 206). Ülkelerin kamu diplomasisi uygulamalarından etkili sonuçlar elde edebilmeleri için izledikleri politikaların mutlaka rasyonel, ikna edici, meşru ve savunulabilir olması gereklidir. Çünkü evrensel hukuka aykırı, adaletten uzak, gayrimeşru yöntemlere dayanan politikaları savunmak ve uluslar arası kamuoyuna anlatmak mümkün değildir (Kalın, 2012: 151).

Kamu diplomasisi vizyonu ile hareket eden ülkeler öncelikle kendileriyle ilgili imajları güncellemekte, yanlış anlamaların düzeltilmesini sağlamakta, başka toplumlarla yakınlaşmayı sağlayacak iletişim köprüleri inşa etmektedir (Leonard&Alakeson, 2000: 10).

Bugün dünyada kamu diplomasisi vizyonunu etkili şekilde kullanan ülkelerin başka toplumlar ile kalıcı işbirlikleri kurdukları, karşılıklı sempati oluşturdıkları, birbirlerini daha yakından tanıyarak olası sorunları önledikleri görülmektedir.

“YUMUŞAK GÜÇ” KAVRAMI

Uluslar arası sistemde bir şeyi yapabilme kapasitesi ve diğerlerinin davranışlarını etkileme yeteneği “güç” olgusuyla açıklanmaktadır (Nye, 2005: 2). Ancak soğuk savaş dönemindeki sert güç kavramı, yeni uluslar arası sistemde yerini “yumuşak güç” kavramına bırakmıştır. Ülkeler artık sahip oldukları yumuşak güç potansiyeli ile (bilim, sanat, kültür, spor, eğitim vb.) başka ülkeleri etkilemekte, onlar için cazip bir ülke konumuna gelmekte ve bu süreçte kendi politikalarını başka ülkelere kabul ettirmektedir. Bu sürecin temelini iletişim, etkileşim, ikna ve işbirliği oluşturmaktadır. Joseph S. Nye (2005), yumuşak güç oluşturmak için çekici bir kimlik taşıyan kültürü, siyasi değerleri ve kurumları, ahlaki temellere ve meşruiyete dayalı politikaları gerekli görmekte, ancak bu şekilde bir “cazibe merkezi” oluşturulacağına işaret etmekte, ikna yoluyla da başka ülkelerin, toplumların tercihlerinin etkilenebileceğine dikkat çekmektedir.

Kamu diplomasisi, karşılıklı anlayış yoluyla ülkelerin imajını ve saygınlığını artırmayı amaçlamaktadır (Simonin, 2008: 24). Çağımızda ülkeler açısından en önemli unsurların başında güven, saygınlık ve itibar gelmektedir. Bu değerlere sahip ülkeler kendi politikalarını başka ülke ve toplumlara daha rahatlıkla anlatabilmekte, kendini dinletebilmekte, cazibe merkezi haline gelebilmektedir. İletişimde mesajın kendisi kadar, mesajın kaynağı da büyük önem taşımaktadır. Kamu diplomasisinde, kaynak ülkelerin kendisidir. Ülkeler ne kadar güvenilir, itibarlı ve saygın olursa, kamu diplomasisi çerçevesinde verdikleri mesajlara da o oranda güvenilmekte, inanılır bulunmaktadır. Bu nedenle kamu diplomasisi stratejisi geliştirilirken yalnızca mesaja odaklanmak tek başına yeterli değildir. Aynı zamanda mesajı hedef kitleye aktaran kaynak olarak ülkelerin algılarını da düzeltmeleri, inşa etmeleri gerekmektedir. Bunun en etkili yolu ise yumuşak güç araçlarını doğru kullanmaktan geçmektedir.

KAMU DİPLOMASİSİNİN 3 FARKLI BOYUTU

Kamu diplomasisi Nye’a göre (2005) üç farklı boyuttan oluşmaktadır. Birinci boyut “*günlük iletişim ve bilgilendirme*” boyutudur. Doğru bilginin sürekli kılınması, zamanında aktarılması ve sağlıklı bir algı oluşturulması kamu diplomasisi yönetiminin önceliklerinin başında gelmektedir. Kamuoyunun ilgisinin çekilmesi, bütünselliğin ve tutarlılığın sağlanması da önem taşımaktadır. İkinci boyut olan “*stratejik planlama ve ülkenin markalaşması*” uzun vadeli planlama ve stratejiye dayanmaktadır. Kamu diplomasisi, ülkelerin “marka” haline gelmesine de artık çok ciddi katkılar sağlamaktadır. Ülke markasını güçlendiren, kamuoyundaki algısını sağlamlaştıran ülkelerin ikna etme kapasitesi daha da artmaktadır. İtibarlı, güvenilir, saygın ülke haline gelmek, verilen mesajların etkisini artıran bir unsur olarak değerlendirilmektedir. “*Uzun vadeli ilişkiler kurmak ve geliştirmek*” ise kamu diplomasisinin üçüncü boyutunu oluşturmaktadır. Kamu diplomasisi araç ve yöntemlerini kullanarak, hedef ülke ve toplumlarla çeşitli alanlarda kurulan ilişkiler, verilen mesajların kalıcılığını sağlamada önemli bir faktördür.

Eğitim, medya, değişim programları, staj imkanları vb. araçlar kalıcı ve uzun vadeli ilişkiler kurabilmek için önemli imkan ve fırsatlar sunmaktadır. Bu ilişkiler toplumların ve ülkelerin birbirini daha yakından tanımalarına yardımcı olmakta; tanıma arttıkça, anlama ve ikna olma olanakları da çoğalmaktadır.

KAMU DİPLOMASİSİNİN AKTÖRLERİ

Kamu diplomasisi ilk ortaya çıktığında kaynağı hükümet olan bir iletişim süreci idi. Ancak gelişen iletişim teknolojileriyle birlikte hedef kitlenin daha ulaşılabilir olması, küreselleşmeyle beraber çok uluslu şirketlerin sürdürülebilirliklerinin kamu diplomasisi faaliyetlerine de dolaylı yoldan bağlı olması gibi nedenlerden dolayı kamu diplomasisinde kaynak artık sadece devlet olmaktan çıkmıştır. Kamu diplomasisi sürecinde artık devletin dışında başka kaynaklar da yer almakta, bu kaynaklar bazen devletin çalışmalarına dâhil olmakta bazen de devletten tamamen bağımsız olarak kendi çalışmalarını yürütebilmektedir (Sancar, 2012: 90).

Kamu Diplomasisi olgusunun aktörleri sıralandığında farklı yaklaşımlar gündeme gelebilmektedir. Ama tüm bu farklı yaklaşımların ortak noktalarına bakıldığında en başta sivil toplum örgütleri, kamu diplomasisinin aktörleri arasında sayılmalıdır. Daha sonra üniversiteler ve okullar, kanaat önderleri, medya ve haber ajansları, iç hedef kitle, küresel işletmeler ve özel sektör kuruluşları, baskı grupları ile Devlet üstü kuruluşlar kamu diplomasisinin başlıca aktörleri kabul edilmektedir (Szondi, 2008: 17; Signitzer, 2008: 209; Sancar, 2012: 91).

Medya ve haber ajansları; kamuoyunu inşa eden araçlardır. Algılamaları yönetirler ve kamuoyunun kanaatinin oluşmasında önemli rol oynarlar. Kamu diplomasisini yönetenler eğer başarılı olmak istiyorlarsa kitle iletişim araçlarına gereken önemi vermek zorundadır. Sadece ülke içi kitle iletişim araçları değil, küresel ölçekteki gazete, televizyon ve dergiler ile internet medyası da stratejik şekilde ele alınmalıdır.

KAMU DİPLOMASİSİ ARAÇLARI

Kamu diplomasisi, ülkelerin sahip oldukları bilgi birikimini, entelektüel değeri, yumuşak güç unsurlarını, kültürel öğeleri başka ülkelere/toplumlara aktarmada çeşitli araçlar kullanmaktadır. Kuşkusuz bu araçların başında kitle iletişim araçları gelmektedir (Sancar, 2012: 185). Çünkü küresel çağda toplumları en çok etkileyen, yönlendiren, kanaat oluşturan unsur iletişim araçlarıdır. Kitleleşen bir güce sahiptir ve kitleler üzerinde oluşturduğu “güven” hissinden yoğunlukla yararlanır. Kitleler güvendikleri, saygın ve itibarlı buldukları iletişim araçlarından elde ettikleri bilgilere inanırlar, kanaatlerini bu bilgiler çerçevesinde oluştururlar, karar alırken de oluşturdukları bu kanaatlerin çok önemli bir etkisi mevcuttur. Dijital medyanın son yıllarda hızlı bir şekilde gelişmesi, toplumları etkileme gücünü artırması, kamu diplomasisi uygulamalarında kullanımını da artırmıştır. Burada esas olan kitlelere ulaşılacak en etkili yol, yöntem ve araçların saptanması, bu araçların kendi özellikleri de göz önüne alınarak stratejik şekilde kullanılmasıdır.

Kitle iletişim araçlarının yanı sıra kamu diplomasisi faaliyetlerinde; kültür, bilim, sanat, spor, eğitim gibi unsurlar da hedeflere ulaşmak, amaçları gerçekleştirmek için araç olarak kullanılmaktadır. Tüm bu unsurların içinde ülkelerin sahip olduğu yumuşak güç potansiyeli yer almakta, başka ülkeleri/toplumları etkileyebilecek bu potansiyelin ortaya çıkartılması onun nasıl kullanıldığı ile yakından ilgili bulunmaktadır (Özkan, 2015: 10).

İLİŞKİ İNŞASI VE KAMU DİPLOMASİSİ

Kamu diplomasisinin iletişim odaklı bir stratejiye yaslanması, uzun vadeli hedefler belirlemesi, toplumdantopluma yürütülen bir anlayışı benimsemesi; “ilişki inşa etme” konusunda nasıl önemli bir potansiyele sahip olduğuna işaret etmektedir. Toplumlar arasında kültür, eğitim, sanat, spor, bilim vb. yumuşak güç unsurları üzerinden kurulan ilişkilerin uzun yıllar sağlıklı şekilde yürütülmesi sonucunda oluşan karşılıklı anlayış; beraberinde barış ortamını da getirmekte, pek çok sorunun oluşumunu engellemekte, oluşan kimi sorunların da kolaylıkla çözümlenmesine katkı sağlamaktadır. 21. yüzyılda iletişim teknolojilerinde yaşanan büyük gelişme, toplumların birbirlerini daha yakından tanımalarını sağlamış, ön yargıların ortadan kalkmasına yardımcı olmuş, diyalogu ve işbirliğini artırmıştır. Birbirini daha yakından tanıyan toplumların iletişim kurlmaları; karşılıklı ekonomik, kültürel, sosyal ve siyasal işbirliklerini geliştirmeleri beraberinde güçlü bir ilişki inşası sürecini de getirmektedir (Özkan, 2014a: 4).

Kamu diplomasisinin amaçlarından biri de toplumlar arasında ilişki inşa etmektir. Yumuşak güç unsurlarının stratejik şekilde kullanılmasını gerektiren ilişki inşası, uzun vadeli sabırlı çalışmayı zorunlu kılmaktadır (Szondi, 2008: 8).

Toplumlar arasındaki ekonomik, siyasal, sosyal ve kültürel ilişki inşasında kimi zaman sorunlar yaşanabilmekte, arzu edilmeyen durumlar ortaya çıkabilmektedir. Yine böyle durumlarda karşılıklı iletişim, açıklık ve şeffaflık sorunların çözümüne katkı sağlamaktadır. Ayrıca toplumlar arasında oluşacak güven, sağlam bir ilişki inşası için büyük önem taşımaktadır. Tarafların karşılıklı güveni besleyecek çaba içerisinde olması, güveni zedeleyecek davranışlardan kaçınması gerekmektedir. Toplumlar arasında ilişki inşa etmenin günümüzdeki en yaygın yolları arasında değişim programları, eğitimler, seminerler, konferanslar yer almaktadır. Özellikle eğitim alanında toplumlar arasındaki karşılıklı işbirliği beraberinde tanımayı, anlamayı ve ortak anlayış geliştirmeyi getirmektedir. Başka bir toplumun kültürünü ve dilini öğrenen kişiler, o toplumu yakından tanıma imkanı bulmakta, bu da diyalogu, işbirliğini, uzun vadeli ilişkileri kolaylaştırmaktadır.

KAMU DİPLOMASİSİ VE ÜLKE MARKASI OLGUSU

Stratejik iletişimin, algının, imajın, itibarın ve güvenin öne çıktığı yeni uluslar arası sistemde, ülkeler de tıpkı ticari markalar gibi, kendilerini kamuoyunun gözünde yeniden yapılandırma, inşa etme, konumlandırma ihtiyacı içerisinde. Kamuoyu algısının oluşumunda doğru ve sağlıklı bilgilendirme, etkin iletişim, geri bildirim kanallarının açık olması, mesajların etkili tasarımı önem taşımakta; güvenilir, güçlü, itibarlı ve saygın bir ülke algısı oluşturmak için stratejik bir markalama yol haritasının izlenmesi gerekmektedir (Özkan, 2013: 5).

Kamu diplomasisi ülke markası inşasında değerlere odaklanmakta, bireysel ve kurumsal ilişkilerin ve diyalogun tesis edilme sürecine önem vermektedir (Bolin ve Stahlberg, 2002: 82). Kamu diplomasisi bir anlamda ülkelerin marka iletişimini yapmaktadır (Mengü ve Yıldırım, 2012: 72). Kamu diplomasisi teknik ve uygulamaları, ülke markalaması sırasında ihtiyaç duyulan bilgilerin stratejik olarak tasarlanması ve dağıtılmasına yardımcı olmaktadır (Zaharna, 2009: 90).

Ülke markası inşasında sahip olunan “yumuşak güç” unsurları son derece etkili olmaktadır. Kültür, bilim, sanat, spor, eğitim vb. yumuşak güç kaynakları, kamuoyuları ile etkili ve uzun vadeli iletişim ve etkileşim kurmada çok önemli yardımcılarıdır. Bu araçlarla kurulan ilişkiler sonucunda hem ülkenin algısı olumlu anlamda inşa edilmekte hem de bu olumlu algıdan yararlanılarak yeni ilişkiler kurulmakta, başka alanlarda işbirlikleri geliştirilmektedir. Yeni uluslar arası sistemde ülkelerin sahip olabileceği en değerli algı; itibarlı, güçlü, saygın, güvenilir ve dürüst ülke imajıdır. Bu algı, ülkeler için son derece stratejik değer taşıyan bir markadır. Ülke markasını bu yönde inşa eden, geliştiren, oluşturan ülkeler; başta ekonomik alan üzere siyasal, sosyal ve kültürel alanlarda da başka ülkelerin ilişki kurmak isteyeceği, yatırım yapma arzusu taşıyacağı, ürünlerini kullanacağı, hatta insanların orada yaşamak için çaba harcayacağı ülke haline geleceklerdir (Özkan, 2013: 7).

Ülke markası inşasında turizm, marka ihracı ve dış ülkelere direkt yatırım önemli katkılar sağlamaktadır. Bir ülkenin kendi öz markalarıyla ihracat yapması, ülke imajını güçlendirmektedir. Ülkeler sahip oldukları güçlü markalarla anılmakta, tüketicilerin zihninde oluşan olumlu algı, ülke imajına da yansımaktadır (Erzen, 2012: 113). Ülke tanıtımı genelde turizm ve yatırımcı çekme amaçlı olarak değerlendirilmektedir. Oysa ülke tanıtımı kamu diplomasisi bakış açısıyla gerçekleştirilmeli; ülkenin bilim, sanat, kültür, spor, iş dünyası, üniversiteleri vb. değerleri ile birlikte bütüncül bir yaklaşımla ele alınmalıdır. Böyle yapıldığı takdirde ülkenin tanıtımının yapılması yanı sıra markalaşmasına da büyük katkılar sağlanacaktır (Özkan, 2013: 8).

Orta ve Doğu Avrupa ülkelerinin kamu diplomasisi faaliyetlerini araştıran Szondi (2009) ulusal itibar yönetiminin alt başlıklarını birbiriyle ilişkili ve destek verecek şekilde ülke markası inşası, yer markalaması, kültürel diplomasi, algı yönetimi şeklinde sıralamıştır. Ülkelerin itibar yönetiminin parçaları olan bu alanlar sırasıyla; turizm (yer markası), ekonomi politikaları (ülke markalaması), kültürel miras, dil, sanat vb. (kültürel diplomasi), dış politika ve dış ilişkiler (kamu diplomasisi), ülkelerin iç ve dış etik politikaları, davranışları ve imajlarından (algı yönetimi) oluşmaktadır (Köksoy, 2013: 460). Szondi (2009) bu araştırmasında; ülke markası inşasının, kamu diplomasisi ve kültürel diplomasi ile yakın ilişkisi olduğunu tespit etmiştir.

KAMU DİPLOMASİSİ VE KİTLE İLETİŞİM ARAÇLARI (MEDYA)

Kamu diplomasisi aktörlerinin başında kitle iletişim araçları gelmektedir. Kitleleri etkileme ve yönlendirme gücüne sahip olan medya; taşıdıkları bilgi, yorum, haber, fotoğraf vb. entelektüel değeri yüksek ürünlerle hem toplumları bilgilendirmekte hem de ilişki inşa edilmesine katkıda bulunmaktadır. Kitle iletişim araçları algılamaları yönetmekte ve kamuoyunun kanaatinin oluşmasında önemli rol oynamaktadır (Bostancı, 2012: 99).

Ülkeler sahip oldukları bilgi birikimini, entelektüel değeri, yumuşak güç unsurlarını, kültürel öğeleri başka ülkelere/toplumlara aktarırken çeşitli araçlar kullanmaktadır. Kullanılan bu araçlar arasında toplumları etkileme gücü nedeniyle medya ön plana çıkmaktadır (Sancar, 2012: 185). Başka ülkelere/toplumlara kendisini tanıtmaya, anlatmaya, kamuoylarını ikna etme fonksiyonu üstlenen kamu diplomasisi, bu faaliyetlerini yaparken iletişim kanallarına, yaygın medya organlarına ihtiyaç duymaktadır.

20. yüzyılın medya ortamında en etkili araçlar gazete, dergi ve radyo iken 21. yüzyılda televizyon ve dijital medya daha yaygın ve etkin durumdadır (Bostancı, 2012: 108). Özellikle küreselleşme süreciyle birlikte uluslar arası alanda yayıncılık yapan televizyon kanallarının sayısı ve etkisi artmış (CNN, El-Cezire, BBC, Al-Arabiye vb.) bu kanalların taşıdığı haber, yorum, analiz, görüş gibi kamuoyunu bilgilendiren, kanaat oluşturmalarına yardımcı olan entelektüel değeri yüksek malzemenin miktarında büyük artış yaşanmıştır. Siyasetten, ekonomiye, kültürden, dış politikaya kadar pek çok alandan haber ve bilgi aktaran bu küresel ölçekteki kanallar, dünyanın dört bir yanında yüz milyonlarca kişi tarafından izlenmektedir (Özkan, 2014a: 8).

Küresel ölçekteki televizyon kanalları, gazete ve dergiler (örneğin The New York Times, The Guardian, Time, Newsweek) ya da radyolar (Voice of America, Radio Free Europe vb.) dünyadaki haberleri izleyicilerine/okuyucularına/dinleyicilerine verirken, gelişmelerle ilgili yorum ve analizleri aktarırken belirli bir bakış açısına yaslanmaktadır. Bu bakış açısının içerisinde elbette o yayın kuruluşunun ait olduğu ülkenin siyasal, kültürel, ekonomik, sosyal çıkarları da bulunmaktadır. Örneğin Amerikan yayın kuruluşları CNN televizyonu, The New York Times gazetesi, Time dergisi veya Voice of America radyosu yayınlarında kendi ülkelerinin,

vatandaşlarının ve şirketlerinin haklarının/çıkarlarının korunmasında öncelikli ve hassas davranmaktadır (Erzen, 2012: 148). Ayrıca küresel ölçekte medyaya sahip olan ülkeler, bu iletişim araçları vasıtasıyla kendi tanıtımlarını yapmakta, politikalarını yaygınlaştırmakta, kültürlerini medya üzerinden tüm dünyaya yaymaktadır. Dolayısıyla ülkeler açısından yumuşak güçlerini en iyi şekilde başka toplumlara aktaracakları, onlar üzerinde etki oluşturacakları araç olarak medya öne çıkmaktadır. İletişim araçları ne kadar güvenilir ise onların taşıdığı malzemeler de (haber, yorum, analiz, fotoğraf, karikatür vs.) o oranda güven vermekte, inandırıcı bulunmaktadır. Medyanın kamu diplomasisi uygulamalarında kullanılmasına Türkiye örneği açısından bakıldığında, Türkiye'nin elindeki en önemli medya gücünün Radyo ve Televizyon Kurumu (TRT) olduğu görülmektedir (Demir, 2012: 262). Kamusal yayıncılık anlayışına sahip olan TRT; son yıllarda TRT Avaz, TRT Arapça, TRT Türk gibi yurtdışına yönelik kurduğu kanallarla Türkiye'nin tanıtılması, politikalarının anlaşılması yönünde çaba harcamaktadır. Ancak bu çabanın yeterli olduğu söylenemez. Öncelikle TRT'nin kimi politik etkilerden korunması, bağımsız, güvenilir bir yayın kuruluşu haline getirilmesi zorunludur. İngiltere'nin BBC kurumu, bu konuda güzel bir örnektir. Ancak böyle bir pozisyonda TRT'nin verdiği mesajlar, aktardığı haberler, ilettiği yorumlar inandırıcı bulunacak, güvenilir olarak kabul edilecektir (Özkan, 2014a: 9).

Türkiye, kamu diplomasisi faaliyetleri çerçevesinde kitle iletişim araçlarından stratejik bir aktör olarak yararlanma arzusunu ortaya koymuş ama bu konuda arzu edilen mesafeyi alamamıştır. Bu konuda mutlaka toplumsal bir uzlaşma zemini aranmalı, tüm siyasi partilerin, sivil toplum örgütlerinin, akademi, kültür-sanat ve iş dünyasının desteği sağlanmalıdır. Türkiye'deki özel televizyon kanalları ve yazılı basının da kamu diplomasisinin stratejik değerini fark etmesi önem taşımaktadır. Önce medyanın kendisinin kamu diplomasisi vizyonuna sahip olması gerekir ki, ülkenin genel vizyonuna katkı vermesi, beklentileri karşılayabilmesi mümkün olabilsin (Özkan, 2014a: 9).

Şu da bir gerçektir ki, kitle iletişim araçları üzerinden "kendi hikayesini" etkili şekilde doğru hedef kitlelere aktarabilen ülkeler, "marka değerlerini" de güçlendirmektedir. Türkiye ülke markasını inşa ederken, kitle iletişim araçlarının içeriklerine özel önem vermeli, kendi hikayesini etkili şekilde tüm dünyaya duyurabilecek bir mekanizma kurmalıdır.

SONUÇ

Küreselleşme sürecinin beraberinde getirdiği siyasal, ekonomik, sosyal ve kültürel gelişmelerin ön planda olduğu, teknolojinin ve iletişimin yaygınlaştığı, kamuoyu olgusunun odak noktasına yerleştiği bir yüzyılı yaşıyoruz. Kamu diplomasisi yönetimi; 21. yüzyılın iletişim kurma, anlama, anlatma, tanıma, tanıtma, itibar ve saygınlık oluşturma, ilişki inşa etme açısından ülkeler ve toplumlar için stratejik bir değer taşımaktadır. Bu yüzyılda diplomasi bilinen geleneksel anlayışı değişmiş; ülkelerin kültür, bilim, eğitim, spor, sanat, medya vb. alanlardaki yumuşak güçleri toplumlararası ilişkilerde öncelikli ve stratejik hale gelmiştir. Kamu diplomasisi toplumlararası ekonomik, siyasi, kültürel ve sosyal ilişkilerin kurulmasını/inşa edilmesini ve geliştirilmesini hedeflemektedir. Bu yolla kamuoylarına arzu edilen mesajlar verilebilmekte, iletişim köprüleri kurulabilmektedir (Özkan, 2014a: 9).

Çağımızda kendisini başka toplumlara doğru şekilde ve etkili araç/yöntemlerle anlatmayan, tanıtmayan, kamuoylarını yeterince bilgilendirmeyen ülkeler, olumsuz imaj ve algı sorunuyla karşı karşıya kalmaktadır. Ülkeler kendilerini anlatmadığında, bu işi onlar adına başka kurum ve araçlar yapmakta, dolayısıyla ortaya eksik, yanlış ve hatta kasıt içeren bir tablo çıkmaktadır. Ülke imaj ve algılaması konusunda oluşan her boşluk, mutlaka başka birileri tarafından doldurulmakta, zihinlerde size ait olmayan, sizin belirlemediğiniz mesajlar yer etmektedir. Daha sonra bu yanlış imajların/algıların düzeltilmesi ise çok güç olmaktadır. 21. yüzyılın iletişim kurma, ilişki inşa etme, ülke imajı belirleme, algılamaları yönetme, itibar/güven/saygınlık oluşturma aracı olan kamu diplomasisi bu açıdan her ülke için stratejik bir öncelik haline gelmekte ve doğru kullanılması önem taşımaktadır. Bütün bu anlatılanların "ülke markası" kavramıyla da yakından ilişkisi bulunmaktadır. Kendini doğru anlatan, kendi hikayesini kitle iletişim araçları vasıtasıyla kitlelere ulaştırabilen ülkeler, marka değerlerini güçlendirmekte, imajlarını pekiştirmektedir.

Ülkelerin kendilerini doğru anlatmasında/tanıtmada ve olumlu imaj ve algı inşa etmesinde medya da stratejik görevler üstlenmektedir. İletişim teknolojilerinin yaygınlaştırdığı kitle iletişim araçları artık bireylerin hayatlarının merkezinde yer almakta, özellikle sosyal medyanın yaygın kullanılmaya başlamasıyla birlikte kitlelere ulaşmak, bilgilendirmek, etkilemek, onları yönlendirmek kolaylaşmaktadır. Medya aynı zamanda yayıncılarıyla toplumlar arasında ortak amaç birliği de oluşturabilmektedir. Medya aracılığıyla toplumların birbirini daha yakından tanımaları, etkileşim içinde bulunmaları mümkün hale gelmekte; bu da beraberinde ekonomik, siyasi, sosyal, kültürel alanlarda toplumlar arası işbirliğinin kapılarını aralamaktadır (Özkan, 2014a: 9).

21. yüzyılda yumuşak güçlerini geliştiren ve doğru kullanabilen ülkelerin rekabet üstünlüğü elde edeceği açıktır. Başka ülkelere/toplumlara yönelik etkili kültürel, sosyal, siyasi ve ekonomik politikalar geliştirebilen ve stratejik aklın rehberliğinde uygulamaya geçirebilen ülkeler, cazibe merkezi olarak öne çıkmaktadır. Cazibe merkezi olan ülkeler; başka ülkeleri ve toplumları kendisine çekme, liderlik yapma, kapasite inşa ederek

paradigmayı deęiřtirme gúcüne sahip olmaktadır. Bu nedenle kamu diplomasisi olgusunun sahip olduęu potansiyel iyi kavranmalı, sunduęu imkan ve fırsatlar doęru deęerlendirilmelidir.

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KENOCOD: A NEW KIND OF QUIZZING TOOL FOR GAME-BASED LEARNING IN CODING INTERVIEW PREPARATIONS

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ABSTRACT

With an increase in candidates preparing for software job interviews and a downfall in classroom learning techniques, there is a demand for game-based learning apps in software job interview preparations. There are many existing coding websites like Codechef, HackerRank, Codeforces, Leetcode, etc. but with three major drawbacks. First drawback is that it's difficult for users to take up a coding problem with enthusiasm, spend hours long brainstorming, code and submit the solution. Second is with remembering the solution after solving it and to revise quickly the attempted problems. Third is with interlinking all possible ways of solving a problem. All three issues are handled in the design of Kenocod. The work "Kenocod" is a portmanteau of "key notes" and "codes". Kenocod has Quiz and Mindmap features which incorporate salient points about coding problems and solutions. Kenocod installs seeds of coding concepts in users brains through it's new kind of quizzing mechanism. Kenocod quiz question contains coding problem and a partial solution, users are expected to fill the gaps by selecting appropriate answer choices while learning concepts in depth using web links attached to the answer choices. Quiz questions also gamify keywords like Binary Search, Bit Manipulation, Dynamic Programming etc. to interlink and tag different ways of solving a problem. The solution of coding problems associated with attempted quiz questions are stored as mindmaps in the best possible representation for the users to easily remember and revise, along with the java code git links. Quiz questions and mindmaps are in different formats like flowchart, pseudo code, math formulaes, key points and diagrammatic representations depending on the coding problem. Kenocod is implemented using Meteor, an open source Javascript framework written in Node.js and same Javascript code base is used to run the Meteor app on web or on iOS and Android devices. Amazon S3 and MongoDB are usage for storage. Heroku is used to launch the initial prototype as a web app <http://kenocod.herokuapp.com#!/home>

Keywords: Kenocod, Coding Interviews, Software Job, Game-Based Learning, Quizzing Tool, Educational Technology

INTRODUCTION

Researchers surveyed 2,000 individuals in Canada recently and studied the brain activity of 112 others using electroencephalograms. According to their study, the average human attention span has fallen from 12 seconds in 2000 to eight seconds. This is mostly due to the impact of growth in mobile phones usage. Heavy users of technology face difficulty in environments where prolonged attention is needed, especially classrooms and work meetings. Also, a study by Microsoft found that the ability of humans to multi-task has increased. The cost of development for games has reduced due to increase in toolkits and game engines in market. There is a significant growth in number of designers and developers looking for challenges. This has lead to a significant rise in game-based learning techniques that keep learners engaged compared to passive learning techniques. Digital games are now being used to teach alphabets and numbers to babies, patients to track their health numbers, military to develop strategic and practical skills, software skills to engineers, improve order placing pace in restaurant customers, learn first aid techniques, math skills to high school students, 3-Dimensional learning in classrooms, financial derivatives to auditors etc.

There are different games in market with different agendas as shown in Figure 1. McDonald's launched a till training game that delivers engaging learning experience to improve customer's ability to take orders and using questions to assess knowledge on how to deliver the best customer experience. The Resuscitation council launched an interactive training LifeSaver to make aware of basic steps to respond in cases of cardiac arrest. Medieval Swansea is a game to solve historical mysteries by giving the player a role of detective. Knowre is a personalized supplemental program for Geometry and Algebra for students. Socratic is a fun app for effective classroom engagement through quizzes, polls, exit tickets etc. There are not many games to prepare for software job interviews in a right way. There are apps like geeksforgeeks, leetcode, careercup etc. but they are less motivating to follow on a daily basis and very content heavy apps. The volume of questions listed and verbose

solutions make it less motivating to follow these apps for fun. Direct employment in software industry increased from 778,000 jobs in 1990 and 1,083,000 jobs in 1995, to 2,095,000 in 2010 and 2,501,000 in 2014. As per U.S. Bureau of Labor statistics, demand for software developers will increase from 28% to 32% by 2020. With a huge growth in candidates preparing for job interviews and an increase in mobile phone users, there is a good demand for game-based learning apps on mobile for software job interview preparations. Teaching the standard problems and different ways to solve them in classrooms or online tutorials is very time consuming and less motivating for screenagers, also likely to forget the core algorithms involved in the learning while at testing environment with pressure. Showing simulations for algorithms is more interesting than tutorials but it does take it's own time to understand and motivate oneself to gather attention. It's also difficult task to simulate all standard interview problems and solutions, only a few standard algorithms' simulations are available on web currently. Game-based learning involves the candidates to the best in learning process, making it involuntary to record in brains all standard techniques to be applied in the interview room.

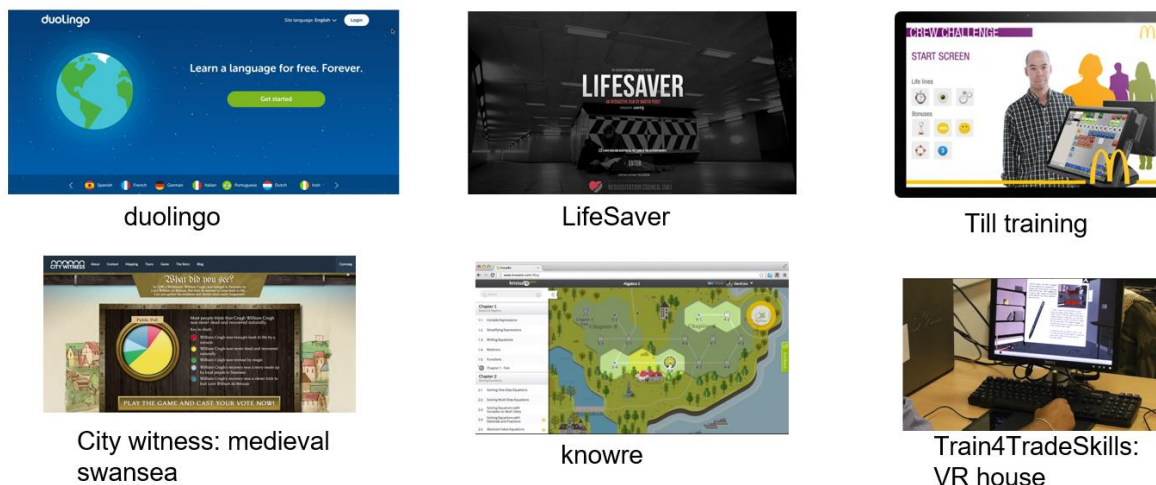


Figure 1: Game-based learning apps in market for different fields

CHALLENGES OF GAME-BASED LEARNING

There are different challenges and principles in game-based learning compared to the traditional training through lectures, online tutorials and hands-on training. The authenticity of material that's targeted to deliver through game should be preserved rather than overloading fun to justify the gaming conventions and result in inauthentic material conveyed through the game. Prior knowledge on the material learnt can help or hinder learning. Individual with right knowledge in prior will have an upper hand and the ones learnt in prior in wrong ways face hard time during learning process. For example, a new truck driver can play loading dock games to improve his skills on real field. If the driver had prior experience to load dock in less crowded areas, it's much likely to develop tendency to ignore the rear obstacles. In a passive learning environment, this side-effect from prior learning comes out and get caught only in testing arena, whereas in a game-based learning the driver fails first with virtual setup before he gets on real field. Game-based learning imposes sufficient practice on the players to get right answers and scores, thereby making them perfect with the material. This practicing of material is in general boring to do in classroom or self-motivated environment, but in a game it's mandatory to reach next level passing easier versions by playing required number of times till they succeed. This facilitates learning in bite-sized chunks by making seekers perfect with easier chunks delivered first and throw tougher challenges in the game eventually. The constant feedback delivered in the game helps learner to fail faster and avoid silly mistakes in testing environment. A subset of real environment features is provided as part of game material. The insignificant details are ignored in the game, preparing for potential mistake corrections and eradications when the material learnt through game is applied. The simulation game to learn car driving will focus on steering controls, gears, brakes, etc. main functions rather than how to remove car back seats or change seat covers.

CODING INTERVIEWS AGENDA

There are different rounds of interviews at most of the companies like Google, Microsoft, Facebook, etc. Each round falls under one of the following categories: Phone interview, Remote screen share, lunch, on-site, etc. The mindset of interviewee and interviewer varies with respect to each category, especially with the imposed time bound for each interview round. Phone interviews expect to test the quick-witted responses with limited coding. Lunch interviews tend to go over insightful discussions on different ways to tackle a problem and non-technical questions. Remote screen share sessions are generally scrupulous, having an access to compile and run the codes. On-site interviews are all-inclusive with whiteboard coding generally and they are the final decision points. Keeping in mind these diverse interview rounds, it's important for candidate to interlink different ways of solving problems and thorough understanding of concepts. There are multiple interviewers involved in the complete process and everybody has their own expertise. Interviewers may expect the candidate to come up with solution for given problem using their techniques of interest. Each interview round is lengthy enough for interviewer to discuss around the candidate's suggested solution and contrast with alternate ways. Kenocod design for quiz includes a set of questions which tag different keywords using concepts like data structures, time complexities etc. related to the coding question along with reference to online links for deeper study.

Traditional coding interview preparations are mostly self-guided and involves coding on Integrated Development Environments (IDEs). It takes a lot of effort and time to solve a single question and distracts the candidate from focussing on uber picture. Candidates tend to prepare within comfort zone of IDE beautifications and syntax corrections. It's very likely to forget the logic and algorithm behind first question one solved after writing codes and debugging to get them work for tens of problems as part of interview preparation. Interviewers either adopt the standard questions from web or design their own questions. Few interviewers ask questions which may have chained problems. On a day-to-day process at work, employers need their developers to estimate, assess, design, build and coordinate. It's easy to test these different aspects with chained questions where a question innately leads to another, the next one often an uninterrupted exploration of same theme but much deeper. It's a very even transition since the problem is already constructed in candidate's mind and interviewer can explain further challenges with less effort and lays a clear-cut path to study one's capabilities. It's very helpful to have a broad view on related problems and extensions for a given problem while preparing for coding interviews. Kenocod is designed to have quiz questions with different variations, interlinks between concepts and web links as reference to answer choices.

Interview calibrations play pivotal role in candidate's selection process. A question is well calibrated based on what it reveals about interviewee, how well it juxtaposed candidates' performances and correlations of different solutions to real potential. Interviewers might ask standard questions or modifications of existing web questions, but most of them would be asking new-to-them questions where interviewers likely refer to web solutions to compare with candidate's. One going with fixed mindset and single way of solving problem would face different results in calibrations from different interviewers. Interviewers are advised to maintain records of every interview, sometimes it's quite handy to take second opinion from other team members showing candidate's performance. Records generally include pictures of codes, diagrams, pseudo-codes, etc. from interview session. Playing on Kenocod will give good insights into different variations of each problem and avails practise on various aspects of it to the candidate. Kenocod quizzes also act as mock interviews to the candidate which is much suggested by all researches about coding preparations. Asking questions to the interviewer is also advised by researches before diving into solution. It's easy to ask which data structure to pick or which way to solve when the candidate has a comprehensive understanding of the coding problem and solutions. There are different approaches candidate can follow while coming up with solution. One can write examples and generalize into proper solution, see what problems it's similar to and modify the algorithm, modify given problem by changing constraint to simplify, solve and generalize the solution, aim from base cases and build on top of them for complete solution and also an intuitive way to start with data structures brainstorming and relate it to problem suggested on solution eventually. All these approaches are considered while designing the kenocod quiz questions and mindmaps.

COMPETITORS IN MARKET

Figure 2 has different coding platforms in market for software job interview preparations. Codingame is an innovative code learning platform where logic behind each exercise is tied to an actual game so that the gamer/coder gets the visual feedback as well as the reward for solving an exercise. The company targets people who are already good at programming basics and has tough challenges for expert developers. They have multiplayer mode to compete on code efficiency and support coding in 23 different programming languages. They have browser based IDE where we can code and compile, while seeing the game in real time on screen's corner. For example, a game of fighter killing aliens coming nearer. The code challenge is to find the nearest alien always to shoot first. User is expected to write code, compile and visualize it on game. Codechef is a

programming contest platform with contests that are comprised of easy, medium, hard and challenge question lists. A coder picks question of his choice, codes the solution and uploads it. Codechef compilers judge if it's a successful submission and notes the run time. Most questions have an editorial to refer solution if unable to solve by oneself. Codechef contests include a long challenge, cook-off and lunchtime challenges varying on number of questions and days of challenge. Pex for fun from Microsoft Research is a game where we write C#, VB or F# programs and explore from browser directly. It also allows users to play coding duels where they compete to discover a secret puzzle implementation. Rankk is another website with challenges that target user to climb up in a ranking pyramid. Each pyramid level offers questions spanning topics like arithmetics, programming, cryptography etc. The game is designed in a way that journey to top of the pyramid is arduous with much tougher questions higher in level.

SPOJ is an online judge system with hundreds of thousands of registered users and thousands of problems. It's tasks are prepared by a designated community or picked from earlier programming contests. SPOJ allows advanced users to conduct contests under their own rules and has a forum where programmers can discuss how to solve a particular problem. SPOJ acts as an automated evaluator for programs and also an online platform to help users understand how to solve problems and compare solutions. HackerRank is another place to solve problems in varied Computer Science domains such as algorithms, machine learning or artificial intelligence, and to practise programming paradigms like functional programming. They provide interesting experience with boilerplate code and animations that display while running code. They do have a community to discuss and compete with. HackerRank scores carry value on Resume to represent coding talent and contests supply candidates in job recruiting. Users can win cash prizes at HackerRank challenges and also become paid contributor by creating own challenges. Topcoder is considered the most traditional platform within the competitive coding community. They host fortnightly online competitive programming contests known as SRMs (Single Round Matches). They provide a coding arena using Java applet unlike other platforms like SPOJ, Google Code Jam, Codeforces etc. with ACM-ICPC model where problems are solved on local computer by users and upload source code for judging. There are websites like Leetcode, GeeksforGeeks, InterviewBit etc. where users write and compile code on online IDEs. The number of total problems on these websites vary and the experience is appreciated by different users differently as per one's preference and compatibility with the frameworks.

Quizful is a website for interactive programming quizzes and learning computer science theory. Exercism is a platform with exercises on more than 30 programming languages integrated with github. Exercises in exercism are fetched using command line client, solved using favorite editor and submitted through command line for review feedback. There are many other coding websites like Codility, CodeEval, Codewars, Fightcode, Coderbyte etc. There are also books like "Cracking the Coding Interview" by Gayle Laakmann and "Algorithms for Interviews" by Adnan Aziz. There are sites like Stack Overflow and StackExchange to discuss software development and programming questions. Programming puzzles and codegolf stack exchange is a question and answer site for programming puzzles and code golfers expecting the solution to be in fewer bytes of source code.

All the coding practise websites like codechef, leetcode, topcoder etc. among above resources are interesting and challenging but expect good amount of time to be spent with them in coding and doesn't offer a solid revision and consolidation mechanism. Kenocod is not a full stretch coding platform design but a high level layer on top of it. Coders who finish coding from all these websites can come to Kenocod for practising content. It works vice-versa where users of Kenocod dive into the background of coding problem and solution using reference links attached in answer choices to the above websites' solution archives. The quiz and programming puzzle websites in the above resources like quizful, rankk etc. target mostly the language specific questions and general puzzles but not in depth coding interview preparation focussed. Kenocod quiz design involves questions of different types as per the programming question model to provide right mind maps to revise and remember content for experienced coders, and to incite interests for newbies through seeds of concepts with web links attached to answer choices as reference. Kenocod design includes questions with answer choices as keywords picked from concepts like trees, linkedlist, stacks, backtracking, bit manipulation, dynamic programming etc. related to the coding problem. Few questions involve pseudo code completion where missing pieces of pseudo code are picked from answer choices and a few questions involve flowchart completion. Some quiz questions include common formulas and one-liners that represents heart of solution within answer options. Another set of questions are about rearranging jumbled lines of pseudo code that complete solution. One or few of these design types are picked per-problem basis to come up with most efficient quiz question that incites users to learn more and remember logic for revision. In next version, the game also encourages users to come up with own quiz question suggestions for a better mindmap of solution which will be cited with their user name once it's approved to be added as part of the game.



Figure 2: Coding platforms in market for software job interview preparation

KENOCOD DESIGN

Kenocod app has the following components:

1. Signup and login widget
2. Home page
3. Begin Quiz Page
4. Mindmaps Page
5. Scores Page
6. Help module



Figure 3: Kenocod home page

Kenocod contains a signup and login widget, with username as unique login ID. The home page has a logged out view with Kenocod Description, Logo, Help Module and Signup/Login widget. Figure 3 has the signed-in view of home page which contains links to Begin Quiz page, Mindmaps page, Scores Page, Help Module and Logout button. The Help Module contains instructions on how to use the app. The 'Begin Quiz' button launches the quiz. Quiz has different types of questions depending upon the category of the coding problem. Each quiz question has the coding problem statement and a partial solution in different formats. The user would have to

pick the appropriate answer choices that fills the gaps in solution. The partial solution in quiz question comes up in different formats like pseudo code, flow chart, representative diagram, etc. The easy and medium difficulty level questions are in level 1 set of quiz content and Level 2 has the difficult questions. Difficulty is in terms of solution complexity and also the complication in framing quiz question out of it. The 'Mindmaps' page contains all attempted quiz questions by the user with best possible representation of the complete solutions for the problems, facilitating easy revision of content for users. There is a Scores page that displays kenocod stars with all top scorers in descending order on scores. Each quiz game has ten questions each and a feedback module gives the number of correct and wrong answers at the end of quiz submission.

Each Kenocod quiz question is designated internally by a JSON object with a few of following parameters:

- qText: Quiz question text explaining the coding problem
- qImg: If quiz question has an image to detail, this takes Amazon S3 url for the image
- qSolText: Partial solution text for coding problem corresponding to the quiz question
- qSolImg: If partial solution has an image, this takes Amazon S3 url for it
- ansAText, ansBText, ...so on: Text explaining answer choices to fill gaps in partial solution for coding problem referred in quiz question
- ansAImg, ansBImg, ...so on: If the answer choices contain images, these are Amazon S3 urls
- ansARef, ansBRef, ...so on: Web reference links attached to quiz answer choices
- qSolFullText: This is the text explaining the complete solution for coding problem in easy to remember/revise format, used for mindmaps
- qSolFullImg: This is the image explaining the complete solution for coding problem in easy to remember/revise format, used for mindmaps
- oneans (boolean): True if quiz question has single answer, False if quiz question has multiple options
- qRightAns: Contains a string of right answer options separated by a comma, used in feedback module at the end of each quiz session
- optcount: Count of total answer options for tool internal usage in code base
- qCodeLink: git code link attached with mindmap corresponding to coding problem referred in quiz question

Figure 4 has a sample kenocod question format:

```
"3": {
  "qText": "Find element that appears more than n/2 times in array of size n",
  "qSolText": "Choose all applicable options to solve this",
  "ansAText": "Brute force, check for each element: Time Complexity O(n)",
  "ansBText": "Use hash table to maintain counts of each element: Time Complexity O(n^2)",
  "ansBRef": "https://gist.github.com/amadamala/3cdd53cb5a6b1c1df540981ab0245479",
  "ansCText": "Brute force, check for each element: Time Complexity O(n^2)",
  "ansDText": "Use hash table to maintain counts of each element: Time Complexity O(n)",
  "ansEText": "Can be solved using Bit manipulation",
  "ansERef": "https://en.wikipedia.org/wiki/Bit_manipulation",
  "ansFText": "Optimized solution's time complexity O(n)",
  "qSolFullImg": "https://s3-us-west-2.amazonaws.com/kenocod/L1_q3_sol_full.png",
  "qCodeLink": "https://github.com/vinodhsunkara/mindmaps_codes/tree/master/L1_3",
  "qRightAns": "c,d,e,f",
  "oneans": "false",
  "optcount": "6"
},
```

Figure 4: Kenocod internal quiz question format

KENOCOD IMPLEMENTATION

The leading platforms for mobile apps are Android and IOS with a market share of around 80% and 15% respectively. Android apps can be built using android studio with Java programming and IOS apps can be developed using Swift programming language. Kenocod is decided to be built on framework where a single code base should power the app to run on both iOS and Android devices. Meteor, or MeteorJS, is a free and open-source JavaScript web framework that is written using Node.js. It is a full-stack JavaScript platform for developing modern mobile and web applications. It includes a major set of technologies for building connected-client reactive applications, a build tool, and a curated set of packages from the general JavaScript community and Node.js. Meteor allows to develop in one language, JavaScript, in all environments like application server,

web browser, and a mobile device. Meteor uses the data on wire i.e. the server sends data instead of HTML, and the client renders it. Meteor brings the best parts of the active JavaScript community in a considered way. Meteor provides the full stack reactivity, allowing user interface to smoothly reflect the true state of the world with less development effort. Heroku is used to generate the Meteor web app url <http://kenocod.herokuapp.com#!/home>. Kenocod will also be deployed as Android and iOS apps after adding 300+ coding problems to the quiz. Heroku is a platform as a service that allows developers to build, run and operate the applications in cloud completely. Kenocod uses Amazon S3 as a CDN to store all images and MongoDB to store the data like Scores and other user meta data.

KENOCOD MINDMAPS

Mindmaps page contains the best possible representations for the solution of coding problems corresponding to quiz questions attempted by the user. This page helps users to revise all attempted questions multiple times very quickly during coding interview preparations. The git links attached to mindmaps contain git links with complete working java code that can be used as a reference. In general, each model of coding problem contain multiple questions and mindmaps use similar format for users to remember easily the core logic. For example, there are different problem variations using sliding window on an array. One of them is to find array of Max's, where Max is a maximum element within window at each step of a sliding window (size k) moving one step at a time left to right on an array (size n). Figure 5 shows the quiz question corresponding to this problem. The key points of solving problem are using Deque interface and maintaining Window invariant as the window moves step by step on the array. The definitions of poll, pop etc. are also important when LinkedList data structure is used to implemented the Deque. Quiz question is framed on top of these key notes to solve the problem. Ref links are attached to a few answer choices for users to learn in detail the concepts involved in solving the problem. In this problem, Deque interface and methods involved is a good learning and there is Ref link attached to option b. Once user attempts this question in one of the quiz sessions, the Mindmaps page contains an entry corresponding to the quiz question as shown in Figure 6. The key points are highlighted in the mindmap. The window invariant "Head of queue is maximum always" is mentioned and a window queue with commands used to add and remove elements from head and tail of queue are represented pictorially. A few steps how to maintain window invariant are also added to mindmap along with git link with complete java code. This format is used in all sliding window problems and easy to remember/revise for users after learning while playing quiz using problem seeds or pointers to concepts involved. Another example is a Dynamic Programming problem where the basic step is to fill a 2D table with values while solving the problem. This is explored while designing quiz questions and mindmaps for dynamic programming problems. Figure 7 shows a mindmap for a quiz question related to dynamic programming problem to find the length of longest palindromic subsequence.

Given an array of size n and a sliding window of size k moving one step from left to right. Return the array of maxs, where max is a maximum element within window at each step

Description:
Choose all applicable options to solve this

Answer Choices:

- a: Window invariant is: Maximum element within window is arithmetic mode of all window elements
- b: Dequeu interface is very helpful to solve this compared to Stack [Ref](#)
- c: Window invariant is: Maximum element is always head of queue
- d: A single stack is more powerful to solve this than queue/deque
- e: poll retrieves and removes head/first element of list, offer adds element as tail/last element of list
- f: poll retrieves and removes tail/last element of list, offer adds element as head/first element of list

Figure 5: Sliding window problem - Kenocod quiz question

- Given an array of size n and a sliding window of size k moving one step from left to right. Return the array of maxs, where max is a maximum element within window at each step

Head of queue is maximum always

Head (poll, peekFirst) Tail (offer/peekLast)

Window: Queue (List of size k)

[Code Link](#)

- Store array indices in the window/queue
- Each window step, add elements at tail, removing all elements from tail towards head in queue that are less than new element
- Cut short queue from head end if window size exceeds

Figure 6: Sliding window problem - Kenocod Mindmap

- Find the length of longest palindromic subsequence in string s

	a	b	a
a	1	2	3
b	4	5	6
a	7	8	9

```

dp[i][i] = 1
dp[i][j] = Math.max(dp[i + 1][j], dp[i][j - 1])
    If s.charAt(i) != s.charAt(j)
dp[i][j] = dp[i + 1][j - 1] + 2
    If s.charAt(i) == s.charAt(j)
length of longest palindromic subsequence (cell 3)
    = dp[0][len(s)-1]
    
```

[Code Link](#)

Figure 7: Dynamic Programming problem - Kenocod mindmap

CONCLUSION

Kenocod is a very helpful tool for many industry programmers and fresh college graduates who have a tough time preparing for coding interviews to join or change a software job. It’s a common problem to forget most of it that’s learnt before interviews. It’s also confusing and less motivating to pick a question and solve from the huge pool of coding problems on web. Kenocod helps with all needed pointers to concepts involved in solving a coding problem, referred in this paper as problem seeds using the quiz questions. Mindmaps act as revision guide with the best possible representations of coding problem and it’s solution. Kenocod is aimed for a launch on iOS and Android devices once 300+ quiz questions are added to the app. Web app with Kenocod prototype is available at <http://kenocod.herokuapp.com/#!/home>.

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LANGUAGE TEACHER TRAINING PROGRAM EVALUATION USING MIXED METHOD: A CASE STUDY OF A KOREAN IN-SERVICE TEACHER TRAINING PROGRAM ONAL IDENTITY IN HUNGARY

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ABSTRACT

This study investigates a Korean in-service teacher training program evaluation using decomposition modeling (Borich & Jamelka, 1982). Inputs, constraints, and expected outcomes of the program were identified at the initial stage of the program evaluation. The program was evaluated using a mixed method involving quantitative and qualitative data analysis methods. For the quantitative method, the outcomes of the program were measured. Qualitative data analysis using the constant comparative method led to the emergence of several themes. The program evaluation using a mixed method provides some methodological and policy implications for teacher training program developers and evaluators.

INTRODUCTION

Foreign language teacher training programs have attracted the interest of many participants, program developers, and governments worldwide. Particularly, the Ministry of Education in Korea has initiated and developed various kinds of English language teacher training programs to enhance Korean teachers' English proficiency skills. Over the decades, these programs have developed from domestic-only and short-term study abroad programs to domestic and study abroad combined programs that maximize the program effects. Some studies have evaluated the outcomes of teacher training programs (Chang, Kim, & Jung, 2011; Ha, 2009; Kim & Ahn, 2011; Kim, Kim, Lee, & Woo, 2010; Na, Ahn, & Kim, 2008). However, most previous studies have focused on quantitative data collection and analysis rather than qualitative data analysis (Allen, 2002; Collentine & Freed, 2004; Dewey, 2004; Díaz-Campos, 2004; Dufon & Churchill, 2006). Furthermore, recent previous studies conducted tended to overlook the participants' developmental process in teacher training programs and their linguistic, affective, and identity changes over the course of the program. In order to evaluate language teacher training programs more thoroughly, programs should be described and analyzed in more detail involving sub-activities, resources, and goals (Choe, 2013; 2016). Researchers need to capture the organization of a program and how program activities are used to achieve program goals by analyzing the program in greater detail. Otherwise, program evaluation cannot identify the strengths and weaknesses of the program and propose improvements. Thus, this study aimed to address gaps in the previous literature by investigating a case of a Korean in-service language teacher training program evaluation that used a mixed method. This study analyzed the Korean in-service teacher training program using the decomposition model (Borich & Jamelka, 1982) and applied a mixed method to investigate the participants' developmental process in the program. This study conducted a small-scale longitudinal ethnographic investigation of the outcomes, experiences, and perspectives of program participants. The following research question was posed: how can the Korean in-service language teacher training be decomposed for evaluation using a mixed method?

THE STUDY

Program decomposition

The Korean in-service language teacher training investigated in this study was designed to address the needs of Korean teachers of English. The program aimed to provide the following: English language instruction, an orientation to aspects of American culture, instruction on the most current communicative teaching techniques, and the development of lessons and curriculum with special attention to the actual curriculum the teachers needed to use in their home country.

The first step of program evaluation was program decomposition. The purpose of decomposing a program is to indicate explicitly the activities that will occur as students progress through the program (Borich & Jamelka, 1982). Program decomposition allows members of the program, such as administrators, instructors, participants, parents, and students to understand the questions and concerns that may represent conflicting or compatible

interests. A program can be conceptually demonstrated through a series of diagrams. In the first-level diagram (see Figure 1), a box represents the main activity of the Korean in-service language teacher training Program aiming to develop Korean English teachers' communicative competence and teaching English in English (TEE) ability, and to help Korean teachers of English achieve a TEE certificate validating their TEE capability.

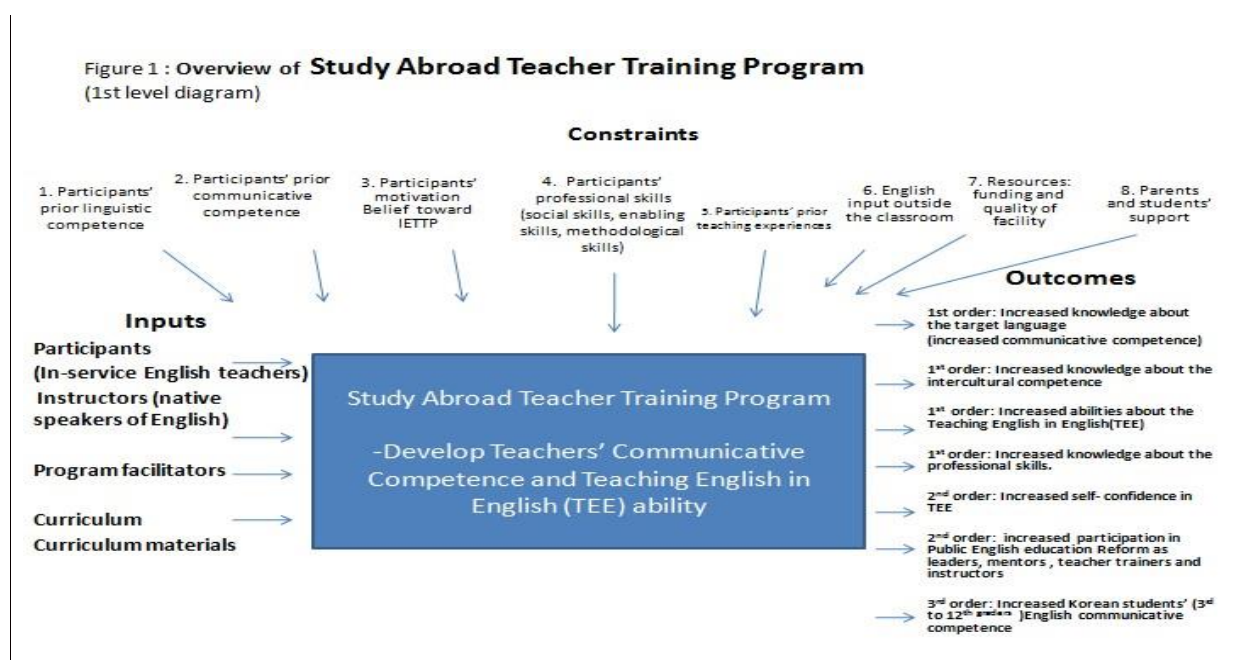


Figure 1: Overview of Study Abroad Teacher Training Program

Prior to decomposition, the inputs, constraints, transactions, and outcomes of the program should be defined and identified. Inputs refer to the activity of the program; changing program participants; as well as staff, facilities, and materials required by the program. Constraints are aspects that moderate or influence the activity or its outcomes that can be measured in degrees on a continuum. Funding, opportunity for practice, organizational climate, and skill levels of trainers are examples of system constraints. Feedback on performance and participants' prior achievements can be program constraints. Outcomes are behaviors resulting from the activity. Participants with a certain skill level can be an outcome. Outcomes need to be realistic and representative. First-order outcomes, which are closer to the program objective, should be used to indicate the program's effectiveness. Second- or third-order outcomes can be used to indicate the overall direction of the program. Transaction is a planned unit of program activity that has a measurable outcome. Enabling outcomes are behaviors produced by a transaction that are prerequisite to subsequent transactions and the attainment of terminal outcomes. Terminal outcomes are behaviors that the program participant is expected to exhibit at the completion of all program transactions (Borich & Jamelka, 1982). The inputs, constraints, and outcome designations reveal how activities or transactions within a program are closely connected.

The inputs of the program under evaluation were participants, instructors, program facilitators, and curriculum materials. The program had several constraints. The primary constraint was the participants' initial English proficiency level at the beginning of the program. The other constraints were the participants' motivation, foreign language anxiety, beliefs about the Korean in-service teacher training program, and foreign language inputs outside the classroom. The quality and quantity of the language contacts with native speakers were another important constraint. The participants' personality and their intercultural sensitivity and available resources may have been constraints as well.

The first-order outcomes were participants' increased English communicative competence, increased intercultural competence, increased TEE skills, and increased knowledge about professional skills such as presentation skills and computer-literacy skills. The second-order outcomes were participants' increased self-confidence in TEE skills and increased participation in public English education reform movements as leaders, teacher trainers, mentors, and instructors. Ultimately, as a desired outcome, the third-order outcome would be increases in Korean secondary school students' English communicative competence if taught by teachers who undertaken this study abroad teacher training program.

The transactions or activities in this program were as follows: teaching communicative language skills, teaching

methodologies, and practicing skills to TEE, developing professional skills, practicing teaching practicum in a real classroom, and participating in a project conference.

FINDINGS AND DISCUSSION

The Korean in-service teacher training program was decomposed to identify its structure, graphically outlining the salient characteristics of the program (Figure 2).

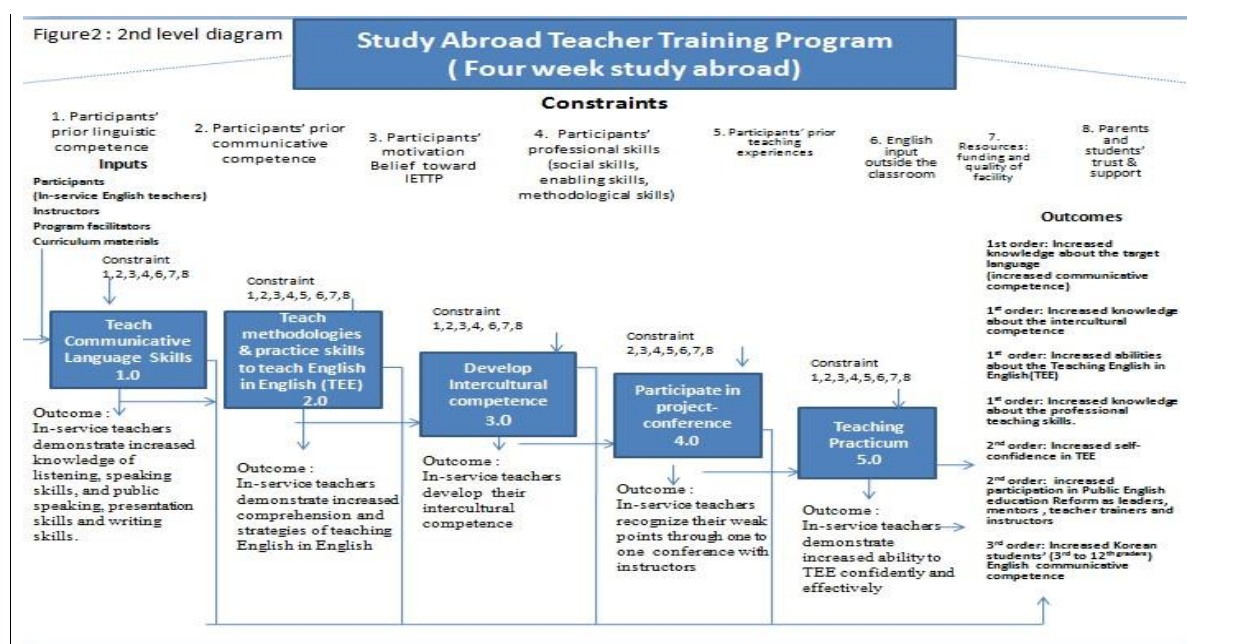


Figure 2 Program Decomposition of Study Abroad Teacher Training Program

Some natural language questions were considered in the program evaluation. Natural language questions are potential questions by stakeholders and variables that need to be measured. Stakeholders are individuals or groups and institutions who affect or are affected by a program's actions, decisions, and performance (Borich & Jamelka, 1982). Weiss (1983) defined stakeholders as group members affected by the program and those who make decisions about a program. Korean teachers of English who were participating in this study abroad teacher training program and native English-speaking instructors were identified as the primary stakeholders. Additionally, administrators, directors, and program sponsors of this program were classified as stakeholders.

According to Borich and Jamelka (1982), stakeholders raise a series of natural language questions about the overall cost and effectiveness of the program. First, Korean teachers can ask natural and apparent language questions such as the following, "Will this program help me improve my English communicative competence?" Variables to be measured to answer the question are overall English proficiency, oral and written fluency, accuracy, and complexity. The instruments to measure the above variables can be formal standardized tests such as TEPS or TOEFL, students' daily entry journals for assessing their writing performance, and oral interviews for assessing their oral fluency and accuracy. For analyzing the data, descriptive analysis was used, and the participants' initial language proficiency scores (the entrance test scores) and posttest scores (the exit scores) were compared.

The second natural language question was "Will the program help me improve my teaching English in English (TEE) ability?" One measure that could be used to answer this question was classroom management skills in English. Qualitative analysis was used to examine the participants' TEE skill improvement. The third natural language question was "After completing this program, can I apply what I've learned into my classroom?" A variable that could measure this question is the ability of participants to communicate effectively in English. I used a self-assessment of English skills as the measurement instrument. A descriptive analysis of the results of

these self-assessments was conducted to understand the applicability of the in-service study abroad teacher training program. In addition, the data elicited from the focus group interviews were used to group the common themes and identify the relationship among the themes.

The development of the participants' TEE ability was one of the most important objectives of the study abroad teacher training program. The Ministry of Education in Korea has aimed to strengthen the Korean Public English education by training Korean English teachers to develop their communicative competence and TEE ability. Korean public English education is expected to further strengthen by training English teachers. Program evaluation could contribute to meeting social and parental needs, maximizing the cost effectiveness of the program, and making better decisions in the future about Korean public education.

In this program evaluation, a mixed method, including qualitative and quantitative data analysis, was applied. For formal assessment of the participants' English proficiency, a web-based pretest at the beginning of the program and a posttest at the end of the program were administered. With regard to speaking, each participant was interviewed by native English-speaking instructors. With regard to writing, they were asked to write an essay on one of several topics for half an hour. Their interviews and essays were assessed by their native English-speaking instructors using holistic rubrics. Their interviews were collected thrice—during the study abroad program, at the beginning of the program, in the middle of the program, and at the end of the program on a volunteer basis.

For qualitative research, the participants' journals, reflection papers, and interviews were collected. The interviews were semi-structured in order to include certain preselected themes. In the initial interview, participants were asked about their prior travel and language learning experiences, their reasons for applying for the study abroad teacher training program, and their expectations about the United States. Midterm interviews elicited a description and evaluation of the experience, including daily routines, questions about social contacts, and comments about this program. In the final interview, the participants were asked to evaluate the experience in its entirety and to comment on the extent to which it matched their initial expectations. They were asked to characterize their English language development and motivation for continued study (Kinging, 2008, 2009). In addition, the interviewers asked the participants to comment on their relationships to the experience. In their journals, the participants were asked to write a minimum of one entry per week recounting any events they judged relevant to their language learning. Participants were also provided with calendar dairies in which they recorded detailed information about their language use at three specific points during the study abroad. Additionally, the participants' journals and writing assignments were collected every week and analyzed to measure the changes in their intercultural sensitivity, their affect such as their motivation and anxiety, and their perception of themselves as teachers of English.

The participants' dailies entries, reflection papers, interview data, and my ethnographic field notes were transcribed, coded, and analyzed qualitatively. In addition, a few participants were interviewed after they had returned home to examine changes in their teaching and motivation or foreign language teacher anxiety.

All the qualitative data including interview transcripts and the participants' reflection papers were collected, analyzed, and interpreted based on the constant comparative method of grounded theory (Strauss & Corbin, 1998), which is commonly used for analyzing, coding, and interpreting data in qualitative research. Several themes were identified from the data of the interviews, field notes, and participants' daily journal entries. One theme was increased awareness of cultural and linguistic differences. Another theme was the participants' increased intercultural competence. Some aspects of these themes are quite similar to previous findings on the topic (Heather Allen, 2010; Allen & Herron, 2003; Jackson, 2008; Aveni, 2005; Dufon & Churchill, 2006).

These qualitative results revealed how the participants' motivation changed over the program, the developmental process of the participants' intercultural competence, and dynamic nature of language learning experiences in a study abroad teacher training program. In addition, it was revealed that the participants' experiences were related to their identity formation and language learning in the study abroad program. Using the mixed method, many significant themes that were overlooked by some previous language program studies were identified and investigated thoroughly.

According to Royse, Thyer, Padgett, and Logan (2001), evaluation researchers have begun to employ ethnographic fieldwork in educational contexts with the primary aim of better understanding the learning processes of participants in a particular program. This approach in this program evaluation was particularly useful in a small program in which the researcher could gather ethnographic data while developing a close relationship with participants (Royse et al., 2001). This approach enabled me to identify subtle aspects of the

program that would have been missed by forms of evaluation that focus exclusively on outcomes. Using this ethnographic approach in my study helped me understand how participants develop linguistically, affectively, and interculturality.

Another significant advantage of this process-oriented evaluation was that the participants were continually encouraged to reflect on their language and cultural learning, including both positive and negative elements (Choe, 2012; Dufon & Churchill, 2006; Freed, Dewey, Segalowitz, & Randall, 2004; Paige, Cohen, Kappler, Chi, & Lassegard, 2002). Overall, integrating qualitative and quantitative methods allowed me to perceive the detailed aspects of this program holistically and provide some pedagogical implications for maximizing the effectiveness of study abroad teacher training programs (Kiely & Rea-Dickins, 2005).

CONCLUSIONS

This study evaluated a Korean in-service English language teacher training program using a mixed method. The mixed investigation method provided extremely useful information that had been overlooked by previous product-oriented language program evaluations. The data analysis using the mixed method focused on the process of the participants' developments. Thus, the program evaluation revealed the linguistic, affective, and intercultural changes in participants over the program. To overcome the limitations of the previous literature, future research can apply this mixed method using various instruments such as formal language assessment, self-assessment, and semi-conducted interview protocols. Furthermore, the decomposition method that analyzed the program prior to its evaluation was descriptive and informative. However, this study has some limitations. One limitation is that after-program effects were not investigated in this study. This study does not discuss how the participants changed after the program and how this program influenced participants' linguistic competence, affects and TEE skills in their teaching practices (Heather Allen, 2010). Future research can focus on investigating after-program effects for a more reliable and useful teacher training program evaluation for program developers. Despite these limitations, this study also provides methodological and policy implications.

This study was conducted with various kinds of research methods to investigate the in-service teacher training program within more detail. I used ethnographic observation and data collection to obtain a more in-depth program description and to investigate how, when, where, and what the participants experienced. For trustworthiness, I used triangulation, including member checking, to ensure that what I interpreted was in line with what the participants meant. To measure the validity of the qualitative data, I met some of the Korean teachers after program completion, presented my findings, and asked them if these were similar to what they remembered of their experiences. They confirmed my findings and added more detailed interpretations to my findings.

The mixed method using both quantitative and qualitative methods was well designed for investigating the study abroad teacher training program with its dynamic and intertwined interactions between participants and local people. The feedback by participants provided insights for study abroad in-service teacher training programs in a manner that quantitative research cannot.

In terms of the efficiency and effectiveness of time and funds, the effects of this program appeared to be similar to those of domestic programs. However, what the participants learned, felt, and experienced significantly exceeded their expectations. Therefore, policy makers should be aware of the underlying critical effects of study abroad in-service teacher training programs and attempt to adapt these benefits when they plan domestic programs or future study abroad teacher training programs.

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LEARNING AND TEACHING WITH WEB 2.0 APPLICATIONS IN SAUDI K-12 SCHOOLS

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This study aims to understand teachers' perspectives of the use of Web 2.0 applications in learning and teaching and to explore the barriers to their use. The sample of this study involved teachers from primary, middle, and secondary schools in the Kharj region. The total sample consisted of 352 teachers. A quantitative survey instrument was utilised. Analyses of the resulting data were performed using both descriptive and inferential statistics. The findings of this study indicate that most of the participant teachers are familiar with Web 2.0 applications. However, their uses in education seem to be rarely mentioned. As they reported, the top barriers preventing them from the effective use of Web 2.0 applications in education are related to school level barriers, such as the large number of students in the classroom, the lack access to the Internet in schools, and the lack of a clear plan for the use of Web 2.0 in education. The findings also show that there is a significant difference in teacher responses about Web 2.0 applications in education in accordance with gender, educational levels, and teaching subjects. Finally, recommendations for teachers, educators and educational decision and policy-makers are provided. Recommendations for further research are also offered.

LEARNING BY DESIGNING: INVESTIGATING NEW DIDACTIC METHODS TO LEARN ARCHITECTURAL DESIGN

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ABSTRACT

The paper aims to investigate the experiential learning approach applied to the teaching of architectural design in university courses. The introduction of IT tools in architecture in the last decades, has introduced new questions in how to teach the computer-aided architectural design to students and how to use these tools properly. Among these themes, parametric design tools have become relevant for many researchers and designers around the world. This paper aims to describe how to provide students the critical tools to use the new parametric design softwares consciously, showing also the results of the students' research projects for the 3rd year Architectural Design Course. As mentioned before, the course is set on learning by doing and experiential learning didactic paradigms. In the first semester, the students were asked to imagine new complex stereotomic vaulted systems using parametric softwares. In the second semester, following the latest developments in sustainable architecture, the students were asked to imagine and fabricate reactive devices in order to design smart building envelopes, through dynamic sunlight filtering. At the end of the year, the students were able to use the skills developed during the whole year, designing a more complex architecture, like an innovative high school.

Keywords: Experiential Learning, Learning By Doing, Design Studio Pedagogy, Digital Design, Fabrication Laboratory

BACKGROUND: INFORMATION TECHNOLOGY AND DESIGN STUDIO PEDAGOGY

The introduction of IT tools in design can be traced back to 1959 when General Motors starts an experimental project to digitize, store and print the many design sketches generated by the various departments of the company. The project will later lead to the development of DAC-1 - Design Augmented by Computer, in collaboration with IBM. In the mid-sixties, Ivan Edward Sutherland (1964) during his doctorate at MIT, develops Sketchpad, a computer program which is considered as precursor for modern CAD systems and the starting point for computer graphics. The program was the first to use a graphical user interface (GUI), a display, and an optical pen. Inspired by Sutherland's work, a few years later, Eric Teicholz developed GRASP at Harvard's Graduate School of Design, a program that already developed a generative-like system. In 1977, William J. Mitchell published the book "*Computer aided-architectural design*", providing a comprehensive introduction to the fundamentals of computer-aided architectural design for the students of architecture, the architect in practice, and the computer professional who is interested in learning about this application area (Mitchell, 1977). In 1981, IBM produces the first personal computer, named PC 5150. In 1984, Apple released the Macintosh, the first personal computer with a fully graphical user interface. In 1982, Autodesk releases AutoCAD, the first computer-aided design software; in 1985 Microstation and the first version of ArchiCad have been released. In the nineties at Columbia University in New York, the "paperless studio" were created by Greg Lynn, Hani Rashid and Scott Marble. Already in 1988, Robert Dvorak, in a paper titled "*Designing in the CAD Studio*" describes a completely electronic environment where students are called to use the computer as the only design tool (Dvorak, 1988). Since the nineties, architects like Greg Lynn and NOX begin to explore the use of software with the intention of creating new design processes, no longer using the software as a means to carry out a project that could be achieved in other ways, but using the software itself as a design tool. Towards the end of the eighties, Frank O. Gehry also began experimenting with a "paperless" approach to the design and

construction of architecture. In 1992 the studio designs a fish-shaped pavilion to be placed on the Barcelona's seafront. The three-dimensional computer model was derived from a physical maquette. The surface thus generated was then refinished in order to carry out structural analyses. The production and assembly of the structural components were completely directed from the digital model (Naboni & Paoletti, 2015, p. 8). It is clear how it becomes increasingly important to find the most appropriate strategies for materializing projects developed with digital tools: digital fabrication was born. Between the 1990s and the 2000s, the widespread diffusion of computers in architecture has not only changed the way architects design buildings, but it has also helped to change the way they are built. Branko Kolarevic points out that, following the example of Gehry, architects realized that the information of the digital model could be used directly for manufacture and construction purposes, thanks to the use of numerical control machines (Kolarevic, 2004). A few years before, in 1998, at the MIT, Neil Gershenfeld – director of the “Center for Bits and Atoms” – inaugurated the course called “How to make (almost) anything”. Gershenfeld conceives an interdisciplinary course in which students can learn to use industrial CNC machines to develop fully functioning experimental prototypes. In 2001, the first digital fabrication laboratory (Fab Lab) was created at MIT. Since 2001, the spread of the Fab Labs and the culture of “makers” has grown more and more year by year, changing the teaching methods of architecture, engineering and design schools. Recent publications have been questioned about the future of pedagogy of design studios (Salama & Wilkinson, 2007) and on the relationship between architectural design education, technology of architecture, and information technology (Caneparo, 2007). Other studies have been conducted on the theme of digital architecture as a challenge for design pedagogy (Oxman, 2007) and, more specifically, on comparative evaluation of parametric design systems for teaching design computation (Aish & Hanna, 2017). Finally, other research has been conducted in order to update traditional didactic methods within the fields of digital design and fabrication (Fallacara, 2009).

TOWARD A NEW DIDACTIC METHOD FOR DESIGN STUDIOS

The goal of the research is to overcome the usual didactics of the architectural design studios in Italy, which is basically structured in two parts: lectures and projects reviews. This approach aims to transfer knowledge only according to the tastes and the cultural background of the teachers. Therefore, each teacher transmits its own vision of architecture to his students. In this way, the students are usually forced to adapt their own vision to the preferences of the teacher, studying passively and without involvement (Barberio, Colella, & Fallacara, 2016, p. 585). Thus, since the academic year 2015-2016 (Fallacara, Colella, & Barberio, 2016, p. 28-29), the authors have been investigating a new didactic method for organizing the third year architectural design studios at Politecnico di Bari. The aim is to create a learning process where students are actively engaged; they are required to participate to demonstrate a process, analyse an argument, or apply a concept to a real-world situation. Students are then deliberately “forced” to face uncertain situations, adapt and manage the stress. This allows students to develop their problem solving skills through creativity that is a key part of their job. The current state of the labour market, in fact, requires a considerable capacity to adapt to various changes; consequently, what it really matters is the ability to acquire new knowledge quickly and to use that knowledge to build new skills (Fallacara, Barberio, & Colella, 2016, p. 14-17). This approach has been defined “experiential learning” by the educational theorist David Kolb (1984). This concept was inspired, among others, by the book “*Experience and Education*” (Dewey, 1938) in which Dewey criticizes the traditional teaching methods since knowledge is transmitted exclusively through the books and students are not involved in the learning process. Besides these important concepts, the course also examined learning experiences and perceptions of the flipped classroom model. The forerunner of this new teaching methodology is Professor Eric Mazur from Harvard, who in the book “*Peer Instruction: A User’s Manual Series in Educational Innovation*” (Mazur, 1997), outlines some of the key concepts that will influence the flipped classroom learning method, through the development of a didactic strategy called “peer instruction”. With this method, the role of the teacher results radically changed: he guides the students in processing the project critically and actively, encouraging him to face and solve complex tasks.

THE IMPORTANCE OF A MINDFULNESS DESIGN APPROACH

The third year architectural design course is the time when the basic training of the first and second year needs to mature, both from a practical and critical point of view. After the first two years of undergraduate studies, students start naturally (and hopefully) to develop their own design mentality that, although immature, academics have a duty to direct toward virtuous paths, without censorship and ideological preconceptions. It is clear that this process can only be implemented if the teachers themselves are able to develop such a mentality. On this subject pedagogues Bauback Yeganeh and David Kolb (2009) have published an article titled “*Mindfulness and experiential learning*”. In this paper, the two authors outline the common aspects between the opening and the mental fullness of the ancient philosophical and meditative practices, known today with the scientific name of mindfulness, and the theoretical pedagogical approach theorized by David Kolb. In particular, the authors compare the characteristics of the mindfulness approach (both meditative and socio-cognitive) and its opposite, mindlessness. By summing up, the first approach, from a socio-cognitive point of view, is

characterized by context sensitivity, openness to new information, ability to evaluate multiple perspectives, to be aware of the present moment, to be proactive and non-judging; its opposite is based on the development of a repetitive mentality, which follows predetermined rules without the ability to change them, routinely and, above all, concentrated alternately on the past or the future, without ever focusing on the present moment. Kolb and Yeganeh in their paper have defined the “mindful practices”, which can be summarized in four main points: the development of concrete experiences based on actual reality; the development of reflective observation; the development of abstract conceptualization practices; and, finally, the active experimentation. From an architectural point of view, this may represent a virtuous cycle that begins with the actual reality of architecture (in its formal, material, and symbolic aspects) and returns, after various appropriate reflections and conceptualizations, to the direct and active experimentation for the design of architecture.

The authors believe that overcoming the mindlessness approach is the right way to improve the teaching of architectural design. Indeed, the development of a routine teaching has, as you can imagine, the adverse effects on the student’s development of a free and proactive design culture. Consequently, the student with a still unclear personality, instead of looking for different ways to emerge his unexpressed potential, will end up with passively accepting what his teacher has proposed, with the consequence of extinguishing the possibility of developing a mature and conscious design thinking, based on “learning by designing”. In addition, it is important to emphasize that the architectural project is not only a technical operation aimed at problem solving, but it is also a cultural and critical operation that defines the role of architecture in the society in which we live and the best ways to transform of the built environment. The outcomes of the course, more fully presented in another publication (Fallacara, Barberio, & Colella, 2017), are the result of an approach as much as possible finalized to the conscious development of the students unexplored internal resources for the elaboration of the architectural projects. Thus, doing this through the theme of architecture competition has a dual purpose: 1) first of all, to raise awareness of students about one of the main ways in which architects can contribute to the transformation of society through architecture; 2) secondly, to provide the students the critical and practical tools to develop, from the very start, a design activity parallel to that carried out during academic design studios.

Collecting as many design experiences as possible before graduating, in addition and alternatives to academic projects, is crucial to obtain a better job position after graduation and also to understanding architecture more deeply. After graduation, in fact, students have to deal with the work done up to that point. The feeling of not being ready to face the challenges of the future can be very strong. The risk of not being represented by projects drawn up during university exams is really high, because, as said, design studios are heavily influenced by the teachers. The situation becomes more complicated when students realize that the developed projects are very heterogeneous, as they have been developed by trying to satisfy the “client” of the moment, the professor. At this stage architecture competitions might be a great exercise in order to develop a mindfulness design approach. Thus, participate in architectural competitions in the early stage of the career can be useful for several reasons. For students it is not just an opportunity to expand and enhance their own portfolio, making it more homogeneous and consistent, but it is an incomparable opportunity to explore the unexpressed potential and accepting comparison with other professionals.

ORGANIZATION OF THE COURSE AND DESIGN TOPICS

The course is based on three main interrelated areas: didactics, research and designing. Continuous research and experimentation often lead, at first, into a “dark tunnel” where it is difficult to navigate. Subsequently, the confusion diminishes when mental ideas and images become forms and structure, clearly outlining their constructive potential. In this research process, a path that has never been investigated before is full of uncertainties, especially for a student not yet fully educated. However, getting used to a healthy and controlled risk leads to the development of creative and design skills as a true lever to transform the architecture student into an architect. Getting used to the risk and experimentation raises awareness of the concept of responsibility, inherent in the architectural profession (Fallacara, Barberio, & Colella, 2016, p. 14-17).

The entire annual course is divided into two semesters, conceived to have two key moments: the first half dedicated to learning (knowledge acquiring), and the second half dedicated to the development of the final project (skills development). Basically, the final projects were developed in a relatively short time, from February to May. The students of the course were divided into project teams of 5-6 people in order to simulate the future professional activity. In fact, it is a common practice that the working groups, even multidisciplinary, work in unison and according to their competences, in order to achieve a common purpose. During the activities of the third year design studio, the authors aimed to transfer to the students the “incomprehensible euphoria” of seeing materializing the design imagined by their minds. A slow and constant maieutic operation, carried out during the weekly reviews, has allowed to students to transfer the project from the world of ideas to materialization on paper and small prototypes (really interesting in many cases), simulating exactly what happens in a professional studio of architecture while participating in an architecture competition.

In detail, in order to make this approach effective, in the first semester of the course students were asked to imagine reactive devices designed to realize a smart building envelope through dynamic sunlight filtering. Therefore, using digital tools (softwares) and analogue tools (*maquettes*), students have developed inedited prototypes of kinetic/responsive architectural modules suitable both for structures and façades. Students were then asked not only to design a device by comparing with new digital software and tools, but also to test the design outcomes at a trial stage where the physical models of the designed elements were produced. Direct experimentation has been preceded by theoretical lectures on the subject, in order to provide significant examples to support the design research work to be carried out. Teachers have also suggested to deepen specific topics when needed to complete the final model during reviews. The results produced are different depending on the creative inclinations of each working group.

In the second semester, instead, students were asked to comply with a call for a design contest. The selected call was the one proposed by the Italian Ministry of Education, University and Research (MIUR), which in 2016 launched a call for ideas in a single phase, with the aim of acquiring project ideas for the creation of innovative schools, from an architectural, technological, structural and antisismic point of view, energetically efficient and characterized by the presence of new learning environments capable of adapting to multiple didactic and functional methods for differentiated activities. The competition involved 52 territorial areas, including the one in the city of Matera for the design of the “Gaetano Briganti” Agricultural Technical Institute, which was chosen as design theme of the course. This choice is dependent on two main factors. The first is certainly linked to the location of the Technical Institute, in the city of Matera, not far from Bari – the city where is located our University (Politecnico di Bari) – within the landscape context between Puglia and Basilicata. Matera was the subject of study and annual theme of the previous Architectural Design Studio in the academic year 2015-2016 (Fallacara, Barberio, & Colella, 2016). The second reason is related to the specificity of the design requirements of the call, which foresees in this case the architectural formalization of two places for the acquisition and transmission of very clear knowledge: the school and the greenhouse: the first place related to the transmission of knowledge and the second to the development of know-how practices, in a constant biunivocal relationship.

OPERATIVE RESEARCH: KINETIC AND RESPONSIVE ENVELOPES AS SUSTAINABLE DEVICES

Since its origins, architecture has been characterized by the presence of stable elements, usually heavy, and moving elements, generally lighter. The first category includes the walls, and second, the windows. In historic building, masonry carried out both the function of structure and building envelope, protecting the indoor ambient from the external variable climatic conditions, while guaranteeing, as far as possible, a constant temperature within the building. Moving and lighter parts, such as windows or covering systems, allowed light and air to penetrate or not into the environments, as needed. This clear distinction is gradually diminished from the widespread diffusion of the framed system, made of reinforced concrete or steel, during the reconstruction after the Second World War. With this system, a supporting skeleton ensures building stability, allowing more freedom for the organization of the interiors. Thus, the thickness of the external infill walls, when not completely replaced by curtain walls, have been progressively reduced. Without having to perform a structural function, the reduced thickness of the infill walls consequently fails to adequately protect the building against the external climatic conditions. Later, the introduction of new heating and cooling systems have permitted of external climatic conditions to be neglected during the design, since internal comfort might be guaranteed through the use of large amounts of energy that in the past was cheap, given the illusion that raw materials such as oil, gas and coal were unlimited. Likewise, the importance of façade openings as a tool for regulating natural lighting and ventilation and as an unparalleled medium of communication with external nature is ignored. However, with the oil crisis in the 1970s, the first steps towards environmental consciousness and the search for alternative energy sources began. These energy crises, in fact, caused the crisis of the development model of industrial civilization and called for reflections and debates on the founding principles of the model, based on the irrational belief that industrial development and demographic growth would be unlimited (Meadows et al., 1972). The growing environmental sensitivity led to the concept of sustainable development in 1987 (United Nations General Assembly, 1987, p. 16), from which the concept of sustainable architecture is born. For sustainable architecture, light control and natural ventilation have returned to be of fundamental importance. Nevertheless, these aspects are dealt and resolved in a very different way from the traditional architecture. Among the most interesting ways, combined with the use of electricity from renewable sources, there are kinetic façades and responsive surfaces. At the basis of these interactive elements there is a complex system of technologies capable of detecting and processing the data necessary for the realization of movements. The sensors therefore assume great importance: they are devices comparable to nerve endings under our skin, that detect temperature changes and send to the nervous system the information needed to prepare a response. Research on kinetic and responsive façades is a complex issue, whose advancement is largely permitted by projects with very high budgets, or conducted by

doctoral or master researches in centres such as the MIT or the University of Stuttgart. Academic or design researches on the subject are based on collaboration with other fields such as information technology, mechanical engineering and physics.

The author's attempt is to introduce these themes at the undergraduate level of studies, i.e. during the first three years of university education. This choice is based on the belief that, albeit limited to the experience of a generalist course such as design studio, it is important to deal with these issues not as end-to-end experiments but as an integral part of a complete architectural design. The course was organized to provide, during the first lessons, the parametric design rudiments, using the parametric deformer of 3D Studio Max and Grasshopper. Following these introductory lectures, students developed first digital models to familiarize themselves with parametric tools never used before (Fig. 1).

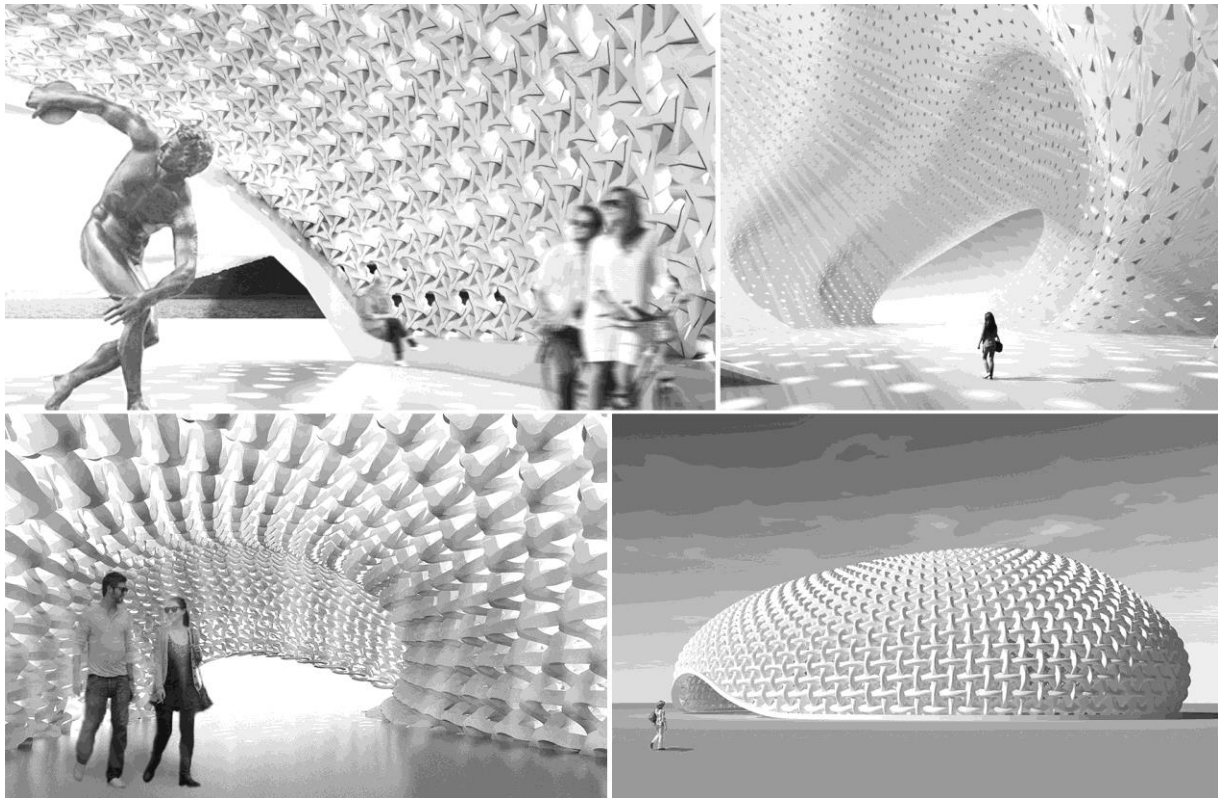


Figure 1: Exercises on the theme of curved morphologies based on parametric deformations. Softwares: 3D Studio Max, Rhinoceros and Grasshopper.

Exercises have revealed a certain degree of difficulty from students in controlling the forms allowed by these softwares and translating design concepts into the reality of construction. This gap is due to an inadequate training that students have on the theme of construction-aware architecture, which the course tries to reduce through a continuous dialogue between teachers and students. These difficulties have been duly taken into account before starting the course, but the experiential approach is valid if the student “faces the crisis” so that the difficulties induced can stimulate the development of problem solving skills.

KINETIC FAÇADES AND RESPONSIVE SURFACES: DIFFERENCES AND SIMILARITIES

Therefore, the control of natural light, indoor temperature and ventilation, is one of the potential of responsive design through which it is possible not only to improve the internal comfort conditions but also the energy efficiency of the architecture, thus reducing the environmental impact. Responsive architecture aims to combine the innovation of new technologies with respect for the environment. The kinetic façades are based on the principle of movement of the shading elements according to the sun position throughout the year, so as to guarantee a high shading during the summer, and an increased penetration of the sun's rays in the winter. As mentioned above, the kinetic façades are characterized by the use of sensors to analyze the external climatic conditions, data processing systems and mechanical devices in order to move the shading elements. The synergistic work of these components makes architecture an adaptive organism, similarly to a living organism. It reacts to the stimuli of external conditions, and from these it must be protected and fed in the same time. A

pioneer in this regard is the French architect Jean Nouvel with the project for the *Institut du Monde Arabe* in Paris (1981-1987), one of the most famous architecture featuring kinetic façades (Linn, & Fortmeyer, 2014). Although characterized by principles similar to those of kinetic façades, responsive surfaces are made of a geometric façade pattern consisting of generally small, very thin and light elements, programmed to move in a predetermined direction in response to a stimulus, such as movement, the amount of moisture present in the air and the amount of solar irradiation. The movement of responsive surfaces can be based on the use of active sensors and mechanical elements, as well as on the passive deformation properties of the material, depending on its physical characteristics. On this latter axis are based some researches of Achim Menges (2009) and the Institute of Computational Design and Construction (ICD) of the University of Stuttgart, where the deformation of the responsive elements takes place according to the different amount of moisture present in the air, thanks to the hygroscopic and elastic properties of wood veneer used (Menges, & Reichert, 2015) or materials specially designed for the purpose of being 3D printed (Correa, & Menges, 2015).

OUTCOMES OF THE COURSE: PROTOTYPES AND PROJECTS

As previously mentioned, students were asked: 1) to design a kinetic/responsive devices by using new digital software and tools; 2) to test the design outcomes by fabricating physical models of the designed elements. Thus, all groups were committed to designing a kinetic/responsive devices featuring a more or less complex mechanism capable of ensuring its movement. The design of these devices has been done using three-dimensional (Rhinceros) and parametric (Grasshopper, SolidWorks) modelling tools (Fig. 2).

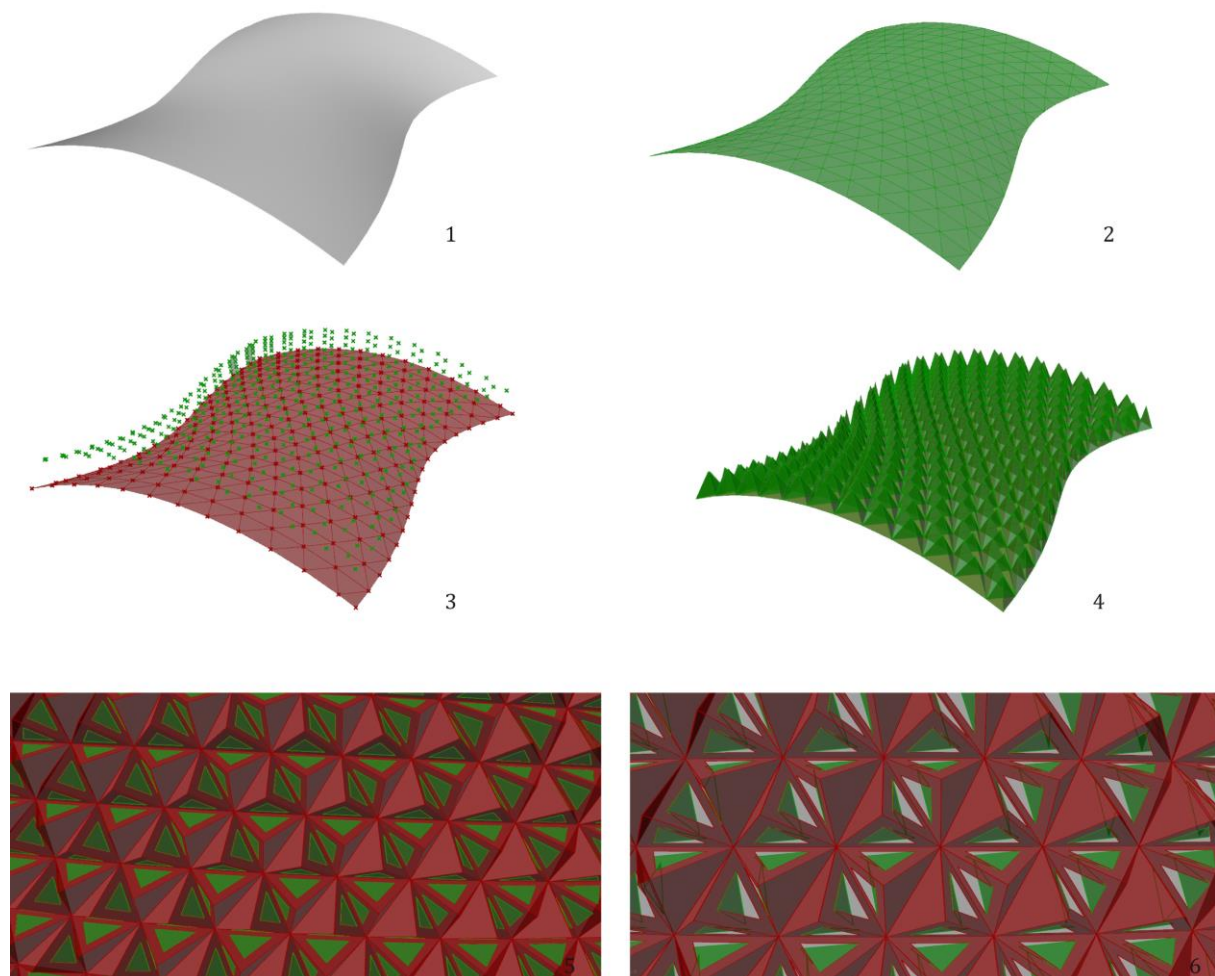


Figure 2: Example of a parametric envelope consisting of kinetic shading elements (students: Bagorda, Benedetto, Calefato, Carbonara, Corigliano, Spaho). Software: Grasshopper.

The specificity of the didactic experience of the course did not require the real implementation of sensors and electronic manipulation mechanisms, fields specifically related to mechanical engineering and electronics.

Students have used several digital fabrication techniques, such as 3D printing, laser cutting, CNC milling machines, but also in striving to design mechanisms specifically designed according to different needs. Various materials have been used, including wood, rubber, fabric and paper (Figs. 3-4).

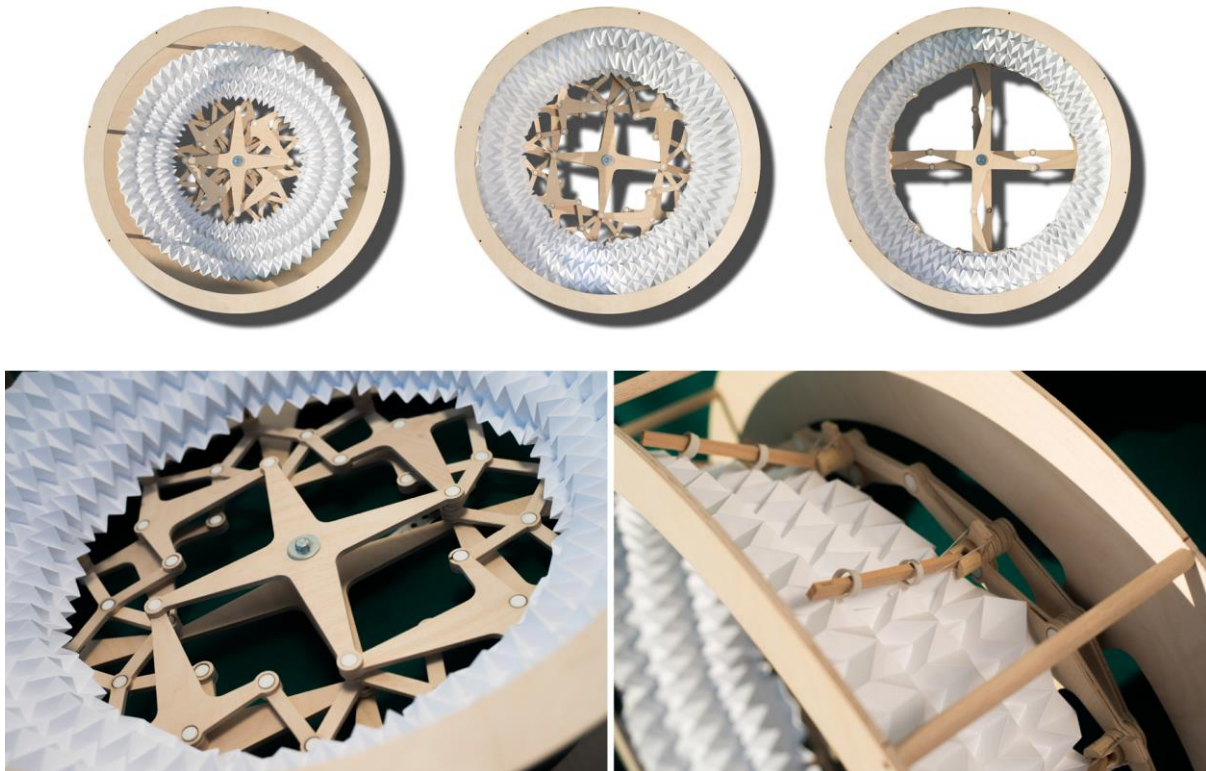


Figure 3: Model of circular-shaped kinetic shading system (students: Cardetta, Maggipinto, Milano, Misto, Pesole, Acet). Software: SolidWorks.

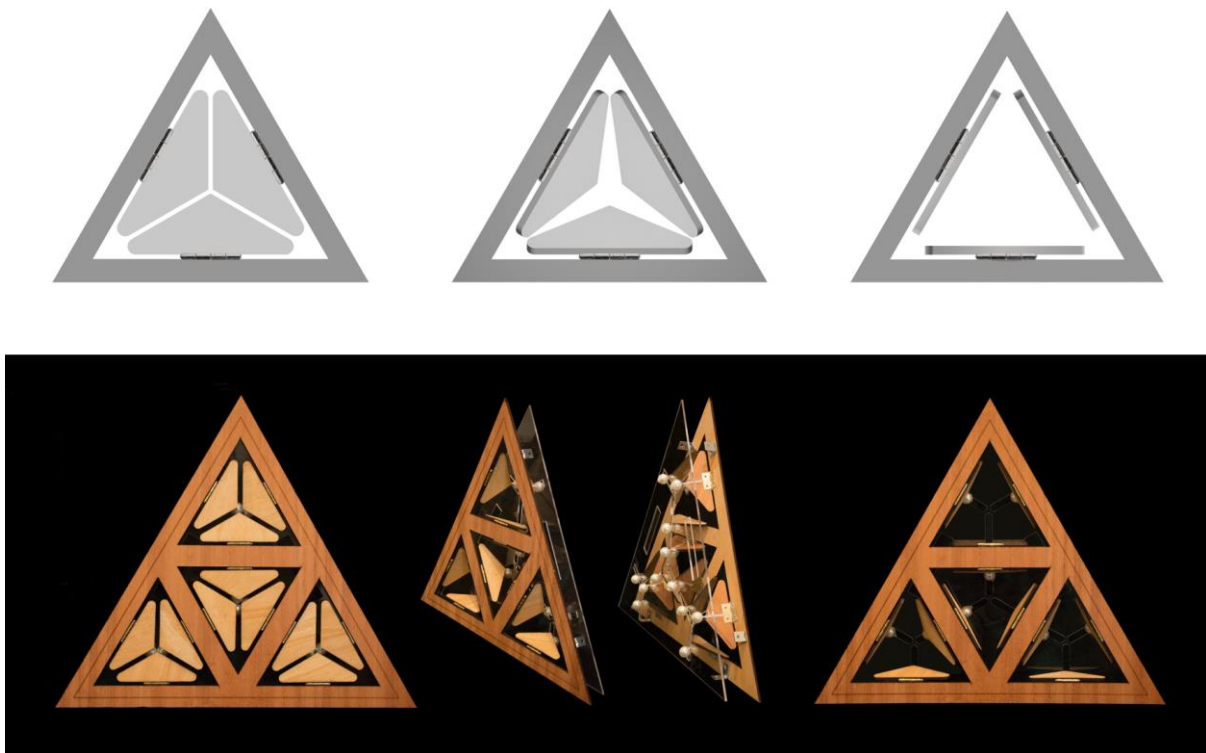


Figure 4: Model of triangular-shaped kinetic shading system (students: Angarano, Curci, Delcuratolo, Herrmann, Porcari, Tarallo). Softwares: Rhinoceros and Grasshopper.

Among the various models developed by students, the most interesting is the model inspired by the researches related to *Bistable Auxetic Mechanical Metamaterials* (Rafsanjani, Pasini, 2016, pp. 291–296), a system based on an evolution of auxetic materials. Auxetics are materials that have a negative Poisson's ratio: when stretched, they become thicker perpendicular to the applied force. Conversely, if compressed, they close, causing a sample restriction. Starting from this research, the group of students aimed to develop a hexagonal façade module, in which the movement of the parts was modulable, reversible and perfectly controllable. The hexagonal module consists of a central core and a frame that encloses it. The hexagonal central core is geometrically composed of twenty four equilateral triangles, connected to each other at the vertices, through small hinges. The six frame components, one on each side of the hexagon, are further divided into two isosceles trapezoids (Fig. 5).

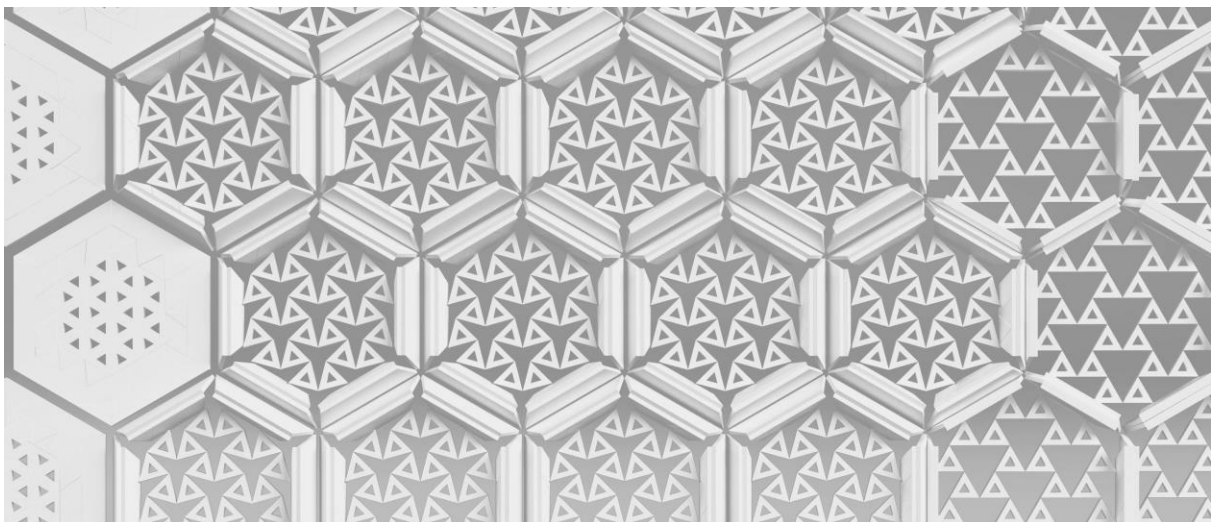


Figure 5: Example of parametric wall obtained with auxetic kinetic pattern (students: Cananzi, Indrio, Ditaranto). Softwares: Rhinoceros and Grasshopper.

The way the triangles are joined together, that is, only through the vertices, allows after the opening to bring them back to the initial position. The movements of the whole pattern is guaranteed by the movement of the parts of the frame to which the triangles are joined: in fact, each of these rotate in such a way that the frame, from a coplanar position to the triangles, assumes an orthogonal configuration, with respect to them, in its final configuration. The triangles, on the other hand, always move on the plane, moving each one according to a different trajectory and rotating up to a maximum of thirty degrees; they, in the open configuration, occupy the space left free from the movement of the frame (Fig. 6).

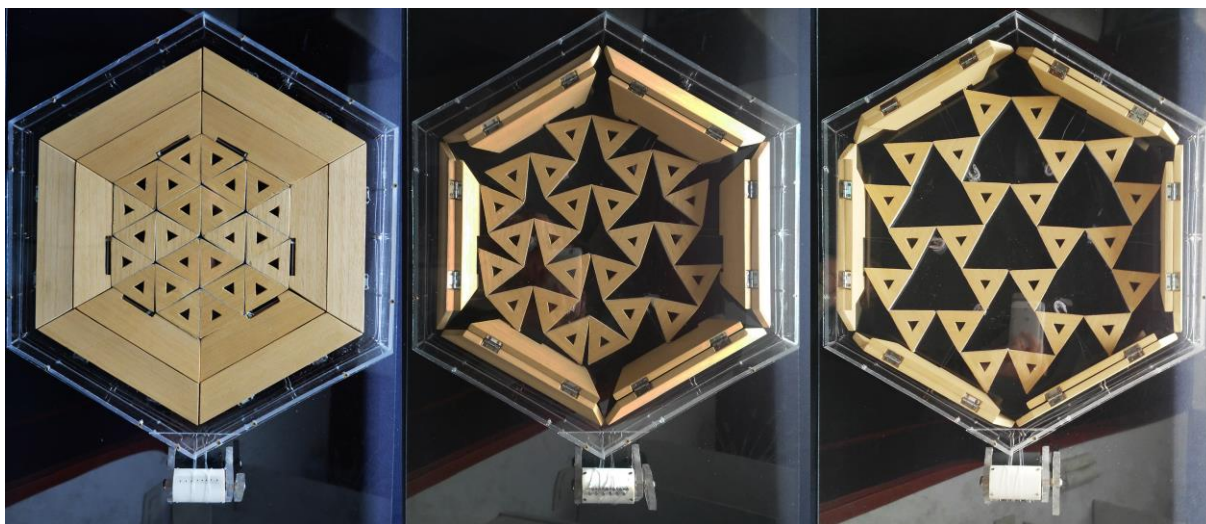


Figure 6: Auxetic kinetic pattern working model (students: Cananzi, Indrio, Ditaranto).

A reciprocal movement is then created: when one part closes leaving space to the other, the other parts open by taking the space left by the first. The movement of the responsive element, in the transition from open to closed configuration, generates other intermediates new patterns, obtaining a dynamic light filtering. The real model is made of wood and uses a system of nylon wires that allow movements. The model was then applied to the final design, in order to create a responsive skin for an innovative school designed for Matera, in the South of Italy (Fig. 7). Other projects are shown in Figure 8; they also use light regulation devices for the design of smart building envelopes. Some of them are used in the design of the greenhouses, to avoid overheating phenomena during the strong irradiation of the summer season.



Figure 7: The project of the school based on the auxetic kinetic façade (students: Cananzi, Indrio, Ditaranto).



Figure 8: Other projects developed by students.

CONCLUSIONS

Concluding, it is possible to state that the experiential approach of the course has allowed students to experiment on the theme assigned, according to their real creative inclinations. In this process, the teacher takes a guiding role, directing the students' creative efforts to the most appropriate direction. In addition, the need to physically realize the prototypes in order to verify the kinetic mechanisms, made them aware of their design choices, eliminating (or at least reducing) the distance between digital abstraction and real fabrication. Furthermore, this process has induced a sentiment of enthusiasm for direct creative experimentation, which teachers should always stimulate.

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LEARNING DESIGN BY DESIGN EXPERIENCE

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ABSTRACT

Project design verve: this is the key concept on which the experience in project design pedagogy of the Milan Polytechnic Design School (Italy) is focused in the field of research and training. It is also the key concept that this paper wishes to summarize and formalize in terms of results and intuitions.

The theoretical and methodological evolution of industrial design project is shaped by cultural, economic and social framework.

The paper will analyze issues related to design project pedagogy in an economic context that interests universities, large corporations and international companies, researched through a survey on the new figure of the designer in the era of the information society and through a wide range of case studies, true evidence of project experience in training.

The main purpose of this paper is therefore to indicate pedagogical guidelines for the university project that will help fine-tune the student's training path, seen as a real experiential path, whilst at the same time demonstrating the need and the effectiveness of this kind of path.

Four main topics are examined and investigated: cognitive processes, the new figure of the designer, new products and intangible goods and finally tools and experience in project design pedagogy.

COGNITIVE PROCESSES

The starting point refers to learning systems of project pedagogy, its schemes and experiences that need to be transferred during the course of training. If you consider the extended and complex course that one has to follow to learn how to "articulate a project" according to a pre-defined and sequential process you'll can or even need to split the problem into different parts to manage simpler arguments and solve it. You could even state that educational experience today takes on a typical itinerant connotation, in the different phases of "nomadic learning", with the aim of an actual inter-disciplinary experience, designed to develop an awareness of what it means to be a project designer and to provide a set of appropriate tools for the "project design". The idea is to start a standardization process for "a pragmatic educational proposal aimed at the training of young project designers who would operate in an industrial society characterized by strong innovative trends": the goal is to focus on an appropriate environment from which to learn, within which direct comparison has a fundamental role. Which characteristics must it hold? Which resources must be made available?

The most pressing point is how to provide the necessary tools to refine the training process of emerging professional figures, making them capable of adequately responding to the job market needs. What is required is a response to the question of cross-ability, of "integrated" project design, especially when production and demand models at this point appear strongly oriented to the development and the evolution of the "soft" components (from this seems the need to elaborate the needed skills till the design of services) juxtaposed to the "hard" components of products.

A possible method we could study and develop could foresee:

1. a first introductory level on project pedagogy, tendencies and methods;
2. a second level based on a pedagogical training program aimed at project oriented students, researchers, and faculty who are following a mixed experience training course with internal and external workshops, meet- ings, classroom time, dedicated project design courses, etc;
3. a third level aimed at defining tools and methods of the sequence be- tween structured design and continuous and discontinuous project design as a basis for a full immersion experience for achieving project design ability.

The above develops within the different chapters in a critical reading articulated in various complementary standpoints;

- Different theories on learning processes covering emotions, location, learning, skills, training and research; [SEP]
- structural design pedagogy; interaction between the academic world and the real world; [SEP]
- theories, methods, techniques, procedures and project tools for the industrial product which focus on its production, technological, build, it functional, formal and use characteristics, as well as on the relationships it establishes with its spatial and environmental context and with the industrial and market context; [SEP]
- a professional approach to the topic of didactics applied to a model of continuous and discontinuous project design; [SEP]
- "receptive & responsive" firms, market conditions and human resources employed; [SEP]
- exploring the different levels which comprise a whole (but at the same time a complex structure) which can be read in the rapport between project pedagogy and project design experience. The course of study is studded with acronyms and key words which present synthetically the fundamental concepts of this monograph. It is aimed at verifying the proposed learning process using graphs, diagrams and flow charts with the objective of standardizing some methodological and experiential points.

The proposed idea is integrated with a program on the whole project sequence through project experiences and research carried out within the university. There is an observation related to real teaching experience: the project pedagogy in a Design School surfaces the idea of a vital and dynamic institute, active on almost all the front lines of "project development" and strongly integrated with the world of production and the economy; nevertheless at the same time it becomes evident that -and it is a stimulus for our future- the continued existence of areas of training not sufficiently developed and of opportunities only partially dedicated to project design.

The university has by definition a wealth of experience and knowledge, continuously increased and deepened by researches, collaborations with firms, degree and doctoral thesis, applied research projects on behalf of firms, Institutions and National Councils. All this represents an inexhaustible source of novel and analytical project design offerings, specialized, formalized and scientifically accredited programs, and novel scientific and planning contributions to projects covering general or specialized topics. This wealth, besides generating different types of projects and research approaches, is being formalized in bibliographies and publications, by University faculty or associated Universities, maintained and shared in archives, libraries and data bases, available on-line: everything is therefore organized in a veritable network of competencies. Moreover, the university constitutes a permanent observatory of innovation and development processes, of product/services development, therefore, fully responding to the demands of product innovation by the firms . The above is feasible because of the theoretical and applied research activities typical of the academic world more directly, in comparison to the business world, first among all, the activities stimulated by the advanced competition workshop, and the in house workshops, up to the post-degree programs (university level Masters). The formalized wealth of analytical and innovative offerings in the various areas is one of the structural pivot points of the university's essence. This complementary standing towards the firms' strategies could draw the firms toward the university with their direct involvement in the curricular pedagogical initiatives of the Industrial Design degree program. What can the learning environment be like in project pedagogy? In the general concept, an efficient classroom is one with whitewashed walls, new desks, and perhaps even a video projector. Often in fact, the characteristics that dictate an individual's well being and directly influence his learning ability are ignored. In planning the learning environment, both the elements that predispose a human being to learning and those that stimulate learning must be taken into consideration". The human organism is in fact sensitive to the various factors that influence its sense of well being and consequently the proper and efficient production level of the human "bio-machine". In creating a microclimate that reproduces the optimal conditions for such an objective in a closed environment, it is therefore necessary to monitor factors such as temperature, humidity, air purity, direct sun light, air conditioning and artificial lighting.

Specifically, the argument for air conditioning is essential for guaranteeing a proper relationship between environment and individual. In creating an ideal microenvironment, the proper use of artificial lighting and its potential fusion with natural sun light are important, since every type of light radiation - and specifically artificial light, often unfiltered and poorly regulated, contributes to eye fatigue and stress on the optical nerve.

On the other hand, solar radiation carries perception and climate modifications that can be especially discomfoting. It is in fact necessary, in order to circumvent external stress and favor maximum concentration on the part of the individual, to prevent the individual from wasting his energies in continuously readjusting his own correct breathing, perspiration and thermo regulation rates as well as the other needs carried out by his own basal metabolism.

It would certainly be interesting to see intelligent solutions adapted from the most recent studies in domotics and the use of state of the art materials and technologies for automatic regulation while, at the same time, having the ability to personalize the microclimate control installed in a design university! Among the most recent trends, as far as ergonomics and an area predisposing to concentration in the work and study environments are concerned, the importance of flexibility emerges both in the work area and in the surrounding environment: in essence, flexibility is the possibility to adapt to the needs of the user, with reference to seating, light sources, bearing surfaces, etc.

The well being of the individual can, in fact, derive not only from the ability to personalize the quality and the quantity of light flux in his own environment, but also from being able to reconfigure space in both physical and functional terms. New technologies and the development of new communication devices can not only perfectly meet the demands of the microclimate and environmental control, but also further constitute a stimulus for learning. The idea arises from entertainment and show business schemes: transferring emotional content or provoking feelings and emotions that go along with the concepts by stimulating the imagination, and therefore, one's interest in order to guarantee recall and processing of the information received. In an environment in which the student must learn several roles and skills, learning can happen even by participating in game-like activities, by recreating environments and circumstances: consider the possibility of "acting out" skills and work situations or new possible scenarios by showing short films.

In fact, it can not be forgotten that, besides the educational activities, more or less "reinvented" according to the principles of entertainment or following the experiential path model the esthetic perception, through the choice of materials, shapes and colors, can also generate a positive attitude and influence the ability of "knowing how to be" and therefore of "knowing how to do", which is the greatest "subjective" stimulus for the students (and faculty!) of a project design university to absorb and develop their own "project design verve".

THE NEW FIGURE OF THE DESIGNER

The design profession embraces an extremely vast field of project design issues, although the whole universe of industrial products does not fall in this field. The job of the designer is mainly aimed at those products with which man establishes a direct, perceptive and operational relationship. A designer's activity should be in continuous development and definition, but also dedicated to the ongoing discovery of new application fields. In fact, many agree that the designer, besides defining the shape of industrial products, should also take on the ongoing role of "researcher, innovator and assembler of different technologies" evolving methods compatibly with the socio-economic as well as the industrial situations. Castiglioni states that it would be ideal for the designer to live in a "design community" that includes the producer, his organizations and the project designer, in order to appropriately define the new product definition program together. Only this way would it be possible for the designer to take part in all those choices which would otherwise be defined by other professional figures (coming from the sectors of marketing, finance, etc.), leaving little room for his own ideas.

Another important factor for the designer is the awareness that he is delivering a service to the user of the created product, trying to meet the user's expectations, even the latent ones, and defining products that offer good quality and excellent performance. In Zanuso's view, the contemporary designer must take on a role similar to that of a movie producer, in order to interpret the object as he conceived it and how he plans to communicate it.

A true producer because the resources, the people and the equipment dedicated to the project are so many, complex and differentiated that he cannot be a specialist in all of these activities and yet he must know them well enough to be able to coordinate them. The quality of the environment, of goods and hence of life itself become relevant only for purely esthetic reasons. The designer's role thus becomes taking on a creative stance in the definition of the process/ product, a definition more in line with the prospect of sustainable development": most of all more coherent in terms of project-related choices he will have to define not only for the product's life-cycle within the industry but also for its life cycle within the social and environmental framework.

Some industries have a production cycle that starts out from the specific and proceeds with slow and complex processes in which the designer can take action on the specific product to be designed right from the beginning.

Other industries don't have a clear idea of the product they want to produce and therefore, here too, the designer can start from scratch but, compared to the previous situation, he needs to adopt a different attitude, i.e. with a stronger role. If the designer is "born" in the company he acquires a certain style and way of interpreting the production reality, but if -as is the case most of the time- the designer "comes" from the places of education, creating a cultural and design oriented affinity becomes a necessity. The relationship with the commissioning party is a rather important aspect and will change depending on whether it is private or public and on the size of the entrepreneurial reality in which the designer will take part.

In this sense a design pedagogy that adheres closely to the world of companies and private and public institutions similar to the one we are proposing and describing can be considered very close to an ideal model. In this regard it would be useful to conduct an interpretational verification of "structured" design intended as a new project design management practice aimed at acting on all stages of the production process (from marketing to concept development, from the executive of project design to production, from communication to the product's launch on the after-sales market). In large companies, this type of action is present in the project design areas to provide an answer to the increased turbulence and complexity of markets: it is a type of organizational approach that adopted techniques and methods typical of product design transposing them on a wider plane with several tiers until a real change in the organization of the company is determined. As far as "structured" design activities are concerned, one could therefore visualize the beginnings of a systematization process for the development and the observation of training processes focused on project design pedagogy. As far as "structured" design activities are concerned, one could therefore visualize the beginnings of a systematization process for the development and the observation of training processes focused on project design pedagogy. The exploration relates to the organization of project development processes and to the possibility of integrating this organization with training actions that are compatible with the pedagogical product administration sequence. Looking at the most advanced control techniques of the initial stages of planning, in a framework characterized by growing turbulence, complexity and competitiveness such as the present one, we might see increasingly flexible project models take hold; models in which the *concept* is left "open" or frozen and progressively adapted once new information on technologies, prototypes, market needs is acquired. Advanced use of decisional aids and of means of support for the development of virtual prototypes, for project methodologies and for technological process management (professional and management software and Internet/Intranet systems for the management and exchange of knowledge) can also be encountered. All with significantly increased opportunities and a relevant reduction in market response times.

The challenge of the industry in terms of competition and market control is based precisely of the development of IT. In particular, the development of Internet has had an impact on the value chain and on the structure of the sectors, making it, for example, possible to improve the supply of raw materials and semi-finished goods, to manage contracts and logistics more efficiently and to deem outsourcing for the management of certain processes convenient. The large company nevertheless maintains strict control over the phases of planning and commercialization, that is the overall management of the production sequence: and it is precisely in the field of basic and applied research and of the management of production processes that the experiments for an ever more advanced project pedagogy need to be verified. By this we mean a project pedagogy capable of providing the student with "experiential" training content, in line with the most advanced training techniques, in which the student learns the value of "*self-training*" and of "knowing how to be" a designer by immersing himself in the appropriate dimension. Although no definitive position exists as yet, one should consider that the designer must report directly to *management* and not to the internal designer or the *marketing* department. Only in this way can the designer have an idea of the product as the image of the industry in global terms. His relationships should always be at very high levels of the corporate hierarchy so that the true substance of the project underway can be dealt with. Assigning the designer an important organizational role within the company should also be a widespread practice, allowing him to act as a catalyzer, a bridge or interface between the various functions; organizations with rigid and formalized hierarchies rarely seem to be able to take advantage of this type of competency.

In the project design function's view, the project has no error and the entire responsibility for defects should be attributed to production. Defining the area of compatibility between the philosophical matrix of the *transcendent idea of the concept of quality*, strongly related to the profession of the designer, and the technical matrix of *quality measurable in scientific terms*, typical of the project designer, would seem to be a necessity. Defining the elements that might be able to unify and to uniform these same terms in a single matrix defining a new role for the industrial designer is the challenge, the goal project pedagogy sets out to pursue. So, one of the goals the Project University should strongly pursue is tracing the outlines of this single matrix, that is rewriting the organizational system focusing on an interdisciplinary approach to the different functions and on the different roles so that an industrial product can be better defined. The nature of the project, not only in the field of industrial product design, today as much as yesterday, still has its point of reference in a highly intellectual

activity that is separate from the work processes of material execution. Often this activity tends to be organized according to "processes that divide the tasks within the project design process itself. One of the possibilities, perhaps the most widespread today, is to foresee the appointment of a person in charge of the project who, supported by a team, takes on the responsibility of developing a global work plan, from the first idea to the release of the industrial product and whose task is to keep the dialogue between the various functions open so as to guarantee the uniform and integrated management of the entire process. This however would be a role with absolute powers in developing a new product; a role whose introduction might create quite a few problems, creating friction with the current structure, due to its transversal character. At present, as we mentioned earlier, the figure of the designer in the industry has a "vertical" coordination role that only partially entails a sort of inter-functionality. It is for this reason that experimentation of a new type of project pedagogy is carried out in agreement with the companies themselves and this training opportunity generates a project culture that the company itself, teachers, trainers and students can share as a wealth of experience. This new transversal management, besides prompting the "creation of order" makes the designer take over management of the project as a whole, from the initial concept of the product to its stabilization in production terms to its launch on the market, constantly verifying that all the pre-established objectives are being reached. The activities of this new "industrial designer" should carry out are many and include planning development, activities, defining decision moments; in general, the management of all the stages of development should be the competence of this new figure, while the moments of passage from one stage to the next, which always require precise and determined decisions, are evaluated by the management on the basis of the indications of the designer himself, whose opinion is thus fundamental.

An industrial designer can, in this sense play, a significant and influential role on the organization of development processes and consequently on the organization of the entire company for which he works; this "merging of the functions of project coordination and decisive defense of the initial concept in one single person, capable of dealing with the situation, is, in fact, a strategy that proves to be effective in satisfying diversified expectations, among which those of the end users of the industrial product". To draw a clearer picture of the actual functions of the contemporary designer, we can give an overview of the fundamental characteristics of his activity. First of all, he takes responsibility for the coordination of the project in all its different stages, *from the product's creation to its release*: in order to manage development correctly and efficiently he should therefore be very knowledgeable about the production process, a knowledge that can be obtained with good training (which, according to the thesis set out in this book, should take the form of a real "experience" involving theory and practice) and direct contact with project designers and technicians; besides coordinating the functions he will also take responsibility for defining the idea of the initial project, guaranteeing compliance in the more technical phase as well. To these characteristics we can add the responsibility of choosing the main components of the product and successfully meeting specific criteria (which include, among others, planning, production, marketing) and objectives of time, cost and quality. Some of these activities appear extremely significant in highlighting the complexity of the role of the designer! In fact, if applied, they reinforce what some designers said right after the Second World War regarding the role of the designer and how he can qualify this role.

NEW PRODUCTS AND INTANGIBLE GOODS

In a market saturated with similar, and today, technologically advanced products, which comprises a strong discriminating factor is the design and service components. This is valid both for a television set as well as for toothpaste. Presently, the ability to conceive a product in its entirety, adding straight away to its ingredients in the mix, as an alchemist would, the added value of communications and services, is what is asked of designers today to answer the demands of the market both efficiently and with a profit.

The challenge is therefore in the ability of the academic world to adapt to this demand, of who is asked to create a model or course of training capable of interacting "in real time" with the real world, meaning firms, hence with an exchange of culture, resources and professionalism.

The hypothesis presented and the one on which we will carry out a feasibility study, revolves around the need for a potential style standard in the training proposal for a project pedagogy more appropriate to the socio-economic system in which we live, and therefore, it is necessary to start a powerful action to redefine the training methodologies of project design.

This could be referred to "complex training experiences". Such experiences are known and in use but only in an embryonic and spontaneous state? and the student is not always at the center of this experience. For example we

can consider the effort undertaken in the last few years of those who have strongly integrated this process at the university level and within its Partnerships.

Without a doubt, a "mixed" training experience, or one capable of reproducing an experiential context analogous to the "apprenticeship", would allow the student to benefit from an effective and professional training for a highly competitive market.

Project pedagogy, is by its own nature, difficult to trace back to predefined schemes. On the other hand, designing a product today more than before also means designing the best way to produce it. And it will be with the very learning of technique and development of awareness that the future designer will feel at ease with any project brief, as a serious and prepared musician is capable of improvising on any type of score: with this metaphor we can now introduce the concept of project design "verve" which we will look into in more detail below.

What counts here is therefore not merely developing a definite method which could answer efficiently the project design logics: what is required is to develop through "mixed experiences" the potential of sensorial and experiential models. These stages require, and properly so, more detailed study of the issues and various experiences in different places and environments and with tools supplied ad hoc for every stage of the experience. The "red connecting thread" is the development process of industrial products, to which we will apply a set of tools and intangible values which each student and professor will choose together.

This model has already found practical applications in university training courses, due to the spirit and involvement of several colleagues of mine, but needs to be "standardized", and as such it needs to be acknowledged and adopted. In fact, it is now possible to state that concreteness, proximity and practicability are elements that can offer a competent model of learning and a valid support to the firms as far as pedagogical experimentation or applied research is concerned. .

The objective is therefore the definition of a project pedagogy depending on a symbiotic relationship between university and firm: the common interest revolves around the project and it is the task of both partners to favor the development of a project design culture.

The university is thus becoming a location of encounter and exchange, where propaedeutic activities are cultivated for the project: activities that are a natural extension of and complement the firm, where the project materializes in the production process. We can therefore wish that both parties will define together the meta-project-design components through participation and appreciation of university careers (including non tenure track professors, tutors, doctoral students and research funds). We also wish that laboratory experience, and involvement in project design could become more frequent as well as an integral part of the design educational process.

TOOLS AND EXPERIENCE IN PROJECT DESIGN PEDAGOGY

Contemporary design expertise should include technical and economic knowledge of materials, technology, development tendencies and consumer trends. Project pedagogy should therefore focus not so much on the finished product but on the ability required of the designer to manage such a complex series of languages and information, and hence from this be able to define a creative solution. At this point we must specify that "creativity" is not at all a synonym for "artistic" ... the artist's gift finds its equivalent in the so-called "project design verve" of the designer; a creative solution appears to be the best answer for evincing the shape and function of an object but it must also incorporate the best way of producing it! So the designer should be gifted with unusual qualities that can only be acquired through broad training in production processes and in the environment in which he or she lives and works paying special attention to economic, cultural and sociological issues. From this point of view, the Italian school and university meet European standards, but only if you take into account the most recent efforts made in the project design course of training (no longer subordinate to theoretical training) and that the educational contents are in line with the demands of the work world.

Draftsmanship is only a designer's means, not an end: pedagogical attention should be placed on the project design process, arousing interest in every aspect of the design process -technical preparation but also human sensitivity- which revolves around it and is complementary to it. The dignity of a project depends on its cultural background. To all that has been said up to now, Trabucco adds that for the project designer, the level of importance of doing is more meaningful than that of talk, where theory springs from project action as in the practice teacher's studio involving the students in his work and providing them with interpretative and critically

defined and safe archetypes and processed language structures. Reproduction on a larger scale of this ideal teacher/student relationship means therefore, that the "action" of project design training implies training in various circumstances and different moments, that is in the classroom, departments, seminars, laboratories and conferences on project planning, in the firms (internships, workshops, etc.). According to Gasparini, available time for project pedagogy, due to the subject's complexity, is not adequate for learning that can therefore only be completed through simulations; these are only substitutes: learning experiences can be complete and definite only for a real and specific purpose, only if it takes place within a real firm and provides for learning how to use and understand its means and resources. This is therefore the meaning of "residential workshops", thanks to which the would-be designer learns to come into contact with different realities, skills, means and resources and to prepare on these bases, and according to the project's needs, a common language among the designer, the firm, and the project team members: this is a very efficient method that however should be formalized and become normal practice in every project design school. Therefore, notwithstanding great progress in the learning structure and organization of university teaching, theories and methods covering it are presently of a varied nature and still far from being formally recognized. As stated by Trabucco, this depends greatly on the fact that, at the beginning. This' is therefore 'the meaning of "residential" workshops"; thanks to which the would-be designer learns to come into contact with different realities, skills means and resources and to prepare on these bases, and according to the project's needs, a common language among the designer, the firm, and the project team members: this is a very efficient method that however should be formalized and become normal practice in every project design school.

Therefore, the question is how to organize courses and laboratories to find a solution to the lack of individual relations within present university structures, that is, within environments where review and feedback have an important role for one's training development: What must its characteristics be? Which resources should be available? A solution could be starting educational programs that go beyond the normal conception of the course of training. To break the schemes here literally means going beyond the four walls of the university classroom and adopting new educational experience modules. Furthermore, project design practice itself often requires breaking out of pre-designed methods and even if we could classify and reorganize the existing systems, we could not identify time and again a unique and recognizable one that could lead to the definitive characterization of an object: the actual definition of the object sometimes arises from the ability to venture onto the semi-virgin grounds of typological sedimentation, but also, on the other hand, from a series of specialized notions that go well beyond the simple and easy definition of the form-function relationship. We should remember that we need good knowledge of existing and new materials, of the specific skills needed in relation to function and costs, and that we also need to be acquainted with transformation and production technologies, because drawing an object means also planning the most suitable production sequence. The objective is not only to develop a suitable method effectively adherent to project pedagogy. In fact we should develop the students' potential with "extraordinary" models through integrated experiences: stages that require various in depth thematic research projects, in different locations and with ad hoc instruments (a set of tools which has to be prepared for student and teacher alike). The connecting red thread is the development process of the industrial products, the set of tools and the intangible values of the balance sheets. Sharing and circulating such values as knowledge and experience are fundamental for the production of a good (material or informational) and the success of the firm producing it, especially when these "soft" elements are reflected in the product, in which, according to the current trend, service or communication components are acquiring greater relevance than the "hard" ones. The training effort must therefore be aimed at developing professional skills throughout the course of training and whenever possible through practical experience in the field. Developing the student's potential in order to transfer project design skills calls for reference theories on pedagogy, learning and method.

Developing the student's potential in order to transfer project design skills calls for reference theories on pedagogy, learning and method». Presently, two models are used: the first one, psychological, of the McClelland-Boyatzis school, based on organizational behaviors, abilities and attitudes; and the rational method, of the Prahalad and Hamelf school, based on professional know-how. The first model (psychological) ignores any professional knowledge, basing its approach on the behavioral analysis of the best performer. This method shows that in the past a number of behaviors had been successful, but cannot at all foresee that this pattern will continue in the future. In this approach therefore, the process of defining competencies stands on past events. The second model (rational), on the other hand, examines professional knowhow, basing its approach on the identification of skills necessary to favor the *empowerment* and its critical factors of success, both current and in the future projection. The process is centered on developing the professional skills needed to maintain/acquire leadership. The advantage of this second method is evident, in terms of connections to project pedagogy schemes and of the anticipation of the need for a new and different knowledge base aimed at developing professional skills and supporting the corresponding strategy. Nevertheless, its weak point derives from not considering the soft side, that is to say, the personal qualities, the cultural background, the broader vision of problems related to the project, the very attitude towards the project: this is how we can describe the designer's "project design

verve" that certainly influences his or her individual role. The new model submitted, as far as the project designer is concerned, goes beyond this weakness, joining both facets, and thus integrating professional skills, individual qualities and expertise, both on a personal level and on a learning level during "educational programs". Training strategy consists in creating integration processes among the "traditional" teaching activities and those, which could be defined as "borderline", that is to say experimental and beyond the borders of traditional pedagogy. The success of this new model lies in achieving the ability to perform many tasks well and being able to integrate them well. This goal is accomplished through a particular hybrid learning experience that spans the entirety of the possible educational programs inside and outside the university. The answer to a distinctive positioning strategy is therefore a veritable network of activities which requires, however, coherent protection of the *core competences* of university *research and business units*, and consequently of human resources. Based on these initial assumptions, the levers to pull to obtain a pedagogical system based on convergent variables, crucial to realizing students' project design practicums, are the Educational Research Units (UdRD).

The theoretical and methodological knowledge, the abstract culture, still now of basic importance to skillfully maneuver in the complex world of project design, needs to be more and more strongly contaminated with behavioral abilities, technical and technological knowledge, which means with an operational culture tied to "knowing what" and to "knowing how" to do, aspects often acquired through practical experience completed directly in contact with the application contexts. "Skills" are now usually defined as "knowledge in action", they mediate between know-how acquired through theory and know-how acquired through practical application and direct comparison. Therefore, attention to learning processes in turn shifts to knowledge creation and transfer processes (*learning by doing, learning by using, learning by interacting...*). It is necessary to reconsider the distinction between theory and procedure, which is still influenced by the artificial distinction between science and technology and therefore, between designing and producing. These distinctions, however, besides being limited because they don't consider, for instance, the procedure of turning knowledge into a finished product, do not take into account that procedure is, by its own meaning, aimed at acquiring knowledge that can be re-elaborated from a theoretical point of view.

We should therefore free ourselves from the model stating that the relationship between theory and practice is mostly unambiguous. From this point of view, not only do the activities and location of an interdisciplinary experience suggested by a new project pedagogy constitute an important training moment, but also the whole world of production becomes a source of knowledge. This highlights the need for professionals on loan from industry to be part of the teaching staff. Actually, particularly in the present phase, besides the implicit knowledge typical of the project experience, industrial systems are becoming important containers of complex forms of design, innovation and technological knowledge. The firm therefore, becomes, for example, an important reference model in studying the methods used in presiding over cultures and capitalization processes and in replicating project design procedures, by constantly developing and bringing up-to-date the know-how that converges in project elaboration. From an educational point of view, the management and re-elaboration of information derived from articulating a project, becomes a further training opportunity. For this reason, it is equally important for the student to learn to share results as well as the intermediate stages of any experience or research project. The student needs to learn to demonstrate his "knowing to be" on the appropriate occasions, that is, by actively taking part in conferences, seminars, fairs and other events: this experience involves a change in the student's own knowledge and skills to adjust them to the role he must interpret each time, according to the *self training* principle. The student will be guided to participate actively in his own training, without any obligation to predetermined plans or roles, "but learning to learn", through a path which will last his whole professional life: from institutional training aimed at preparing him for the job market to constant updating, through post-degree courses, learning new on-line research and study methods, and experience in a *collaborative network* (independently from the organizing structure). Legally recognized training courses will become progressively in-house and external workshops and short courses. Their value stands exclusively on the acquired competence and actual market recognition. In the same way, the professor will have to be able to manage relationships with the industrial world in the complexity of the whole production sequence, and in the relationship that might arise between production and the students' course of training and self training: to achieve this goal, the professor should acquire a set of methodologies, tools, software, locations and training opportunities, as well as be knowledgeable about the intangible values (trust/confidence, knowhow, experience) that are at the basis of the business culture and that need to be transferred to future designers already during the course of their university training. One of the pedagogical objectives I pursued all these years as far as project pedagogy is concerned, is the teaching of values, instruments and techniques, and project planning sequence of industrial products. Through parallel collaboration between the professional and university worlds, we duplicated in the classroom and in the firms (together with firms, professionals, tenure track and non tenure track professors and scholars) project development lines, which resulted in the realization of new products, innovation and technology transfer. Normally, two important stages are contemplated; the first is the participation of one or

more industrial producers which interpret the market and the short term trends that affect the market in which they are active. The second stage contemplates the shared participation of professors who are specialized professionals in product development, supporting and introducing operational schemes on project design on different scales of actions.

CONCLUSIONS

The starting point is the real working method, presented in the form of *case studies*, which analyzes and compares the different approaches, values and advantages. The companies involved supply a series of market analyses and perspectives, identifying research subjects at different stages: definite projects, to be hypothetically transformed in future projects, projects more free from realization restrictions concerning products for the near future, perspectives of new evolutionary concepts to be interpreted as further future incentives. The final objective of this course is to develop innovative concepts of products, redesign existing objects and to develop new kinds of products, always keeping clearly in mind that the final idea of the industrial design laboratory is to finalize projects, so that they can be converted into prototypes along the whole course of training. The teaching methodology stands on the students' development of scenarios, concepts, draft renderings, preliminary models expressing ideas to be developed in a second stage where its feasibility is analyzed, anticipating and hypothetically considering the different technologies to be adopted, on the basis of the project requirements and the needs of the company involved in the training program. This particular university experience tries to reproduce the project design experience typical of the industrial world and will train students to approach the customer's needs and to identify an accurate development path for the project, so that problems can either be anticipated or the student can actively take part in their solution.

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LEARNING DIFFICULTIES IN THE STUDY OF STRUCTURAL ANALYSIS IN TERTIARY INSTITUTIONS

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In Education lies the bedrock of the future. Sustainability in education can be achieved through the transfer of knowledge and technology to the next generation and one of the vital ways of achieving this is through teaching in the classroom. Without proper dissemination of these knowledge and skills, there is a disconnection and the students are left without the proper foundation they should have in the first place. Several studies have shown that student experience difficulties in mathematical based courses. This study sought to identify the challenges students of structural analysis face and the factors responsible for these challenges. A survey of three institutions was carried out and data was obtained through the distribution of well-structured questionnaires to students that offered structural analysis from University of Lagos, Covenant University and Yaba College of Technology. Data obtained from this survey were analyzed using Statistical Package for the Social sciences. The results were presented in form of frequency tables using relative index importance index to get a clearer view of the most significant factors. Results from the factors affecting students learning difficulty of the course showed that, poor background (in physics & mathematics) from secondary school made the course difficult for them, their lecturers mode of delivery made the course uninteresting, and also the class sizes were also a problem. To curb this situation, it was recommended among other things, that lecturers should try as much as possible to deliver the course in creative ways that would entice the interest of the students. Secondary and primary school education should be improved, by investing in continuous workshops, seminars and training of teachers to improve their productivity, and lastly, public universities should admit the number of students they have enough resources to cater for, so as to reduce the class sizes.

Keywords: Education, mathematical based, learning difficulties.

INTRODUCTION

There are several factors that have been identified as contributors to students learning difficulties in which includes, peer pressure, parental and home background, teacher's attributes, school environment and socio-economic status of the student (Riliwani, 2014).

However, it attention has been paid to the attributes of teachers as a critical factor influencing the academic performance of students. It is believed that the students success is hinged on the effectiveness and efficiency of the teachers (Sabitu and Nuradeen, 2010). Therefore, how knowlegable a teacher is and how well the teacher is able to adopt the apt strategies will play a significant role in the teaching process (Zarei and Sharifabad, 2012).

Parental and home background is another significant factor, because according to a saying charity begins at home, so no matter how effective or ineffective a teacher might be, the background given to a child (student) would always serve as a pulling or pushing factor.

Furthermore, the school environment is also another critical factor affecting learning especially in the developing nations of the world, due to poor facilities and lack of appropriate teaching aids. for examples, there are some public schools in Nigeria that cannot afford enough chairs for their students, hence some of them have to stand for hours stretch receiving lectures, some institutions do not even have the right textbooks and resources to stimulate the interest of the student, also other environmental factors like improper ventilation, inadequate lightning and a host of them contributes to the difficulty in learning. This singular factor is what distinguishes the performance of students in Africa to other developed nations of the world (Riliwani, 2014)..

RESEARCH PROBLEM

Structural analysis being a combination of two core science subjects which are mathematics and physics have imposed a lot of difficulties on student (Johnson and May 2008), this proposition has been backed up by several researches like the engineering council of British (2000), which explains that Academics may encounter challenges of a weak foundation they may have had in mathematics and physics prior to their admission into a university. Johnson and May (2008) further expressed that one of the challenges encountered is the fact that an increasing number of students join a discipline without having an appropriate understanding of mathematics.

It has also been observed that architectural students have the highest number of failure in structural analysis. According to Herr (2013) the main challenge of structural education in architecture are the students trying to incorporate structural design into their applied design skills. This research sets out to empirically answer the bogging question of how students really respond to structural analysis and the difficulties encountered.

SIGNIFICANCE OF THIS STUDY

Every sector in the world is experiencing tremendous changes, including the construction industry. Nowadays constructions which were previously deemed impossible are being made possible due to a better understanding of structural analysis and design. Since a good understanding of structural analysis is one of the brains, behind the great innovation in the construction industry, then it is important that students have a good knowledge of the course, so that they can become relevant in the construction industry, hereby having a successful career. This study would trigger this, by helping the student to identify what they feel about the course, the challenges encountered, and then appropriated solutions will be provided.

Furthermore, this study is of inestimable value to the respective institutions, as it will help them identify what student think about the course, the challenges the students are encountering, hereby creating a platform for them to know how to increase productivity hence improve the performances of the students at the same time.

Lastly, this research work will help the construction industry and society at large to boast of well-rounded graduates, who can withstand the ever-increasing changes taking place in the construction industry, through the adequate knowledge and application of structural analysis

Research Questions

1. What are the factors responsible for difficulties student face in learning structures and determine the severity ranking?
2. What are the agreement ranking of students' responses and factors?

Research Objectives

1. To identify the factors responsible for difficulties students, face in learning structures and determine the severity ranking.

2. To determine the agreement ranking of the learning difficulties students come across in the study of structural analysis, among Architecture, building, civil and quantity surveying programs.

LITERATURE REVIEW

Structural analysis is an ancient craft and has been known to humankind since the onset of civilization. The earliest structures have included the pyramids built by Egyptians around 2000 B.C, Parthenon at Athens (2500 years old), these structures have gradually progressed to the Taj Mahal (350 years old), and Eiffel tower (120 years old) thereby testifying to the skill and the advancement human achievement. That these monuments are still standing speak to the great accomplishment of the craftsmen in the construction of large structures which invariably involve analysis and design.

Amazingly, these monuments were constructed not only without any computation but also without any theoretical concepts as we know it today (Pedron, 2006), but these masters used the knowledge of rules of proportion developed through experience and practical training. These rules of proportion were what developed over the years to form the fundamentals of mathematics and physics, so to say that these great feats achieved by these outstanding craftsmen were a proper understanding of mathematics and physics would not be an understatement. Having identified evidences from researchers that a faulty foundation in mathematics and physics, amongst others are the problems facing students' structural analysis skill, then it is best to deduce the causative factors.

Learning is difficult to define and there is scarcely one universally acceptable definition that has been acknowledged by researchers, theorists and practitioners (Shuell, 1986). In the same manner, students also vary, and hence there are differences in the difficulties encountered by them. In a research conducted by Felder and Brent, (2005) they noted that different students can be motivated by different things and each student possesses a unique attitude towards learning. They further observed that no two students are exactly the same as they have different backgrounds and upbringing and characteristics that make their individual approaches to studying unique. The diversities of students' approach to learning and orientation to studying were examined by (Irfan and Shabana, 2012) they identified three approaches to learning, the surface approach, the deep approach and the strategic approach. Students who adopt a surface approach to learning usually dwell on facts but do not delve deep to understand reasons behind the facts such as origins and limitations. They are motivated to study solely to avoid failure thereby making their motivation extrinsic. The students who adopt a deep approach to learning go beyond memorizing the facts but rather dwell on understanding the intricacies of the material they are studying. Their desire to learn more is sparked by intellectual curiosity. This motivation is indeed intrinsic. The third group which consists of students that adopt the strategic approach to learning are a category that are efficient and well organized in their efforts, they know where they are in their studying and know the effort they need to put in to achieve the success they desire and attain their ambition.

Very obvious that if the difficulties encountered by students have different diversities, also parameters in judging the students' performances should also vary, the analyses of the students' performance would then help to get to the root of the difficulties student encountered.

Hansen, (2000) outlined two factors that affect students' academic performance. They are the internal factors which include class size, learning facilities, environment of the class, innate ability of the student, motivation, complexity of the course material, teachers' role in the classroom, technology used in the class and the exam system; and external factors, which constitute social economic factors, extracurricular activities, family problems. Further research conducted by Bangbade, (2004) shows that students performance may also depend on other factors such as gender and age differences.

School environment when analysed has a great role to play in difficulties students' encounter, the more conducive the environment, the lesser the difficulties students' encounter. Social environment could mean a conducive learning environment, availability of good teaching aids (computers, teachers, laboratories, libraries etc.) For example, temperatures above 80 degrees tend to produce harmful physiological effects that decrease work efficiency and output.

It was noted further, that poor ventilation interferes with students' ability to understand. Also decaying environmental conditions such as poor lighting, inadequate ventilation, inoperative heating and cooling systems etc. can affect the learning of students i.e. in any learning environment, comfort is vital to improving student's assimilation rates. Overcrowded institutions are a serious problem in many school systems. Crowded classroom conditions not only make it difficult for students to concentrate on their lessons, but inevitably limit the amount of time teachers can spend on innovative teaching methods.

In a study on class size, (Ronald et al, 2001) observed that changing how students learn can be achieved by simply changing class size because it is believed that class size is pivotal to achieving a good learning experience. While the class size is important, there are other factors on which learning is dependent. These factors include the background of the student and the influence of the broader community.

Interest in the job fuels passion for the job and a lack of interest in a job will lead to the inability to be good at it. There is a relationship that exist between a teacher's interest in the job, knowledge of the the subject, ability to communicate effectively and the overall academic performance of the student (Riliwani, 2014). A research by (Wenglinsky, 2000) on how a teacher's experience affects a student's ability to learn showed that a positive relationship exists between the teacher's years of experience and effectiveness. This implies that an inexperienced teacher is less effective in passing knowledge across to students. Other researchers (Starr, 2002), (Schacter and Thum, 2004), Rivkin, Hanushek, and Kain. 2000). Also studied the relationship between students' academic performance and the teachers' skills and attribute and it was discovered that there exist a strong relationship between the three variables.

According to a research by Umar *et al.*, (2010), it was explained that cults, which are associations with organized structures have a way of looking out for the interest of their members can influence and impact positively or negatively the performance of a student who is its member. These cults entice prospective members with the perceived benefits they offer such as protection, popularity and even sometimes assistance in school fees payment. The problem usually arises when the student member does not strike a balance between the demands of his studies and the demands of the cult association because most times the promised benefit never get to the student members.

It was argued that students make educational decisions by calculating their costs, anticipated benefits, probability of success, and the attractiveness of alternative options (Breen and Goldthorpe, 1997). Because these aspects vary among socio economic status (SES) groups, the degree to which students of different socio-economic backgrounds view schooling as desirable varies as well, it was also maintained that student begin to understand at an early age about how the society is structured. They begin to become to be aware that the society rewards people or individuals of different SES differently, therefore these students of low SES families realize that they are likely to be exempted or excluded from desirable job and hence, they go through a process of disillusionment. As a result, these students expect a wide gap with age due to students' being less motivated and placing efforts into their academic activities.

METHODOLOGY

Area of study

The study was conducted in Covenant University, Ota and two Lagos universities, the first one which is University of Lagos, Akoka and Yaba School of technology. The reason for choosing these other two institutions in Lagos state universities was because one represented a federal government institution while the other represented a state institution.

Population of study

The targeted population for this study were students in 100-500 level studying any construction related courses basically architecture, building technology, Civil Engineering and Quantity surveying in covenant university, university of Lagos, and Yaba College of technology.

Data collection instrument

Data used for this research were obtained from using multiple choice structure questionnaires to answer the question of student's response to calculation based courses. The questionnaire was adopted from a rigorous review of the literatures used. The questions were in a 5-point Likert format ranging from (SD= strongly Disagree, D=Disagree, U= Unsure, A=Agree, SA=Strongly Agree) which were used to measure the respondent response and factors affecting the learning of structural analysis as a case study. the questionnaire consists of two sections.

Sample size and administration of the research instrument

A sample consists of selected elements, subjects or observations from a given population. It is a finite part of statistical population of which properties are studied to gain information about the whole population. For the purpose of this research work, a survey was conducted and it was realized that all together in the three institutions there were more than a thousand students in the courses. Therefore, for this research work 195 questionnaires were distributed and 164 were retrieved which is 84.10%.

Research instrument for data analysis using Statistical package for social sciences (SPSS)

Statistical package for social science (SPSS) was used to process and analyse the information obtained from the questionnaire survey. Mean and agreement ranking were used to achieve objectives 2 and 3 as stated in chapter one by the use of SPSS. The result gotten would be made in a pictorial form for example pie chart and also frequency table for clarity of the analysis of the obtained data.

Descriptive tools

These are the tools used for describing the entire population or samples. This helps to show the relationships among the variables and other significant features. These tools are very useful in conveying quick impression of any clustering variations and possible trends in the value of variation. An example of such tools collected in the analysis of this data includes charts, frequency, percentages and measure of central tendency.

ANALYSIS AND DISCUSSION OF RESULT

Demographic distribution of respondents

In the first section, the personal data of structural analysis students were acquired through the self-administered questionnaires. Information such as gender, institution, levels and departments were analysed. The following were discovered

Covenant University had 77 respondents; university of Lagos (UNILAG) had 47 respondents while Yaba School of technology had 40 respondents. The following data shows that Covenant University had the highest respondent for the study, owing to the fact that it was the researcher's institution.

In order to get accurate information, and views from different sides, the entire department offering structural analysis were included in the research work. From the figure above building technology had 36.27% of the respondents, followed by civil engineering with 33.33%, also Architecture had 25.49% and lastly quantity surveying with 4.90% of the total respondent. The department of building technology has the highest number of respondents for this research work.

It was also observed that 100 level respondents had the lowest percentage at 4.90%, followed by 200 level respondents with 7.84%, 300 level respondents with 17.65%, 400 level respondents at 24.51%, then 500 level respondents which carries the largest percentage at 45.10%.

The reason 500 level respondents had the largest percentage was because the researcher assumed that, the respondents had spent quite a considerable time doing structural analysis, therefore with their experience they could provide accurate information.

The gender distribution of the respondents was as follows; it indicated that the male gender has 65.69% while the females have 34.31%. From this distribution, the male gender had a greater population than the females, the reason for this is not far-fetched as the construction industry is male dominated.

Factors responsible for learning difficulties amongst covenant university respondents, University of Lagos and Yaba College of Technology.

The factors were divided into positive and negative factors with the positive affecting their success and understanding of the course, structural analysis. The negative factors on the other hand related directly to the reasons for the difficulties experienced in the study of the course. The factors were ranked according to the responses obtained from each university. And the results are displayed in tables 1 and 2 below.

Table 1 Negative factors causing learning difficulties amongst covenant university, University of Lagos and Yaba College of Technology respondents.

FACTORS	Covenant university	Rank	UNIVERSITY OF LAGOS	Rank	YABA COLLEGE OF TECHNOLOGY	Rank	Remark
The prior background I had makes it difficult for me to understand structural analysis	3.77	1 st	3.59	2 nd	2.33	7 th	Negative factor
The Lecturers' mode of delivery makes the course uninteresting	3.56	2 nd	3.38	3 rd	2.5	5 th	Negative factor
The class is too large and I am unable to follow	1.85	7 th	3.62	1 st	4.04	1 st	Negative factor
I have a solid mathematical background but struggle with the basics of structural analysis	3.4	4 th	3.28	4 th	3.58	3 rd	Negative factor
I have a poor mathematical background and it makes it difficult for me to understand the subject	3.25	6 th	2.97	7 th	3.63	2 nd	Negative factor
My physics background from my secondary school education is poor and therefore an obstacle to understanding structural analysis	3.27	5 th	3.28	4 th	3.28	4 th	Negative factor
The lecturer is not able to communicate the subject area clearly and I find it difficult to keep up	3.5	3 rd	3.28	4 th	2.38	6 th	Negative factor

From the table 1, it can be observed that the major problem encountered by the public institution is the class size while for Covenant university that represents a private institution, the major problem is the prior background of the student as the class sizes are regulated. Closely related in agreement is the ability of the student to relate structural analysis with his/her basic knowledge of mathematics and physic. Despite the solid mathematical background, they still struggle with understanding basic structural analysis. This problem of not being able to understand the course could be closely tied to the mode of delivery by the lecturers and the inability of the lecturers to communicate the subject area. Poor mode of delivery will fail to spark interest of students and that will translate to their poor performance in the course.

Table 2 Positive factors causing learning difficulties amongst covenant university, University of Lagos and Yaba College of Technology respondents.

FACTORS	Covenant university	Rank	UNIVERSITY OF LAGOS	Rank	YABA COLLEGE OF TECHNOLOGY	Rank	Remark
I have no problem understanding the basic structural concepts	2	6 th	3.38	1 st	3.5	2 nd	Positive factor
The Lecturer has no problem communicating and expressing himself/herself	3.27	3 rd	3	2 nd	3.54	1 st	Positive factor
There are practical examples provided in class that makes it easy to understand the concepts and principles of structural analysis	3.29	2 nd	2.79	5 th	2.79	6 th	Positive factors
The lecturer takes time to solve examples in class to give us a better understanding of the subject area	3.6	1 st	3	2 nd	3	5 th	Positive factor
The tools for teaching structural analysis are available and we are exposed to them	3.19	4 th	2.69	6 th	3.08	4 th	Positive factor
We are exposed to the use of computer softwares to aid in structural analysis	2.24	5 th	3	2 nd	3.33	3 rd	Positive factor

The table 2 shows a summary of positive factors ranked amongst Covenant University, university of Lagos and Yaba School of technology. From the above table, it can be observed that the ability of the lecturer to communicate the subject area and expose the students to examples ranked highest among Covenant University responses. This will help with the students' performance in the course. In the public schools, their main concern is understanding the basics of the course but in the private school, their understanding was hinged on the lecturers taking time to explain and work some example in order to help with their comprehension.

CONCLUSIONS

1. The major problem most students are facing was as a result of faulty background, especially in the core science subjects (physics, mathematics, chemistry) which is a stumbling block to them understanding the course
2. Class sizes is a problem, especially to the public universities as most of them inferred that they are unable to follow up and concentrate when lectures are going on, due to the large crowd. This is in agreement with (Ronald et al, 2001; Westerlund, 2008; Bedard & Kuhn, 2008)
3. A teacher's ability to communicate the subject area and engage the class will help with the students understanding the course and performing well in the course. This is in agreement with (Bangbade, 2004; Starr, 2002; Schacter and Thum, 2004; Rivkin, Hanushek, and Kain. 2000).
4. Exposure of students to computer aided software, that would help their understanding and appreciation of the course.

RECOMMENDATIONS

The following are recommended to minimize learning difficulties students encounter in construction measurement.

1. Secondary and primary school educations should be improved, by investing in continuous workshops, seminars and training of teachers to improve their productivity. Also there should be continuous monitoring and evaluations of teachers' performance, in order to ensure that students are well informed.
2. Public universities and higher institutions should restrict their admissions to the number of students they have enough resources to cater for, so as to reduce the class sizes. Should in case they want to admit quite a number of students they should ensure that they are divided into groups and given different lecture times.
3. Lecturers should try as much as possible to deliver the course in creative ways that would entice the interest of the students. This entails a balance between theory and practical, in which could be achieved by showing students life model of how some structural concept works. Also the classes should be interactive so as to reduce anxiety and fear.
4. Also, there should be provision for computer aided software, examples of which are. These computer soft wares simplify the work of the lecturer and hastens the understanding of the students, as it translates the whole structural concept from abstract to reality, boosts the creativity of the student, and lastly helps students to solve real life problems.

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LEARNING PROGRAMS FOR TEACHERS THROUGH THE DEVELOPMENT OF RESCUE ROBOTS

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ABSTRACT

In recent years, science and mathematics phobias in children have become a matter of serious concern. STEM (Science, Technology, Engineering and Mathematics) education is important for the future of children and the growth of the nation; therefore, it has been emphasized in many countries. However, STEM education requires good-quality teachers and teaching material. Therefore, this study focuses on improving the knowledge and teaching ability of STEM teachers. Herein, we developed rescue robots for developing teaching materials and learning programs for teachers via group learning and active learning. These learning programs can not only develop robot-building and programming skills but also improve problem-solving and communication skills

INTRODUCTION

In Japan, there has been a reduction in the number of engineers because of declining birthrates and aging. In addition, science and mathematics have become a serious matter of concern in children. The lack of interest in STEM among Japanese youngsters has led to the relocation of technologies to overseas companies. It is therefore necessary to create interest in STEM studies among Japanese children.

The STEM field forms an important part of the social infrastructure. In the United States, STEM education is given its due importance, and this has brought about changes in income and occupation among the poor sections of society (Rodger, 2010, pp. 996).

In Japan, STEM education has increased in importance, and there has been substantial research in this area. In our previous studies, we have developed teaching materials to learn processing technology, control, and programming by making biped robots (Tsuyoshi & Fumitaro, 2015, pp.171–177). We also developed a robot that was able to learn the process of manufacturing from the design to the manufacturing stage using 3D printers (Tsuyoshi & Fumitaro, 2015, pp. 29–35). In STEM education, to increase the effect, new learning methods, such as active learning, need to be used.

Active learning has been investigated by various researchers for a long time. Charles and James found that active learning increased learning effects (Charles & James, 1991). Burr summarized the reference materials for active learning (Burr, 2010). In this study, active learning is developed using a 3d printer. Then, students examine their own functions and designs according to the conditions and objectives presented by the teacher.

Recently, in Japan, certain unpredictable disasters have occurred, such as the Fukushima accident, and the big earthquake (Kobe and Kumamoto). To resolve these problems, it is required that is not only learn to a highly knowledge and technologies but also ability of its solved by myself. Therefore, the Ministry of Education, Culture, Sports, and Technology of the Japanese Government considers the positive adoption for active learning in the next curriculum guidance for defining the basic standard for education (Ministry of Education, Culture, Sports, Science and Technology-Japan, 2015). Classes using active learning are required because they not only evaluate from the examination point of view but they also evaluate the process of thinking. However, it is very difficult to evaluate the process of thinking; therefore, various methods of evaluation have been studied (Scott et al., 2014).

STEM education and active learning is different from the traditional classroom teaching. In active learning, students learn while thinking through various tasks. For such classes, the teachers are required to have the necessary knowledge and technique. However, compared with the traditional learning methods, active learning increases the burden on teachers. Teachers need to carefully set their teaching goals, plans, and evaluations. In general, very few teachers have experimented with active learning. Therefore, we have developed learning programs that teach experientially about active learning methods by using a rescue robot, programming, and games. This program allows students to learn programming by making robots. When teachers attended these learning programs, they experienced active learning; consequently, the teachers could use the active learning methodology in their classes.

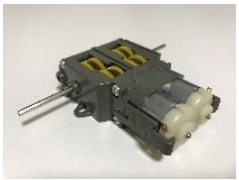







RESCUE ROBOT

A rescue robot does not follow a fixed curriculum; the students select the modules according to their needs and combine them. Finally, the rescue robot made by student runs a course with obstacles.

RESCUE ROBOT (HARDWARE)

The rescue robot hardware was prepared using a “Twin-motor gearbox (ITEM70097)” and a “Single gearbox 4-Speed (ITEM70167)” manufactured by “TAMIYA INC” as the power unit. For the drive system, we used a “Pin spike tire set (ITEM70194),” “Off-road tire set (ITEM70096),” “Slim tire set (ITEM70193),” “Slick tire set (ITEM70192),” “Truck tire (ITEM70101),” “Ball caster (ITEM70144),” and “Truck & Wheel set (ITEM70100)” manufactured by “TAMIYA INC.” The system was prepared using a body plate and some parts were made using a 3D printer. Table 1 provides a list of the used parts. The robots made by combining these parts will run through a course with obstacles and compete for time on a group-by-group basis. These parts can be attached and detached easily with screws on the vehicle’s body plate; each student can select necessary parts according to the purpose and can change the function.

Table 1: List of parts

Shape	Part Name	Shape	Part Name
	Twin-motor gearbox (ITEM70097)		Single gearbox (4-Speed) (ITEM70167)
	Pin spike tire set (ITEM70194)		Off-road tire set (ITEM70096)
	Slim tire set (Large) (ITEM70193)		Slim tire set (Small) (ITEM70193)
	Slick tire set (ITEM70192)		Truck tire (ITEM70101)

	Ball caster (ITEM70144)		Truck & Wheel set (ITEM70100)
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RESCUE ROBOT (ELECTRIC CERCUIT)

“Raspberry Pi Zero W” (hereinafter “Raspberry Pi”) was used for the circuit board. Table 2 summarizes specifications of the Raspberry Pi.

The extension circuit board of the Raspberry Pi has dc motor drivers at 2ch, analog-digital converters at 4ch, servo motor drivers at 16ch, and some digital I/O ports. In this circuit, the program is visually easy to understand because some LEDs were connected to GPIO of Raspberry Pi.

Table 2: Specifications of the Raspberry Pi Zero W

CPU	BCM2835 Single-Core 1GHz	Memory	512MB
Graphic	Mini-HDMI	Other	40-pin Header
USB	USB-OTG + USB-Power		CSI Camera Connector
Function	Bluetooth/WLAN(only Zero W)		

Figure 1 shows a block diagram of the extension circuit. It has been made using the extension circuit board that is the same size as Raspberry Pi, and it is made of two pieces. The board is connected directly with a connector without using cables. Figure 2a shows extension circuit boards, and Figure 2b shows the board connected to Raspberry Pi. It is used to a USB mobile battery that is commercially available for power supply. Table 3 provides a list of sensors prepared as parts.

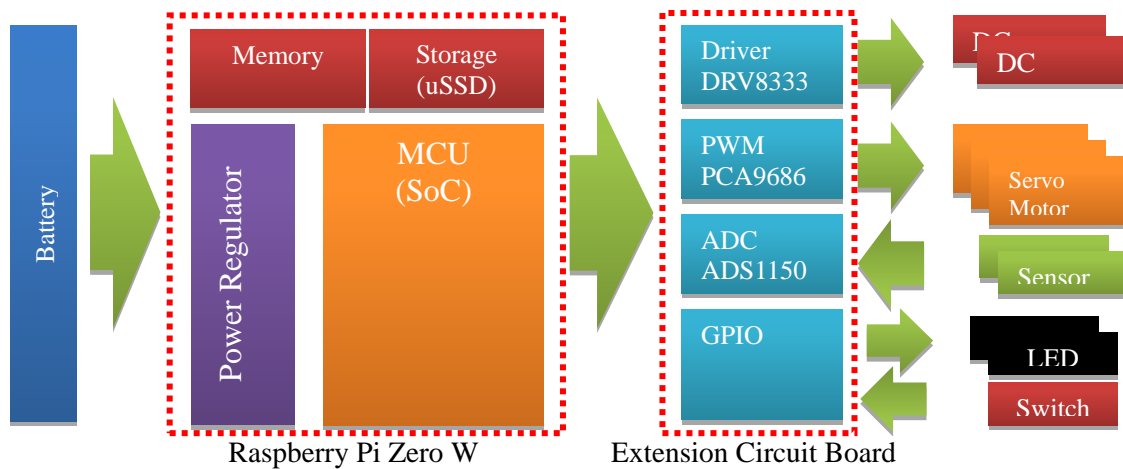


Figure 1: Block diagram of extension circuit



Figure 2a: Extension circuit boards



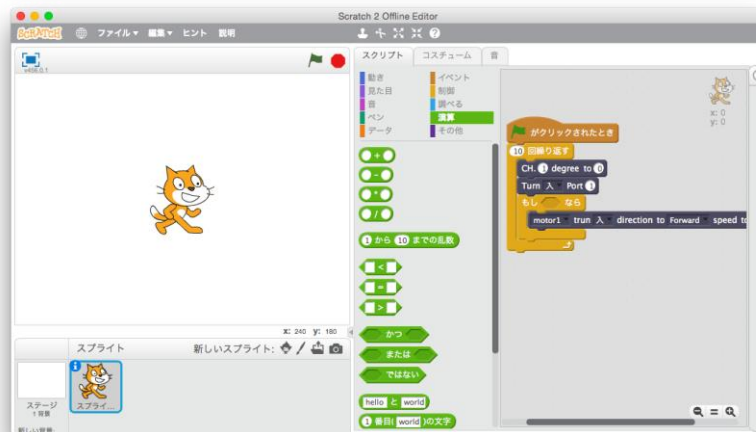
Figure 2b: Board connected to Raspberry Pi Zero W

Table 3: List of sensors

Name	Detail
Touch sensor	It attaches the micro switch to the car body and makes the ON/OFF judgment for the switch using the GPIO
Reflective photo sensor	It detects infrared reflection and discriminates between black and white.
Distance sensor	It is measures the distance using the time that fires ultrasonic wave and returns.
Color sensor	It determines the color. This result shows a number of RGB.
3-Axis gyro sensor	It is a sensor that measures acceleration. It is able to detect the inclination.
Camera	It is connected to the camera connector on the circuit board, and it has an infrared (IR) mode and a visible mode. It is possible to shoot in dark places because the IR mode is able to shoot using IR.

PROGRAMING (SOFTWARE)

We used Scratch2.0, which was extended to Raspberry Pi. Scratch2.0 is an open-source programming language. Figure 3 shows the screenshot of Scratch2.0. It is developed using “Adobe AIR,” and it can be operated in the same GUI environment without considering the differences in operating systems.

Figure 3: Screenshot of Scratch2.0

Scratch uses a type of block. It is different from C language and Java language; there is no need to write the program syntactically. It can be programmed easily and connected to instruction blocks. Even children who cannot operate the keyboard can handle it easily. Therefore, it takes less time to master the language operations. Numerous studies on Scratch have been conducted in education (Naoki et al., 2014, pp. 545–547; Satoru, 2013, pp. 21–26)

It runs Linux on Raspberry Pi, and a simple web server written using the Python language. In the Web server, a command is sent from a PC that performs programming through Web API, and a signal is sent to the motor driver via the port of Raspberry Pi.

Scratch incorporates the function of controlling the microcomputer as a standard, but the available microcomputers are limited to LEGO Wedo and Pico Board. Therefore, the HTTP extension of Scratch is used when you execute the program and an instruction is sent to Raspberry Pi via a wireless LAN. We were able to

execute the HTTP extension of Scratch only on the localhost or github.com because of security concerns. It executes reverse proxy software on running Scratch, that is, it sends data to Raspberry Pi by using a wireless LAN. Scratch accesses the reverse proxy on the machine by HTTP. Tape is a software name for the reverse proxy. The reverse proxy sends data to Raspberry Pi, which is connected by a wireless LAN according to predetermined rules. Therefore, it is able to execute the program and operate robots without connecting serial and USB cables. Figure 4 provides an overview of the programming environments.

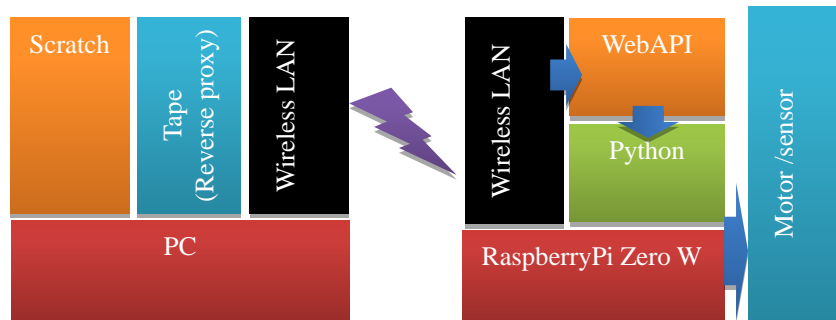


Figure 4: Overview of programming environments

CURRICULUM

The purpose of this curriculum is as follows:

1. To learn the program structure and create it.
2. To learn logical thinking.
3. To find the assignment themselves and set their goals.
4. To clear the given conditions and solve the problem.
5. To experience active learning.

As a result, teachers will be able to make the learning process interesting for students.

The points to keep in mind when creating the assignment subjects are as follows:

1. They are able to teach the concept of programming and competition within a limited time.
2. They are not too difficult and are easy to understand.
3. They have restrictions, such as the number of parts that can be used to make the robots and the budget.
4. They will enable learning in groups.
5. They will progress like a game, and it will feel like going along the story in an RPG.

An example of an assignment subjects is “An engineer is at a space station. A robot that was exploring Mars broke down. Create a rescue robot within a limited timeframe and budget.” This scenario is discussed in groups. Figure 5 shows an example of the competition course. In this course, there are obstacles and slopes. The black line is the trace that the robot passed.

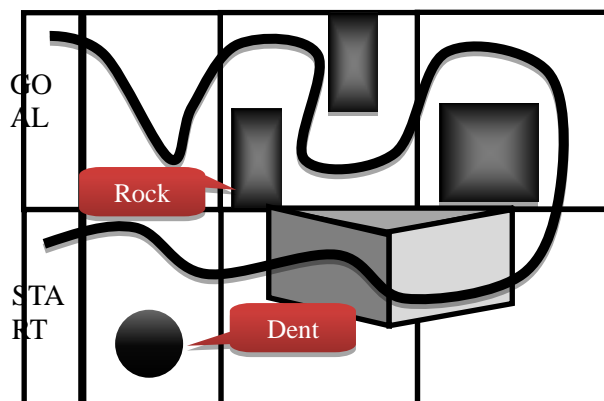


Figure 5: Example of the competition course.

It is the learning characteristic of various sensors. The student plays the role of an engineer and makes a robot, selects parts, and creates a program. Then, the time it takes to run from the start to the goal is measured.

Table 4 summarizes the timetable and contents of the study to be applied in the learning example. It explains how to proceed and provides the contents of the scenario. The learning contents are focused on the programing and control. This forms the introduction that will go on for over an hour. In this part, it explains the motor, the driving system, and the sensors. The driving system includes the tire and the caterpillars. It does not learn about the details of the electric circuits. The students design and make their robots in two hours. The function of programs and how to make a program are explained. The sensors and motors are connected to the microcomputer board, and it is moved by the program and by learning the basic knowledge of control. Programing languages are not learned, but logical thinking and the flow of the control of robots is learned. A program is made in two hours. The robot runs the course and makes adjustments within an hour. The robots run the course and compete for time. Finally, the features and hardships faced by groups when they made the robots are presented. It is possible to improve ingenuity and applicability through sharing. Such experiences also improve teaching skills and enable them to offer interactive classes for their students. Figure 6 provides a demonstration on how to make a robot.

Table 4: The timetable and contents of study to be applied in the learning example.

Time	Contents	Detail
1.0h	Introduction	Explain the scenario. How to proceed with learning.
	Explanation of each part	Explain the motor and drive system. The function of sensors. The type of sensors.
2.0h	The Design	Design in groups. Make a robot according to the given purpose within a given budget.
	Make the robot	Prepare the necessary parts and assemble the robot.
2.0h	Explanation of programing	The function of program. How to make a program. (How to use “Scratch”.)
	Make a program using a robot	Make a program according to the purpose.
1.0h	Tuning	Drive the course and make adjustments.
1.0h	Competition	Competition.
1.0h	Presentation and review	Presentation of the features and hardships of the robot making.

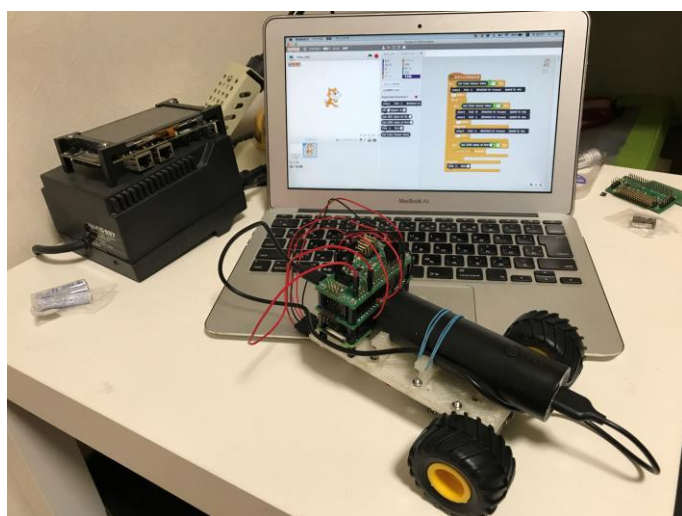


Figure 6: A demonstration on how to make a robot

CONCLUSIONS

We proposed a learning program for teachers who teach programming using active learning. STEM education has gained in importance all over the world, and learning is made effective using active learning. However, to conduct active learning and STEM education, setting appropriate subjects and teaching skill is required. It is concluded that this learning program is able to teach programming experientially by using robots and active learning. Using programming helped us develop a learning program that incorporates active learning. Its contents helped students learn how to solve assigned tasks within a limited timeframe using limited resources. Such experiences also improve teaching skills and enable students to offer good, interactive classes for their students.

In this learning program, students evaluated the time they took off the course and whether they were able to clear the given conditions. The evaluation of active learning needs to be thoroughly studied to determine whether students are able to clear their tasks in this learning program. Therefore, this learning program will be evaluated using questionnaires, performance evaluation, and behavior analysis. It is necessary to study the evaluation method of active learning. We concluded that it is necessary to establish a method that can evaluate by designing quantitative evaluation criteria.

ACKNOWLEDGMENT

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LEARNING TO CONNECT BETWEEN BALANCE AND EQUIVALENCE: SOLVING LINEAR EQUATIONS USING THE ALGEBRAIC ‘BALANCING’ METHOD

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ABSTRACT

This study implemented the use of balance method in solving linear equations to a total of 53 middle school students. Previous research indicated clear connection between the equal sign and the pivot of the balance, and also between the physical removal of object and subtraction. Furthermore, the students were able to ‘see’ the answers when presented with the problem of finding an unknown on a balance. From learning the balance method, the students were expected to achieve the main objective, which is learning to connect between balance and equivalence. Additionally, the students will be familiarized with the actual meaning of the term ‘equal’, thus leading to a better understanding of equivalence that may lead to improvement in students’ achievements in solving algebraic equations. In this study, pre- and post-tests were administered with the intervention lessons conducted in between. Comparisons between the tests and analyses of the responses from the tests revealed that the students were mostly successful in solving linear equations with the application of the balance method. However, some students still made errors even when using the balance method.

Keywords: Balance Method, Algebra, Mathematics, Middle School

INTRODUCTION

One of the lesson objectives in Algebra requires students to learn to solve algebraic equations and more specifically linear equations. Algebra has a significant role in mathematics education and yet algebraic understanding has been lacking amongst the students. This problem has been associated with students’ inability to grasp some fundamental concepts, particularly the concept of equality (Knuth et al., 2006). Accordingly, the students’ performance on solving linear equations was found to be dependent on students’ knowledge of equivalence. In solving linear equations, students were at first expected to find one unknown variable. There are different strategies for solving algebraic equations. Knuth and colleagues categorized the strategies into ‘pre-algebraic’ and ‘algebraic’. The former consists of ‘guess and test’ and ‘unwind’. In the unwind method, the equation is solved backward by inverting the mathematical operations starting with the constant value on one side of the equation (Nathan & Koedinger, 2000; Knuth et al., 2006). Evidently, the pre-algebraic strategy does not accentuate the balance in an equation. In contrast, solving equations using algebraic strategy emphasizes the symmetry of an equation by performing the same operation on both sides of the equation. Students can only execute this algebraic ‘balancing’ strategy once they are able to understand the idea of balancing.

Transformational aspects of algebra, however, cause students to approach solving equations by strictly using rules and procedures (Gavin & Sheffield, 2015). Gavin and Sheffield described this feature of algebra to mean grouping similar terms and applying inverse operations. This application of inverse operations corresponds to the unwind method. As a consequence, students tend to ignore the meaning of algebraic expression and ignore the concepts behind the generalization of the rules. Due to this reason, there is an apparent need in recognizing equivalence.

Generally, solving linear equations with one unknown variable is part of the curriculum for the 6th Grade students and again in Grades 7 and 8 (Vlassis, 2002; Knuth et al., 2006). Similarly, in Brunei Darussalam, the students are taught the basics of solving linear equations with one unknown from 6th Grade (Chua et al., 2016; Yunus et al., 2016). The topic is then repeated in the 7th Grade syllabus and continues on to the next level by increasing the number of unknowns, for example in the topic of simultaneous equations.

REVIEW OF THE LITERATURE

Most of the methods used for solving equations are well recognized and formally stated in most educational journals and articles. One of the widely accepted algebraic methods involves performing the same operation on both sides of the equation (Vlassis, 2002). This concept can be achieved using the balance model. As stated by Suh and Moyer (2007), the students are first encouraged to use informal strategies to represent their relational thinking. Examples of these strategies are the seesaw concept and the balance scales (e.g. Mann, 2004; Vlassis, 2002; Gavin & Sheffield, 2015).

Relational Thinking

The rationale for the balancing method is based on students' lack of relational view on the equal sign. A relational thinking is seen as if students are able to work out the meaning of equal sign as 'the same as' (Knuth et al., 2006). Knuth et al. found that students who lack relational understanding of the equal sign were more likely to solve the linear equations incorrectly. This corresponds to a study by Borenson (2013), which found that it is essential for students to grasp the relational meaning of the equal sign for them to be successful in solving the algebraic part of mathematics.

Mann (2004) suggested that students be inculcated with the thought of relational meaning of the equal sign by initially teaching the the concept of balance. The main aim of her study was to transform students' view of the equal sign from 'the answer is' to 'is the same as.' A seesaw concept was used as an introduction to the balancing method. It begins with the students becoming a seesaw by putting their palms facing up at a shoulder level. Imaginary apples and oranges were then presented whereby the apples weighed less than the oranges. The students were able to master the seesaw concept by leaning further to either left or right when one side of the seesaw is heavier than the other. Also, they were capable of putting the seesaw into balance again. For instance, after having one orange on their left hand, the teacher questioned the effect on the seesaw once another orange is added onto their right hand. Afterwards, the students were requested to set up some rules for the seesaw. They managed to demonstrate their understanding of the balancing concept through the rules listed i.e. they successfully learned how to keep the seesaw balanced. For example, one of the rules involved taking away or adding the same weight to each side. Then, the students were requested to think about the link between the equal sign and the seesaw. One of the students answered that if two oranges are on each side of the seesaw then it is the same. This result indicated that the students recognised the equal sign as a representation of equivalence and balance. Hence, the knowledge of relational meaning of the equal sign was well absorbed by the students.

Despite not introducing an unknown variable yet, the balance model was an effective introduction for students to understand the relational meaning of the equal sign. Borenson (2013) suggested to start teaching the concept of equivalence non-symbolically followed by relating to the symbolic notation. In other words, by thinking of real life problems that relates to equivalence without introducing any algebraic notation as adopted by Mann (2004) with the seesaw concept.

The Balance Model to Find the Unknown

The balance model can be applied to determine an unknown variable in an equation. The exploration of the concepts of equality and balance scales were also executed in a study by Gavin and Sheffield (2015), but with the introduction of an unknown weight on the balance scale. Again, the application of real life situation was demonstrated to the students. They were given a question involving fish on a balance scale and were asked to illustrate the weights of the fish by writing an equation before finding the unknown weight of the fish. The teacher guided them to use x to represent the unknown weight. The outcome of the study turned out to be positive, where the students were able to set up the equation by means of their understanding of the balanced fish on the balance scale. They also managed to figure out the solution through valid reasoning and justifying their methods.

The Previous study carried out by Vlassis (2002) also involved calculating the unknown value, x using a balance scale. At the same time, the suitability of the balance model was investigated. Vlassis used two different shapes to represent variable x and the numbers; square and circle respectively on a balance scale. Instead of just having the unknown on one side of the balance scale, the author set the unknown on both side of the scale. Some students succeeded in using the correct method to find the value of x just by observing the scales. For instance, the same amount for x was crossed out from each side of the scales and also same for the numbers. It was clear that they were performing subtraction and hence understood the concept of balance scales. Consequently, the students managed to grasp the idea demonstrated by the scales i.e. performing the same operation on both sides.

The objective of learning the balance method is to recognize that the same operations were performed on both sides to solve any equation. The result from the study by Vlassis (2002) showed that all the students demonstrated the application of the balance concept and were able to solve the equations with less difficulty.

Balance Model as a Visual Representation

Apart from influencing students' perception on equivalence, the balance model made use of representation tool to guide students to understand mathematical concepts. According to the Lesh's representation model (as cited in Suh & Moyer, 2007), if a student could make sense of the mathematical ideas then one should be able to translate that idea into a pictorial representation, where the students decided to solve the equation given by drawing a balance scale model in their study.

A disadvantage found in using the balance method is the generalization of the method itself (Vlassis, 2002). An actual balance scale was initially used to introduce the balance method and the procedure always involved removing or crossing out certain weights from each side of the scale. In other words, the only arithmetical operation perform is subtraction. Therefore, when applying to solve the equation, students have the tendency to relate the procedure of the balance method by subtracting expressions to cancel them out even if the coefficient of the expression is a negative. This corresponds to the second problem for balance method, which is the introduction of negative numbers (Vlassis, 2002; Warren & Cooper, 2005).

During the introduction of the balance method using balance scales, none of the weight of the blocks represents negative numbers. The model is also not capable of representing negative quantities as the value of the unknowns (Aczel, 1998; Warren & Cooper, 2005). As a result, when solving linear equations, students develop some errors due to the presence of the negative integers. Therefore, when using the balance scale to represent equations, it is only applicable to show positive coefficient of variable and positive numbers. However, balance scales is a balance model to demonstrate the algebraic method, and once the students grasp the idea of balancing, they will be able to see the concept of performing the same operations on both sides of equations. Hence, this can be applied when solving equations. To avoid any mistakes, these problems should be addressed to the students right after the introductory lesson to the balance method. Examples on how to solve linear equations using the balance method should be demonstrated to the students. Alternatively, as mentioned by Goh et al. (2017) for the use of manipulative in learning addition and subtraction of both positive and negative integers, 'Balloon and Weights' were applied to represent negative and positive integers respectively, may it be in the form of computer software (Lamb & Thanheiser, 2006) or paper and pencil version (Janvier, 1983). Here, we can use similar concept of 'Balloon and Weights' as part of a more advance adaptation of balance method.

THE STUDY

The purpose of this study is to introduce a new learning tool for the students to broaden their knowledge of mathematical algebra and facilitate solving linear equation. From learning the balance method, the students are expected to connect between balance and equivalence, familiarizing with the actual meaning of the term 'equal'. Thus, better understanding of equivalence will be achieved and will lead to improvement in students' achievement in solving algebraic equations.

This method has the potential to visibly show the students the 'behind the scene' activity of solving equations. According to Pirie and Martin (1997), there is a clear connection between the equal sign and the pivot of the balance and also between the physical removal of object and subtraction. They further concluded that the students were able to 'see' the answers when presented with the problem of finding an unknown on a balance. The research questions in this study are, "How significant is the difference in student's performance before and after the intervention lessons? (RQ1)" and "How can the balancing activity help students to solve linear equation with one unknown variable? (RQ2)"

METHODOLOGY

Participants

The participants for this study were convenient sampling of 53 7th Grade students from two classes in one of the middle schools in Brunei Darussalam. The school was a government all-boys school located in one of the districts in Brunei. Both classes were treated using similar instruments for the collected data. The 7th Grade students chosen for this study have completed solving algebraic equations syllabus, including the linear equations, in their 6th Grade. Hence, the 7th graders were expected to comprehend the idea behind solving linear equations without any complications.

Data Collection

Pre- and post-tests

The pre- and post-tests were designed to address the first research question (RQ1), and consisted of ten questions on solving linear equations with one unknown variable. The two types of linear equations included equations with the unknown on one side and, equations with the unknown on both sides of equations. The aim in administering the pre- and post-tests was to observe any improvements on the students' performance in solving equations after the intervention lesson. Most of the questions from the pre-test were from the work of Linsell (2009) in investigating the strategies of students for solving linear equations. Some questions were also adapted from the past examination papers. The post-test questions followed the same format as the pre-test but using different numerical values. Face validity of the test was checked by the two teachers, both with more than seven years of teaching experience, of the selected classes, to ensure that test items were relevant for the 7th Grade students and made to measure the students' ability in solving linear equations

Students' responses in the pre- and post-tests

The students' responses and strategies in both the pre- and post-tests were studied to answer the second research question (RQ2). This was done after all the students' tests had been assessed. The students' responses were analyzed thoroughly with the purpose of further investigating if the improvement in students' achievement after the intervention lesson was due to the application of the balance method.

Procedures

The first step before conducting the research was sending permission letters to the principal and the head of department of mathematics of the school. The outline of the study was then discussed with the head of department and the teachers of the selected classes. The number of participants and the available timetable for managing the selected class were also discussed. Parental consent forms were given to each student and also the participant consent form to confirm the students' voluntary participation in the study.

The study was conducted over a period of two weeks for each class. The two classes were named Class A and Class B. During the first week, the pre-test was given to the students. The lessons on the balancing method were carried out in two sessions (four periods with 30 minutes per period). The post-test was administered shortly after the intervention lesson.

Intervention Lessons

There were two sessions in the intervention lessons. The first session was on the introduction of the balance method and solving linear equations with unknown variable on one side of the equation, and the second session on solving linear equations with unknown variables on both sides of the equation. The duration between the two sessions for each class was 3 to 4 days. The gap between the two sessions was due to the class timetable and this also gave the opportunity to examine whether the students have learned and understood the introduction of the concept and not just committing it to memory.

During the first session, the students were posed with a simple question "Have you heard of or seen a balance scale before?" The picture of a balance scale was then shown to the students. The session proceeded in teaching the students the concept of balance scales by asking a volunteer to portray as an 'empty balanced' scales and the students were requested to think what would happen to the balance scale i.e. the student's long-stretched arm when an object is placed on one side of the scale (adapted from the work of Mann, 2004). This was to generate the idea of 'equivalence' into the students' mind and hence promoting that balance and equal means the same. To verify whether the students understood the general idea of a balance scale, real objects were used and in this case, the objects were small plastic boxes. The activity before was repeated except students could now refer to the objects and physically move them to or from either side of the balance scale.

The lesson continued with the introduction of an unknown weight on the balance scale (using the student's arms as balance scale). There were five boxes in total: four boxes with each labeling a weight of 100 grams and a box with an unknown weight. The boxes were arranged with three boxes weighing 300 grams altogether on one side of the balance scale and on the other side, one box weighing 100 grams and one box with the unknown weight. This scenario was presented to the students for them to guess the value of the unknown weight using their earlier understanding of the concept of balance e.g. removing boxes from each side of the balance scale. This also aimed to relate calculating the unknown weight of a certain object on one side of the scales to finding the value of unknown variable in an algebraic linear equation that was done right after in the same session.

The students then referred to the board where a balance scale was drawn. Cutouts were used to represent numbers and unknown variable, x , on the balance scale e.g. a square cutout to represent x and a circle cutout to

represent the value 1. Firstly, two circles were placed on the board on the left side of the balance scale and also a square. Then, another five circles were put on the right side of the balance scale. The display of this presentation can be seen in Figure 1. Again, without an algebraic equation, the students were asked to find the value of x using the idea of balancing. After working out the value of x , a subject on algebraic expression and hence algebraic equation were brought upon. For example, the students were urged to determine the algebraic expression of the left side of the balance scale, which was $x + 2$. Then, the students were made to think of the meaning of balance once more. This in turn gave the algebraic equation $x + 2 = 5$, which corresponded to the diagram drawn on the board (Figure 1). The equation was then used to link by removing two circles from the balance scale with the mathematical operation subtraction i.e. subtracting two from each side of the equation.

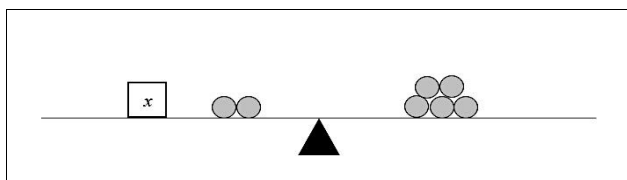


Figure 1: Diagram of a balance scale as drawn on the board with cutouts placed on it

A handout that contained one page of examples and another page of questions for classwork was given to each student. The lesson resumed by going through the first two examples using a balance scale drawn on the board and the cutouts. The two examples were: $x + 3 = 7$ and $2x + 2 = 8$. An illustration of the second example can be seen in Figure 2b. Again, the balancing concept using the balance scale was applied first. The students were asked about the number of circles that should be removed and to connect this with one of the four basic mathematical operations. This was the first example by which there existed a coefficient of the unknown variable x . Once the equation was simplified to $2x = 6$ (Figure 2b), the fact that $2x$ means 2 times x was obtained from the students upon questioning. A subsequent question asked was “How do we get x on its own or by itself?” and the students were expected to respond correctly e.g. divided by 2. Therefore, by using the balance method, the solution was obtained once the right side of the equation was divided by the same constant where both sides of the equation was divided by the same constant of 2.

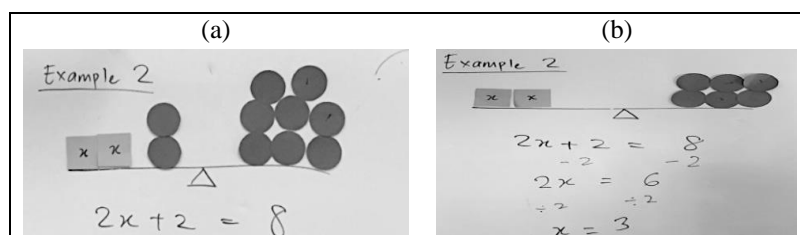


Figure 2: Second example given during the lesson

In the same session, ‘removing’ negative number was also taught and acknowledged by the students. For instance, the fourth and fifth examples on the handout, which were: $y - 5 = 11$ and $3y - 8 = 19$. The drawing of a balance scale was no longer used at this point as there were no representation of a negative number on a balance scale i.e. no cutouts to represent negative quantities (similar to the study by Warren and Cooper, 2005). But this did not prevent the application of the balance method on an equation involving negative quantities whether as a coefficient of the unknown variable or as a constant. Hence, the fourth example began by recalling the previous examples to the students on how the positive constant was removed i.e. by subtracting. Accordingly, the same question was presented regarding the negative number. Explanations were conveyed and the students were reminded on the outcome when performing addition to a negative number. When necessary, a number line was drawn on the board. For the fourth example (in Figure 3), the negative constant -5 was removed by adding a positive constant 5 to it and the same was done on the other side of the equation to get the solution.

Figure 3: Fourth example given during the lesson

Continuing the lesson, the students were shown how to use the balance method for an equation involving algebraic fraction. Similar to the previous example, a balance scale could not be illustrated for this type of equation. However, the students were expected to already grasp the idea of balancing method that is performing the same operations on both sides by the final example. The algebraic equation for the last example was $\frac{n}{2} = 6$. A familiar question was again proposed: “How do we get the n on its own or by itself?” The students were guided by rephrasing the question to “What should we do to make the algebraic fraction, $\frac{n}{2}$ becomes n ?” To help the students further, the term ‘reciprocal’ was indicated. Regardless, the method was demonstrated to the students (as shown in Figure 4). The algebraic fraction was multiplied by its reciprocal, which was 2, and thus, the other side of the equation also multiplied by 2. Subsequently, the students were given classwork to be handed in by the end of the lesson. The classwork consisted of equations of a similar form as the given examples.

$$\begin{aligned} \frac{n}{2} &= 6 \\ \frac{n}{2} \times 2 &= 6 \times 2 \\ n &= 12 \end{aligned}$$

Figure 4: The method demonstrated to the students

The second session was carried out a few days after the first session. The lesson involved unknown variables on both sides of scales (adapted from the work of Vlassis, 2002). Again, cutout squares and circles were used to represent unknown variable x and numbers respectively. The lesson started with the recall of the previous session and doing an example related to it without using a diagram of a balance scale. For that reason, the relationship between balance and equal was focused on once more. In the second session, the handout was given immediately to the students. Using the cutouts and the drawn balance scale on the board, the first two examples: $2x + 4 = x + 7$ and $2x + 6 = 4 + 4x$ were solved (as shown in Figure 5). Since the unknown variables were on both sides of the equation, the students were told to focus on the constant first to avoid confusion.

Figure 5: Examples using the cutouts and the drawn balance scale on the board

A third example involving no constant on one side of the equation was shown. This type of equation was included to demonstrate how the balance method could be applied to solve it. The equation mentioned was $5m + 15 = 2m$. If the image of balance scale was in the students’ mind, taking 15 from one side of the scale without having another 15 to remove from the other side of the scale did not seem to be logical. Therefore, it was required to show how it was possible to use the balance method to solve the equation (shown in Figure 6).

$$\begin{aligned} 5m + 15 &= 2m \\ -15 & -15 \\ 5m &= 2m - 15 \\ -2m & -2m \\ 3m &= -15 \\ \div 3 & \div 3 \\ m &= -3 \end{aligned}$$

Figure 6: The solution for the third example given to the students

As in the previous session, ‘removing’ negative numbers were also included in the second session. The only additional part was explaining to the students how to remove the unknown variable with negative coefficient by subtracting. The fifth example in the handout is shown in Figure 7.

The mean scores of the pre- and post-tests were first determined to see any improvement in students' scores after going through the intervention lesson. The results show that there is an increase between the mean scores from pre-test (12.68) and post-test (13.87). A summary of the results is shown in Table 3. However, further testing is needed to check if the differences between scores are significant.

Table 3: Mean scores of the pre- and post-tests and the minimum and maximum scores

	Pre-test	Post-test
Mean Scores	12.68	13.87
Minimum Score	6.00	10.00
Maximum Score	17.00	19.00

The calculation of the differences between the pre- and post-test scores was then performed. A normality test was carried out on the differences and the Shapiro-Wilk test shows that its significant value is less than 0.05 ($p = 0.00$). The distribution of the differences between the scores is not normal and therefore the data is set for a non-parametric testing. In this case, Wilcoxon Signed-Rank test was used. The result of the test is presented in Table 4. The Wilcoxon Signed-Rank test indicated that the post-test scores are significantly higher than the pre-test scores ($Z = -2.544$, $p = 0.011$). Therefore, the result shows that there is a statistically significant improvement in students' performance before and after the intervention lessons. Consequently, responding to RQ1 whereby the differences in students' performance before and after the intervention lessons are significant.

Table 4: Outcome of the Wilcoxon Signed-Rank Test on the difference between pre- and post-test scores

	Post-test – Pre-test
Z	-2.544
Asymp. Sig. (2-tailed)	0.011

Balance Method and Correct Attempts

The students' results were examined to determine the amount of correct attempts that were the consequence of students applying the balance method. In other words, whether the balance method contributed to most of the students' correct attempts. The results are shown in Table 5. It was observed that for each question (except for Question 7), more than half of the correct attempts included students using the balance method. This corresponds to the second research question (RQ2) whereby the application of balance method does help students in solving equations correctly.

Table 5: The number of correct attempts by the students using the balance method in the post-test

Question No.	Number of Participants using the Balance Method	Number of correct attempts using the Balance Method	Total number of correct attempts
Q1	37	34	48
Q2	28	21	38
Q3	13	6	18
Q4	41	30	39
Q5	38	26	34
Q6	22	7	13
Q7	31	0	0
Q8	43	11	12
Q9	42	7	7
Q10	21	7	8

Applying the Balance Method

To answer the RQ2 further, the use of balance method by the students in the post-test was examined. The main focus was to understand the students' abilities in attempting the question correctly in the post-test because of the application of the balance method prior to incorrect attempts to the question in the pre-test. The students' technique in using the balance method was also observed including any errors made while applying the balance method.

Analysis of the students' work

Question 1 – This equation only requires one step to solve it. In the pre-test, the students mostly chose the 'moving to the other side' method to solve the equation. However, some students attempted it incorrectly by confusing the signs when moving it to the other side. For instance, in Figure 8a, the student knew the method but

did not apply it correctly. The same student then used the balance method in the post-test, which is shown in Figure 8b. Here, the example shows that balancing activity can help the student solve the equation accurately.

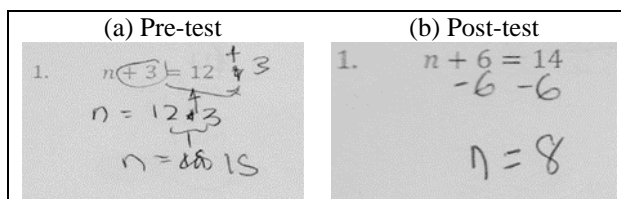


Figure 8: Student's attempts to Question 1

Question 2 – Similarly, for this equation, the students only needed one step to solve it. Most of the students used the ‘guess-and-test’ method to solve the equation in the pre-test. After the intervention lesson, the students mostly used the balance method correctly as shown in Figure 9.

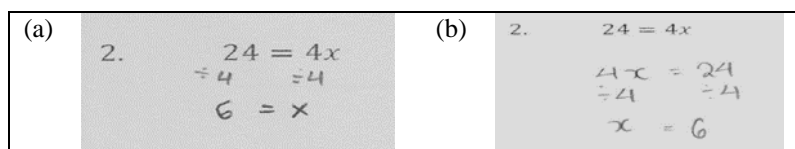


Figure 9: Students' correct attempts to Question 2

However, some students noticeably applied the balance method incorrectly. These students mistakenly subtracted 4 from both sides of equation instead of dividing 4. Examples of the students' answers can be seen in Figure 10 below. Note that these students were not from the same class.

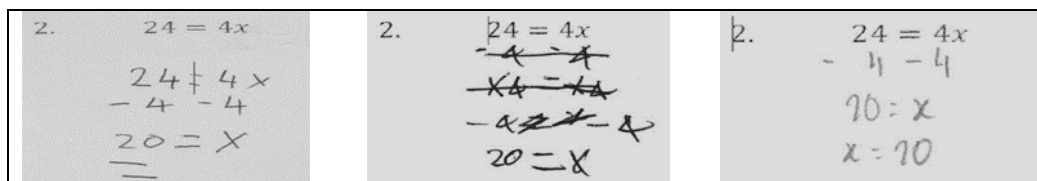


Figure 10: Students' incorrect attempts to Question 2

Question 3 – This equation too can be solved by only performing one step. Yet almost half of the participants failed to answer this question correctly. Due to the introduction of algebraic fraction, confusion was apparent amongst these participants. Their pre-test showed most of them performing division between 5 and 4 and some was observed involving subtraction between 5 and 4. For example, student S5's response shown in Figure 11a and student S25's answer in Figure 11c. Following the balancing activity lesson, these two students attempted the equation correctly in the post-test as shown in Figures 11b and 11d.

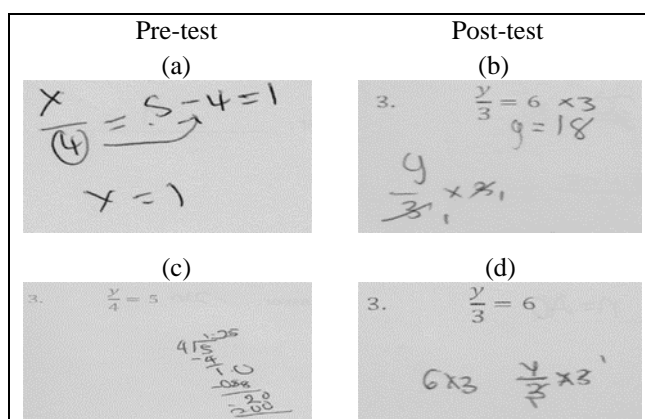


Figure 11: Students' (S5 & S25) attempts to Question 3

Despite having learned the balance method, only a few students chose to apply it in this question. Those who used the balance method made one common mistake whereby instead of multiplying both sides by 3, these students divided both sides of the equation by 3, as shown in Figure 12. The other common mistake made was when the students subtracted 3 from both sides of the equation.

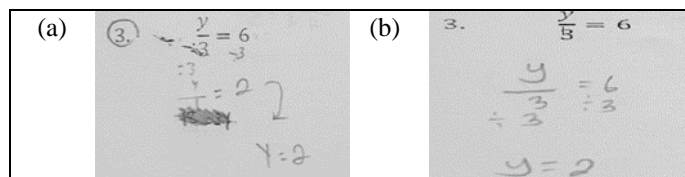


Figure 12: Students' incorrect attempts to Question 3

Question 4 – Solving the equation in this question would require the students to complete it in two steps. In the pre-test, it was observed that students experienced complication with the introduction of coefficient in front of the variable. For instance, some students took the first step to divide the constant 17 on the right side of the equation by 5, which is the coefficient of n (shown in Figure 13a). This was clearly based on their concept of 'moving to the other side' but instead of moving the constant -8 first, they looked at the coefficient of n . Other students attempted the 'guess-and-test' method successfully for this equation, but some failed to get the correct answer. After going through the intervention lesson, the same student from Figure 13a used the balance method in the post-test and got to solve the equation correctly.

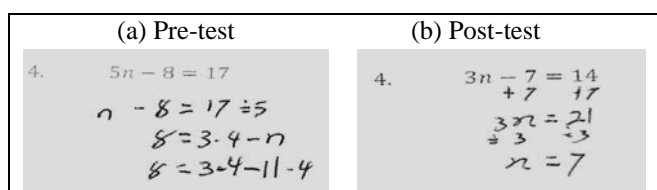


Figure 13: Student's attempts to Question 4

Due to the negative constant 7, some of the students made the same mistake when balancing e.g. removing -7 by subtracting from it instead of adding to it. For example, the answers written by two students in their post-test, student S28 from Class A and student S41 from Class B are shown in Figure 14a and Figure 14b respectively.

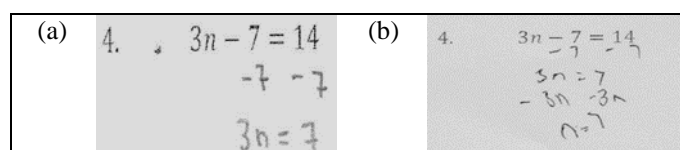


Figure 14: Students' (S28 & S41) incorrect attempts to Question 4

Question 5 – This equation also requires two steps to solve. It was found that most students struggled in solving this type of equation in the pre-test because the unknown variable was on the right hand side of the equation. Despite that, almost half of the students attempted the question correctly using their preferred method. From Figure 15, it shows that both students applied the balance method correctly in the post-test despite not able to get the correct solution in their pre-test.

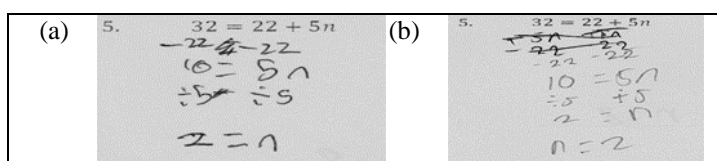


Figure 15: Students' correct attempts to Question 5

Question 6 – Question 6 is almost similar to Question 3 since both questions involved algebraic fractions. The only difference was that a constant was added to the fraction for Question 6. This equation would require the students to solve it in two steps. Most of the students were able to do the first step in the pre-test, which was subtracting 12 from 17. But once the equation became $\frac{n}{4} = 5$, these students made the same mistake as in Question 3. Meanwhile, in the post-test, only a few students successfully completed the two steps using the balance method. This can be seen in Figure 16. The other students applying the balance method were only doing the subtraction of 12 from both sides, and when they ended up with again a similar form of equation ($\frac{n}{4} = 5$) as before, they were not able to solve it correctly even after learning the balance method. In other words, they kept making the same mistake when given an equation involving algebraic fraction.

$$\begin{aligned} \frac{n}{4} + 12 &= 17 \\ \frac{n}{4} - 12 &= 17 - 12 \\ \frac{n}{4} &= 5 \\ \frac{n}{4} \times 4 &= 5 \times 4 \\ n &= 20 \end{aligned}$$

Figure 16: Student’s correct attempt to Question 6

Furthermore, there were other mistakes made by few students when applying the balance method. Figure 17 shows that both students tried multiplying the algebraic fraction first. Because of this, one student (Figure 17a) also multiplied the right hand side of the equation by 4 that resulted in an incorrect answer. The other student (Figure 17b) however misunderstood the idea of balancing method by trying to focus on removing the denominator of the algebraic fraction. Although the student did not perform multiplication on the other side of the equation, both two misunderstandings were similar and were due to their perceptions on balancing method when involving algebraic fraction where they needed to always operate on the algebraic fraction first.

(a)	6. $\frac{n}{4} + 12 = 17$ $\frac{n}{4} \times 4 = 17 \times 4$ $n + 12 = 68$ $\div 12 - 12$ $n = 56$	(b)	6. $\frac{n}{4} + 12 = 17$ $n + 12 = 17$ $-12 -12$ $n = 5$
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Figure 17: Students’ incorrect attempts to Question 6

Question 7 – Question 7 onwards involved the equations with unknown variables on both sides of the equation. Although for this question, it also included not having a constant on one side of the equation. Evidently from the pre-test results, none of the students attempted this question $3x + 6 = x$ correctly. Different types of working were displayed and almost all indicated having error in attempts. For instance, a few students tried ‘moving to the other side’ method and obtained $4x + 6$ from adding x to $3x$ and got 10 or $10x$ (from adding $4x$ and 6) as the solution.

During the intervention lesson, an example of a similar type of equation was presented to the students in the second session. Nevertheless, all of the students were not able to successfully solve the equation even with the use of the balance method. From Figure 18, when balancing, the three students did the first step correctly. But then, it shows that the students were not aware of $x - x = 0$ i.e. subtracting x from x would give them zero. And they did not end up with the simplified equation of $2x + 8 = 0$. In fact, none of the students had the said equation. Apart from the three students (shown in Figure 18), most of the other students also obtained either $2x = 8$ or $2x + 8$ without an equal sign.

7. $3x + 8 = x$ $-x -x$ $= 2x = 8$ $\div 2 \div 2$ $x = 4$	7. $3x + 8 = x$ $-x -x$ $2x + 8$ $\div 2 \div 2$ $x = 4$	7. $3x + 8 = x$ $-x -x$ $2x + 8$ $\div 2 \div 2$ $x = 6$
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Figure 18: Students’ incorrect attempts to Question 7

There were a few students who almost achieved the correct solution. From Figure 19a, it is clear that student S53 incorrectly did the second step by subtracting 1 from both sides of the equations instead of x . However, he understood the method, simplified the equation to $2x = 8$ and forgot about the negative sign. Student S48’s working in Figure 19b shows that he correctly obtained the equation $2x = -8$ but then did not include the negative sign in his solution after dividing both sides of the equation by 2.

(a)	7. $3x + 8 = x$ $-1 -1$ $3x = x - 8$ $-1 -1$ $2x = 8$ $\div 2 \div 2$ $x = 4$	(b)	7. $3x + 8 = x$ $-x -x$ $2x = -8$ $\div 2 \div 2$ $x = 4$
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Figure 19: Students’ (S53 & S48) incorrect attempts to Question 7

Question 8 – In the pre-test, most of the students showed incomprehensible workings as they made many algebraic misconceptions. The few students who attempted this question correctly were applying the ‘guess-and-test’ method and one did the ‘moving to the other side’ method. It was also observed that many students were using the ‘guess-and-test’ method incorrectly to solve this equation in the pre-test. For instance, one student’s working can be seen in Figure 20a. It shows that the student tried $m = 5$ on the left side of the equation and $m = 3$ on the right side, which revealed that the student did not know the unknown variable ‘ m ’ should have the same value. There were a few other students who also made this similar mistake. In the post-test, the same student from Figure 20a managed to apply the balance method correctly to solve the equation as shown in Figure 20b.

(a) Pre-test	(b) Post-test
8. $5m - 2 = 3m + 6$ $= 25 - 2 = 9 + 6$ $= 23 - 15$ $= 08$	8. $5m - 2 = 3m + 10$ $+2 \quad +2$ $5m = 3m + 12$ $-3m \quad -3m$ $2m = 12$ $\div 2 \quad \div 2$ $m = 6$

Figure 20: Student’s attempts to Question 8

Question 9 – In this question, both a negative constant and a negative coefficient were included in the equation. There were many incorrect approaches made by students in solving the equation in the pre-test. Most students tried the ‘moving to the other side’ method, but then the sign got mixed up. For example, the equation was $2p - 5 = 9 - 5p$ and it became $9 - 5 = 5p - 2p$ and also $2p - 5p = 5 - 9$ after the students incorrectly applied ‘moving to the other side’ method. After the intervention lesson, only few students were able to attempt the question correctly using the balance method. Some examples of the students’ work can be seen in Figure 21.

(a)	(b)
9. $3p - 3 = 11 - 4p$ $+3 \quad +3$ $3p = 14 - 4p$ $+4p \quad +4p$ $7p = 14$ $\div 7 \quad \div 7$ $p = 2$	9. $3p - 3 = 11 - 4p$ $+3 \quad +3$ $3p = 14 - 4p$ $+4p \quad +4p$ $7p = 14$ $\div 7 \quad \div 7$ $p = 2$

Figure 21: Students’ correct attempts to Question 9

When applying the balance method in the post-test, the students mistakenly removed $3p$ instead of $-4p$ (refer to Figure 22). This led to more algebraic misconceptions in the next step of simplifying the equations.

(a)	(b)
9. $3p - 3 = 11 - 4p$ $-3p \quad -3p$ $-3 = 11 - p$ $+3 \quad +3$ $\quad = 14 - p$	9. $3p - 3 = 11 - 4p$ $-3p \quad -3p$ $-3 = 11 - p$ $+3 \quad +3$ $\quad = 14 - p$ $p = 14$

Figure 22: Students’ incorrect attempts to Question 9

Question 10 – This equation had a more complicated algebraic fraction and solving it required three steps. Most of the students found this question difficult and only three students attempted this question correctly. Also, most students skipped this question in comparison to all the other nine questions in the pre-test. Those who attempted this question used the ‘guess-and-test’ approach (refer to Figure 23).

(a) $10. \quad 2n = \frac{2n+16}{5}$
 $= 2 \times 2 = 4$
 $= 16 + 4$
 $= 20$
 $= 20 \div 5$
 $= 4$
 $=$

(b) $10. \quad 2n = \frac{2n+16}{5}$
 $2n \cdot \frac{5}{5} = \frac{2n+16}{5} \cdot 5 = 20$
 $= 4$
 $2n = 4$
 $n = 4 \div 2$
 $n = 2$

Figure 23: Students' incorrect attempts to Question 10

There are some students who used the 'guess-and-test' method incorrectly in the pre-test and then managed to attempt the question correctly in the post-test using the balance method. The examples can be seen in Figure 24.

(a) Pre-test $10. \quad 2n = \frac{2n+16}{5}$
 $= \frac{4n+16}{5}$
 $= \frac{20}{5}$
 $= 4$

(b) Post-test $5n \times 2 = \frac{2n+16}{5} \times 2$
 $10n = 2n+16$
 $- 2n \quad - 2n$
 $8n = 16$
 $\div 8 \quad \div 8$
 $n = 2$

Figure 24: Student's attempts in using the balance method for Question 10

However, applying the balance method again could cause some misunderstanding amongst the students. In Figure 25a below, the student did the first step correctly but then when trying to remove $2n$ the student divided both sides of the equation by 2.

(a) $10. \quad 5n = \frac{2n+16}{2}$
 $2 \times 5n = \frac{2n+16}{2} \times 2$
 $10n = 2n+16$
 $\div 2 \quad \div 2$
 $5n = 16$

(b) $10. \quad 5n = \frac{2n+16}{2}$
 $5n = \frac{2n+16}{2} \times 2$
 $5n = 2n+16$
 $- 2n \quad - 2n$
 $3n = 16$
 $\div 3 \quad \div 3$
 $n = \frac{16}{3}$

Figure 25: Students' incorrect attempts in using the balance method for Question 10

Even though the application of the balance method in the post-test contributed to the correct attempts in the post-test, there were some unavoidable errors made by the students. Those who attempted the question correctly in the pre-test ended up getting the incorrect solution in the post-test after using the balance method. The evidences from the findings here have shown that the application of balance method did help the students in solving the linear equation correctly.

CONCLUSION

This present study focused on the effects of students' achievements after learning the balance method to solve linear equation. Even though there were improvements after the intervention lessons, errors were still unavoidable when applying the balance method. During the intervention lesson, examples of equations that involved removing negative constants and also negative coefficient of variables through balancing activity were also included. Nevertheless, after examining the students' responses in the post-test, some students demonstrated their lack of understanding in the removal of a negative number, which supports the findings by Vlassis (2002). Consequently, several students adhered to the generalization of the balance method. With the introduction of the balance method, the students found solving equations with unknowns on both sides rather challenging. Although the balance method assisted in solving the two-step equations, it was evident from the results that the students were struggling in solving them. Concurring with the findings by Linsell (2009), the students in this study also found the equations involving algebraic equations difficult to solve in comparison to the other equations.

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LINK AND MATCH LEARNING OUTCOMES OF ENTREPRENEURIAL COMPETENCIES REQUIRED IN INDONESIAN COMPANIES

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ABSTRACT

Nowadays, Intrapreneur skill is one of the competencies urgently needed in the globalization era that can serve as a leverage for a business competitiveness. This study aims to analyze the needs for entrepreneurial competences in Indonesian companies. An entrepreneur is someone who creates a new business, in the face of risks and uncertainties, and who aims to seek profit and growth by identifying opportunities through a combination of resources to get the benefits therefrom. Entrepreneurial competences are measured through 19 indicators, a method which was introduced by Izquierdo, Deschoolmester, and Salazar (2005). This study applies quantitative method through distribution of questionnaires toward 30 companies in Indonesia. The result shows that companies are highly in need of employees who have entrepreneurial competences.

Keywords: Entrepreneurial Competence, Entrepreneur, Intrapreneur, Learning Outcome

INTRODUCTION

In order to face the globalization era and help boosting economic growth in Indonesia, companies compete to develop their business. Thus, it is vital for them to have human resources with entrepreneurial skills, since they are essential to ensure the company's sustainability (Michaels and Axelrod, 2001). Some experts argued that human resource is the foremost asset of a company which serves as a planner and active actor of each of the organization's activity. They have diverse thoughts, feelings, desires, statuses, educational backgrounds, ages, and sexes which they bring into the organization (Hasibuan, 2005; Bernardin, Russel, 2003). Human resource is not a machine, money, or material that is passive in nature nor it is something that can be fully controlled to support an organization's goal. This shows the importance of human resource for a company. In fact, according to Parwati Surjajudjaja, the President Director of PT Bank OCBC NISP (portalhr, 2012), many banks setting up their business in Indonesia are willing to pay competitive human resources even above the market price for the sake of developing their business. Human being is endowed with mind by the Almighty, which enables them to think about matters that were considered impossible before. Human being can create and innovate. They can also think about an idea, develop it, and put it into reality. Furthermore, they also have different capabilities and skills to complement each other. It is this diversity that makes human beings invaluable for companies. Thus, human being or human resource is nowadays considered as a determinant element for a company's competitiveness (Dale, 2001, Sakapurnama 2016).

Among so many people, obviously there are some who have certain talents in certain fields, which are often referred to as talented people. Maintaining company's presence amidst the rigorous competition requires a pool of talents, mainly not for the present, but rather for the future, which is often referred to as human resources investment. However, company's growth will be hindered if in such a stringent talent war, it resorts to the wrong talent. To address this, therefore, companies compete to invest in human resources by applying good human resources management to survive in this war.

In particular with the ASEAN Economic Community (AEC, MEA in Indonesian) which already started in 2015, business competition between companies have become more stringent. A quote from BBC Indonesia (2014) explained that the ASEAN Economic Community is a single market in Southeast Asia which started to be effective in 2015. The formation of this single market enables countries to sell goods and services to each other seamlessly across Southeast Asia, which is carried out especially by eliminating all barriers between them. In addition, AEC will also open up the flow of labor market. In an interview with BBC Indonesia, the Special Staff to Minister of Manpower and Transmigration, Dita Indah Sari, explained that the implementation of Southeast Asia single market means the removal of barriers in professional labor sector, which will in turn open up opportunity for foreign workers to work in various positions and professions in Indonesia (Sakapurnama, 2016).

According to an economist from Indonesia Islamic University of Yogyakarta (UII), Edy Suandi Hamid, the government and economic actors must be more offensive in anticipating the AEC 2015. The AEC must be perceived as a two-fold increase of market for Indonesia. Furthermore, AEC will also liberalize the professional labor market which in turn will create more competition both for companies and job seekers. He also added that currently there are approximately 600,000 intellectual unemployed people in Indonesia. This condition will force them to work harder to improve their competence. On the other hand, companies need also to develop their quality and be more selective in recruiting professional workers.

When it concerns an individual competence, it is imperative to have a skill that matches the need of the company where that particular individual wants to work in. Oppositely, in order to decide whether an individual is talented or not, a company needs to see and measure the individual based on certain assessment components. On this regard, Sakapurnama and Budiwan (2015) conducted a study on the need of Indonesian companies to face the AEC era, which results show that companies need talents with several core competences, such as high adaptation skill, capability of quick learning, innovative capability, etc., as can be seen on Chart 1.1.

In fact, employees or talents with such competences seem to possess the similar competences of an entrepreneur which, as Isquierdo, Deschoolmester, and Salazar (2005) suggested, consist of 19 indicators. Some of their points are identical with those introduced by Sakapurnama and Budiwan (2015) in their study, namely innovative mindset and ability to learn foreign language. Furthermore, Chandler and Hanks (1994) argued that an entrepreneur's competences include the ability to observe the surrounding environment, be aware of potential opportunity, and take advantage of

such a potential by making a certain strategy. It can be said, therefore, that a company needs an employee who has the competence of an entrepreneur. Having a talent with entrepreneurial capacity will benefit the company through his/her ability to innovate and creativity in solving problems faced by the company, as well as by giving new ideas and business plans for a company just like an entrepreneur.

An entrepreneur is defined as an individual who pays a certain amount for a certain product, which he/she will sell at uncertain price, while making decisions to achieve and maximize the use of resources as well as accepting the risks entailed from the business (Holt, 1993, Churchill, 1992). Meanwhile, according to Zimmerer (2002), an entrepreneur is someone who creates a new business while facing risks and uncertainty, and who aims to seek profit and growth through identification of opportunities through a combination of resources to obtain benefits therefrom. Through such definitions, it can be argued that someone who has entrepreneurial soul is the one who dares to take a new step, dares to take risk, enthusiastic toward change, and possesses an out-of-the-box thought.

Someone having an entrepreneurial spirit normally is an individual who tends to prefer to build his own business rather than working as an employee in a company. However, having an employee with entrepreneurial spirit a.k.a. intrapreneur will allow the company to grow significantly and keep up with the challenges of the age, which is undeniably a competitive advantage (Antoncic, Jasna Auer & Antoncic, Bostjan. 2011). This resonates with what was stated by Churchill (1992), that intrapreneur can create a new value for the company.

THEORETICAL REVIEW

According to Zimmerer and Scarborough (2002), an entrepreneur is someone who creates a new business and faces risks and uncertainty, and who aims to seek profit and growth by identifying opportunities through a combination of resources to benefit therefrom.

Izquierdo, Deschoolmester & Salazar (2005) summarize the entrepreneur competences as follows:

1. Capable of identifying a business opportunity
2. Capable of evaluating a business opportunity
3. Capable of making decision
4. Capable of identifying problems and finding their solution
5. Having a wide connection/network
6. Having a good verbal communication skill
7. Capable of overcoming uncertainty
8. Having an innovative thought
9. Having the capacity to build a solid team
10. Capable of making agreement in a negotiation
11. Capable of properly responding to failure
12. Capable of overcoming stress
13. Capable of calculating and dares to take risk
14. Having good intuition

15. Having distinctive perspective toward the market
16. Capable of collaborating
17. Capable of analyzing problem
18. Capable of proper written communication
19. Capable of learning another language

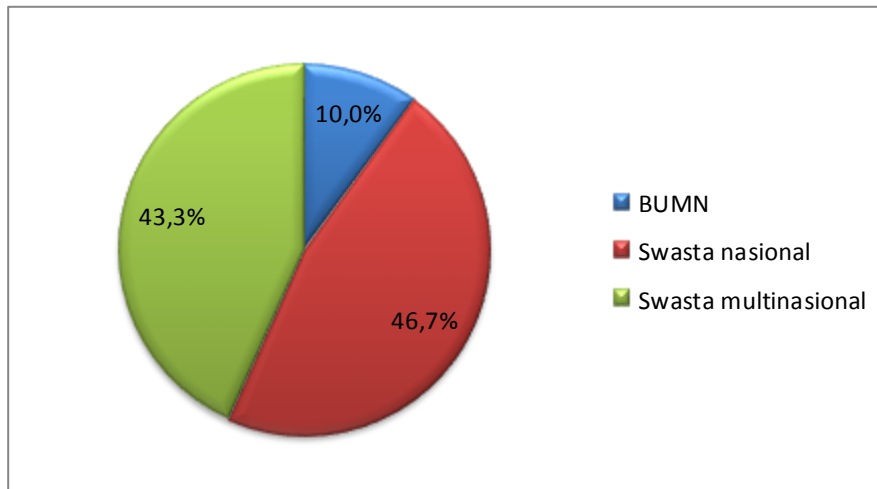
METHOD

The study is quantitative-based which applies descriptive analysis which aims to explain about the need of a company for employees who have entrepreneurial competence. The study is a pure research and is categorized as cross-sectional, and was conducted in March 2015 to April 2015. The primary data collection was conducted by survey using questionnaires. The secondary data collection was conducted through desk-study on books, journals, previous researches, and internet. The population in this study is various companies across Indonesia, both State-owned Enterprises (SOEs) and private sector, and the selected population criteria are recruitment departments of companies in Indonesia both at the SOEs and private sector. The samples of this study are one employee from each company, both the SOEs and private sector, who represent their respective company. The sampling technique applied was convenience sampling method. The result of the study was processed using the SPSS version 18.0 which was afterward described by using mean concentration. The results of the data processing are then presented in pie chart, bar chart, and tabulation tablet, which are then elaborated into texts.

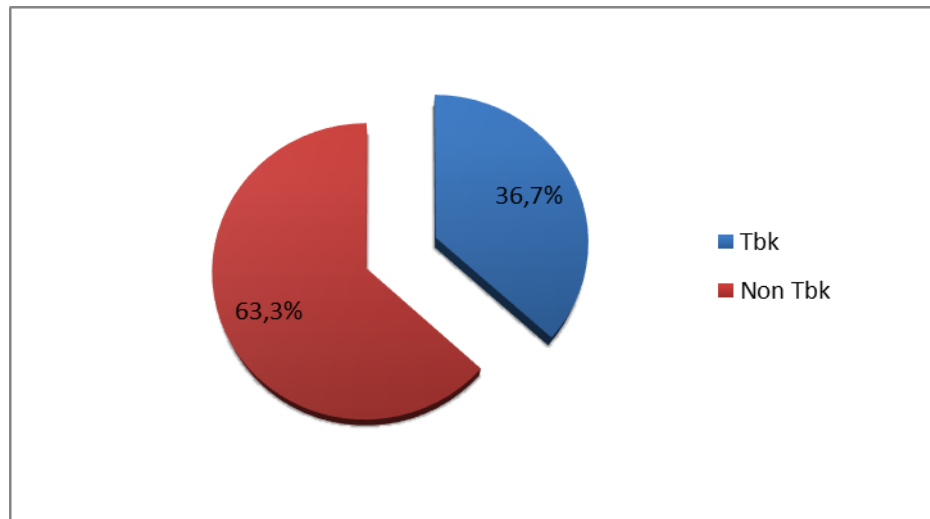
ANALYSIS AND DISCUSSION

Respondents' Characteristics

The descriptive statistic analysis of this study is conducted to describe and explain about the overall respondents' characteristics who were analyzed by the type of company, company's status (Tbk/Ltd), number of employee, and company's capitalization. The results of the analysis will be elaborated with several diagrams such as pie chart, bar chart, and pipe chart.

Respondents' Characteristics by Company's Type (n=30)

Source: Result of primary data processing using SPSS version 18.0 (2015)

Respondents' Characteristics by Company's Tbk (Ltd) Status (n=30)

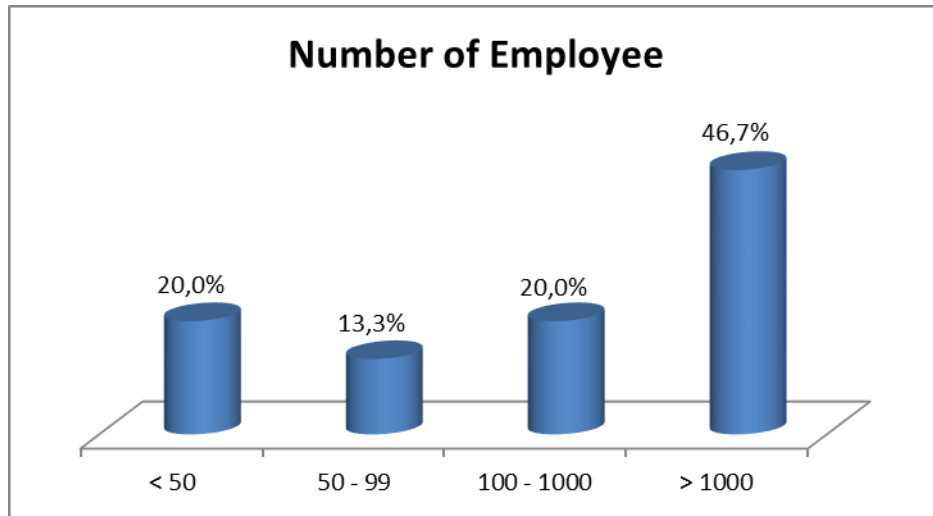
Source: Result of primary data processing using SPSS version 18.0 (2015)

Respondents' Characteristics by Number of Employee**Frequency of Number of Respondent Employee**

Category	Number of Employee	Frequency
1	< 50	6
2	50 – 99	4
3	100 – 1000	6
4	> 1000	14

N=30

Source: Researchers' data processing result (2015)



Source: Result of primary data processing using SPSS version 18.0 (2015)

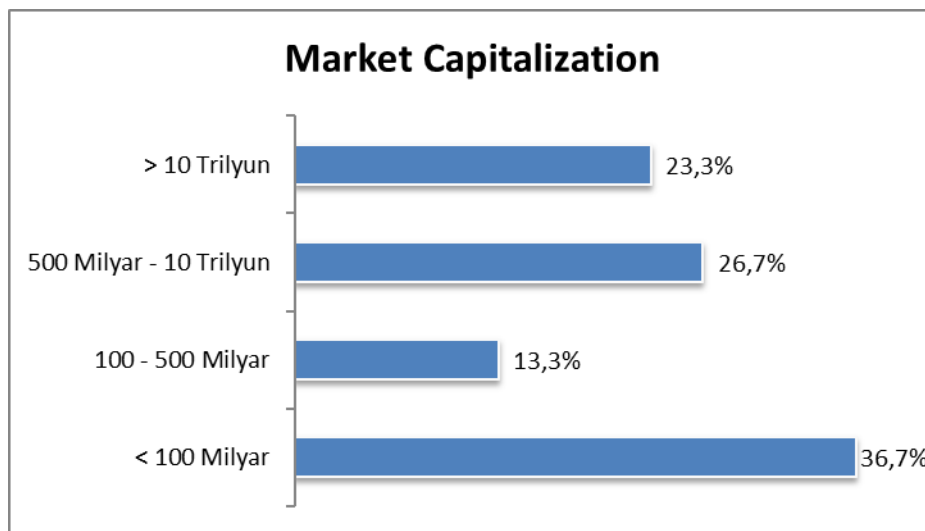
Respondents' Characteristics by Company's Capitalization

Frequency of Category of Company's Capitalization

Category	Company's Capitalization	Frequency
1	< 100 Billion	11
2	100 - 500 Billion	4
3	500 Billion - 10 Trillion	8
4	> 10 Trillion	7

N=30

Source: Researchers' data processing result (2015)



Source: Result of primary data processing using SPSS version 18.0 (2015)

Mean Result Analysis**Mean Descriptive Statistics**

No	Statement	Mean	Interpretation
1	Company needs employees who are able to identify business opportunity	4.30	Highly need
2	Company needs employees who are able to evaluate business opportunity	4.17	Need
3	Company needs employee who are able to make decision	4.53	Highly need
4	Company needs employees who are able to identify problems and find the solutions	4.77	Highly need
5	Company needs employees who have a wide connection/network	4.10	Need
6	Company needs an employee who have good verbal communication skill	4.50	Highly need
7	Company needs employees who can overcome uncertainty	4.03	Need
8	Company needs employees who have innovative thoughts	4.50	Highly need
9	Company needs employees who are able to build a solid team	4.43	Highly need
10	Company needs employees who are able to make agreement in negotiation	4.23	Highly need
11	Company needs employees who are able to face and respond to failure properly	4.23	Highly need
12	Company needs employees who can properly handle stress	4.27	Highly need
13	Company needs employees who are able to calculate and dare to take risk	4.07	Need
14	Company needs employees who have good intuition	4.10	Need
15	Company needs employees who have different perspective on market	3.80	Need
16	Company needs employees who have collaboration skill	4.57	Highly need

Continued

No	Statement	Mean	Interpretation
17	Company needs employees who are able to analyze problem	4.57	Highly need
18	Company needs employees who have proper written communication skill	4.23	Highly need
19	Company needs employee who are able to learn another language	3.93	Need
Total Mean		4.28	Highly need

From the above table, it can be concluded that entrepreneurial competences are highly needed, with the total mean for the entire 19 indicators is at 4.28, which is therefore categorized into the 'highly need' category. The data indicate that companies in Indonesia truly need individuals or employees who have entrepreneurial competences.

CONCLUSION

Based on the analysis on descriptive statistic, mean, and variables on entrepreneur competence, it can be concluded that companies in Indonesia highly need employees who have entrepreneur's competence. This indicates that the concept of intrapreneur is highly favored by these companies, particularly with the fact that those companies are highly in need of employees with entrepreneurial competences. On the other hand, entrepreneurial competence is a must have competence for job seekers in order to be accepted into companies in Indonesia.

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LITERARY EDUCATION: A DESIRED CHALLENGE

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ABSTRACT

Literature is often an overlooked subject in many different environments, even in classrooms and teaching situations in general. Observation has showed us it is one of the school subjects with the most outdated teaching strategies and most certainly the most distant from new technologies, which prevents teachers from rethinking their methods. Analyzing that context having secondary education as our specific scope, our aim is to find out what are the best ways of proposing positive changes and what are our obstacles for doing so. Many mistaken beliefs exist and if we address them directly, we might be able to renew the approach in literature classes, with good results being perceived in short- and long-term.

Keywords: Teaching-learning strategies; Literature; Secondary education.

INSTRUDUCTION

Literature is often an overlooked subject. Might be true that many people consider it to be an outdated form of art and therefore an outdated subject for schools to worry about. There is not one institution in secondary education where you can find literature as a priority, and it rarely is at least one of the priorities. As a field, literature is not always developing new technologies, it is not changing in an obvious way all the time and shifting paradigms every day; some argue that would be the reason for such lack of interest. Literature is presented in schools as something we have set in stone, as history, sometimes sociology, but never as literature (even though we still call a “literature class” by this same name, and the name is not an issue).

It did not, however, have to be like that. Not only we can, but also we should look for ways of presenting the subject of literary works with all its richness. The *direct* access to the literary text is a rare approach in a classroom full of students, as if we simply forget that this means a classroom full of *readers*. The result is that we lose most of those potential readers while our job is to do the opposite. Why is literature teaching so stagnant, and so distant from those who justify its very existence? What is the part played by the drowsy weight of tradition and how do we identify the difficulties for innovation?

Let’s think about the usual methodology to quantify and interpret results in education. Our current measure to assess a student’s learning process is universally test-based. Well, how would we be able to assess a student’s knowledge about literature if we don’t transform it into facts that can be demanded in a test? If there are many students, reading complex written assignments or exams can be practically impossible. This becomes a big issue when the model defines every aspect of class planning: classes in general do not open subjects to discussion, since the rule is to turn every subject into an unchangeable amount of fixed facts. The whole purpose is to be able to formulate questions about those facts and ask them in the form of a test, which is, of course, the exact same test for every student. We do that so we can find out to how many questions the students know the answers. That is the basic dynamic.

There are many problems with that current system, but now let’s focus on our issue: that doesn’t work so easily for art, or, more specifically, for literature. The reason can be elaborated in various forms, but we can summarize saying that literature is not supposed to be about answering questions with definite facts that are either right or wrong. Even if there are teachers who agree with that statement, the system doesn’t change, and that discrepancy called our attention. At the same time, this dynamic of test-based quantifiable results is not a recent context, thus we have new generations of teachers who were taught that way since they were young, during all their basic

education, and therefore don't question those methods. They think "being good at" literature (as a subject) is about knowing dates, names, and brief explanations for literary texts using general, superficial topics.

Of course there are many exceptions to all we are indicating here, with many teachers who are able to teach literature in a much less autoimmune way, and we really couldn't say it is always possible to get rid of the test-based assessment. Unfortunately, changing the dynamic in a few classrooms doesn't change how things are done in general in most schools. That situation both impacts and is impacted by our beliefs about those fields of knowledge and the respective co-related professions; this includes prejudice, concepts of progress and intelligence and so on, culminating in society expressing opinions about prestige in professional choices and about choosing careers for the status they provide. All of that is part of the aftermath of how we approach a subject in schools, and although the reasons for our approaches may vary substantially, it is possible to visualize some patterns. For instance, when we ask teachers why they use so many texts with explanations for literary works instead of trying to make the students read those works and then discuss those explanations (or not), we receive basically the same pattern of answers.

First of all comes the question of complexity and literature's intricate form. It is commonly said to be "too difficult" to approach a literary text. Students are never old enough, never mature enough, it is considered that they never know enough to be able to read it and reach their own conclusions. It doesn't matter if they are 12 or 20, it is widely believed that they should learn conclusions from some literature textbook and/or from the teacher; what happens all the time is that they read *about* literary styles and movements but don't read the literary works themselves – or, when they do, it is with no critical vision of it, since they already know they will find out what is it *about* from the teacher or the textbook. The experience of reading is not important and that makes it very pragmatic and not at all pleasant. When students like the books they read, it is usually a book they have chosen themselves, and school simply ignores those readings. Instead, we should bring that pleasure closer to the traditional mandatory lists of readings. Following the logic of those being "merely entertainment", schools often act as if those books were supposed to be ignored and kept as far away from the classroom as possible.

What occupies all the space in literature classes is often only history of literature, not literature. Literature teachers are used to summarizing the most common or important characteristics of an author or of a literary movement and its canonical works, while literature itself is, unfortunately, simply left aside, as if it would be "too complicated" to deal with it directly and actually see students reading – and thinking – for themselves. The fact that those contexts are usually defined by the fierce competition for university admissions is another variable in the equation.

Additionally, the second reason is that **in the end, it is not a priority to teach our students to think** – the main goal of schools, specially secondary education, is to assess students' knowledge focusing on getting them to higher education. All study aims at passing one final test in order to go to university, as opposed to a continuous process of developing different skills and sense of citizenship, general knowledge and the ability to observe the world critically. These abilities that might develop from reading literature are not so important to pass those tests in the Brazilian educational system, which is ultimately the only goal in formal education.

Unfortunately, it is not a priority to make them read and think critically about any other subject if they are concentrated on reaching the sole goal of getting that degree. Students often don't take any pleasure in learning things at school, they want to be done with school. Literature is not one of the most loved subjects by the students, it is viewed as boring and they know they have to know how to calculate or laws of Physics or Chemistry in order to pass the tests and later be accepted in college; they rarely know how to answer why waste time reading literature.

Same goes for foreign language learning: it is a very common mistake to believe that literature texts should not be used in the classroom until the student has some level of proficiency, otherwise they would be too confused and the activity would therefore be inefficient. Practice, however, points in a different direction, showing that it can make a huge difference for students of foreign languages, including not only those keen to read literature for some reason, but potentially any student whatsoever. The same goes for literary texts in the context of primary or secondary level classrooms.

If a student reads literature, he or she learns so much more than the basic communication in that language, it is a broader knowledge in every way. The idea is that would be a waste of time since we should focus on everyday communication, but reading literature is also developing linguistic skills that we use all the time. It is a completely different use of language, but it is obviously enriching to know it, as opposed to "waste of time".

We can see how much difficulty we have dealing with several erroneous preconceptions that, in the end, underestimate student's abilities and consequently *under develops* their reading skills. Our intention is to disclose perspectives to be considered when teaching literature, rather than attempting to propose a perfect model of teaching (which doesn't exist). Literature is now marginalized as useless while it should be viewed as it is: a foundation, a subject that includes all other subjects in the sense it contains so much knowledge of different uses of language, social contexts, history and culture. If we give up on all of this, we are essentially giving up on the quality of critical education.

LIVED-IN": EMBEDDING TEACHER EDUCATION IN MIDDLE & SECONDARY CLASSROOMS

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ABSTRACT

An overview of an award winning clinically intensive “lived-in” model to teacher education will be provided. For sixteen weeks, teacher candidates mentor, tutor, and teach middle and high school students, all identified as the school’s most academically vulnerable. Under the supervision of their methods professor and a cooperating teacher, methods students plan and implement rigorous and individualized instructional units in schools. Teacher candidates are at the school Monday through Friday, and work in small groups to plan and implement instruction, grade student work, draw conclusions based upon analyzing student data, and implement enrichment and remedial interventions. Instruction by faculty takes place at the school, and they are consistently present, visible, and available on-site. This session describes how we have partnered with area schools and teachers to embed teacher preparation in schools, which allows us to deliver individualized and high quality instruction to some of our area’s most vulnerable urban youth. Outside of providing a general overview of the course, materials and resources will be provided that outline course expectations and requirements by faculty.

INTRODUCTION

It was Sir William Osler (1901) that noted, “He who studies medicine without books sails an uncharted sea, but he who studies medicine without patients does not go to sea at all.” This lack of commitment to teaching as a profession of practice fosters a gap between how teachers are trained and what schools actually need (NCATE, 2010). In order to grow as an educator, pre-service teachers well before student teaching, their culminating clinical experience, must be provided with sustained and supportive opportunities in schools that allow for meaningful interactions with Pk-12 students, teachers, administrators, and even university faculty. We believe university-based teacher preparation programs can engage in mutually beneficial partnership that both advance Pk-12 student learning while preparing the next wave of skilled and competent teachers that our society needs. Knowing that a transformation away from ineffective isolated field placements and towards university-school partnerships was needed, we set out to design and study a “lived-in” model to teacher preparation.

The leading national accreditor of teacher education programs, the Council for the Accreditation of Educator Preparation (CAEP), notes that “...to prepare for the unprecedented responsibilities educators are required to take on, the U.S. must dramatically transform teacher preparation” (NCATE, 2010). This transformation must entail teacher preparation programs and their faculty prioritizing and investing in initiatives that allow teacher candidates the opportunity to learn and train alongside university faculty in schools. This call for “learning about practice in practice” (Ball & Cohen, 1999) and for closer collaboration between Pk-12 schools and university teacher preparation program is not new and reaches back to the early 20th Century with calls by the National Association of Directors of Supervised Student Teaching, (which is) now the Association of Teacher Educators (Patterson, McGoech, & Olson, 1990). In fact, it was John Dewey (1904/1965) that noted the promise of grounding teacher education in practice and the lives of learners. Several decades of research make it clear that critical elements of professional teacher practice can only be learned in real classrooms under guidance from faculty mentors (Zeichner

& Bier, 2015; Ball & Cohen, 1999). Emphasizing educational philosophies and understanding education research becomes highly theoretical and undervalued without pre-service teachers having actual, concrete experiences with Pk-12 students to draw from in their teacher preparation experience.

Evolving out of the notion that subject-specific methods courses and their adjoining field placements, which usually come before student teaching, could do more to get students in supportive, sustained, and mutually beneficial field placements, we worked to locate models of teacher preparation that promoted strong collaboration and partnerships between schools and university teacher preparation programs. In addition, these placements would provide a rigorous, relevant, and differentiated curriculum to Pk-12 students (Kenyon, 2013; Passe 1994). It was essential for this model to allow university methods professors to deliver semester long on-site instruction and coaching to methods students, and to facilitate clear communication and interaction with cooperating teachers. This model also needed to embed teacher education in actual classrooms whereby university methods candidates plan, instruct, assess, and reflect with their methods professor for a sustained period of time in a real classroom with real students. Finally, it was essential that this model advanced and put at its center, the success of academically vulnerable Pk-12 students.

IN PRACTICE: A LIVED-IN MODEL TO TEACHER PREPARATION

It is essential for pre-service candidates enrolled in methods courses to engage in supportive, relevant, authentic, and rewarding field experience in real classrooms (Kenyon, 2013; Adler, 2008; Henning & Yendol-Hoppey, 2004; Toll, Nierstheimer, Lenski, & Kolloff, 2004; Passe, 1994). Subject specific field experiences attached to and/or embedded in methods courses can play a significant role in laying an important foundation of pedagogical content knowledge before students move into full-time student teaching (Doppen, 2007). Research indicates that when methods professors place students in random classrooms candidates often experience instructional approaches and beliefs that run contrary to what they learned in methods courses (Toll, et al., 2004). As a result, university method teachings are “washed clean” or discredited by pre-service teachers as they advanced in their program. In order to avoid this washout and to better connect theory and best-practice, it was essential the methods professor spend significant time on-site delivering instruction, have a direct, supportive, and trusting relationship with the cooperating teacher, and that methods students and faculty be embedded for sustained periods of time in the Pk-12 classroom (Zeichner & Bier, 2015; Kenyon, 2013; Passe, 1994). For all of these reasons, a lived-in model for teacher preparation was implemented in the spring of 2012 in Author 1’s social studies methods courses, and Author 2 soon followed with his implementation in the fall of 2016 in his special education methods course.

The authors learned about this cost-free model to teacher preparation and its ability to reach those most vulnerable students through Foster & Nosol’s (2008) *America’s Unseen Kids/Teaching English/Language Arts in Today’s Forgotten High Schools: Teaching English/Language Arts in Today’s Forgotten High Schools*. Foster & Nosol discuss a lived-in model to teacher preparation that was highly successful in advancing a rigorous and differentiated English Language Arts secondary curriculum to some of this nation’s most vulnerable high school students in Akron, Ohio. In this model, the authors identify the benefits of moving teacher preparation programs and methods courses into Pk-12 schools in order to leverage necessary resources to help our nation’s most vulnerable (“invisible”) students and to support the extra-ordinary efforts of teachers working in our most disadvantaged schools. Foster & Nosol assert this model not only benefits Pk-12 students, teachers, and administrators but provides an authentic and meaningful laboratory in which university faculty can work alongside teacher candidates in their teacher preparation courses.

Foster and Nosol (2008) identify the primary goals and principals of the lived-in model as the following:

1. Focusing on developing “strong” Pk-12 students (i.e. providing an advanced and meaningful curriculum, motivating and supporting academically vulnerable students, etc.)
2. Engaging in long-term, sustained relationships with Pk-12 students over the course of the semester. This included methods students building strong rapport with youth, individualizing and differentiating instruction, helping them feel welcomed and more visible in the classroom, and in building and maintaining a professional and powerful pre-service teacher to Pk-12 student relationship.

3. Consistently reflecting on the quality of instruction, with their peers, cooperating teacher, and university methods professor, provided to Pk-12 students and adjusting their instruction and interactions where/when necessary to meet the needs of learners.

This lived-in model also provided a framework to meet the requirements under the Council for the Accreditation of Educator Preparation (CAEP) standards. CAEP requires university teacher preparation providers ensure that effective partnerships and high-quality clinical practices are central to preparation so that candidates develop the knowledge, skills, and professional dispositions necessary to demonstrate a positive impact on all P-12 students' learning and development (CAEP, Standard 2: Clinical Partnership and Practice). The authors attempted to align the components of the lived-in model with CAEP Standard 2 and its indicators for professional preparation. See table one for a detailed alignment of indicators and components.

Table 1: Alignment of Urban High School lived-in model to teacher preparation CAEP standards 2: Clinical partnerships and practice

CAEP Standard	Indicators	Lived-in Alignment Components
2.1 Partnerships for Clinical Preparation	Partners co-construct mutually beneficial P-12 school and community arrangements Partners share the responsibility for continuous improvement of teacher candidates Partners establish mutually agreeable expectations for candidate entry, preparation, and exit Partners collaboration to connect theory and practice Ensure coherence across clinical and academic preparation Share accountability for candidate outcomes	Project leadership meetings once a month Project leadership listserv Grant writing & research Cooperating teachers and University professors collaborate on candidate performance evaluation (i.e. units, lesson plans, dispositions, professionalism, etc.) Entry: prior coursework has been completed, minimum GPA in content area Preparation: All materials reviewed in advance and posted to calendar, timely grades and feedback given to Pk-12 students, collaborate well with all stake-holders when planning, implementing, and reflecting on unit Exit: Minimum of 100 hours in the field, C or better in course, participates in end of the year celebration with mentees at university. Integrating research-based practices into lesson planning and units On-going program evaluation research Professor provided professional development to middle/high school teachers Requires candidates to apply previously learned understandings in a supportive, school environment Feeder into student teaching Priority employment opportunities and student teaching opportunities made available to successful university students

2.2 Clinical Educators	Partners co-select, prepare, evaluate, support, and retain high quality clinical educators (both provider and school-based) that positively impact candidates development and P-12 learning Collaborating with partners, providers to refine criteria for selection and performance evaluation of clinical educators	Program faculty are on-site teaching methods courses Urban High School teachers' feedback help with continuous improvement of faculty and programs Project leadership meetings once a month Survey at end of the experience for cooperating teachers and faculty used for program improvement
2.3 Clinical Experiences	Partners collaborate to design mutually beneficial experiences to ensure candidates positively impact Pk-12 learning Experiences are structured to provide candidates with structures performance-based assessment opportunities at key points in their program	Project leadership meetings once a month Project leadership listserv Grant writing and research Performance based assessments enacted in middle/secondary classrooms Opportunities to use assessment data in decision making

LIVED-IN TEACHER PREPARATION

Secondary Social Studies Methods

Drawing from numerous discussions with Hal Foster, as he is a colleague of both Author 1 and Author 2 at a midsized Midwestern university, and using his book as a resource, Author 1 decided to embed his social studies methods courses at a local urban high school. In this semester long course, twenty-three secondary social studies majors (gr. 7-12) were divided, based upon a matching inventory and placed into two different classrooms within this urban high school. These two classrooms, at the request of the instructor, served a high percentage of students identified as academically vulnerable. These courses were:

- A 10th Grade U.S. History Classroom with Cooperating Teacher 1
- 12th Grade Economics Classroom with Cooperating Teacher 2

Under this model, all teacher candidates enrolled in social studies methods (3 credit hours) and its co-requisite field experience (3 credit hours) were required to be on-site in their assigned classroom Monday through Friday from 12:50 p.m. until 3:00 p.m. This requirement was similar to the requirement Hal Foster had for his Secondary Language Arts methods students. Since Hal Foster's lived-in model was highly valued by administrators at one local large urban high school, Author 1 was invited by the Principal of this same school to meet with two social studies teachers in order to pitch the idea of expanding the lived-in model into social studies. Both social studies teachers agreed to work with Author 1 and his students. Our university course schedule was based upon the teachers' and school's block bell schedule. This schedule was:

- 6th block for both U.S. History and Economics met on Mondays and Wednesdays between 12:50-2:30 p.m. and on Fridays between 12:50-1:37 p.m.
- 7th block for both U.S. History and Economics met on Tuesdays and Thursdays between 12:50-2:30 p.m. and from 1:40-2:30 p.m. on Fridays

This timeframe worked well as it provided the methods students and Author 1 the opportunity to debrief on their teaching with the cooperating teachers at the end of the day, between 2:30-3:00 p.m. Monday through Friday. For an overview of how the class is delivered see table two below.

Table 2: Overview of delivery of program

Scheduled time	Pre-service teacher activity
Email Sent Out 24 hrs. Before	Methods students' final briefing of the class on the next day's lesson.
2:50-1:40 p.m.	10 th Grade U.S. History class or 12 th grade Economics class
1:40-1:45 p.m.	While 10 th graders on a 5 minute break, university students debrief and discuss what to expect 2 nd half of class
1:45-2:30 p.m.	10 th Grade U.S. History class or Economics class
2:30-3:00 p.m.	University classroom (debriefing on the lesson with the entire university class- inclusive of U.S. History and Economics- with teachers, and overview of what to expect next class)

Cooperating teachers, under this lived-in model, work alongside university methods professors on-site to promote strong collaboration and communication. On-site methods students researched and planned units of instruction for implementation in two periods (6th Block and 7th Block) in their teacher's classroom. In the first three weeks, methods students became acclimated to the school, built a strong rapport with their high school students, were issued copies of the curriculum (i.e. exams, content standards, texts, etc.) and began the process of planning rigorous and relevant units which were vetted by their methods professor and cooperating teachers. In weeks four through sixteen, pre-service teachers took over all instructional responsibilities for both blocks to implement their approved units. All units were required to prioritize an advanced curriculum focused on individualized instruction, small well supervised group activities, and project-based learning. For more information on how this new lived-in model, compared to the previously implemented traditional model at this university, see table three below.

Table 3: Traditional model compared to lived-in model

Traditional Model for Methods Courses (Before lived-in model implemented)	Lived-in Model to Methods Courses
<p>Lecture (on campus) Monday & Wednesdays 1:00-3:00 p.m.</p> <p>50 Required To be completed based upon the Additional Field methods students' availability Hours</p> <p>Assigned to one of five random area schools across 17 different teachers (no teacher acclimation). Little supervision (1-3 observations per semester) per student. Little on-site course instruction as most communication</p>	<p>Lecture & Field Experience at High School Monday through Friday 12:50-3:00 p.m.</p> <p>All candidates assigned to one school working with either a 10th grade U.S. History teacher or 12th grade Economics teacher. By week four, the candidates take full instructional responsibility for Blocks 6 & 7 classes.</p>

was done via email with methods student and cooperating teacher.

Candidates were asked to complete a checklist (i.e. observation notes, textbook analysis, etc.), and co-teach a minimum of one lesson plan.

Candidates put in groups of 2-3 to plan and implement units, which must be approved by methods class, methods instructor, and cooperating teacher before implementation. Class reviews and provides feedback on group units.

On-site instruction by professor and cooperating teacher.

Candidates expected to build strong rapport with students and teach every day.

Outside of completing this clinically intensive experience, methods students are required to complete on-line modules which helps prepare them with additional pedagogical content knowledge.

10th graders at this urban school are teamed, meaning that all 10th grade students on a team travel together from teacher-to-teacher. Tenth grade teachers are afforded common planning time and since they have the same students they are well positioned to reach across subject areas to discuss student performance and to plan and implement interdisciplinary units. The university methods professor and teacher candidates often attend 10th grade team meetings when possible. In the past, social studies methods students and their professor have teamed with English Language Arts university methods students and their professor (who have previously engaged in this lived-in model) to plan and implement a 10th grade interdisciplinary unit (Global Education and STEM) at the high school. Unfortunately, teaming is not a part of the 12th grader experience, which makes cross-curricular collaboration and interactions in Economics more difficult.

Throughout the semester university methods students worked with their peers in teams to plan, construct, implement, and reflect on instruction in their discipline. In the first week, methods students were presented with the required units to be implemented, as selected in consultation with cooperating teachers. 2-3 methods students were assigned to a unit and these two-week units include such topics as the Great Depression, WWII, Cold War, and U.S. in the World Today. All draft lesson plans and instructional materials were shared amongst the class for on-line peer review and comment a week ahead of time, and final documents used the day of instruction were housed 48 hrs. ahead of time in an on-line master calendar. Methods students were responsible for all instructional tasks, with instructor supervision, such as making copies, taking attendance, grading papers, and entering student grades.

While groups rotated in their planning and in implementing units, all methods students were responsible for teaching high school students in class each day. High school students worked individually and in small groups with methods students, which allowed for differentiated and individualized instruction—all of which would be more difficult with just one teacher delivering whole class instruction. Methods students at the start of the semester were also paired up with 2-3 secondary students they consistently mentored, tutored, and worked with over the course of the semester. High school students looked forward to seeing and working with their university methods students, and at times, rich trajectory changing relationships were forged.

After five years of implementing this lived-in model to teacher preparation, Author 1 has observed the significant impact it's had on secondary students—some of whom were the most academically vulnerable. While on site, it is commonplace for 10th and 12th graders we worked with to approach Author 1 to tell him how a university methods student inspired them, taught them, and made a difference. Author 1 has observed a change in both high school and social studies method students' classroom performance, as this authentic learning environment enlivened classroom discussions. With so many trained, competent, and caring adults in each social studies classroom, youth looked forward to coming to class and feeling special with all the individual attention they received. Building on this approach, Author 2 was invited to implement special education methods courses within the district.

Special Education Methods

Stakeholders in the teacher preparation program collaborated to implement advanced academic and behavior methods courses for students with mild-to-moderate and moderate-to-intensive disabilities. The stakeholders included the middle school principal, Author 1, Hal Foster, multiple classroom teachers, intervention specialists from the district, and special education administrators. The district team identified classrooms in need of support and cooperating teachers willing to provide guidance to pre-service teachers in special education. These courses were:

- 8th Grade Social Studies with Cooperating Teacher 1
- 8th Grade Science with Cooperating Teacher 2
- 8th Grade English/Language Arts with Cooperating Teacher 3
- 5th Grade Science with Cooperating Teacher 4
- 5th Grade Science with Cooperating Teacher 5

Under this model, all teacher candidates enrolled in special education methods (grades Pk-12), for students with mild to moderate disabilities (4 credit hours) and its co-requisite field experience were required to be on-site at an area urban middle school Monday and Wednesday from 9:00 a.m. until 11:30 a.m. This requirement resembled the requirement Hal Foster had for his Secondary Language Arts methods students (Foster & Nosol, 2008). Our university course schedule was based upon the teachers' and middle school's block bell schedule. This timeframe worked well as it provided the methods students and Author 2 the opportunity to debrief on their teaching with the cooperating teachers at the beginning and end of the classroom block. See table four below for delivery details.

Table 4: Schedule used for “lived-in” model – Special education, Mild to Moderate

Scheduled time	Pre-service teacher activity
9:00 - 9:30 a.m.	University classroom briefing on the lesson of the day in dedicated classroom
9:30 – 11:00 a.m.	Implementation of lesson and co-teaching methods
11:30 – 12:00 p.m.	University students debrief and discuss what to expect for next class
12:00 – 1:00 p.m.	Pre-service teachers in special education provide one-to-one instruction as needed with mentor student
12:00 – 1:00 p.m.	Author 2 meeting with cooperating teachers regarding progress, projects and scheduling issues

Under this lived-in model Author 1 and Author 2 invited cooperating teachers to work alongside them on-site to promote collaboration and sustain communication. Pre-service teachers researched and planned units of instruction for implementation for two morning periods in their cooperating teacher's classroom. In the first three weeks, methods students became acclimated to the school, built relationships with their middle school students, are were issued copies of the curriculum and the students individualized education program goals (i.e. exams, content standards, texts, etc.) and began the process of planning relevant interventions and adaptations to units which were vetted by their methods professor and cooperating teachers. In weeks four through sixteen, pre-service teachers took over all instructional responsibilities for middle school students in need of remediation or Tier 2 intervention based on the Response to Intervention (RTI) model. All units were required to incorporate technology and high leverage practices to assist students with learning difficulties. Pre-service teachers worked in groups of three in each of the cooperating teacher's classrooms.

Each group of three pre-service teachers was required to complete lesson and assessment plans that matched the curriculum goals of the classroom in a format that would prepare them for educational teacher performance assessment (edTPA). Pre-service teachers were also presented with instruction on high-leverage teaching practices (TeachingWorks), evidence-based practices in special education (Ohio Department of Education and the

Employment First Initiative), and research-based practices in special education (National Technical Assistance Center on Transition). This instruction was delivered face-to-face and supplemented with instructor made video recordings. The following projects were implemented in the Fall of 2016:

- Creation of self-correcting materials in social studies and science
- Creation of guided notes and graphic organizers for ELA and science
- Creation of educational games for social studies
- Creation of visual supports for vocabulary in science

The project stakeholders agreed that implementing one group of students (SPED Methods for students with mild/moderate disabilities) in the Fall of 2016 would be appropriate as Author 2 learned the logistics of the district and the needs of the cooperating teachers. However, the following spring semester of 2017, an additional group of pre-service teachers (SPED Methods for students with moderate/intensive disabilities) were moved into the middle school model.

Under this newer model, beginning in spring semester, all teacher candidates enrolled in special education methods (grades Pk-12) for students with mild to moderate disabilities (4 credit hours) and its co-requisite field experience were required to be on-site at an area urban middle school Monday and Wednesday from 9:00 a.m. until 11:30 a.m. All teacher candidates enrolled in special education methods for students with moderate to intensive disabilities (4 credit hours) and its co-requisite field experience were required to be on-site at an area urban middle school Monday and Wednesday from 11:30 a.m. until 2:30 p.m. See table five for dual class delivery details.

Table 5: Schedule used for “lived-in” model – Special education, Mild/Moderate & Moderate/Intensive

Scheduled time	Pre-service teacher activity
9:00 - 9:30 a.m.	University Classroom briefing on the lesson of the day in dedicated classroom
9:30 – 11:00 a.m.	Implementation of lesson and co-teaching methods mild/moderate
11:30 – 12:00 p.m.	University students debrief, and discuss what to expect for next class
12:30 – 2:00 p.m.	Implementation of lesson and teaching methods moderate/intensive
12:00 – 3:00 p.m.	Pre-service teachers in special education provide one-to-one instruction as needed with mentor student
12:00 – 3:00 p.m.	Author 2 meeting with cooperating teachers regarding progress, projects and scheduling issues

At the beginning of the semester, special education methods students became familiar with the primary goals and principals of the lived-in model. Throughout the semester university method students worked in teams to plan, construct, implement, and reflect on instruction in their discipline. In the first week, methods students were presented with the required units to be implemented, provided instruction in edTPA formatting and planning, IEP construction and implementation, and a curriculum topic to plan as selected in consultation with cooperating teachers. Author 2 provided access to instructional videos and materials for the semester using Live Binder and a YouTube Channel. As the class moves from campus to the middle school setting, SPED methods students were responsible for remedial instructional tasks, co-teaching with some supervision, and some teacher duties such as making copies, taking attendance, grading papers, and behavior management.

The implementation of both advanced special education methods classes provided a unique opportunity. There is a significant overlap between the educational needs and experiences of a pre-service intervention specialist for students with mild to moderate disabilities (MM) and a pre-service intervention specialist for students with moderate to intensive disabilities (MI). Under this model, students can interact with students across the continuum of classroom placements and experience RTI. The school setting offered inclusive settings in core academic subjects (Tier 1), resource rooms for alternate and functional skills curriculum (Tier 3), and small group intervention with grade level tutoring (Tier 2).

After one year, which included three cohorts of pre-service intervention specialists, of implementing this lived-in model to teacher preparation, Author 2 has observed a significant impact in student performance. Educational teacher performance (edTPA) assessments have increased across two cohorts, the third will be assessed in the Fall. Although the sample size was small (n=13), scores increased from an average of 32 to an average score of 43. This included four students that scored 50 or above. Students reported feeling better prepared to meet the challenges of student teaching as well as for their first teaching position. Author 2 also observed a positive impact on the middle students. Teachers that participated in the program observed a reduction in behavioral issues and an increase in assignment completion.

CONCLUSION

This paper described how two methods instructors, one in secondary social studies and the another in Pk-12 special education, successfully employed lived-in models that embedded teacher preparation in real classrooms, all in an attempt to better prepare the next wave of teachers while also empowering them to deliver individualized and high quality instruction to some of our area's most vulnerable urban youth. While there were slight differences in the ways in which these models were employed by the methods professors (i.e. the number of hours logged by methods students, subject and grade areas, etc.), both courses lived-up to the core lived-in principals presented by Foster & Nosol (2008). These included:

1. Focusing on developing "strong" high school students (i.e. providing an advanced and meaningful curriculum, motivating and supporting academically vulnerable students, etc.)
2. Engaging in long-term, sustained relationships with middle/high school students over the course of the semester. This included methods students building strong rapport with students, individualizing and differentiating instruction, helping youth feel welcomed and more visible in the classroom, and in building and maintaining a professional and powerful pre-service teacher to middle/high school-student relationship.
3. Consistently reflecting on the quality of instruction, with their peers, cooperating teacher, and university methods professor, provided to middle/high school students, and adjusting their instruction and interactions where and when necessary to meet the needs of students.

Knowing that subject specific methods courses are at the core of advancing essential pedagogical content knowledge (Kenyon, 2013; Adler, 2008; Henning & Yendol-Hoppey, 2004; Toll, Nierstheimer, Lenski, & Kolloff, 2004; Passe, 1994), we believe that a lived-in model to methods courses help pre-service teachers experience supportive, relevant, authentic, and rewarding field experience in real classrooms working with academically vulnerable youth. Methods courses often come before pre-service teachers progress into full-time student teaching, and lay an important foundation of pedagogical content knowledge (Doppen, 2007). Outside of helping methods students learn about practice in practice (Ball & Cohen, 1999), this lived-in model aligns well to CAEP's call for university teacher preparation programs and their faculty prioritizing and investing in initiatives that allow teacher candidates the opportunity to learn and train alongside university faculty in schools (CAEP, 2013).

While the discussed lived-in model could be considered a low-cost win-win for both university teacher preparation programs and Pk-12 schools, we understand that this model does come with both opportunities and challenges. In the future, we hope to be able to provide methods students and faculty with additional opportunities working across subject areas (special education, math, science, social studies, language arts, etc.) while learning in schools. These opportunities are not as prevalent in the middle and high school as we would like as methods professors. While it's true candidates invest a great deal of time and effort in classrooms over the course of the semester to learn how they are organized and structured, it is also true these efforts in practice take time away from candidates reflecting on how

classrooms, learning environments, and the teaching profession could be better reformed and structured. Methods students must not simply be able to regurgitate current practices and the status quo, but draw from their experiences and reflections, across many different placements, to think critically and work towards the transformation and creation of inclusive and successful learning environments. Finally, with methods courses being embedded in schools, pre-service teachers and faculty must remain flexible (i.e. assemblies, fire-drills, school delays/cancelations, etc.) while also understanding the necessary transportation and time commitments for travel to and from schools.

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MACHINE LEARNING IN THE MEDICAL FIELD FOR DECISION MAKING

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ABSTRACT

In this article, we discuss the cardiac arrhythmia learning machine by making a comparative study between the SVM model and the neural networks to set up a classifier of cardiac pathologies. Both methods are part of supervised learning. SVMs are applied with remarkable efficacy to the recognition of cardiac arrhythmias. This article proposes a comparison between the MLP and the SVM, specifying the advantages of each method in machine learning.

Keywords: Premature Ventricular Contractraction (PVCs), Electrocardiogram (ECG), recognition, SVM, Multilayer neuronal, Artificial Intelligence.

INTRODUCTION

The rates of mortality relative to cardiovascular diseases are high. According to the (Impact of Technology, 2017), cardiovascular diseases are one of the most important causes of mortality in the world. Sudden death represents the half of deaths that have cardiac origins, the average age is between 50 and 60 years old but it can occur at any time. The mechanisms of this sudden death are principally ventricular arrhythmias with a percentage of 75% where the presence of Premature Ventricular Contraction (PVC), is considered as an eventual predictor. An ECG signal is frequently used in clinic practices by cardiologists in order to determinate the origins of cardiac anomalies.

In this paper, we deal with the learning machine from cardiac data by two techniques; the first one is the SVM classifier and the second one is the MLP, which is relative to neurons networks model aiming an implementation of two classifiers of cardiac pathologies.

This article is organized as follows:

First, we will expose some notions of heart physiology, which will allow us to know better the physiologic type of ECG on the one hand and help us to choose the representative parameters of a heartbeat on the other hand. Secondly, we will discuss about artificial neuronal networks focusing on the Multi-layer perceptron in order to compare it with SVM model. The third part contains principally a presentation of SVM model. In conclusion, we will present the results of cardiac anomalies classification, after using the two techniques paying attention the ventricular pathology.

RELATED WORKS

Several approaches have been tried for cardiac arrhythmia classification. For early detection of diseases, in (Moreas, Seixas, Vilani, 2002), the classification of QRS complexes uses the Mahalanobis distance as a classification criterion. The classifier was tested on 44 records from the MIT-BIH database and the results gave a sensitivity of 90.74%, and a positive predictivity of 96.55%. (Exarchos, Tsipouras, 2007), have developed expert systems based on fuzzy logic to classify arrhythmias and ischemic beats. They achieved an accuracy of 96.43% and a sensitivity of 96%. In (Chikh, Benali, 2009), they proposed a model for the explicit classification of premature ventricular beats (BVPs) from the physiological electrocardiogram (ECG) signal. This involves presenting the physician with a set of cases and scenarios on the patient's data to help him make a diagnosis. (Yeh, 2001), proposed the Fuzzy Logic Method (FLM) for the analysis of ECG signals. It allows classifying and distinguishing the two heart beats, normal beats and abnormal beats. The method gave a classification rate of 93.78%. In (Zeghoudi, 2010), knowledge extraction and classification of cardiac arrhythmias are done also by neural networks. They proposed different classifiers of cardiac arrhythmias by application of neural networks. The system was validated on real signals from the MIT-BIH database; the results obtained in terms of recognition rates are 95.35%, sensitivity 93.30%, specificity 99.77%. In (Mateo, 2011), the authors used the Radial Basis function of neural networks with satisfactory results, thus offering a great reduction in ectopic beats for the recording of ECG signals. In (Lachiri, 2011), present a method for the automatic classification of heart disease from an electrocardiogram (ECG). This treatment is based on an analysis of certain morphological

parameters for the recognition of 8 heart diseases. The morphological parameters were divided into homogeneous groups (amplitude, surface, interval and slope). These parameters are calculated for beats with 8 types of abnormalities from ECG records retrieved from the MIT-BIH arrhythmia database. This study resulted in a maximum overall rate of 82.14% for all morphological parameters. Analysis of the different groups separately showed that the best recognition performance was 96.36% for the surface parameters. The worst is 66.07% for the amplitude parameters.

In (Abdelliche, 2011), his PhD thesis entitled Contribution to the Diagnosis of Electrocardiographic Signals using the concepts of fractals, is an algorithm for the treatment of the ECG signal and detection of the QRS complex, he described in his doctoral dissertation based on the use of the continuous wavelet transform and the fractional wavelets. The ECG signals used in practice are derived from the MIT-BIH database. In fact, the sensitivity is evaluated at 99.66%, while the positive predictability is appreciated at 99.84%. Error rates varied between 0% and 4.08% with an average of 0.5%, and the total detection rate equaled 99.50% of QRS detected.

In (Triqui, 2012), artificial neural networks (PMC multi-layer perception network and SOM map) were used in classification and discrimination. The classification experiments are presented using the MIT-BIH database and the results have a sensitivity of 82.20%, a specificity of 95.18% and a classification rate of 92.78%. The SVM networks were used in (Hendel & al, 2016), as a multi class classification of cardiac arrhythmias, by achieving an average accuracy of 99.73%, and showed that the SVM post-treatment outputs can improve the classification decision in terms of probability, this approach was also used to solve the multi-classification ECG problem in (Li, 2017).

CHARACTERIZATION OF ECG SIGNAL

Electrocardiography is the process of recording the electrical activity of the heart [Figure 1], over a period of time using electrodes placed on the skin. These electrodes detect the tiny electrical changes on the skin that arise from the heart muscle's electrophysiologic pattern of depolarizing and repolarizing during each heartbeat. It is a very commonly performed cardiology test.

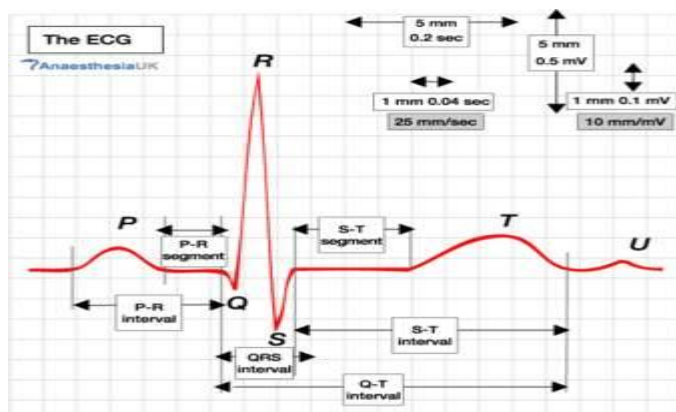


Figure1: The different waves of electrocardiogram signal (ECG).

ANALYSIS OF VARIABLES INPUTS

The characterization of heartbeats by descriptors is essential in the design and implementation of a cardiac abnormality model. In our case, we are interested in premature ventricular contracture (PVC) [Figure 2], which causes sudden death for patients, these PVC abnormalities are defined by:

- Their precocity compared to a normal ECG signal.
- An extended QRS complex of more than 0.12 s.
- Immediately followed by a T wave without a visible segment of RST.
- The absence of P-wave before the QRS complex.

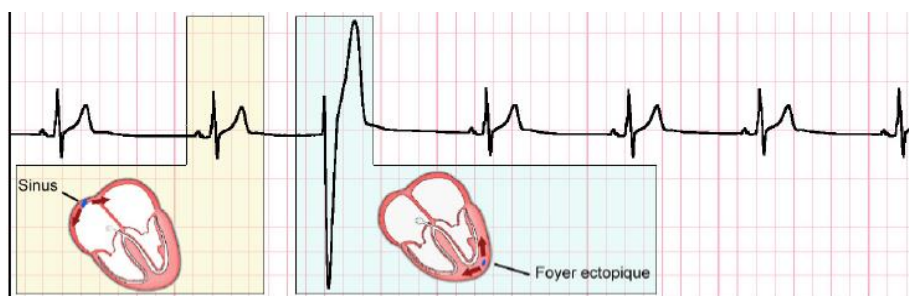


Figure 2: QRS broad in an electrocardiogram signal (ECG).

DATA BASE

Since 1975, the laboratories of Beth Israel Hospital in Boston and M.I.T have realized a MIT/BIH data base (MIT-BIH, 1992), which began to be distributed in 1980. This data base contains 48 records extracted from half an hour of ambulatory recordings of two ECG channels obtained from 47 patients studied by BIH arrhythmias laboratory between 1975 and 1979. 23 subjects has been randomly selected from a total of 4000 ambulatory records of 24 collected hours of a mixed population of hospitalized patients (60%) and non-hospitalized ones (40%) in the Beth Israel Hospital in Boston, the remaining 25 records were chosen from recordings that have a clinic signification in consideration of arrhythmias rarely observed.

Seeing that our data base is annotated, we have designed a matrix that contains many beats from well-selected records in order to have a maximum of examples for each category [Table1].

Parameters	Definitions
RRp	From the precedent R pic to actual R pic
RRn	From the actual R pic to the next R pic
QRS	Represents the QRS complex width
PP	From S to R
E	The Energy of ECG signal

Table 1: Significations of parameters that contain the data base.

CLASSIFICATION ACCORDING TO NEURONAL NETWORKS (MLP)

A Neural networks, is a set of algorithms whose design is at the origin very schematically inspired by the functioning of biological neurons, and which has approximated statistical methods.

The Multi-layer perceptron network was invented in 1957 by Frank Rosenblatt, and it consists of neurons linked together by weighted links. The Multi-layer perceptron is a lattice comprising (L) layers, and one or more hidden layers. Each neuron of one layer is fully connected to the neurons of the next layer [Figure 3].

The operation of the MLP network is as follows:

A neuron has inputs which can be outputs of other neurons, or inputs of external signals. The value of the output from the sum of the weighted input by the coefficients of this weighted sum.

The neuron state, also called activity, is defined as the sum of its inputs. The information is also transmitted in a unidirectional way (Rezaul, 2006).

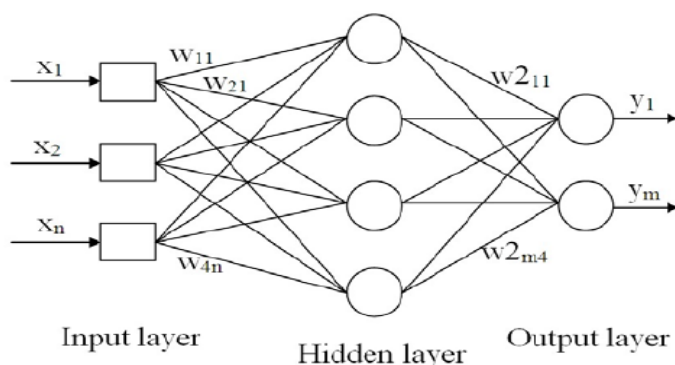


Figure 3: Diagram of the Multi-layer perceptron.

EVALUATION (MLP)

Knowing that our choice is focused on the gradient retro propagation algorithm, so a program is written in Matlab language for a software implementation of this algorithm. The chosen function is the sigmoid one.

The conception of a multilayer network is done experimentally, apart from the fact that there are some difficulties when choosing the number of intermediary layers and the number of neurons in each one of them. Concerning the input layer, it contains neurons as much as elements of input vector. Likewise, about output layer; it contains as many neurons as the number of classes (Normal, PVC). Thus, the input layer contains 6 neurons and the output one contains 2 neurons.

In order to determinate the number of neurons in the hidden layer, we proceeded as follows:

1. To prepare the cardiac cycles that correspond to chosen arrhythmia for the learning.
2. Create a network of neurons of which the number of input layer (respectively of output) is determined according to input vector (respectively classes in output).
3. To pick out arbitrarily a number of neurons in the hidden layer.
4. Detect a mistake of a very low value as well as the number of iterance.
5. Launch learning.

If the process keeps diverging, increase the number of neurons in the hidden layer, if this last one is too high, increase the number of intermediary layers.

Unfortunately, there is no “Super neuronal architecture”. In other terms, a fixed architecture for which it would sufficient to adapt weights to this problem in order to get the best efficient results.

However, it should be noticed that this architecture is not unique and that there is often several architectures allowing getting the same efficiency. In our case, the optimal architecture is the one that has the smallest size. More precisely, the one that implies the least of calculation to realize the wanted function.

CLASSIFICATION OF SUPPORT VECTOR MACHINE (SVM)

SVM is a method for the classification of data; this supervised technical classification has been proposed in 1992 by Vladimir VAPNIK. The support vector machines exploit the concepts of the theory of statistical learning and the boundary theory of (Cortes, Vapnic, 1995). The intuitive justification for this method of learning is that if the learning sample is linearly separable it seems natural to separate the elements of the two classes perfectly so that they are as far as possible from the chosen boundary.

The success of this method is justified by the solid theoretical foundations that support it. They make it possible to tackle very diverse problems, including classification. SVM is a particularly well-suited method for processing data of very large dimensions, the general principle of operation of which is as follows:

Let a cloud of points of different natures, the objective is to find a decision boundary (hyperplane separator), which can separate the cloud of points into two regions by committing a minimum of errors, (find the optimal hyperplane) [Figure 4], shows that there are indeed several hyperplanes separators whose learning performance are identical (the empirical risk is the same). Whose generalization performance can be very different to solve this problem. (Vapnic, 1998), has shown that there exists a unique hyperplane (the optimal). It is defined as the hyperplane maximizing the margin between the samples.

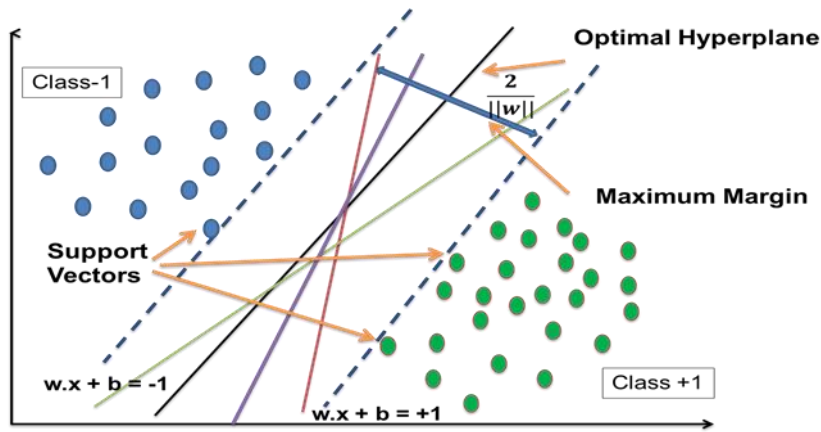


Figure 4: Method of Support Vector Machine (SVM).

EVALUATION (SVM)

The functions of the SVM method are as follows:

$$k(x, y) = \sum_{k \in N} \Phi_k(x) \Phi_k(y) \quad (1)$$

The decision function is given by the sign of the following discrimination function

$$f(x) = \sum_{i=1}^l y_i \alpha_i k(x, x_i) + b \quad (2)$$

α_i and b are coefficients to be determined, by maximizing the distance, called margin, between the decision boundary $f(x) = 0$ and point cloud in D . [Figure 4] for an illustration of these concepts, the problem becomes an optimization problem :

$$\min \left\{ 1/2 \|w\|^2 + C \sum_{i=1}^N \xi_i \right\} \quad (3)$$

C is a constant to be determined and ξ_i is the non-negative error.

$$Y = \sum_{i=1}^l \alpha_i - 1/2 \sum_{i,j=1}^l \alpha_i \alpha_j y_i y_j k(x_i, x_j) \quad (4)$$

EXPERIMENTAL RESULTS

The results presented in this study for the classification of ECG signals were obtained by applying the MIT-BIH database in the input of each ECG signal classifier and which are (MLP, SVM).

1-MLP RESULTS

After learning the MLP classifier, we obtained a confusion matrix [Figure 5], which gives us good classification states, as well as the cardiac cycles that have been confused (instead of being classified in the normal class, they were classed in the PVC class, and those of the PVC class in the normal class).

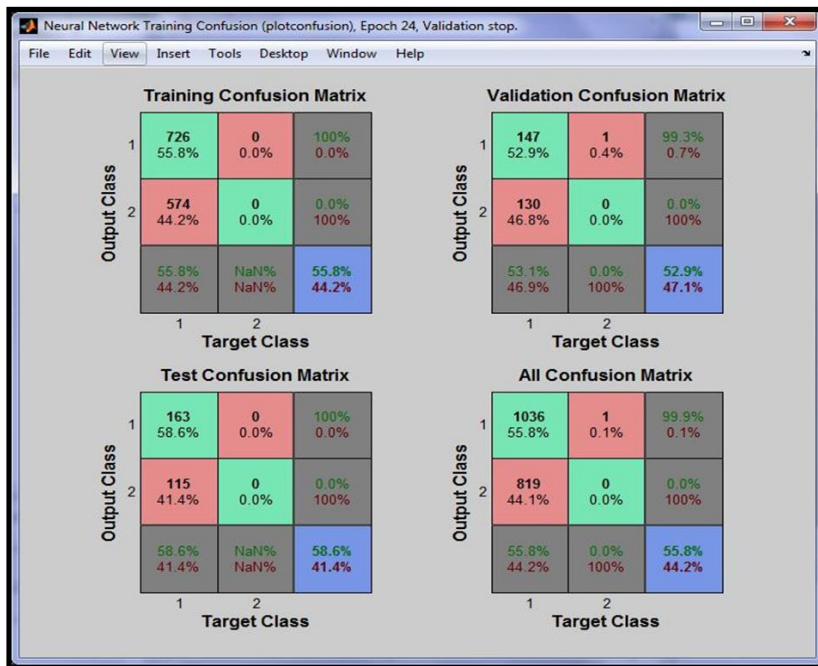


Figure 5: Results of Multi-Layer Perceptron (MLP).

A generation of the learning error of the MLP network is illustrated in [Figure 6], which begins with a high initial value and decreases throughout the learning phase, demonstrating the efficiency of the MLP method.

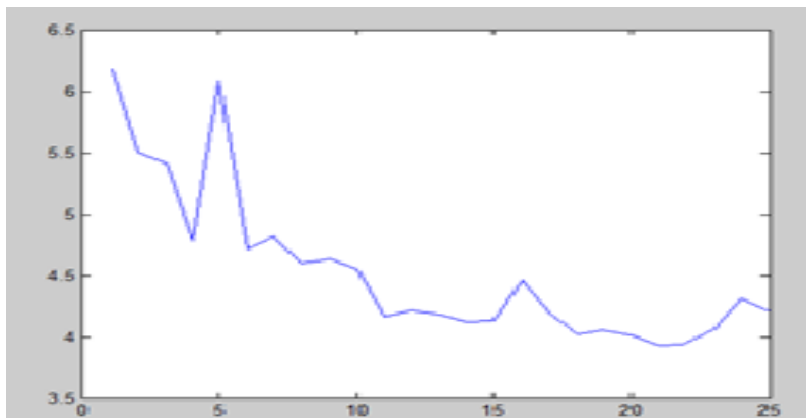


Figure 6: Diagram of Error (MLP).

2-SVM RESULTS

We have applied the SVM model, with the Gaussian kernel, by trying several values of the constant $C = \{0.5, 1, 1, 5, 2, 2, 5\}$. we concluded that the value of $C = 1.5$ gives better results by comparing the other values of the interval, the classification rates obtained are reported in [Table 2], an average classification result is 97.62 %, the result obtained on all patients in the MIT-BIH database. The study showed that the SVM results in terms of probability can be used to improve the classification decision. Electrocardiogram (ECG) methods of classification.

Database	constant C of the SVM	Sensibility	Specificity	Rate of classification
101	1.5	100	0	99,95
102	1.5	93.61	63.64	92.10
103	1.5	97.97	0	97.88
104	1.5	96.11	50	97.68
105	1.5	90.24	95.24	90.72
106	1.5	99.61	99.53	99,55
107	1.5	61.54	96.24	94,97
108	1.5	50.51	94.80	92.49
109	1.5	35.29	99.76	98.89
111	1.5	11.11	99.38	99.01

Table 2: Results of experiment.

Our classification system led us to obtain a recognition rate equal to 94.95% for the Multi-layer perceptron, and 97.62% recognition of the SVM model, on all the ECG records of the MIT-BIH database.

CONCLUSION

We have implemented a system of classification of cardiac rhythms based on the two learning methods, which are neuronal networks and SVM, dedicated to the diagnosis of cardiac arrhythmia.

Good results were obtained with a classification rate equal to 94.95% for MLP and 97.62% for the SVM, which favors the SVM algorithm. It is important to emphasize that each expert must justify his choice in each automatic method. The method we present gives more precision and allows classifying cardiac pathologies, which allows a better analysis of the signal ECG and represents a major constraint for the doctors in order to distinguish the PVC from other pathologies.

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MAGIC OF STORYTELLING IN EDUCATION FOR PRESCHOOL CHILDREN ABOUT CLASSICAL MUSIC

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ABSTRACT

Glazbaonica Ljubav (Music school "Love") is a private music school imagined as a humanitarian-art project aimed at providing a complete musical education to children and the youth with special attention to children without adequate parental care placed in homes for abandoned children in Zagreb. The main priority is breaking prejudice about education and preventing outcomes that pressure puts on a child's psyche often creating unwanted reactions in lives of individuals as well as society as a whole. The youngest learners are taught content by using the storytelling approach which is shown to be the best way for acquiring content at that age. The main outcome is not just memorizing facts, but structuring it - the child needs to form a rich and flexible model of reality which is going to represent a general assuredness about the world and music. The content is shaped to accommodate practical life in which children practice it. One of the programs created in Glazbaonica is The Music animations. It introduces music and the basis of music theory to preschoolers (3.5+) through other arts, general knowledge, stories and representations of notable composers and their most famous musical works, ending in performing a piece of music.

INTRODUCTION

When going through their educational process, children form a negative attitude towards the content material not because of the material itself, but because of the manner in which it is presented to them. One such area is classical music which isn't comprehensible to many because of their lack of knowledge and understanding of music. The approach in teaching classical music in Music school Love is based on the decision to provide understanding through educating children in music theory in an interesting way which is why different creative methods are implemented in the manor the school method, with emphasis on functional, rather than on reproductive knowledge. The private music school Music school Love is imagined as an educational-humanitarian art project, with the intent of providing a comprehensive musical education to children and the youth, with special regard to those without adequate parental care who are placed in homes for abandoned children in Zagreb.

The main priority in this school is to break every prejudice about education and its results that are attained necessarily by applying pressure on the child's psyche, later often leading to unwanted outcomes in the life of the individual as well as in the entire society. Storytelling is greatly used in teaching very young learners. In that way children acquire knowledge the fastest and enjoy the process. The primary role of learning in preschool age should not be only memorizing isolated facts, but building a structure. The child should form a rich and flexible model of reality which would represent their global belief structure of the world, nature, society, man and, of course, music. The entire content is always in correlation with practical life, making children able to apply acquired knowledge in their everyday life, meaning that after a few months they say that they have sneezed "forte" or yawned "piano".

One of the special programs, developed in the Music school Love, are Music animations. Music animations are a program of music education for preschool children aged 4 and above in which they enter the world of music using other arts (theatre, visual, dance). They acquire general knowledge elements through stories of composers and music works (e.g. Mozart/The Magic Flute, Debussy/Clair de Lune, Tchaikovsky/The Nutcracker, Vivaldy/The Four Seasons...). They also acquire fundamentals in music theory and they master basic rhythms through rhythm dictations presented through games, placing notes into a staff, using solemnization, music scale... In the third stage of Music animations they play on Orff instruments and attempt composing simple melodies.

This paper will present the school, its values, tasks, goals and methods. More specifically, it will present classes performed in Music school "Love" with kindergarten children aged 4-7, which were observed in the previous school year. The focus was on the methods used in class and on the nature of pupil and teacher activity. The observed classes were recorded and video extracts and images depicting didactical material are implemented in the paper below.

THE SCHOOL

The private music school Music school Love is an educational center with a music profile dealing with teaching music and music expression, with programs intended for preschool and school-aged children. The Music animations 1,2 and 3 programs are intended for preschool children aged 4 to 7, with the goal of sensitizing

children for music, more specifically, for listening to classical and traditional music and for singing, playing an instrument, dancing and creating music. After the third year of attending Music animations pupils are ready to enroll elementary music school. Classes are held one hour once a week (60 minutes), along with group visits to music institutions such as the Croatian National Theatre, The Music Academy and the Croatian Music Institute and attending selected concerts and plays in professional theatres as well as visits from prominent musicians to the school. Common praxis are improvisation on various instruments among children and between children and mentors where the mentor is the group leader. Classes are organized in a rented space. There is a piano in the central classroom and in other classrooms there are synthesizers, an electric piano, a CD player, a transportable computer, as well as Orff instruments and bas resonators. The didactical material varies according to lessons: story books, portraits of great composers, illustrations of scenes from their lives, cardboard keyboards, stick dolls and marionettes, masks, coloring books, a folding castle, handy instruments made of used packaging, etc.

The culture of the school is given much attention to. Teaching values is integral to the process and much attention in the team is dedicated to the school atmosphere because of its influence on the process of education. The values are not only taught, but a point is made for them to be upheld among the staff and children in order for them to acquire them implicitly (Spajić Vrkaš, 2008). Considering that music is extremely transcendental, music education is therefore very apt to being combined with real life values through which children are brought up with a focus on love. The education is comprehensive in that way, whereby covering the topics of certain composers' childhoods, issues such as bullying are being covered. And considering how music is innate in every person regardless of whether they can reproduce it well or not, it is possible for children to become interested in classical music through education and with the help of the mentor who transfers both knowledge and genuine life values. A goal within that frame is to bring education to a larger group of children from different backgrounds in a manner in which art would be defended with a culture of decorum.

The approach towards children is not *ex cathedra*. The lessons are student-centered, interactive and connected to the pupil's practical lives and life experiences in order to help them develop their critical thinking, problem solving skills, collaboration, creativity, inventiveness and empathy (Overby, 2011). The teacher is only an active facilitator in a group who stimulates them by using the Socratic Method, leading the children to answers through an active debate by using questions. Conclusions gained in such a way are very meaningful to children as they are incited to find their own way to answers (Reich, R. 2003).

A part of the school's work is based on the Orff pedagogy. Importance is given to movement, improvisation, exploring sound, rhythm and creativity in a way that is natural, understandable and meaningful to the child (Jorgenson, 2010). Movement, as one of the basic forms of expression, is used to help understand and interpret rhythm and emotion conveyed by music (Wuytack, 1994). Children's rhymes are used as they integrate speech and language, they are short, simple and motivating, but are also beneficial for the overall development of the child, they can specifically help develop its movement and imagination, and help the child form values and acquire important information (Jorgenson, 2010). The school uses Orff instruments appropriate for children, which consist mostly of percussion, as they are seen as a natural extension of producing rhythm with movement (Goodkin, 2001). Recorders are also used by children imitating the teacher's melody line by ear (Jorgenson, 2010).

EDUCATIONAL TASKS AND GOALS

The educational tasks and goals include introducing the children to elements of music theory, different instruments, acquiring basic music vocabulary (e.g. from the areas of rhythm and dynamics); training children to relax and emotionally unburden by listening to music, dancing, playing an instrument, singing or composing; gradually forming of personal criteria for moral values and esthetics.

METHOD OF ATTAINING GOALS AND TASKS

In the Music animation program the educational process and the results of the process are equally insisted upon. The goal is to satisfy the children's inherent desire for attaining knowledge in a relaxed and cheerful, but firmly structured way and to develop a sense that learning is joy and that school is a pleasant place to spend time and attain new knowledge and skills. Every class in Music animations is structured so that 20 to 30 percent of the time is dedicated to acquiring elements of musical literacy (e.g. notes, staff, music keys), a further 20 to 30 percent is singing and playing an instrument and 50 to 60 percent is dedicated to listening to music and performing activities connected to a specific music lesson. The planned activities are interdisciplinary and correlate with many areas (visual arts, dance, movies and physical exercise) and they are performed before, during and after listening, which will be presented in extracts from lessons below.

Stories are a part of each lesson. They consist of anecdotes from the lives of great composers and of simplified opera content (e.g. Rossini's *Wilhelm Tell* and Mozart's *Magic Flute*). The stories are specifically designed to enable children to vividly experience certain works of music, e.g. Debussy's *Clair de Lune*, Saint-Saëns' *The Carnival of the Animals* or Vivaldi's *Four Seasons*. Information connected to a story is remembered more easily. Apart from that, stories have a strong motivational power and they can serve as an excellent calming device and for reaching a relaxed atmosphere in class. The amount of importance that this music school gives to stories is visible from the fact that the famous Croatian children's writer Željka Horvat-Vukelja, a famous author of many storybooks and children's readers and well-known story teller, teaches in all the groups of Musical animations. As a result of combining music and stories, i.e. making music and telling stories in a specific way, a new musical-scene form was created in the school for which a new Croatian word was created: *glazbokaz* (music-telling). The form is performed by an adult storyteller telling a story to the children, making pauses for them to finish a sentence, answer a question or make up the ending to the story. Music-telling consists of talking, singing, playing an instrument, giving a beat or dancing. Music-telling is appropriate for performances in school plays and its every performance varies from the previous.

EXAMPLES

JOHANNES BRAHMS: LULLABY

In this lesson pictures depicting the childhood of Johannes Brahms were placed on the walls in front of the children. They were told anecdotes from the composer's childhood and youth with their focus being on the picture on which little Brahms lied in bed after an accident, while his mother was reading and singing him a lullaby (Figure 1) (Reich, 1994, Deuchter, 1964). Brahms' lullaby was played to the children on the piano, then on the flute. The lyrics of the lullaby were acquired through rhythmical repetition and then by singing. The pupils listened to the lullaby in the classroom with dimmed lights in complete silence, while they lay on the tables covered with blankets, imagining that they were lying in beds (Video 1).



Figure 1

PYOTR ILYICH TCHAIKOVSKY

The topic of ballet and Tchaikovsky was covered in three lessons. The pupils listened to the story of the dandelion and the dandelion ballerina and compared the dandelion's white "dress" to the ballerina's white costume (Figure 2).



Figure 2

They listened to the “Flower Waltz” from Tchaikovsky’s ballet “The Nutcracker” twice, the second time performing the dance with wooden marionettes (Figure 3, Video 2).



Figure 3

The teacher provided information about the ballet and showed the positions and figures that the pupils tried to perform (e.g. the arabesque), and to get an insight into how physically demanding it is to dance ballet. By listening to Tchaikovsky’s ballet music (from the “Swan lake”), pupils looked at the reproductions of paintings by Edgar Degas who became famous through his paintings from the world of ballet (Figure 4).



Figure 4

In the following activity, the pupils got images in the form of a puzzle. While they solved the puzzle, ballet music was playing for them in the classroom (Figure 5).



Figure 5

The storyline of “The Nutcracker” was presented to the pupils, during which time the storyteller used cardboard puppets made for that purpose (Figure 6).



Figure 6

Finally, pupils listened to carefully chosen parts from “The Nutcracker” (e.g. the dance of the Sugar Plum Fairy).

GIOACCHINO ROSSINI: THE CATS DUET

A writer and teacher told the story of cats and mice in the opera, using mouse puppets. The story was especially written for Music Playroom Love (Figure 7).

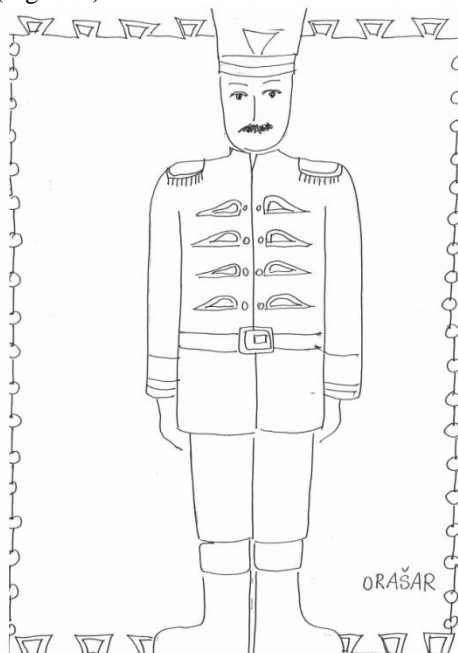


Figure 7

Pupils listened to “The Cats duet” while a big fleece cat in the hands of their teacher went around them and touched them one by one. They listened to “The Cats duet” one more time and danced with paper cat masks (Figures 8 and 9, Video 3).



Figure 8



Figure 9

LUDWIG VAN BEETHOVEN: LULLABY "SLEEP, LITTLE FISH"

A writer and teacher told the story of a lost fish written for Music school Love. Pupils listened to the song performed on piano, then again by rhythmically waving a light fabric representing waves (Video 4). Pupils learned to sing the song alongside the piano. They listened to the song again from a CD recording, "sleeping" on their desks while the teacher touched them with a light (lightly perfumed) scarf, which was intended to represent the dream coming down with the dark (Video 5).

ANTONIO VIVALDI: SPRING

The pupils were shown an illustrated story with the topic of spring, written and painted for this occasion. The pupils listened to "Spring" from a CD and guessed which instruments were playing. They took wooden spoons, held them like violins, violas and violoncellos and "played" Vivaldi by looking at an enlarged copy of the original music sheet (Video 6). The entire time that they were listening to "Spring", a reproduction of Sandro Botticelli's "Primavera" was placed in view for the children to see (Figure 10).



Figure 10

The teacher explained who the picture represented. At the end of the class there was relaxation: the pupils worked in coloring books (Figure 11), while still listening to “Spring”.

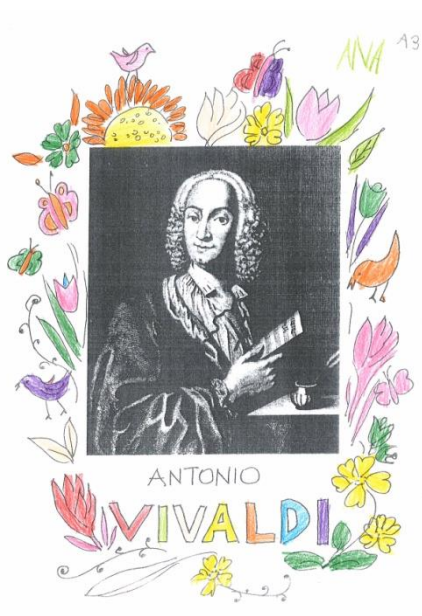


Figure 11

CONCLUSION

In its preschool programs, Music school Love wants to develop musical literacy in its pupils in an interactive, imaginative and joyful way and motivate them to learn to love music and to make them active musicians or at least appreciate good music. By using an interdisciplinary approach, in correlation with other forms of art and though visiting musical institutions and meeting prominent musicians, Music school Love helps children to form their own taste in music from a very early age and makes music a permanent accompaniment in their lives, making them nobler and spiritually wealthy.

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MAKING THINKING VISIBLE IN CHEMISTRY: CLASSROOM STRATEGIES TO IDENTIFY MISCONCEPTIONS IN THE CENTRAL SCIENCE

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A key issue with teaching and learning Chemistry is the abstract nature of the subject. If students are unable to imagine what is taking place at a molecular level, then shallow learning will occur and misconceptions will accumulate. Hence, it is very important for Chemistry students to make their thinking visible. This will allow them to assess their own understanding of a concept, and it will also allow their understanding to be evaluated by their teachers and peers. This poster presentation will illustrate a variety of effective classroom strategies that can be employed to make students' thinking visible in Chemistry.

MATCHING/MISMATCHING OF TEACHING AND LEARNING STYLES; AND ITS EFFECT ON STUDENTS' ACADEMIC ACHIEVEMENT AT TERTIARY LEVEL

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ABSTRACT

The overall purpose of the study was to explore the effect of matching/mismatching of teaching and learning styles on academic achievement in higher education. The study was causal comparative in nature to study the cause and effect relationships between matching/mismatching of teaching learning styles and students' academic achievement. The sample for this study, selected through multistage sampling design, consisted of 120 teachers and 240 students of BS-4 year program in four disciplines (Physics, Chemistry, Botany and Mathematics) from six public sector universities of Khyber Pakhtunkhwa, Pakistan. Felder-Solomon Index of Learning Style (FSILS) was used for the identification of learning styles of students while Teaching Style Instrument developed by Letele et al. (2011) was used to identify teachers' teaching styles. These styles of students and teachers were then analyzed to see if they matched or mismatched. The results showed that Visual learning style was the most favorite learning style followed by Balanced and Sensing learning style. Teaching style analysis showed that Visual teaching style was the most favorite style followed by Abstract and Sequential teaching styles. Group statistics indicated 42.75% matched cases and 57.25% mismatched cases. T-test for independent samples revealed that the students with matched learning styles performed significantly better than students with mismatched learning styles. In the light of these results, recommendations were forwarded for teachers, students, educationists, researchers and policy makers. **Keywords:** Matching, Mismatching, Teaching Style, Learning Style, Academic Achievement

Matching/Mismatching of teaching and learning style has proved to be somewhat divisive subject in research cultures as there are research findings that favor the idea of matching and those that do not (Ford & Chen, 2001). According to Coffield et al. (2004), nine research studies found learning to be more effective when there is match while the same number of studies favored the idea of mismatch. According to Larkin-Hein (2000), the teacher who teaches in the classroom keeping learning style of students in view and uses various strategies to cater for all the students, results in improved conditions in terms of interest, motivation and academic performance.

This study is planned to determine the influence of matching/mismatching on students' performance regarding their academic achievement. Matching/Mismatching illustrates the extent to which students' learning style preferences are similar/dissimilar to teachers' instructional style preferences indicated by the two questionnaires in the study.

Academic achievement is defined as "the attainment of knowledge, competencies, and higher-level status, as reflected in grades, degrees, and other forms of certification or public acknowledgment" (The Greenwood Dictionary of Education, 2011). For this research study academic achievement is the mean score attained by the student at the end of semester examination in the subject taught by the teacher participating in the study.

LEARNING STYLES

The Cambridge Advanced Learner's Dictionary (2008) defines style as "a way of doing something especially typical of a person, group of people, place or period". In the context of education, a teaching style may be defined as "methods, procedures and strategies in instruction and interpersonal relations that have developed and matured through years of personal and professional experience" (The Greenwood Dictionary of Education, 2011). According to Grasha (1996), teaching style is a combination of manners, tactics and behaviors inherent in the personality of a teacher that immensely influence the teaching learning process.

To date, various definitions of the term learning style exist in research literature. Learning style is described and interpreted in many different ways depending upon one's conception about the term. Some consider it to be relatively stable while some are of the opinion that learning styles have a complex nature and varies according to the context of teaching learning process.

These different ideas of learning styles have given birth to various different definitions. “The term learning style refers to the general approach preferred by the student when learning a subject, acquiring a language, or dealing with a difficult problem.”(Oxford, 2003, p. 273) According to Ellis (2001), learning style is a consistent way of a person’s perception, conceptualization, organization and recalling information. It is the composite of cognitive, affective and physiological behaviors that serve as relatively stable indicators of how a learner perceives, interacts with, and responds to the learning environment (Keefe, 1979). Learning style also tells about the ways a person learns from and adapts to environment, and how a person’s mind operates (Gregorc, 1979).

Curry (1990) categorizes learning into four dimensions just like the four layers of an onion namely personality traits, information processing, social interaction; and the instructional environment and students learning preferences. Felder and Solomon (1996) developed a learning style instrument called the Index of Learning style. Initially this instrument comprised five dimensions namely Processing (Active/Reflective), Perception (Sensing/Intuition), Input (Visual/Verbal), Organization (Inductive/Deductive) and Understanding (Sequential/Global). Later the organization dimension Inductive/Deductive was dropped from the instrument and presently it consists of four dimensions each with 11 items forming a total of 44 items each having dichotomous nature with two opposite poles.

Active and Reflective learners: Active learners learn best when they are engaged in learning process actively by generating discussion, applying and understanding information through sharing it with others i.e. peers, adults and group members. They enjoy group study and activity based learning while reflective learners like to work alone and think about a problem quietly first before getting physically involved. Listening to lectures and taking notes is greatly favored by reflective learners while disfavored by active learners.

Sensing and Intuitive learners: This dimension was developed on the basis of Jung’s theory of psychological types in which sensing and intuition are the two ways through which people perceive the outer world. People with sensing learning style gather information through senses while people with intuitive style perceive things indirectly by the way of unconscious i.e. speculation, imagination, hunches etc. Sensors prefer data, facts and experimentation whereas intuitors prefer theories and principles. Sensors mostly rely on standard methods for solving problems through step-by-step procedure and they do not like wonders. On the other hand intuitors dislike repetitions and like innovations. Sensors prefer factual where as intuitors prefer conceptual information. (Felder and Silverman, 1988)

Visual and Verbal learners: People receive information in three ways called sometimes modalities, visual----sights, pictures, charts, diagrams, symbols; auditory----sounds, words; kinesthetic ----taste, touch and smell. Visual learn best when materials are presented in diagrams, flow-charts, images, films and demonstrations. Contrary to visual learners, verbal learners like spoken and written information in the form of lectures. They memorize those information best which they hear and then explain it to others.

Sequential and Global learners: Sequential learners understand best when problems are solved in orderly and linear steps; global learners solve problems in large heaps but cannot explain how they came up with the solution. Sequential learners are strong in analysis and convergent thinking whereas global learners are best in synthesis and divergent thinking. Sequential learners would like the problem to be solved in small incremental steps where precise, detailed and orderly sequence is involved, on the other hand global learners like situations where information are presented in a holistic form without enough details

TEACHING STYLES

Teaching style is formed on the basis of various distinctive teaching behaviors, approaches and strategies that are applied in promoting students’ learning (Darkenwald, 1989). Teaching styles is the collection of various instructional approaches used by the teacher with ease and comfort; and is highly related to the context of learning rather than the content. (Conti, 1989) As described by Hoyt and Lee (2002) teaching style is the amalgamation of a range of instructional approaches while instructional approach is a combination of different teaching methods. Kaplan and Kies (1995) specify teaching style to be a method specific to teacher personal behavior and the media that teacher use to convey and get information. One’s teaching style is the result of the way one learnt and not the way he/she was taught (Dunn and Dunn, 1979). For Zinn (1990) teaching style is based on the teaching philosophy and value system held by the teacher regardless of the method and material. According to Grasha (1996) teaching styles characterize a belief system along with the needs and behaviors that teachers display in class-rooms.

According to Felder and Silverman Model of Teaching (1988), a teacher may either emphasize concrete, factual information or abstract, conceptual and theoretical information. A teacher may either present information through pictures, diagrams, demonstration or it may be verbal through lectures, reading and discussion. A teacher may either encourage students to actively participate in discussions and activities or remain passive simply watching and listening. Lastly, a teacher may prefer a sequential mode of presenting the material in a systematic manner; or they could prefer to present a global picture first and then proceed to break it down.

Matching/mismatching of teaching and learning styles

The need for investigating teachers' teaching styles and learners' learning styles is felt to avoid mismatches in style between teachers and learners (DeBello, 1990; Larkin-Hein, 2000; Zhenhui, 2001; Dasari, 2006; Graf et al. 2007; Alaka, 2011; Letele et al. 2013). The teacher ought to assist students in identifying their learning styles for building their confidence and making teaching learning process more effective (Doyle and Rutherford, 1984; Hoyt & Lee, 2002). Learning style can influence teacher's approach to planning, implementing and evaluating the teaching learning process. The teacher should develop teaching strategies in the light of students' learning preferences to cater for all their needs and to compensate their weaknesses (Herod, 2000).

While research shows that a greater learning occurs when teaching and learning styles match, Felder and Brent (2005) are of the opinion that the teacher should adopt a balanced teaching style to facilitate all the students having diverse learning styles, otherwise, some students will be satisfied while some will feel dissatisfied with the instructional process.

Making teaching congruent with the learning style of students is well supported by the case study of a teacher teaching English to the 11th grade students as described by Dunn (1996). In this study it was evident that the score of those students who had been taught the curriculum in accordance with the learning style of students was relatively very high as compare to those students who had been taught in the traditional way.

The concept of teaching, with learning style in view, is getting popularity across all disciplines particularly in the fields of Engineering and Physics. In a study, Tobias (1990) reported that the failure and dropout on the part of the students in science education in most of the cases were caused by the instruction not congruent with the students' learning styles. In this study he also noticed that a match between the styles of students and teachers give positive results in terms of students' motivation, interest, conceptual understanding and retaining information for a longer period of time. On the contrast, mismatching between students and teachers leads to mistrust, losing interest and even changing to other fields by the students. (Felder, 1993)

Among various scales and instruments used for the identification students' learning styles, the Index of Learning Styles (ILS) developed by Felder and Solomon based on Felder and Silverman learning style model, is the most comprehensive (covering all the essential aspects and dimensions of the learning style), short, valid and reliable instrument (Graf et al., 2007, Felder & Spurlin, 2005). The ILS is a self-report dichotomous scale with four dimensions, each representing two opposite learning styles. Each dimension comprises 11 items forming a total of 44 items. The first dimension Sensing/Intuition is related to how student perceives information. The second dimension Active/Reflective is concerned with the way student processes the information. The third dimension Visual/Verbal is about the way student intakes information and the fourth Sequential/Global is related to understanding and organization of information.

Objectives of the Study

The main purpose of the intended study was to investigate "Matching/Mismatching of teaching and learning styles and its effect on academic achievement at tertiary level. The objectives of the study were:

- To identify teaching styles of teachers at Tertiary level;
- To identify learning styles of learners at Tertiary level;
- To point out matching and mismatching between teacher's teaching style and learner's learning style at Tertiary level; and

- To determine the effect of matching/mismatching between teachers' teaching style and learners' learning style on academic achievement at Tertiary level.

Hypotheses of the Study

- H₁: There is significant difference between the mean achievement scores of students with matched styles and mismatched styles in the subject of Physics.
- H₀₁: There is no significant difference between the mean achievement scores of students with matched styles and mismatched styles in the subject of Physics.
- H₂: There is significant difference between the mean achievement scores of students with matched styles and mismatched styles in the subject of Mathematics.
- H₀₂: There is no significant difference between the mean achievement scores of students with matched styles and mismatched styles in the subject of Mathematics.
- H₃: There is significant difference between the mean achievement scores of students with matched styles and mismatched styles in the subject of Chemistry.
- H₀₃: There is no significant difference between the mean achievement scores of students with matched styles and mismatched styles in the subject of Chemistry.
- H₄: There is significant difference between the mean achievement scores of students with matched styles and mismatched styles in the subject of Botany.
- H₀₄: There is no significant difference between the mean achievement scores of students with matched styles and mismatched styles in the subject of Botany.

METHOD

In this study a Causal-Comparative Research design was used, in which data was collected with the help of two questionnaires to achieve the mentioned objectives. In causal comparative design, two groups differing on independent variable (the cause) without manipulation are compared for dependent variable (the effect), to determine cause and effect relationship (McMillan & Schumacher, 1989; Gay, 1996). In this study, independent variable called the cause was the matching of teaching and learning styles and the dependent variable called the effect, was the academic achievement. Learning style, in this study, can be operationally defined as any one of the eight learning styles identified by FSILS. Similarly, teaching style is defined as any one of the eight teaching styles identified by teaching style questionnaire. Matching/mismatching illustrates the extent to which students' learning style preferences are similar/dissimilar to teachers' instructional style preferences indicated by the two questionnaires in the study. Academic achievement in this study is the mean score attained by the student at the end of semester examination in the subject taught by the teacher participating in the study.

Population and Sample

Population for this study consisted of all the teachers and students of 19 public sector universities of Khyber Pakhtunkhwa, Pakistan. A sample of 360 (240 students and 120 teachers) respondents, was selected through multistage sampling design. In the first stage six public sector universities were purposively selected from Khyber Pakhtunkhwa, namely Hazara University (HU), Mansehra, University of Malakand (UOM), Dir (L); University of Peshawar (UOP), Abdul Wali Khan University (AWKU), Mardan; Kohat University of Science and Technology (KUST), and University of Science and Technology Bannu (USTB). From each of these six universities four disciplines or departments namely Physics, Mathematics, Chemistry and Botany; and from each of these departments 10 students and 5 teachers of BS (4-years program) were selected through Stratified and Quota sampling.

Instrumentation

The data was collected with the help of two questionnaires to achieve the mentioned objectives. Felder and Solomon Index of Learning Style (FSILS) was used to identify students' learning style while teaching style inventory developed by Letele et al. (2013) based on Felder and Silverman theory of teaching style, was used to identify teachers' teaching style. FSILS has 44 items with four dimensions (active/reflective, sensing/intuitive, visual/verbal, and sequential/global), each dimension with 11 items. Like FSILS teaching style instrument has also 44 items with four dimensions (active/passive, concrete/abstract, visual/verbal, and sequential/global), each dimension with 11 items. All items in FSILS have dichotomous nature with two opposite poles (a) and (b) indicating two learning styles on one dimension with contrasting styles.

Matching/mismatching between teachers' teaching style and students' learning style was conducted according to the following scheme as shown in the table.

Table1

Preferred Learning Style and Corresponding Teaching Style

Preferred Learning Style	Corresponding Teaching Style
Active/Reflective	Active/Passive
Sensing/Intuitive	Concrete/Abstract
Visual/Verbal	Visual/Verbal
Sequential/Global	Sequential/Global

(Adopted from Felder and Silverman, 1988)

Validity and Reliability of the instruments

A pilot study was conducted prior to main study, for assessing feasibility of the research procedure, validity and reliability of the two research instruments and any potential flaws in the research study. For this purpose data was collected from a sample of 20 teachers and 29 students not included in the main study. Both the instruments i.e. FSILS (Felder-Solomon Index of Learning Style) and teacher teaching style instrument were validated by the team of experts from IER (Institute of Education and Research) and Department of Psychology at University of Peshawar; and declared it suitable for the said purpose in local environment. The internal consistency test of reliability for both the instruments was conducted with the help of SPSS-17 for the said samples of students and teachers. The Cronbach's alpha values for FSILS obtained in this study were found to be 0.71 for Sensing-Intuitive (Sen-Int) dimension, 0.67 for Visual-Verbal (Vis-Vrb) dimension, 0.65 for Active-Reflective (Act-Ref) and 0.58 for Sequential-Global (Seq-Glb) dimension. In the same way the Cronbach's alpha values for teacher style instrument turned out to be .687 for Concrete-Abstract, .634 for Active-Passive, 0.72 for Visual-Verbal and 0.578 for Sequential-Global dimension.

DISCUSSION

The findings of this study is in line with the findings of various other researchers like (Zenhui, 2001; Tamimi & Shuib, 2009; Felder and Silverman, 1998) who came up with similar results in their studies where majority of learners were reporting Visual style as their most dominant learning style. Zenhui added that Visual learning style was popular among most of the Korean, Japanese and Chinese Students. Similarly a study conducted by Moallem (2007) revealed findings similar to this study who also found that percentage of students with Visual style was the highest.

The most important finding of the study that matching-mismatching of teaching-learning style do affect the academic achievement of students positively, is in complete agreement with the findings of the studies conducted by Letele et al. (2011), Dasari (2006), Ford and Chen (2001), Fazarro, D. E., Pannkuk, T., Pavelock, D., & Hubbard, D. (2009), Charkins, O'Toole, Raines (1978), and Honigsfeld & Dunn, (2006) . As findings of this study revealed that matching of teaching-learning styles had a positive and mismatching a negative impact on academic achievements of students, is well supported by Felder and Brent (2005).

In contrast, the study conducted by Spoon and Schell gave contrary result where mismatched students outperformed the matched students. Similar results were also reported by Terry (2001), Scerba (1979), Ruhnau (2006) and Campbell (1989) where matching of teaching-learning had no or very small impact on students' performance. The findings of this study is also inconsistent with the study of Spoon and Schell (1998) who reported in their study that academic performance of incongruent students was better than that of congruent students in adult basic skills classes. One possible cause of these contrasting results may be the factors like culture, environment, prior experiences, students' effort, disciplines, history and other physical and psychological factors related to students and teachers. Among other possible causes for these contrasting results might include various learning and teaching style instruments, research methods and samples. However, one thing is evident that matching of teaching and learning styles results in greater satisfaction, motivation and self-efficacy on both the part of students and teachers (Felder and Brent, 2005; Larken-Hein,2000; Peacock,2001;Spicer,2004).

CONCLUSION

Research findings revealed that Visual learning style was the most dominant learning style used by majority of students followed by balanced and mixed learning styles. In case of teachers, after Visual style, the mixed and Sequential were the most preferred teaching styles used by most of the teachers. Analysis of data regarding matching-mismatching of teaching-learning styles revealed that the percentage of students with mismatched styles was higher than percentage of students with matched styles. Most importantly, from over all data analysis it was concluded that there was a significant difference between the mean scores of matched students and mismatched students; and that the mean score of matched students was significantly higher than the mean score of mismatched students.

Tables of data analysis available with authors

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MATHEMATICS LESSONS WITHIN A LEARNING ENVIRONMENT ENRICHED WITH TEACHING MATERIALS: A PHENOMENOLOGY STUDY

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ABSTRACT

The aim of the present study is to reveal the views of teachers and students regarding the impact of a mathematics course design enriched with teaching materials within the framework of the ADDIE model upon students' motivation towards the mathematics course. The research design employed in the study is phenomenology, which is one of the qualitative research methods. The participants in the study were selected by means of the criterion sampling method. As a result, the study was conducted with 29 volunteer students in grades 5, 6, 7 and 8 and their teacher at a secondary school in a village within the province of Nigde. The data of the study was collected by semi-structure interviews held with the participants. One of the findings that the present study yielded was the students' positive views about the use of the material in the mathematics lessons. The teacher who was interviewed in the study stated that since the very beginning of the mathematics lessons, both the concrete materials and the technology-enhanced materials in mathematics teaching had been effective in drawing students' attention and that implementing games and various other activities were more effective in making learning more permanent. In addition, the teacher reported that the use of materials in the mathematics class established a link between the educational objectives and daily life and, thus, prevented the formation of mathematical misconceptions. Thus, the teacher believed that the difficulties experienced in perceiving mathematical concepts could be overcome and eventually increase students' mathematical success.

Keywords: Teaching material, mathematics, teacher, student, phenomenology

INTRODUCTION

Implementing instruction enriched with materials and various activities will have a positive impact in terms of effective and permanent learning. Teaching processes supported with teaching materials not only prepare students for open and inquiry-based environments but can also provide them with the opportunity to study freely (Arslan, 2003; Bedir, 2005; Gürbüz, 2007; Önal, 2010). In addition, lessons supported with teaching materials can be helpful students to discover very different ideas that many teachers may not be able to think of (Dede ve Argün, 2003). As students can experience difficulties especially in relation to many abstract concepts, particularly in mathematics classes, it is important to prevent this by means of instructional materials that assume the role of concretizing and making learning permanent. Apart from the educational environments in which it takes place, learning is under the influence of numerous factors, such as educational tools, instructional materials and external factors. Vural (2004) visualized some of the factors impacting learning as in Figure 1:

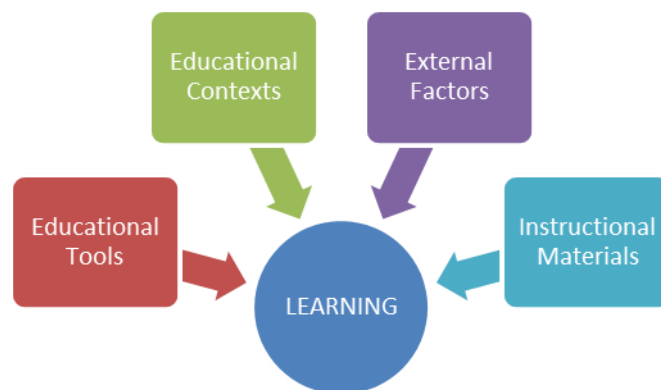


Figure 1. Some factors impacting learning

According to Figure 1, it is possible to maintain that for learning to take place, educational environments, educational tools, instructional materials and external factors each function as a channel. It is believed that the impact of each channel used to teach any content within the learning process is important. It is known that among these factors, educational tools and instructional materials are used to support and facilitate instruction. Hence, we can assert that well-designed instructional educational tools and instructional materials will facilitate not only the enrichment of educational processes but also the increase in the level of learning. At this point, it is possible to mention the discipline of instructional design, which deals with to whom, when, where, how, how much, and why a content area should be taught within a teaching and learning process. Instructional design is a systematic and reflexive process that enables the adaptation of learning and teaching methods to instructional materials, activities and evaluations with a systematic plan. The models to be used within this process has a significant effect on the impact and functionality of the products to be created. In general, the instructional design model can facilitate the visualization of the steps involved in the teaching environment which cannot be noticed easily. The findings of a study by Göksu, Özcan, Çakır and Göktaş (2014) indicate that instructional design models, specifically when used in the fields of “Computer and Instructional Technologies,” “Science” and “Mathematics,” increase students’ levels of academic success, motivation, self-confidence and permanency in learning, and have a positive effect on students’ attitudes and approach towards the lessons. For this reason, in the present study, a learning environment enriched with instructional materials was designed by using the ADDIE model, which is one of the important instructional design models implemented with the consideration of the field of mathematics and the systematic approach.

THE STUDY

The Research Design

In this present study phenomenology which is one of the qualitative research methods was employed. In a study based on a phenomenology research design, participants describe their experiences related to a phenomenon (Creswell, 2013).

Participants

In this study, participants were selected by means of the criterion sampling method, which is purposive sampling, one of the sampling methods in qualitative research. The study was conducted with randomly selected 29 volunteer students in grades 5, 6, 7 and 8 and their teacher at a secondary school in a village within the province of Niğde. The data of the study were collected by means of semi-structure interviews held with the participants. The fact that the students and the teacher in the study group using the instructional materials in the research were doing so for the first time at a village school was regarded as one of the strengths of the research.

The Data Collection Tool

The data of the research was collected by means of semi-structured interviews held with the participants of the study. Semi-structured interviews are conducted by means of pre-prepared questions with the aim of collecting similar kinds of information from the participants by addressing similar topics (Patton, 2002). Accordingly, interview forms entailing the semi-structured interview questions were constructed prior to the interview.

Procedur

The administration of the school where the study was conducted and the mathematics teacher were contacted to receive their opinions regarding the establishment of a mathematics class within the school. Subsequent to the observations and needs analysis study, expert opinions were received and the class was established. In this class, three dimensional instructional materials prepared by the students in the Primary Mathematics Teaching Department of a state university in their Instructional Technologies and Materials Design course. The steps followed in the study within the framework of the ADDIE model are presented in Figure 2:

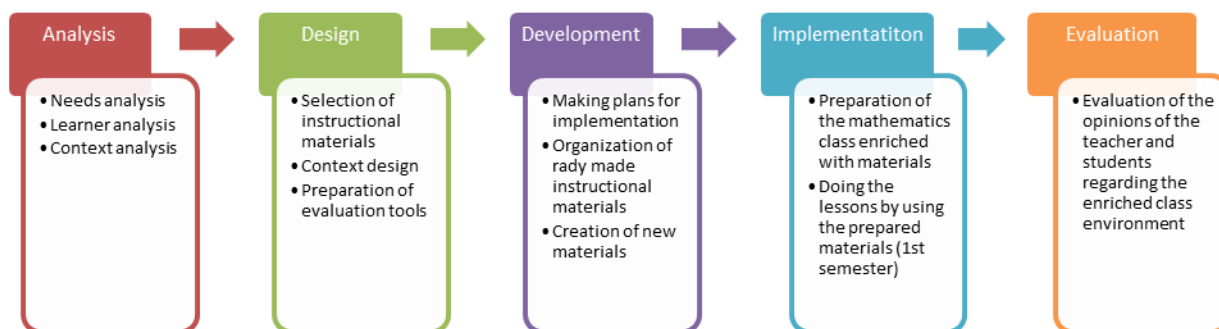


Figure 2. The steps followed in the study within the framework of the ADDIE Model

Data Analysis

The data obtained from the semi-structured interviews were analysed using content analysis method. The aim in the content analysis method is to arrive at concepts and relationships that can account for the data collected in the study. To this end, the data collected should first be conceptualized, then arranged logically according to the concepts that emerged and based on this, the themes that explain the data need to be determined (Yıldırım and Şimşek, 2008).

FINDINGS

The Teacher' Opinions

In order to determine students' level of success in the mathematics class, the teacher was initially asked the following questions:

"How successful do you think your students are in mathematics when compared to the average level of success in Turkey? Why do you think so? What may be the reasons of this situation?"

The teacher expressed his/her opinions in response to these questions as follows:

"My students' level of success in mathematics is low when compared to the average level in in Turkey. The school where I work at is a village school, and my students' economic status and level of family support are insufficiently low. Naturally, these factors are obstacles preventing students from making progress."

It can be deduced from the teacher's response that the she believes her students' success in mathematics is low and account for this with having a low economic status and a low level of family support. According to the teacher, the students need to receive material and nonmaterial family support in order to be successful in mathematics education with a level that is above the average success level in the country. It is striking that, while expressing his/her opinions, the teacher did not mention the abstract nature of mathematics, and such factors as students' interest and motivation.

The teacher stated that the use of materials were effective, particularly with some mathematics topics, when he/she was asked the following questions:

"Do you think the hands-on, three-dimensional materials prepared in accordance with the teaching objectives influenced your mathematics teaching process? If so, in what way was it influential? Why do you think so?"

The teacher gave the following responses:

"It is essential and effective to present some topics by using materials. For example, when geometrical objects such as prisms, pyramids, and spheres are drawn on the board, their angel or the number of faces, edges or bases they have are perceived only partially. Only when these counts and presentations are made by using materials can these shapes be clearly visualized in students' minds understand these numbers."

The teacher believes that visualization has a permanent effect on learning. In addition, the following response of

the teacher indicates that the instructional materials prepared have a positive effect on mathematics education:

“I came to possess numerous materials thanks to the mathematics class we constructed at my village with the mathematics education students in university (laughs). When I took these materials to class to present some topics, the students were motivated to use them as they had never seen them before.”

The teacher was also asked whether he/she preferred to use such materials as technological products and the Internet. He/she responded by stating that he/she used the interactive boards while students watched videos or solved problems. He/she did not mention the use of such technological products as computers, tablets or projects in mathematics education. Subsequently, when the teacher was asked by the researcher whether he/she used Web pages during mathematics education, he/she stated that he/she followed some mathematics teachers’ groups on Facebook and used their questions from time to time. The exact utterance of the teacher was as follows:

“Yes I use them in class. I prefer to use the explanations of mathematics teacher groups (the blogs of Ahmet Hoca and Serkan Akca) on Facebook as they are good and their test questions as they are of moderate difficulty level.”

When the teacher was asked whether he/she made use of a computer software in his/her mathematics class, he/she gave the following response:

“I tried using the Geogebra software, but since it was in university when I [last] used it, I couldn’t remember the last content section. Even if I heard about other software programs, I did not get the chance to find and use them, but I would prefer to use them.”

Finally, the teacher was asked to express his/her opinion regarding how a mathematics teacher could be a better teacher. The teacher responded as thus:

“The teachers and teaching styles in mathematics subjects offered to students at schools are better than it was in the past and more importance is given. However, bias towards mathematics still continues to exist. With these opportunities, the very first thing that must be done is to eradicate this bias.”

This opinion of the teacher is quite significant. The teacher, who had not mentioned the impact of students’ biases towards mathematics as one of the reasons underlying their failure in the mathematics course, stated this time that these biases needed to be eliminated. However, when the teacher was asked how these biases could be eradicated, the teacher responded by saying, *“I don’t know.”*

The Students’ Opinions

The findings which the analysis of the questions posed to students in order to determine students’ opinions about mathematics education within an environment enriched with instructional materials were compared with those of the instructors and are presented below.

The students stated that, in general, these materials had a positive impact on their mathematics learning process, that they learned the topics more effectively and that their interest in the subject increased. The findings based on the students’ opinions are presented in Table 1:

Table 1. Students’ opinions about learning mathematics within an environment enriched with instructional materials

Positive opinions	Students	Frequency
It made the lesson enjoyable.	S1, S2, S3, S9, S15	5
It added variety to the lesson.	S1, S11, S28	3
It enabled us to like mathematics more.	S1, S 2, S 12, S 13, S 16, S 20	6
It made the lesson better.	S1, S 2, S 15, S 25, S 28	5
It enabled me to understand the topics better.	S5, S7, S13, S17, S20, S21, S22, S23, S24, S26, S27, S28, S29	13
It increased my motivation.	S6, S8, S9, S10, S12, S14, S18, S19, S20, S23	10
It facilitated visualization and comprehension.	S16, S17, S18, S19, S20, S21, S22, S23, S29	9
Neutral Opinions	Students	Frequency
Solving problems on the board is sufficient.	S4	1

It can be observed in Table 1 that except for S4, who stated that these materials did not impact their interest in the lesson, and that it was sufficient for them to solve questions using colored markers on the board, all the students stated that these materials had a positive influence on their education. In order to gain more insight into the students' opinions, the students were asked to express both the positive and the negative aspects of these materials in mathematics education. The findings that the analyses yielded are presented in Tables 2 and 3 below:

Table 2. Students' positive opinions regarding the use of educational tools and materials during instruction

	Students	Frequency
Then facilitate learning.	S2, S7, S8	3
They facilitate comprehension.	S3, S5, S10, S12, S15, S16, S17, S21, S24, S25, S26, S27, S28	13
They make lessons enjoyable.	S4, S6, S9, S10	4
They increase motivation towards the lessons.	S4, S11, S15, S19, S23, S27	6
They increase participation in the lessons.	S6, S20, S21, S26	4
They made visualization possible.	S22, S23, S28	3

Table 3. Students' negative opinions regarding the use of educational tools and materials during instruction

	Students	Frequency
When misused, they can break apart.	S1, S2, S22, S23, S26	5
They are not appropriate for every topic.	S4, S13	2
They can create noise.	S6	1
Using them sequentially can be time consuming.	S7	1

Accordingly Table 3, it can be observed that the students believe that a mathematics course enriched with materials facilitates understanding the lessons, makes the lessons more enjoyable, and increases participation in the lessons. On the other hand, they also stated that they could lead to negativities such as the creation of noise during their use or their breaking down.

Based on the positive opinions regarding the use of educational tools and materials in mathematics courses, students were asked whether they preferred these materials to be used by the teacher or the students. As can be clearly seen in Table 4, the majority of the students want to make active use of the materials themselves.

Table 4. Should materials be used by the teachers or the students?

My teacher should use them.	Students	Frequency
Our teacher knows best.	S1, S2, S3, S7, S10, S11, S14, S18, S22	9
I use	Students	Frequency
It will increase my participation in the lessons.	S4, S5, S6, S8, S9, S10, S12, S13, S15, S16, S17, S18, S19, S20, S21, S28	16
The teacher and students can take turns to use them or use them together.	S4, S23, S24, S25, S26, S27, S29	7

S19, expressed his/her opinions as follows:

"It would be better if I used the educational tools and materials used in class. They will increase my participation in the lessons because when my teacher uses them, I may not see and feel them clearly and thus they won't draw my attention..."

Similarly, S20 said, “If I use them, it will increase my participation and interest in the course because when I do it myself, I both learn and understand better.” When the students’ opinions are taken into consideration, it can be understood that they have positive opinions about the use of instructional materials in mathematics education and that they want to be active during the use of these materials.

CONCLUSIONS

It can be concluded in the present study, which aimed to reveal the opinions of both the teacher and students as regards students’ interest in the mathematics course based on a mathematics course design enriched with instructional materials within the framework of the ADDIE model, that generally the participants of the study expressed positive opinions regarding the use of materials in the mathematics class. The students stated that the use of materials in the mathematics course was beneficial in visualizing the topics, in enabling them to understand the concepts more effectively, and in increasing their interest and love towards the course. This conclusion is consistent with the explanations made by Çelik (2007) in that concrete materials facilitate students’ learning and teachers’ teaching processes and that materials enriched educational processes and added depth to the topics. On the other hand, some of the participants claimed that the use of materials caused noise in the classroom, that it could sometimes be time consuming and that they were not always suitable to the topic or they could break down or fall to pieces.

It is of utmost importance to adopt an understanding of mathematics education which is student-centered, which can be implemented in an environment in which students can fearlessly express their opinions, which can give everyone the opportunity to develop their own thinking strategy and that effectively establishes a link between daily life from the very first day of school. In this way, contributions can be made by raising individuals who can overcome their biases and think mathematically to solve problems. Improvement in mathematics education would impact the whole society (Umay 1996).

The teacher who was interviewed in the study stated that since the very beginning of the mathematics lessons, both the concrete materials and the technology-enhanced materials in mathematics teaching had been effective in drawing students’ attention and that implementing games and various other activities were more effective in making learning more permanent. In addition, the teacher, who reported that the use of materials in the mathematics class established a link between the educational objectives and daily life and, thus, prevented the formation of mathematical misconceptions, and thus, the difficulties experienced in perceiving mathematical concepts could be overcome and eventually increase students’ mathematical success, stated that he/she was going to continue to use the mathematics class effectively. Based on the findings of the present study, it can be recommended that especially in numerical classes such as mathematics and science, which frequently entail abstract concepts and which students generally approach with biases, the use of materials should be increased, and learning environments in which students can have first hand experiences with materials that are in accordance with their interests and developmental attributes and in which they can actively participate should be made more widespread.

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MAVIS: SPECIAL EDUCATION VIRTUAL ASSISTANT

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ABSTRACT

My Virtual Assistant Information System (MAVIS) served as a virtual assistant in special education. It includes basic lesson such as alphabet, numbers, animals, reading and a dictionary that enables teachers and student in a special education class sustains learning. Games and Videos are additional features of the system which caters supplementary tool in learning and bridges the gap between the traditional and modern learning. The system is created for the innovative learning schemes for Special Education Services which aim to have an innovative learning facility that could easily sustain the attention of a child and make learning fun and easy. The system (1) act as a Teacher Assistant in giving lessons mandated by teachers, (2) help teachers in providing educations, (3) catch students curiosity in learning. Based on the evaluation results the system evaluated rated 4.58 with a descriptive meaning of Excellent.

Keywords: Virtual Assistant, Learning, Education, Educational Services, Special Education, Virtual Assistant, LMS for Special Education

INTRODUCTION

Virtual assistant can save hours and energy in terms of doing assistance such as monitoring sales, doing mathematical calculations or even doing much more technical works. Lots of virtual assistance is floating in the market; every field has its own assistance that could help consumers to make work easier. For example, a travel agency might have travel research assistance that could assists costumer in booking a flight, plan itineraries and even look for a place to stay [1]

With the aid of technology, Cuthbertson (2015) in his article compare the capabilities of AI (Artificial Intelligence) virtual assistant to human cognitive capabilities. The report shows different AI technologies has been developed with the aid of Turing Machine's algorithms. Software developers embraces and merges the capabilities of artificial intelligence in providing and developing a good assistant. Among with their examples shown are (1) the 4-year-old child IQ test assistant, (2) Google DeepMind AI which wins over pac-man, (3) IBM Watson CTO, a purchase order assistant and (4) Siri [2]

With the advancement of technology in the academe and the willingness of the researchers to prove that virtual assistance could be an aid in better learning MAVIS (My Assistant Virtual Information System) arises. The system aims to assists educators in providing quality education among special and regular child enrolled in every academic institution.

My Assistant Virtual Information System (M.A.V.I.S) served as a supplementary tool in teaching kids ages from three (3) to seven (7) years old. It includes basic lessons such as alphabet, numbers, animals, and reading. It also contains mini dictionary and games. AGAPE Special Education Services provided list of lessons that should be included to M.A.V.I.S.

MAVIS is created for innovative learning schemes of every educational institution offering early childhood development for both regular and special children. Its main aim is to have an innovative facility that could can child attention, be motivated in learning and make learning more fun and easy. MAVIS can also (1) act as a teacher

assistant, giving lessons mandated by teacher, (2) help teachers to have repository of multimedia resources used within the class and (3) catch students curiosity in learning.

My Assistant Virtual Information System (M.A.V.I.S) is a Virtual Assistant of teacher which is loaded by the pre-defined lessons and topics (English, Math and Science). It is voice activated which follows every instruction supplied by the end – user. It has a mini dictionary which is composed of selected words approved by the schools, lessons in math, science, English which came from the school administrator. It is loaded with games suggested by the teachers and a video of different movies school usually used for their film showing. M.A.V.I.S as per requested by the evaluator will have the facility to add videos and lessons.

Benefits and Impacts

The system was developed to aid (1) Teachers to have a repository of their multimedia lessons, catch student's attention and track down student progress via apps assessment tool and (2) Students, will have innovative way of learning English, Science, Math and Values and experience an Artificial Assistant which will explain lessons via speech recognition. For fun learning, MAVIS is fully equipped by games, reading materials, videos, and dictionary of words.

REVIEW OF RELATED LITERATURE AND STUDIES

The Role of Virtual Assistance, its Essence and Importance

Intelligent Tutoring System have been developed to cope up problems in conventional classroom instruction and increase the academic capabilities of a student. In order to cope with previous problems, the study has developed a testing and diagnostic system based on tutoring behavior identified by VanLehn (2006). The proposed system, Model-tracing Intelligent Tutor (MIT), includes four components: (1) lexical analyzer (scanner); (2) syntax analyzer (parser); (3) semantic analyzer; and (4) report generator. MIT is implemented with the aim of conducting a one-to-one tutoring mechanism with instant feedback to improve learning in mathematics of students. Therefore, the research question is “what are the learning achievements of students after using MIT.” Finally, an experiment on a fraction lesson in a mathematics course was conducted to demonstrate the effectiveness of the proposed system [3].

The growth of online learning enrollment in higher education far exceeded the growth of traditional or face-to-face learning enrollment overall in recent years. However, several studies also showed that online students tended to have lower completion rates than their on-campus peer. The lack of interactions and timely support are considered primary reasons for the high dropout rate in online learning, especially in the asynchronous learning environment [4].

Major companies such as Google, Apple, Microsoft, Facebook and Amazon keeps on insisting on creating virtual assistant that are generalist, rather than specialists. These leading companies believes that consumers nowadays wanted to navigate machines through voice recognition. Artificial Intelligence developer's such as Amazon's Alexa, Barbie and Thomas' Talk Platform, Apple's Siri has become major de facto references in creating virtual assistant [5]. Even in the field of medicine around Michigan shows an interest of having a virtual assistant that could aid physician in giving lectures and training to Physician Assistant and rehabilitation students [6].

Ljubojevic [7] pointed out that the best way to teach in a millennial class is by means of multimedia teaching. Integrating multimedia lecture presentations increases student's perception in learning and enhancing the experience of teacher in delivering lessons. Assessment included in the multimedia teaching boosts the students excellency within the subject matter.

In addition to that, Jowati [8] says that LMS or Learning Management System is an additional parameter in determining student progress within the class. A good multimedia application can aid a child in delivering lessons and learning new topic can be done advance. However, an LMS should contain a token that will trigger every time the students will take quiz and should notify teacher with its progress.

With the recent advancement technology, its function, its capabilities and adaptation to any field of endeavors plays a lot to help environment grow. McCarthy [9] tested the efficiency and usability of artificial intelligence tutor for teaching and practicing braille. The group found out that when multimedia and technology are added to teaching, even special cases students can learn fast and with accuracy. Modern technology should be added to curriculum in order to meet the fast changing demand in technology and academe.

Hwang [10] believes that when a traditional and modern teaching are mixed together, with an additional requirements mandated by the curriculum blended forms a good tool in teaching and learning. The research proves that the best examples of teaching physiology reaction can be done using a video, created and evaluated by the key persons, is a good design of multimedia technology learning.

In the research done by Dwaik[11], blended learning in English Literature Courses with the aid of MOODLE (Modular Object Oriented /dynamic Learning Environment) and Technology could be a platform of disseminating multimedia literature across America. Literature will not die as long as Technology lives. Platform might be changing but the process, whether it is old when it is blended to new platform with the correct procedures injected onto it could present a new way of learning. American Literature topics added to Moodle, added to CALL (Computer Assisted Language Learning) forms BLA (blending learning approach), a new way of American Literature electronic – learning.

In 2012, Bull[12] uses twitter in High School Social Studies Class. After six weeks of teaching Tweeter and how it works, students are asked to tweet their sentiments, opinions, reflections, communications and pictures surrounding the intentions of founding father on the bill of rights. The research proved once again that the use of Technology connects students and boost one knowledge and creativity in learning.

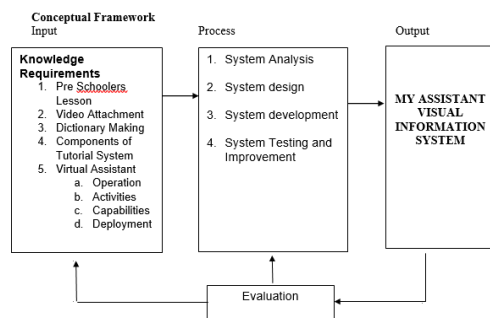


Figure 1.0: The Conceptual framework

Figure 1 illustrates the knowledge requirements gain by the developer in order to developed M.A.V.I.S in accordance to the business rules, policy and specifications mandated by the stakeholders. The proponent's skills in software project development, software designing, database development and multimedia development are all incorporated within the development of software. Periodically the software was tested for improvement. M.A.V.I.S. used ISO 9126 to make sure that the requirements given by the stakeholders are fully satisfied.

METHODOLOGY

Proposed Design Framework

My Assistant Virtual Information System follows the Agile Method (Figure 2.0) in developing the project. It involves stakeholders from designing, and to a continuous development of project.

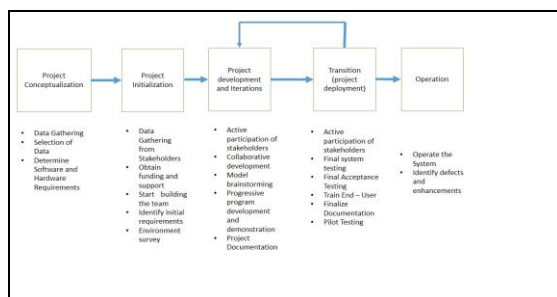


Figure 2.0: MAVIS Agile Method

In **project Conceptualization**, the developer gather all the necessary data needed for the development of project. Data are carefully selected and evaluated to determine what are the software and hardware requirements needed by the stakeholders and if the given rules and policy are injected to the conceptualization process.

During **Project Initiation** the developer presented the idea to stakeholder for critiquing and requirements identification. Stakeholders provide initial funding for the project and allow observation with the facility to experience the daily transaction within the environment. The developer also identifies each member tasks, duties and responsibilities to be done during and after project development.

Project development and iterations, in this phase the developer make sure that the stakeholders are included in the progressive development of the project. The team as an agreement to the stakeholders create a timeframe (Table 1) which serves as the timeline of both parties. A checklist is created by the developers to identifies which among modules and sections are in the critical path area and which one is behind on the given schedule. Quality Assurance Test are also done periodically to ensure that all tasks given to the developers are all done. Initial progress of the software was sent to the stakeholders to identify lacking requirements. Active participation for both stakeholders and developers in project development are mandated in **Transition (Project Development)** Phase, to ensure M.A.V.I.S. accuracy and reliability. End – users are also train in this phase gradually, this enable them to experience the software development which will provide them an ease in using and manipulating it. Alpha and Beta Testing are also done in this phase, several operational testing are done to ensure understandability on usage of program and determine the accuracy for every lessons included within the software.

Project Respondents

In this project, the developer intended to gather primary data from AGAPE Special Education Services.

Table 2. Respondents of the Study

Respondents	Population	Number of Sample Respondents
Teachers	5	5
Student and Parents	18	18
Total	23	23

Sampling Method

Stratified sampling method will be used to determine the number of respondents. The project respondents are divided into three (3) subgroups: Teachers, Special Children, and Regular Student.

Data Collection Method

The developer makes use of interview, actual observation and questionnaire to determine the need of having the project. It was chosen the primary source of data.

Respondents are identified and approached by the developer to conduct interview. Actual class observation was also done to fully understand the operations in AGAPE Special Education Services in providing both special and regular class.

Questionnaire was given to parents, teachers, principal and school owner to determine their needs and requirements in creating MAVIS. The result of the questionnaire shows that most of the parents and teachers wanted to have virtual assistant for their lessons.

Testing and Operating Procedure

As per requested by the stockholders, there will be three (3) set of testing prior to the beta and alpha testing of the project and another two (2) testing to finalize the project

Table 2: Testing and Operating Procedure Schedule

	Task	Start and End Dates
	Program Demonstration / Pilot Testing	October 13 - 16, 2016
	Second Program Testing	November 15, 2016
	Unit and Module Testing	December 12 – 23, 2016
	Beta testing and data gathering	January 09 – January 12, 2017
	Final Project Development based on beta testing results	January 16 – 21, 2017
	Final Testing	January 23 – 28, 2017

Table 2 shows the testing schedule as given by the stakeholders. For **Preliminary Testing**, unit testing was done for every unit or module included in M.A.V.I.S., . Program Demonstration or Pilot Testing shows the preliminary screens and how program works. For every unit or module incorporated in the system, testing is done, this will ensure smooth operation and all lessons are already added in the system. **Final Testing** was done to guarantee that all suggestions and recommendation stated during preliminary and unit testing are all included in the final development of project.

EVALUATION PROCEDURE

The Evaluation procedure is composed of three (3) stages:

Unit evaluation – the unit testing is conducted periodically by the developer team. Each lessons, unit or module which was included in the system was given one (1) week testing to determine its reliability in providing assistance and to check the accuracy of the data or information included in the system.

Preliminary Evaluation – all recommendations and suggestions done in the unit testing are included in the system which form the beta test of M.A.V.I.S... The developer seeks help from technical people such as teacher, curriculum developer and special program coordinator to evaluate the accuracy of all objects, exams and lessons included in the system.

Final Evaluation - survey instrument was distributed to the pilot area. To ensure its effectiveness, accuracy, understandability and reliability as a supplementary tool in providing knowledge among pre – schooler’s it is also both tested in private and public day care centers.

Statistical Tool

The study used the statistical mean to interpret the results of the survey. Table 3 and 4 show the numerical rating and descriptive rating of the mean to interpret the results of the project evaluation.

Table 3: Numerical Rating

Numerical Scale	Interpretation
5	Excellent
4	Very Good
3	Good
2	Fair
1	Poor

Table 3 shows the numerical rating used in the questionnaire in order to determine the usefulness of the system. It is rated with five (5) having an excellent rating and one (1) as its lowest rating.

Table 4: Likert Scale

Numerical Scale	Descriptive Meaning
4.51 – 5.00	Excellent
3.51 – 4.50	Very Good
2.51 – 3.50	Good
1.51 – 2.50	Fair
1.00 – 1.50	Poor

The evaluated results were interpreted based on the mean that scores that gathered from the twenty-three (23) evaluators corresponding to parent, students, coordinators and teachers.

RESULTS AND DISCUSSIONS

This chapter presents the result as well as the discussion gathered from the final evaluation.

PROJECT EVALUATION

The evaluation was conducted through the use of survey instrument. Refer to Appendix A

Table 5. Summary of Software Evaluation Overall Mean Scores

INDICATORS	OVERALL MEAN	DESCRIPTIVE MEANING
A. FUNCTIONALITY	4.67	Excellent
B. CONTENT	4.64	Excellent
C. RELIABILITY	4.36	Very Good
D. AVAILABILITY	4.59	Excellent
E. MAINTAINABILITY	4.59	Excellent
F. SALEABILITY	4.65	Excellent
OVERALL MEAN	4.58	Excellent

The overall mean score is 4.58 which is equivalent to excellent. **Functionality** got the highest mean score which is 4.67. This attests that the system is easy to use, to operate and offers convenience and comfort in the end – user. **Saleability** follows next, with a mean score of 4.65, this shows that the system has a good design and catch the student's attention most. On the third place is **Content** with a mean score of 4.64, the presentation and accuracy of content is based on the present lessons given to the students. **Availability and Maintainability and Availability** falls into fourth place having a mean of 4.59, evaluator are looking forward for the completeness of program and a provision of how the system can be maintained without the aid of the developer. **Reliability** falls into last place having an overall mean of 4.36.

SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

This chapter presents the summary of findings, conclusions and recommendations of the study.

Summary of Findings

M.A.V.I.S (My Assistance Virtual Information System) is a supplementary tool in learning and teaching pre-schoolers age 3 – 5 years old. It is divided into three (3) modules, (1) the lessons, where all specified lectures and topics stated by the stakeholders are all included, (2) the videos, the collections of videos which are presently and

often used by the teachers in the pilot area are all included and (3) the games is a familiarization and an activity for the students to practice their thinking skills.

Based on the results of evaluation conducted, the following are the summary of the findings of the study:

- (1) **Functionality.** It is rated excellent because it provides ease of operation, comfort and convenience and it is easy to use.
- (2) **Content.** It was rated excellent because of the accuracy, updateness, and good presentation of content.
- (3) **Reliability.** It was rated very good because it conforms to the desired result, provides security and it is complete based on the given requirements by the stakeholders.
- (4) **Availability.** It was rated excellent because it performs according to specifications.
- (5) **Maintainability.** It was rated excellent because it is easy to maintain.
- (6) **Saleability.** The system was rated excellent because it is uncommon to have a virtual assistance as a supplementary tool in learning and teaching.

Conclusions

In consideration of the objectives of the study and the results of the evaluation, the following conclusion were drawn:

1. That the system meets the need of having a supplementary tool in learning and teaching a pre – schoolers by means of having a virtual assistance. Lessons, Modules, and Games mandated by the stakeholders are all included in the system. Requirements and Specifications are all checked and tested by the end – users and graded 4.58 which result to an Excellent descriptive meaning.
2. That the system based on the evaluation made in the pilot area and to another institutional agency which also caters the same curriculum has passed the capacity of catching student’s attentions and interest in learning.
3. That the system was tested and improved based on the suggestions and recommendations made by the stakeholders.

Recommendations

The following are recommended for further enhancement of the developed system

1. Aside from text file which serves as a database file since the pilot area does not have the capacity to buy yet a license software, M.A.V.I.S should have its own 4GL repository.
2. Improve the administrator sides in adding lessons, videos and quizzes or games.

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MEANS OF INCREASING ATTENTION LEVEL IN PRIMARY EDUCATION

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ABSTRACT

Children's attention is one of the significant factors influencing the process and efficiency of learning. In our research, we dealt with the effectiveness of attention training, which was created in order to improve children's attention control at the primary level of education. Our training program consisted of exercise series, which selected group of nine-year-old children (N = 8) worked on regularly for the period of two weeks. The training effect (performance improvement) was detected using Bourdon test (BoPr) and Mann-Whitney U test (U = 14, critical value = 0,03288, Z-score = -1,83787, p < 0,05). Our results confirm the need of attention training and the importance of dealing with this phenomenon at schools.

Keywords: attention, attention development training programs, younger school age.

INTRODUCTION

According to one of the most important psychologists and philosophers of the nineteenth century, William James (1890), attention is the taking possession of the mind, in clear and vivid form, of one out of what may seem several simultaneously possible objects or trains of thoughts... It implies withdrawal from some things in order to deal effectively with others. Hartl (1994, p. 152) defines attention as: "*focusing and concentrating mental activity on a particular object or action (for example; listening, in contrast to hearing)*". And as he states below, "*attention is based on the orientation reflex, and the probability of choosing the stimuli is attributed to their imaginativeness, unexpectedness, novelty, but also the environment, perceiver's attitude, interest, expectation, and fatigue play an important role.*"

According to Lokša and Lokšová (1999), attention represents a part of a mental activity that enables the selective focus and conscious concentration on certain objects and phenomena. It is an inherent part of perception, thinking and other cognitive processes. Its improvement results in an improvement in any other area of the intrapsychic domain (p. 54). As Chalupa (1970) suggests, attention consists of "*a dynamic, regulatory, controlling and coordinative function that can be characterized by selectivity, concentration and focus in human mental activity*" (p. 82)

Generally, attention can be understood as the orientation ability of an individual and his main precondition to familiarity with the surrounding world, objects, and phenomena. Attention enables the individual to focus on the essential stimuli while ignoring the stimuli that are not subjectively important or essential at the moment. There are stimuli that an individual perceives intensively, stimuli, that are perceived less accurately and finally, stimuli that are not perceived at all, depending on their strength, intensity or significance to the individual. In other words, it reflects our ability to choose from a number of surrounding stimuli those that are important to us at the moment, thus enabling an efficient functioning in the surrounding world. This assumption is relevant whether we move physically, or whether we try to capture the necessary information at school, work, or just while watching our favourite TV series or listening to a radio play - none of these activities would be possible without the underlying role of attention.

ATTENTION DURING THE MIDDLE CHILDHOOD

Attention, as we have already mentioned, is a significant factor influencing the course and effectiveness of learning and cognition in general. "*To be able to master the demands of the school, the attention must imply selectivity, as the individual cannot simultaneously perceive all available stimuli while being able to concentrate intentionally which requires also the involvement of attentive processes related to the autoregulation.*" (Gondeková, 2015).

As noted by Hagen and Hale in their 1976's publication *The development of attention in children*, the ability to determine whether the implication of selective attention is necessary is improving with age. Along with the selectivity, the concentration is also improving in middle-aged children. The ability to concentrate on a specific activity is increasing and at the same time, the sensitivity to distractors is reduced while the ability to differentiate diverse stimuli is improving as well. The child can already focus on a specific activity thanks to its own decisions while being able to perform it for a longer time. However, in the classroom, the instructional activities should vary each 10-15 minutes. In addition, Kostrub (2016) states that teachers often describe learning

situations where repeated errors occur, which may be related to the insufficient attention level in the middle-aged children.

In the middle-aged children, there is a great deal of unintentional attention that arises without any conscious effort. It is fastened with sufficient intensity of the stimulus and its distinctive properties. This type of attention is related to incidental learning. As a child matures, a deliberate type of attention and a deliberate way of learning occurs, under the influence of improved ability of self-regulation, will, and self-control. Moreover, the impulse control rate is increasing, as well as the ability to suppress the inappropriate stimuli and focus on the desirable ones - as the basis of selective attention. *"A higher level of selectivity indicates a low level of unintentional learning combined with a high level of deliberate purposeful learning."* (Hagen, Hale, 1973)

In addition to selectivity, at the end of the period, the ability to suppress automated responses that are considered as irrelevant in the given situation is also enhanced. This ability is an indicator of the existence of executive functions and as they are proportionately improving with increasing age. The development of attention and its functions thus proceeds gradually from the basics of motor control in the early stages of the development, where mainly the form of reactive behaviour is exercised, through the control of impulsivity, related mainly to the emotional maturation; as certain level of this aspect is required when child first enters the school.

During the younger school age, selective attention and concentration, whose development at the end of the period is not yet completed, are improving as well. These are, however, a certain precursor to the continual maturation of executive functions, including the ability of self-regulation. We understand the self-regulation ability in two dimensions. The first concerns mainly the control of emotions and impulses, which is also reflected in the behavioural regulation. It operates mainly at lower levels as the executive functions are not yet fully developed. The latter has a higher function, evolves later and integrates cognitive executive processes such as memory, attention, language, thinking, but also the will, the ability to continually control and correct errors, executive attention functioning, predictions concerning future events, self-control. The second type is termed as the *self-regulation ability*, known as *"effortful control"* in the foreign literature. Rueda, Posner, and Rothbart (2004) formulated a hypothesis by comparing the results of a larger set of studies focused on specific neuronal mechanisms underlying self-regulation, which presupposes a strong link between these behavioural regulation mechanisms and executive attention, resulting in the above-mentioned self-regulation ability.

Rothbart, Ahadi, and Hershey (1994) discuss certain ability of self-regulation (the first type - in our understanding) in 6-7 year olds. Based on their research, they suggest that children at the beginning of a school age with high self-regulation ability also have a high level of empathy, guilt, or shame, along with a lower level of aggression. Eisenberg et al. (1994) found that boys at the beginning of a school age with a good level of attention control were more likely to cope with the anger by using the non-hostile verbal methods than by direct aggressive alternatives. (Eisenberg, Fabes, Nyman, Bernzweig, & Pinulas, 1994). We understand this similarly to Šramová (2007), that the high level of self-regulation of our own behaviour is related to the level of attention control in the positive sense of the word and also indicates a higher level of self-control, control of emotions and empathy. These children are generally better at adapting to the peer group, are among those who are popular and supposed to achieve better results.

RESEARCH, RESEARCH METHODS, AND RESEARCH SAMPLE

The present research aimed to assess a program designed to improve the attention on a specific sample of pupils within the school environment. The program was realized during 5 days for 45 minutes, every day at the same time and consisted of the six types of exercises which were varied every day. To address the training effect, we used Bourdon's BoPr, the psychological test that can be administered to groups of participants (although it can also be administered individually). BoPr belongs to the category of nonverbal performance tests assessing the intentional attention, perceptual accuracy, and psychomotor reactivity. The basic principle of the test is to differentiate (override/underline) the stimuli according to their shape and symbolic similarity over a longer period of time. Participants were administered an "entry" and "exit" BoPr test prior to and after the training.

For the research purposes, we selected eight elementary school pupils of the fourth year. Our main assumption was that the attention after the training would improve, which was later confirmed by the difference between the entry and exit BoPr test scores in all tested participants. The results were statistically verified by Mann-Whitney U test which allows a comparison of two different sample sets (group A and group B) in which normal Gaussian distribution cannot be predicted.

Prior to the realization of the research, we formulated following questions and hypotheses:

1. Participants' performance in the BoPr re-test administered after the training will be higher compared to the performance in the BoPr test administered prior to the training.
2. Participants' error in a BoPr re-test administered after the training will be lower when compared to the error rate in BoPr test run before the training.

RESEARCH RESULTS

Performance appraisal

The numeric values in Table 1 represent the quantity of correctly resolved responses (correctly underlined or crossed squares) of a maximum of 1190 squares, representing 100% for 14 rows. The average pupil's performance from 6.12.2016, shown in the first column, is **428.62**, which represents **34.87%**. The average pupil's performance from 20.12.2016, shown in the third column, is **528.50**, which represents **44.41%**.

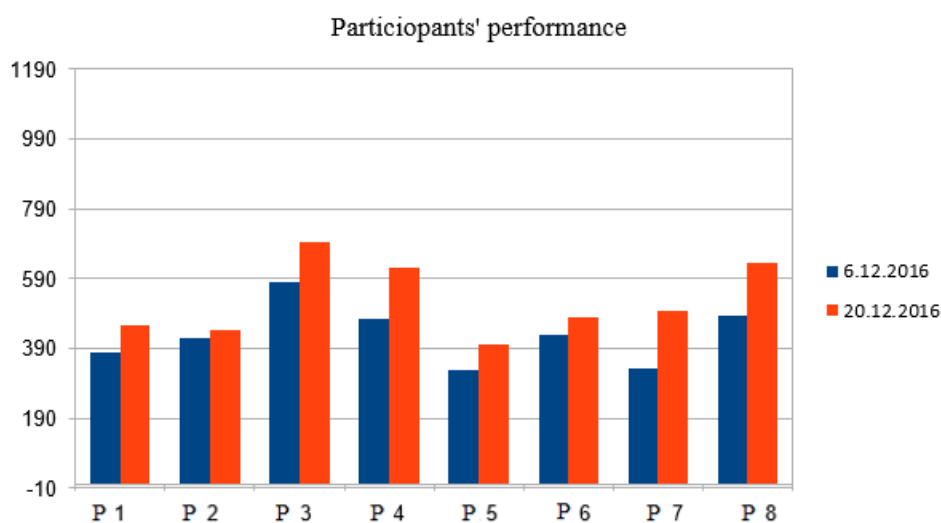
Based on the comparison of numerical values, it is possible to assume that the pupils' performance has increased by the numerical value of **99.88**, which corresponds to **9.54%** improvement. The percentage values concerning pupils' performance are shown in Table 1. In order to provide more detailed results' overview, the graphs with pupils' performance are also displayed below - graph No. 1, and the graphical representation performance and error rate in test and retest can be seen in Graph No.3.

We included the possibility of a test training effect while analysing the data and interpreting the results, but our assumption concerned an improvement in performance at a reduced error rate, which actually occurred.

Comparison of the test results from 6.12.2016 and 20.12.2016 (in percentages).

	6.12.		20.12.	
	Performance	Error rate	Performance	Error rate
Pupil 1	31,85 %	0 %	38,23 %	0,43 %
Pupil 2	35,12 %	0,47 %	37,14 %	0 %
Pupil 3	39,74 %	0,68 %	58,15 %	0 %
Pupil 4	39,75 %	0,83 %	52,35 %	0 %
Pupil 5	27,39 %	0 %	33,78 %	0 %
Pupil 6	36,22 %	0,92 %	40,42 %	0,62 %
Pupil 7	28,15 %	1,47 %	41,85 %	0,99 %
Pupil 8	40,75 %	1,22 %	53,36 %	0,31 %
Pupils average	34,87 %	0,69 %	44,41 %	0,29 %

Table 1: Performance and error rate of individuals (in percentages).

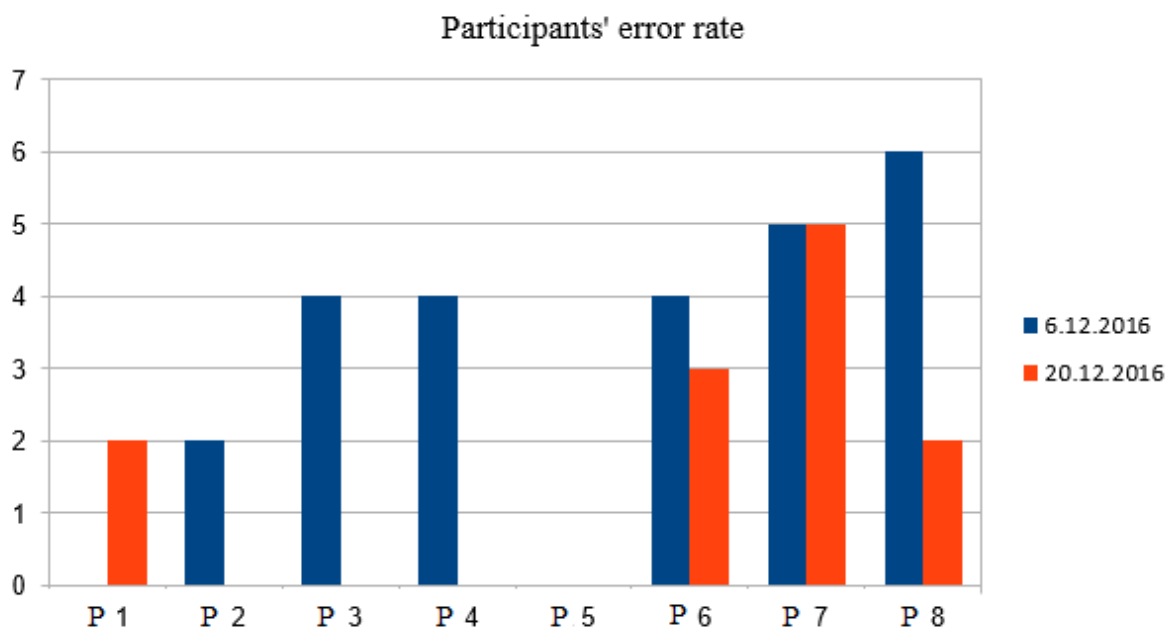


Graph No.1: Individual performance of each participant.

A graphical presentation of participants' performance provides us with an overview of individual pupils' performance level in both tests. The blue bars display the performance in the first test from the 6.12.2016, and the red column represents the performance from the 20. 12. 2016 in the retest. The graphical presentation clearly shows a significant improvement in the performance of all pupils.

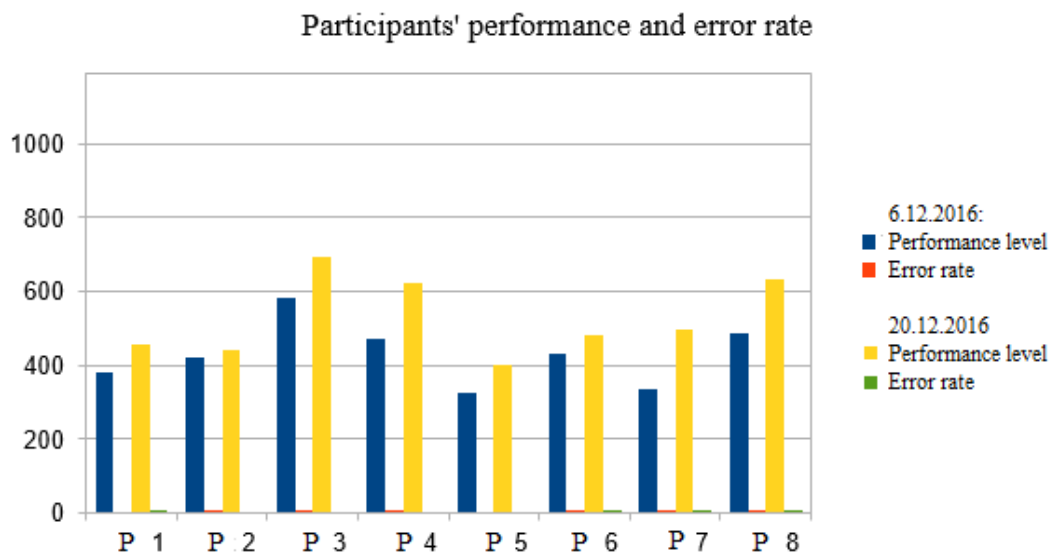
Error assessment

When evaluating errors, we proceeded with their summation and subsequent conversion to percentages, in relation to the total number of answers solved per pupil (both correct and incorrect). The number of errors compared to the number of solved answers is given in the Table No. 1. The error rate (in percentages) is displayed in Table No. 1 and the graphical representation can be seen in Graph No.2.



Graph No. 2: Individual error rate for each participant, respectively.

The average pupil error rate from 6.12.2016 is **3.12**, which is represented by a value **0.69%** and the average pupil error rate from 20.12.2016 is **1.5**, represented by a value **0.29%** after the conversion to percentages. The average error rate, as mentioned above, indicates *individual's ratio of the number of correct responses*, not the total number of squares 1190 as when assessing the performance. The difference between the values corresponds to the improvement in error rate. The difference represents the value **1.62**, which corresponds to **0.4%** improvement.



Graph No.3: Performance level and error rate for each participant on 6.12.2016 a 20.12.2016.

Our assumptions have been verified by a statistical technique for small samples, a Mann-Whitney U test. According to the results of Mann-Whitney U test, the difference between the test and the re-test which corresponds to the value **9.54%** (after averaging) is significant at level $\alpha = 0.05$.

Based on the given results, we can assume the probability that only 5 cases out of 100 would deviate from the result.

The formula used to calculate the significance level is $U = NM \frac{N(N+1)}{2} - \sum_{x_i} Rank(x_i)$

N-number of subjects, M-average (arithmetic), p-significance level

The calculated value $U = 14$, the critical value is 0.03288, the Z-score = -1.83787, $p < 0.05$. Therefore, the result confirms the importance of the attention training and emphasizes the need to address this phenomenon in the school environment. The results demonstrated that the hypotheses were confirmed.

H1: Participants' performance in the BoPr re-test administered after the training on 20.12.2016 will be higher compared to the performance in the BoPr test administered prior to the training on 6.12.2016. As the results demonstrate, the hypothesis was **confirmed**. Participants' performance increased on average by **9.54%**.

H 2: Participants' error rate in a BoPr re-test administered after the training program on 20.12.2016 will be lower when compared to the error rate in BoPr test administered before the training, on 6.12.2016. As the results demonstrate, the hypothesis was **confirmed**. Participants' error rate decreased on average by **0,4%**.

CONCLUSION

As the above-analyzed results suggest, we are aiming to express repeatedly the accentuated need for the experimental study of attention in middle-aged children, as we consider it the main prerequisite for the ability to effectively acquire knowledge, skills or habits.

At the times when the digitalisation of our society is increasing rapidly and moreover, already has left its mark in the school practice, we emphasize the need to improve attention in a non-electronic form, without the effect of a graphic overload. We also believe that the attention-training exercises should become an inherent part of the textbooks in respective subjects, encouraging better memorization and understanding of the learning material. Attention should be exercised continuously during the development of the child in different areas and naturally.

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METHODS AND TECHNIQUES USED BY TURKISH PROSPECTIVE TEACHERS WHILE TEACHING TURKISH WEDDING-THEMED FOLK SONGS IN TFL

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ABSTRACT

Folk songs, reflections of cultures in languages, are considered as one of the facilitating factors of learning a foreign language because they are cultural heritage about happenings, common feelings like love, longing, homesickness, national characters and annals. There are several studies on Turkish as a foreign language (TFL) but no study on the place of wedding concept in Turkish Folk Songs was encountered. Therefore, this study aims at investigating any methods and techniques prospective teachers would use while teaching TFL during Turkish lessons. In order to shed light in this subject, 81 wedding-themed folk songs, each of which represents one city in Turkey are investigated regarding foreign language teaching. The research questions are framed in how prospective teachers apply language teaching methods and techniques for wedding folk songs in teaching TFL and how they utilize language skills and activities during teaching process. The results reveal that prospective teachers are sensitive to choose songs but feel limited to find a variety of methods and techniques since they merely focus on vocabulary teaching via words or idioms in lyrics rather than teaching linguistic patterns including morphological, phonological or syntactic ones).

INTRODUCTION

Tekin (2012) explains “Folk songs are cultural heritage about events happened and results, common feelings like love, longing, homesickness, national characters and annals” (p.306). Even though music is not composed in order to teach any concept, it includes several items to draw attention of people in different manners not only in linguistic patterns but also knowledge regarding the cultural and historical events of the period when they are composed. Hence, music affects people in many aspects such as history, literature, geography etc. In other words, music is a universal language and emboldens each person from different point of view. Therefore, whenever music is integrated in teaching any major, it increases motivation in learning (Eady and Wilson, 2007). To them, music could be utilized as a motivation factor in lessons such as history, science, language and etc. even though songs are not composed as a teaching material, each song includes something to teach not only linguistic patterns but also cultural and historical items reflecting different regional and cultural input. Therefore, it would be easy to consider songs or folk songs in terms of language and culture concepts since they are lingua-cultural juxtapositions. Keskin (2011) emphasizes that songs are both audial and written materials related to both culture and communication skills thanks to developing approaches in foreign language teaching. Additionally, she mentions “Using songs contribute to the development of a lot of language skills from grammar to pronunciation” (p.378). For instance, Michener Reed and Fishoff (2012: cited in Sidekli and Coşkun, 2014) underline the importance of language skills (listening, speaking, reading and writing) and highlights that reading skills could be fastened for learners with deficiency when music is integrated. On the one hand, it increases awareness to reading skills of learners; on the other hand, it stimulates their imagination and interest. Usage of music is a kind of critical thinking and questioning strategies for learners not only motivating them to the topic from different perspective towards events but also to have an insight to linguistic patterns they include. Folk song is defined as song originating among the people of a country or any area, passed by oral tradition from even one singer, from one generation to the next generation often existing in several versions, and marked generally by simple, modal melody and stanzaic, narrative verse (<http://www.dictionary.com/browse/folk-song>). Folk songs are typically about a community of people, and the issues they feel are important to them (<https://www.thoughtco.com/what-is-a-folk-song-1322550>).

Teaching Turkish as a foreign language (TFL) gains importance since there are several learners coming to Turkish universities to continue their education or foreigners being interested in learning Turkish culture and language because of globalization. This situation requires for Turkish institutions to focus on teaching and revise their programs about how teaching should be realized for foreigners learning TFL. In this respect, the attention directly penetrates into educational principles and specific ways to realize teaching. This is why, approaches, methods and techniques gain importance more than ever. No matter various methods and techniques are used in teaching TFL, because of increasing number of foreign learners and different learning strategies, methods and techniques are needed to be investigated and renewed in order to get high performance among learners. Therefore, methods and techniques are continuously reviewed. Hence, materials used in teaching foreign language change and especially culture-based ones become more important as they not only limit it to words and grammar but also introducing linguistic, socio-cultural patterns in an harmony. This is certainly achieve by poems and different cultural texts (Seçkin Polat ve Dilidüzgün, 2015: 815). Poems have been investigated in

TFL; however, there are few studies on folk songs even though they are tools directly informing learners within culture (Keskin, 2011: 378). Transferring cultural richness via folk songs in learning process facilitates a foreign language faster and more permanent since they include proverbs, idioms, phrasal verbs and sayings within a melody, which is easier to remember or recall (Çangal, 2012). In addition, they improve listening skills in phonological way such as intonation, tone and accent.

Folk Songs in Teaching Turkish as a Foreign Language (TFL)

Folk songs and lullabies are probably cornerstones peculiar to each culture since they are signs of universal human features reflected in words including bad and good events such as wars, migrations, catastrophe, birth, enthusiasm, and celebrities (Fidan, 2011; Lomax, 1968). In addition, they are traditional products that develop intimacy since they are important sources transferring cultural changes from region to region within history. Özbek (1981) defines folk songs as reflections of emotions such as love, anger, fear, loneliness, desire, sorrow, passion, and grief, which is likely to realize in daily lives of people. Moreover, folk songs include different depth peculiar to its own style emboldening social habitat and life like emotions, thoughts, and humor (Şentürk and Chordia, 2011: 269). Değirmenci (2006) especially underlines that folksongs composed in Anatolia play a vital role in developing Turkish Folk Music because they reveal self-elements and life experiences in culture via music and language (Jolly, 1975). On the other hand, while folk songs expose learners to target language, they also provide an exploration to that culture, its richness and history in reality (Griffin, 1977); moreover, a lesson based on a song and prepared well can enhance students' indulgence about success, self-confidence, positive attitude to Turkish language and both academic and psychological self-realization (p. 942) at different levels occurring naturally in an entertaining way as they are authentic materials to decrease motivation problems of learners (Nişancı, 2013). In addition, music and lyrics in songs reflect common behaviors, attitudes, and beliefs that facilitate understanding towards that culture, literature, and history (Failoni, 1993: 97). However, considering the short syntactic patterns found in lyrics, it would be fair to state that folk songs are likely be used for B2 level. For instance, Kınık (2011) indicates the lyrics of Turkish folk songs have sincerity even if they are based on jokes and humor so they are very important not only for entertainment but also communication and content on wedding. Therefore, the levels are sensitively taken into account while teaching any target language. In brief, folk songs are the most effective and entertaining tools to learn language and culture, and to create a warm atmosphere in order to remove prejudices (Keskin, 2011). Upon consideration of lyrics based on events or stories, another important issue is their classification necessary to point and one way of classifying Turkish folk songs given by Mustan-Dönmez and Haşhaş (2014) is to sort them by topic as lyrical, satirical, and narrative ones. However, since the aim of the present study is to investigate *Satirical Turkish Folk Songs* that are generally used in wedding ceremonies, circumcision feasts and henna nights, they are taken into account as satirical Turkish Folk Songs used in ceremonies are important because they are both entertaining and informative as they are so natural, ordinary topics like humor or entertainment (Tekin, 2012).

THE STUDY

In order to sort out which methods and techniques Turkish prospective teachers (TPTs) apply for wedding-themed folk songs in teaching TFL; how they utilize language skills/integrated skills; and what activities they prefer in teaching process at B2 level, the research questions are framed as follows:

1. Which methods do Turkish Prospective Teachers apply while teaching TFL through Turkish wedding-themed folk songs?
2. Which techniques do Turkish Prospective Teachers apply while teaching TFL through Turkish wedding-themed folk songs?
3. Which language skills/integrated language skills are preferred by Turkish Prospective Teachers while teaching TFL through Turkish wedding-themed folk songs?
4. Which activities are preferred by Turkish Prospective Teachers while teaching TFL through Turkish wedding-themed folk songs?

In this study, Turkish prospective teachers (TPTs), who take *Teaching Turkish as a Foreign Language II* course (YDI-412) in their fourth grade at the faculty of education in Çukurova University, were given individually the names of the cities (N: 81) in Turkey according to the alphabetical order in their attendance sheet for 3 groups and asked to choose one Turkish Folk Song on wedding concept related to each city they were assigned for preparing lesson plans for two-week-period. The aim was to prevent overlapping of cities and to include all the cities in Turkey for this present study because TPTs come from different regions in Turkey. All assignments were collected by the researcher to do analysis in terms of methods, techniques, language skills, and activities based on wedding-themed folk songs in teaching TFL at B2 level.

This study is limited to only one wedding-themed folk song in each city in Turkey. Regional and thematic differences of folk songs are out of focus.

In this study, Turkish folk songs on wedding concept were chosen randomly and their lyrics were tape scripted by TPTs to focus on wedding concept in order to shed light on this issue. Totally 69 folk songs out of 81 were accepted as they directly contained within wedding concept for valid and reliable analysis. The other reason was that until 1990s the number of the cities in Turkey was about 67 and the following years this number is increased regarding globalization in the world. In this respect, since folk songs dates back old ages as well, it is considered that the number of the folk songs for each city seems reasonable as also presented regarding the years the change happened in Turkish cities in the table below:

Table 1 Number of Cities Added According to the Years (TFL)

Years	N
1927	63
1945	63
1960	67
1980	67
1990	73
2000	81
2009	81
2012	81

Resource: TÜİK- General Directorate of Provincial Administration
(<http://www.arem.gov.tr/turkiyede-il-ve-ilce-sayilarinda-degisim>)

Upon this information, methods, techniques, language skills and activities TPTs applied on wedding while teaching Turkish folk songs in TFL were analyzed and presented in the tables below.

FINDINGS

In this study, 69 folk songs determined so as to find answers to the research questions which methods TPTs applied while teaching TFL (Table 1); which techniques TPTs applied while teaching TFL (Table 2); what language skills they preferred (Table 3) and what activities they preferred (Table 4) are analyzed and presented in the following tables.

Table 2 Methods Applied by TPTs in Teaching Turkish as a Foreign Language (TFL)

Methods	F	%
Drama	40	23
Presentation	26	15
Practice/Drill	24	14
Discussion	16	9
Audio-Visual	15	9
Explaining Values/Comparing inter/intracultures	11	6
Observation	10	6
Expression	7	4
Immersive	6	3
Inquiry	6	3
Discovery	4	2
Audio-Lingual	2	1
Feedback	2	1
Project-Based	2	1
Teach-Back	2	1
Deductive+Inductive	1	0,5
Eclectic	1	0,5
Total	175	100

As observed in Table 2, most of the TPTs preferred using drama (23%) while teaching Turkish language and the next methods used are presentation (15%) and practice/drill (14%). Discussion and audio-visual methods are given equally importance (9%) the same as in ratio of explaining values and comparison between/among cultures (6%), especially in multi-national classes. Even though discussion and expression methods seem similar to each other, TPTs use expression methods less (4%) than discussion (9%). Immersive and inquiry also take part as used methods (3%) by TPTs while teaching TFL. The analyses about the least used methods appear to be discovery (2%), audio-lingual, feedback, Project-based, teach-back (1%), diductive and inductive and eclectic (0,5%).

Table 3. Techniques Applied by TPTs in Teaching TFL

Techniques	F	%
Brain storming	16	36
Visuals/realia (illustration)	10	23
Presentation	7	16
Question-answer	4	9
Technology	3	7
Concept map	2	5
Mind map	1	2
Total	44	100

Table 3 gives information which techniques TPTs used while teaching TFL. As seen in the results, the most used techniques are brain storming (36%), illustration (23%), and presentation (16%) where as the other techniques are given less attention. For instance, question-answer appears as (9%), technology is (7%), and concept map is (5%). The least utilized technique is mind map (2%).

Table 4. Language Skills and Integrated Language Skills Used by TPTs in Teaching TFL

	Language skills		Integrated language skills		
	F	%	F	%	
Listening	46	31	L*+S*	11	20
Writing	33	22	L+W*	8	15
Speaking	28	19	L+R*	4	7
Reading	22	15	L+W+S	8	15
Vocabulary	31	21	L+R+S	7	13
Grammar	18	12	L+W+R	4	7
			L+W+S+R	13	24
Total	148	100	Total	55	100

L*-Listening; W*-Writing; S*-Speaking; R*-Reading

As seen in Table 4, the most used language skill (31%) is listening since folk songs are taught much more easily in listening activities. The following skill is writing (22%) as TPTs used listening activities such as filling in the blanks and matching etc. the ratio for vocabulary teaching seems to be 21% when compared to speaking (19%) since in communication it should be the words to convey the messages more functionally. Upon consideration of the results in the table above, it is observed that reading skills (15%) and grammar (12%) are the least parts when the wedding-themed folk songs are used in teaching TFL process. TPTs also used integrated language skills including two skills in activities such as listening and speaking (20%), listening and writing (15%), listening and reading (7%), or three skills together such as listening, writing, and speaking (15%), listening, reading, and speaking (13%), listening, writing, and reading (7%) whereas TPTs use all the language skills (24%) in teaching the wedding-themed folk songs at the activities.

Table 5 Activities Used by TPTs in Teaching TFL

Activities	F	%
Fill in the blanks	24	21
Singing the song together aloud	17	15
Write a story	15	13
Matching the words with their meanings	13	11
Finding language patterns	10	9
Following the lyrics aloud individually by lines	6	5
Guessing the meaning of the words/idioms	5	4
Teaching the song within a text/story	4	3
Unscrambling the lyrics	3	3
Write a Dialogue	2	2
Preparing card/poster about the song	2	2
Asking questions	2	2
Teaching vocabulary by technology	2	2
Using context map	2	2
Singing folk song individually	2	2
Memorizing the folk song	2	2
Composing a new folk song	1	1

Make a Video	1	1
True/False	1	1
Completing the statements	1	1
Note taking while listening	1	1
Changing the words in lyrics before listening and finding the correct versions during listening	1	1
Matching the idioms with their meanings	1	1
Total	117	100

Table 5 gives information about which activities are applied by TPTs during the teaching process of wedding-themed folk songs. According to the results, activities about filling in the blanks appears as the mostly used one (21%). Later singing the song together aloud (15%) and writing story about the folk song (13%) takes part as the most applied activity. Matching about the words or idioms with their meanings/synonyms (11%) is the other activity preferred by TPTs. Finding linguistic patterns is also observed to be given space in the exercises (9%), that facilitate to learn and communicate. Following the lyrics aloud individually by lines (5%), and guessing the meaning (4%), teaching the song within a text/story (3%) and unscrambling the lyrics (3%) are given almost equally importance by three times in using as activities. The TPTs use the techniques of writing a dialogue, preparing card/poster about the song, asking questions, teaching vocabulary by technology, using context map, singing folk song individually, memorizing the folk song only twice (2%) whereas they used the least ones as composing a new folk song, making a video, preparing true/false, completing the statements, note taking while listening, changing the words in lyrics before listening and finding the correct versions during listening, and the last one as matching the idioms with their meanings (1%).

CONCLUSIONS

The purpose of this study was to find an answer to four research questions regarding teaching Turkish through the wedding-themed folk songs and the methods, techniques, language skills, and language activities the TPTs applied on wedding concept they used during their teaching process at B2 level.

As for the first question which was related to methods used for the wedding-themed folk songs in Turkish lessons by the TPTs, it was figured that the most frequently used ones were drama, presentation, practice/drill, discussion and audio-visual methods since folk songs include cultural hints such as costumes, traditions, dances, emotions etc. Even though folk songs may draw too much attention of foreign learners, the results indicate that TPTs did not put into various methods (i.e., inquiry, task-based or project-based methods) to motivate learners and surprisingly enough eclectic method seems to be the least used one. Upon consideration to eclectic method, it is the language instructors who underline dramatically to use the most functional parts of different methods and make learning permanent.

Regarding the second question related to techniques used by TPTs, it may be said that brain storming, visuals/realia (illustration), and presentation techniques were given much more importance than the others since folk songs include cultural richness that is hard to comprehend for learners coming from different cultural and educational background. Especially vocabulary teaching through lyrics requires brain storming in addition to use visuals/realia to let learners realize what they refer to. For instance, *kına yakmak* literally means to burn henna; however, it means temporary tattooing based on dyes used since antiquity to dye palm and fingernails during henna ceremony, the eve of wedding. Upon consideration of the results, mind map technique doesnot take a vital role in the techniques the TPTs used during teaching process. Nevertheless, this technique is very important to make a combination of words of the lyrics when the idioms and cliches in the folk songs.

For the third question based on language skills/integrated skills the TPTs preferred while teaching TFL through Turkish wedding-themed folk songs, it was observed that naturally listening skills are of the first priority compared to other skills. This outcome is rather natural since folk dances are utilized during listening process. Writing takes part the second important place to be used in activities since learners show their productive skills either in writing or speaking. Then, speaking and reading are observed as used skills in the activities. The results indicate that TPTs get benefit from all the skills without ignoring any of them. In brief, it would be fair to say, TPTs pay importance to all language skills whether isolated or integrated with one more skill such as speaking, writing, or reading; with two more skills (e.g., writing and speaking; reading and speaking; and writing and reading; with all language skills of listening, speaking, reading, and writing at the highest level, proving TPTs are aware of importance of skills to motivate learners individually.

The results of the last question, regarding activities preferred by TPs while teaching TFL through Turkish folk songs, reveal that TPTs use several and various activities such as filling in the blanks, singing the song aloud, writing a story with impression of the song, matching the words/idioms with their meanings, recognizing linguistic patterns, guessing meanings, unscrambling lines of lyrics, using context map, writing a dialogue, singing folk song individually or memorizing it, composing a new folk song, making a video, note taking while

listening, finding the correct version of words changed deliberately etc. These activities are apparently useful and creative while producing a target language.

The results of this study indicate that TPTs have a certain insight about using methods and techniques, and language skills and activities while teaching TFL at B2 level. Even though drama method is used more frequently while teaching wedding-themed folk songs, it is also expected that TPTs also use less popular methods or techniques such as task-based or project-based ones/postcards or posters. Any approach to be used in cultural inputs may develop critical thinking for foreign learners when they are exposed to cultural hints like folk songs. The results of this study prove that TPTs could use a variety of activities balanced in both cultural and linguistic sides since any folk song reflecting cultural richness and syntactical, phonological and morphological patterns in teaching TFL as well as individual differences and strategies of foreign learners while learning target languages. In order to shed light more than for this issue, it is recommended that the words related to wedding concept and stories about it should be investigated to gather all picture hidden within melodies and lyrics.

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MICROLEARNING: A PEDAGOGICAL APPROACH FOR TECHNOLOGY INTEGRATION

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ABSTRACT

Microlearning refers to a learning strategy designed using a series of short learning content and short activities that makes a mini course. This paper discusses the main three elements in creating an effective microlearning environment, which are: content pedagogy, and technology. It explores the knowledge of how carefully-selected content can be a successful element in microlearning. It also discusses the characteristics and the design of a micro contend, and finally explores the most common technologies used nowadays for microlearning.

Keywords: microlearning, online learning, instructional technology

INTRODUCTION

Microlearning refers to a learning strategy designed using a series of short learning content and short activities that makes a mini course. It is also called bite-sized learning because it utilizes small, well planned, bite-sized chunks of units or activities (Hug, 2005). It is designed to suit the limits of the human brain with respect to its attention span and avoid cognitive overload. Although the concept of micro teaching existed for a long time, the term microlearning has not been used until a decade and a half ago (Hierdeis, 2007) and research that support the integrating technology to create microlearning environments is still growing in the field of higher education.

According to Hug (2006), there are seven dimensions of microlearning: time, content, curriculum, form, process, meadiality, and learning type. They describe mainly the design aspect of microlearning. Although the design aspect is very important, but they lack the pedagogy and technology aspects, which are key elements to an effective microlearning design. This paper argues that the main three elements in creating an effective microlearning environments are content pedagogy, and technology as shown in Figure 1.

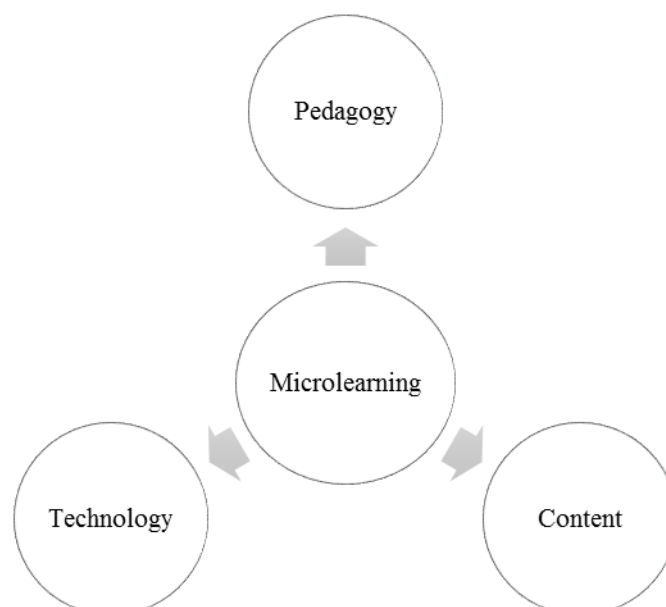


Figure 1. Microlearning model

Research conducted to investigate the opportunities of integrating technology to create microlearning environments is still at its infancy, and it focuses heavily on corporate training and adult learning. Research on higher education is very limited though. In higher education for example, a study by Liu, Z., Wei, L., Gao, X. (2016) found that 80% of college students took active part in teaching activities. They stated “it promotes multi-dimension interaction and increases deep-levelled cooperation and understanding” (p.870). The researchers also found that microlearning environments inspired and improved the learning environment itself and students’ interest in learning. Zhamanov (2013), started to implement microlearning technique in their university course and also received positive feedback from students. Students expresses higher level of interests to learn the subject matter, and the amount of materials learned has increased compared to previous years.

Results from a study by Bruck, P. A., Motiwalla, L., & Foerster, F. (2012) with a university level course and two governmental training courses showed that learners had good satisfaction levels and high usage levels for the course materials. Similar results by Aitchanov, et. al. (2013), who examined the use of Twitter, a social media technology, in a microlearning technique for educational purposes. They collected data from college students enrolled in Advanced Programming in C++ course, and found that the majority of them enjoyed learning the course materials when it was delivered in small chunks using Twitter. However, Students suggested that they would like the number of tweets to be increased, and to implement this technique to learn other spheres. Kovachev, D., Cao, Y., Klamma, R., & Jarke, M. (2011) explored bilingual vocabulary learning, and they found “promising results in enhanced flexibility in personal learning content creation and increased efficiency in filling knowledge gaps” (p. 51).

Wang (2017), investigated the effect of delivering the Engineering Mechanic Experiment content in short sequenced videos. As a result, the author reported that “the engineering mechanics experiment grade of undergraduate has improved significantly, the service efficiency of mechanical equipment and degree of familiarity has improved sharply” (p. 130). The design of those short videos, however, resulted to limited student-student and student-instructor interaction. Interaction with the digital content in this case is the highest.

In terms of evaluations, Giurgiu (2017) assessed whether students respond better to evaluation questions when they watch small segments of content followed by a number of evaluations, or when they watch large amounts of content with fewer evaluations. Findings suggest that smaller chunks of content helped students to better retain information and better perform in end-of-course test. Students who learned through microlearning technique took 28% less time to answer their evaluations and did 20% better, took three times less to cover the course materials compared to students who did not. This suggests that trying to learn large content at once result to little interaction with content.

CONTENT

The first element in creating a microlearning environment is content. It is necessary to identify areas in curriculum where technology integration is appropriate for microlearning units and activities. For example, introducing the concept of regression analysis in a statistics lesson. Students can learn the concept by a microlearning technique, then apply that knowledge in the classroom. In order to choose appropriate content for microlearning, the following questions should be considered:

- What do I want my students to know and understand in order to move forward?
- What is worth my students’ time outside of classroom?
- What are the most common mistakes students do that affect their learning and their grades?
- What topics do I think that can be broken down into small pieces?
- What are the 3 or 4 most important things I want my students to learn?

These are just some example questions to ask for choosing appropriate content. Once content is identified, it is essential to think about the pedagogical model to use and the design of the microlearning environment.

Moore & Kearsley (1996) emphasized the importance of learner interaction with content in online learning environments. A recent study by Alqurashi (2017), explored the relationship between four predictor variables (online learning self-efficacy, learner-content interaction, learner-instructor interaction, and learner-learner interaction) and student satisfaction and perceived learning. Results indicates that all four predictor variables together significantly predict student satisfaction and perceived learning.

Learner interaction with the content in an online learning environment was the strongest and most significant predictor of student satisfaction, where self-efficacy was the strongest and most significant predictor of perceived learning. This suggests that developing and enhancing learner interaction with content as well as boosting student's confidence in their capabilities to learn the content in a digital environment should be main focus of instructors.

PEDAGOGY

Baumgartner (2013) discusses the theory behind microlearning and proposes a model of a competence spiral to scaffold students' learning. In the first phase called Learning I, students absorb knowledge; this knowledge is basic and has no meaning yet (relates to behaviorism), In the second phase called Learning II, students acquire knowledge. Students in this phase interact with artificial environments and make their own experiences. Learning here in active with meaningful feedback is provided by the instructor (relates to cognitivism). In the third phase called Learning III, knowledge is constructed where instructors and students work together to master the course materials (relates to constructivism). In Learning I+, students proceed to higher level with more advanced concepts. Based on the Baumgartner's model, Göschlberger (2016) proposed a social microlearning platform designed for all four phases. In Learning I, students create and share microlearning content. In Learning II, students evaluate, rate and improve the microlearning content. In Learning III, students are able to tag and collect content items. Learning I+, students interact with the microlearning content and solve low stakes quizzes, which they can take repeatedly to help them learn the materials.

Microlearning can be implemented as a flipped classroom. This means that learners can complete microlearning activities before class time, which can be the first and the second phase in Baumgartner's model; class time can be used to apply knowledge, discuss ideas, and master the concepts. This can be the third and fourth phase in Baumgartner's model. Microlearning can also be implemented as a supplement to classroom instruction. Learners can be asked to complete microlearning modules, units and activities after class time to solidify concepts. This can be done for both traditional and online classes.

Another important element to consider when using the microlearning technique is what are the characteristics for designing and creating an effective digital-based microlearning environments. First, learning in small units. Learning content is created in digital format (e.g. short videos, podcast, animation). Each short segment of content takes the learner about 2-4 mins to complete. Those segments can be followed by short check-for-understanding or low-stakes quizzes. Second, length. The total amount to complete all segment of content in a microlearning environment does not take more than 15 to 20 min for learners to complete at a time. By doing this, it makes us think about what are the must-to-know information, and what are the ok-to-eliminate information. Third, a single learning outcome. By breaking down your large topic into smaller units, the microlearning segments should focus on just one specific learning outcome. What is the one desired result that you want your students to achieve after being in the microlearning environments.

If students were introduced to a well-designed microlearning environment, this can help enhance student's confidence in their capabilities to learn the content in a digital environment (i.e. high self-efficacy). Alqurashi (2016, 2017) argues that self-efficacy in learning online is very critical to students' learning. However, there is a need for research to be done in higher education. The focus of research in the past was mainly on technology self-efficacy (Alqurashi, 2016). Although technology skills are important, it is important to consider how new generations of learners have changed in terms of their fluency with technology.

TECHNOLOGY

Technology plays an important role in microlearning. It can be used to engage students outside of classroom if implemented well. The challenge with technology is that it is a fast-growing industry, sometimes it is hard for instructors to keep up along with all other teaching and non-teaching responsibilities. Knowledge of technology was often recorded to be the lowest compared to instructors' self-reported knowledge of content and pedagogy (Alqurashi, Gokbel, & Carbonara, 2016). Although, there is a technology challenge that comes with microlearning, the potential of it looks very promising.

In a microlearning, it is important to think about appropriate choice of technology to design based on microlearning characteristics. The most common microlearning tools used today include Coursmos, Grovo, Panopto.

Coursmos (Coursmos, 2017). It is an online platform that allow the creation of micro course used to create mini lessons, followed by quizzes. The micro course can include seven micro lessons, up to 5 minutes long each as shown in Figure 2. Coursmos has an intelligent and personalized course recommendation system, which recommends other courses created by other instructors to watch that are related to their course content. It connects micro courses form a knowledge cloud, and allow to share the micro course on any social media or website. It is a quick learning tool that allow students to complete micro lessons using their mobile devices, and it allows instructors to track students' attendance and learning progress.

MIT 6.00.3 Introduction to Computer Science and Programming.

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18 min 0/7

- Lesson 1: The syntax (2 min)
- Lesson 2: Programming language (2 min)
- Lesson 3: Bad results of running program (5 min)
- Lesson 4: Avoiding problems with Python (5 min)

Lesson 1: The syntax

Start course

About Comments

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Figure 2. Example of a Coursmos micro course

Grovo (Grovo, 2017). It is online microlearning platform as shown in Figure 3. In Grovo, mini lessons are typically up to 90 seconds long, which allows learners to quickly complete a mini course assigned to them. Each lesson combines video, gifs, quizzes, and other engaging activities to keep learners on task. The platform can be integrated into different learning management systems for easy access, and include ready-made templates to create micro content. Instructors can monitor students' progress, identify at-risk students. This can be presented with graphs to view learning analytics.

Grovo can help you Microlearning Platform Content Resources LEARN MORE

What does inclusion mean?
Inclusive Practices for Every Manager

Lesson 1 of 5

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Figure 3. Example of a Grovo micro course

Panopto (Panopto, 2017). It is a video content management system that provides lecture recording, screencasting and video streaming to create microlearning environment as shown in Figure 4. It allows the integration of the system in learning management systems for instructors and students. Panopto system allows instructor to transcript their videos with a click to make accessible, and allows for creating interactive video quizzing. It also provides instructors with detailed reporting of student progress and performance, and identify where students are spending the majority of their time reviewing.

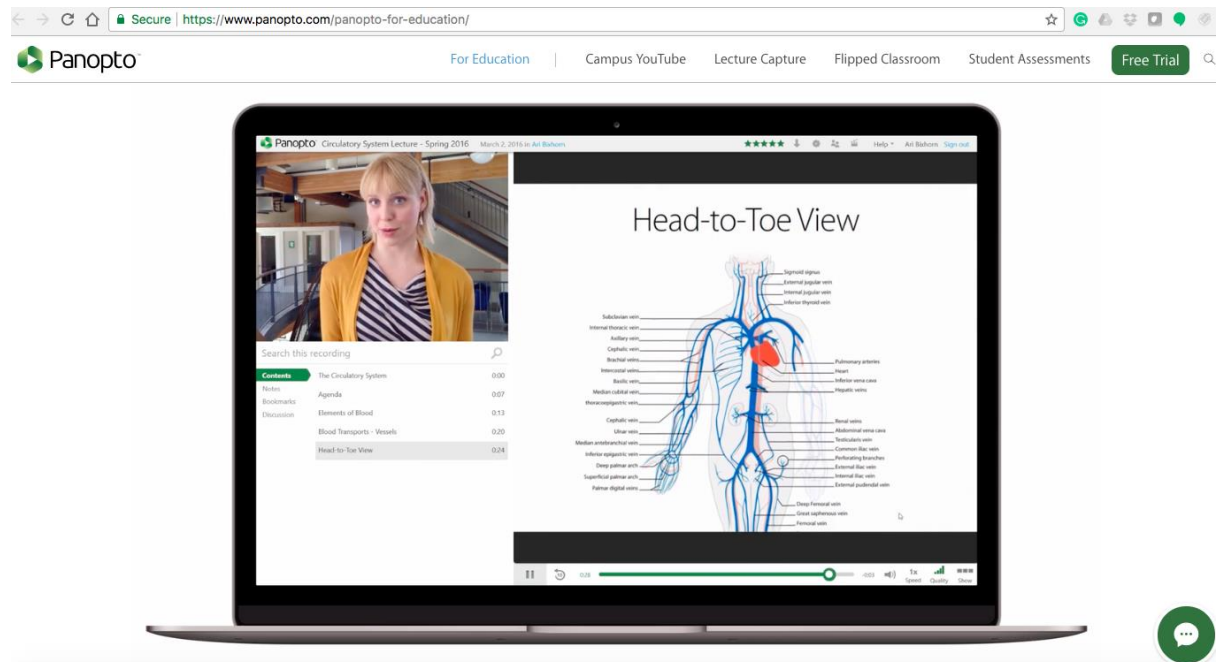


Figure 4. Example of a Panopto micro course

Many of the technologies used in the classroom nowadays are mobile friendly, as more and more students have access to mobile devices and use them to access course content. For this reason, digital microlearning environments should be mobile friendly, to allow learners to complete learning activities on the go whenever they feel like it. The integration of mobile devices to create microlearning environments was discussed by Hug (2010). He emphasized on the importance of mobile devices because many reasons: (1) content displayed on mobile devices is usually a microcontent, (2) attention span and time periods are relatively short when presented on mobile devices, (3) a screen size in a mobile device is smaller than other devices, (4) mobile devices allow the design of micro-steps in formal and informal learning environments, (5) mobile devices allow the microlearning environment to be mobile, physical and social, and (6) finally mobile devices are often associated with microplatforms.

CONCLUSION

The microlearning model ensures that students are engaged in the online content outside of classroom, more research is needed to understand if it leads to higher levels of perceived learning as well as satisfaction. It does help usually distracted individuals to learn in short focused micro content. Instructors must also focus on the learning experience in the big picture when implementing microlearning. The application and the construction of knowledge that occur in class after students complete their microlearning content outside of class. By including all elements of microlearning (i.e. content, pedagogy, and technology), it can increase student engagement, enhance student satisfaction, and positively impact the learning experience.

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MICROSCOPE MAKING STEM WORKSHOP - VIEWS OF TEACHERS AND SCIENCE CENTER EXPLAINERS

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The purpose of this research is to investigate the views of teachers and science center explainers about a microscope making STEM workshop developed within the scope of TÜBİTAK-BİLMER Project (114K646). Participants were introduced to various microscopes from the history of science, and then they were asked to design microscopes with two sets of materials. Participants made observations on readymade preparations and one-celled living organisms. The field notes, reflection cards, video and audio recordings data were qualitatively analyzed. Results revealed that explainers and teachers thought the workshop would develop students' critical thinking skills and creativity, and contribute to the understanding of the science.

M-LEARNING AND ENGLISH AS AN ADDITIONAL LANGUAGE: A SUCCESSFUL EXPERIENCE IN PRIMARY EDUCATION

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ABSTRACT

This paper is a report of the findings of a study conducted on some primary schools in Spain. The study focused on the use of mobile devices in the learning of English as an additional language. Smart phones and tablets were used to edit pictures and record films in the English in classrooms. The study's main objective was to foster m-learning in order to promote the learning of English. The findings showed the primary students' positive perception about the use of mobile devices and proved that these resources have highly influenced students' motivation towards the arranged activities. All these factors, have also had an enormous impact on the improvement of students' communicative, technological and artistic competences. Therefore, it could be said that the proposal studied is an innovative and cross-curricular one that combines technology, language and art.

INTRODUCTION

Nowadays, the context for learning additional languages is very complex and teachers have to integrate all the necessary cognitive and emotional elements effectively and successfully, including motivation. For this reason, the introduction of new technologies in the classroom, besides appropriate materials and pedagogies adapted to the students' needs, will help achieve the complex goal of teaching languages nowadays (Levy, 2012).

Bearing in mind that teaching is communicating, it could be said that both share common aspects related to cognitive processes: the use and transmission of information, similar techniques and methods and resources (Martínez-Salanova, 2016). Communication is fundamental to understand information, for this reason, as Alsina, Cañabate y de la Creu (2013) explain, the communicative competence is a key competence to learn at school and it should be considered in any educative proposal. These authors also believe that human communication is nourished mainly by verbal language but also by body language, music and visual elements.

The importance of oral skill teaching throughout history and its evolution is introduced in this paper. This skill became important in the XXth century and it was in the 80s with the Communicative Approaches, that the oral skills element became fundamental. Nowadays, the importance of oracy is recognized everywhere, however, its teaching is extremely complex because affective factors such as motivation or anxiety occur. Generally speaking, most teachers think that, organizing oral activities in the classrooms is quite complicated.

Mobile phones have evolved from technological objects to cultural devices. Society, in general, has appropriated these objects which own many more functions than the communicative one, as López & Gómez (2016) state. These authors, in line with Gardner & Davis (2014) suggest that the birth of mobile devices has meant a social change with multiple implications and changes in every social scope. Education is one of the fields in which the use of mobile devices has represented a revolution. Learning through these devices is known as m-learning.

It can be said that m-learning is oriented towards collaborative, flexible, spontaneous and informal learning and is based on problem-solving tasks. These characteristics favour its use in education. Cantillo, Roura y Sánchez, (2012) explained that mobile technology has drawn a new educational context contributing aspects such as connectivity, ubiquity and permanence.

This paper describes the characteristics and findings of the project: Films & Photographs: An M-learning Experience in Primary Education and presents the students' opinions and evaluation of the project. It also introduces a reflection on the inclusion of mobile technologies in education with the aim of improving communication and finally, this paper considers the essential role of school as a mediator and facilitator of the development of students' technological competence in a creative, critical and safe way.

THE STUDY

The research developed on this project was carried out with 11 and 12 year old children and aimed to contribute to spread m-learning in the field of additional languages teaching. The project in itself constitutes an innovative, educational m-learning experience with the objective of improving oral communication in English as an additional language. The methodological design combines quantitative and qualitative techniques and tools to collect information and perform the analysis in order to know students' motivation towards learning and students' perception towards the improvement of learning.

The most important objective of the research was to analyze students' perception on their own learning and improvement and their feelings in terms of motivation; knowing the teachers' opinions on the project was very important, too.

The sample of students was made up of 101 students belonging to two different schools. 38.1% were boys and 61.9% were girls. Their four teachers also took part in the research. The tools used were questionnaires for the students and interviews for the teachers.

The students' questionnaires were on-line and carried out in the computer classroom where the students could answer freely. The school heads and the families were made aware of the confidentiality notice and anonymity of the data obtained and how this data could be disseminated in the research framework. The teachers' opinions were gathered through interviews.

In order to analyze the data two different tools were used. The quantitative data was analyzed through the statistics program 21 version and the qualitative data was analyzed through descriptive techniques.

FINDINGS

Students' opinions. The findings related to the communicative competence in English as an additional language showed that most of the students found m-learning helped them to improve their oral communication and comprehension. Students also considered the project's activities, recording and editing videos with smart phones and tablets to be the most effective and motivating tasks.

In terms of technological competence, the data showed that students had known and started to use new apps during the project, "Viva Video" being their favourite app.

Regarding motivation, the results obtained revealed that the use of mobile devices in the English classroom was entertaining and fun for the students and for this reason, their use was considered motivating.

Teachers' opinions. The findings regarding the teachers' opinions were related to communicative competence, technological competence, artistic competence, motivation and teachers' cooperation. Teachers thought that the project's activities had enhanced students' communicative competence in English as an additional language.

"Video recording has been a fun activity for the children who have made a great effort to improve their pronunciation." T1.

"The students have involved themselves in the tasks. For this reason, they have been watching videos in English to decide what they wanted to do, improve their comprehension and their oral production when recording the video". T3

Regarding the technological competence, all the teachers agreed with the idea that m-learning provided many advantages because students were used to them and they knew how these devices worked perfectly.

Thanks to mobile devices, access to resources and information is very quick and tasks turned out to be suitable and possible. Immediacy is another characteristic of these devices which are able to record audio, video etc. However, some of the teachers involved in the research, thought that m-learning also presented technological compatibility problems or internet access failures.

T4 thought that the use of m-learning devices at school could lead to serious problems if the devices were used improperly. For example, when students recorded and distributed images at school which were private and should not be shown without permission.

With this in mind, T1 considered that the first thing that teachers should do is warn students about the problems that inappropriate use of mobile technology could produce. Students should be well informed and a contract with them about the use of the mobile devices should be signed. With a contract, students implicate themselves to the

proper use of mobile phones and tablets. Generally speaking, the teachers interviewed thought that this experience had been a good opportunity for them and for the students to deepen their knowledge in the ICT.

In terms of artistic competence, T4 thought that the activities within the project had helped to develop the students' artistic skills. The final projects were presented in the classroom and students felt very proud of showing their photographs and films to their classmates and teachers. For this reason, they made a big effort to design them artistically. T1 considered that these activities developed students' creativity and imagination, promoting their artistic competence at the same time. Students designed their productions, including the settings and the plots. Finally, they chose the best mobile app to record and edit their works.

Regarding teacher cooperation, all the teachers agreed that the experience had provided an excellent opportunity to cooperate and exchange opinions, facilitating a fluent and effective communication flow among them.

From a teacher training point of view, T3 explained that he did not have previous m-learning knowledge before starting the project but affirmed that mastering new technologies was fundamental for his training. T4 shared the same opinion as T3.

Motivation was another criteria analysed throughout the teachers' interviews. They all agreed that the project design and implementation had been very motivating for the teachers. T2 said that the project had allowed him to experiment with a new resource and besides, the teachers thought that the students had also felt very motivated.

DISCUSSION

The project: Films & Photographs: An M-learning Experience in Primary Education obtained excellent results because all the people involved valued positively the communicative linguistic learnings and the technological learnings (use of mobile devices and apps).

It also allowed the artistic techniques integration with photography and video production using mobile devices. Students produced a lot of photographs and videos that were shown in the classroom

The edited photographs with different mobile applications were used as a resource to develop oral activities: description, narration, expression of likes and dislikes and feelings. In order to record the videos, the students had to carry out previous linguistic activities such as writing the scripts with dialogues or descriptive texts. Although performing these linguistic activities in a second language can be difficult for the students, they made a great effort to finish them successfully. Another important aspect that should be born in mind is artistic freedom - they had to design and develop their artistic tasks. The use of these resources and the project characteristics had a positive influence on students and teachers' motivation, which is of great importance in the teaching and learning process.

The importance of the intercultural competence which is always linked to additional language teaching should not be forgotten and in this case, was facilitated by the access to mobile resources and freedom of topics.

Cooperation has been another important aspect developed in the project. On the one hand, teachers' cooperative work has been remarkable and teachers' involvement has been very high. They all thought the project was very satisfying and motivating. On the other hand, teachers thought that students had improved their problem-solving capacities, the acceptance of different opinions and making decisions. From the students' point of view, the project was a rich and rewarding experience which helped them to work collaboratively. The methodology used in the project responded to an Action-Oriented Approach that used Project-Based Learning as a teaching and learning tool.

A similar project was carried out at the Teacher Training and Education Faculty in the University of Oviedo, Spain. The results obtained coincided with the primary project results, presented here.

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MOBILE DEVICES CHANGE THE WAY OF TAUGHT, LEARNED AND PRACTICED

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ABSTRACT

This article discusses the mobile technology is changing the way of teaching, learning and practice. Researchers have used a narrative review of literature to describe the current state of both art and science in the focus of research. Smartphones and tablets have become the new cultural norm in personal and professional life. Mainly tablets are used to improve teaching, learning and practice of medicine. Researchers have used a literary narrative research to build the foundation of scientific knowledge. Researchers have collected all the important points in the discussion, and put them in here with reference to the specific areas in which this paper was originally based. The results showed that some European medical schools recognize the value of tablet computers and learning in loans or give as a gift to the students. Six of the eight members accounted for consideration, which reflects the many uses we all realized in universities, libraries, hospitals, anywhere. Every new technology offers the potential to transform the educational environment and disrupt the status quo in the classroom. On the one hand, technology has been observed to promote student-centered learning, which theorists and policy support for the development of preschool education in didactic teaching style again. Technology to promote student learning through collaboration and challenges, verification task various disciplines by providing a real environment complex for student questions, provide information and tools to assist in the investigation, and connect classes for joint research and development based on the vision to build a scenario for learning space Futurelab.

Keywords: Mobile Devices, Web Tools, Mobile Technology

INTRODUCTION

As students use the tablets to learn and seek information, it is clear that this will affect the future of libraries too. What can store medical libraries in the age of mobile devices as a new cultural norm? Some reactions or actions to support tablet loans, backup applications, content licensing, or train students to make the best of this device. Some medical libraries have developed their own applications (Bjergfelt, 2016) or write eBooks (Toro-Troconis, 2016), some - with the help of faculty participate - You apply tablet machine and content into the curriculum. Projects in this issue presents a series of interventions on the use of mobile devices and technology in schools and school libraries. Devices classified as devices like the iPad to students (Gehrlein, Obst, Teemu, 2016) or a mini iPad for clinical students (Toro-Troconis, 2016), or as a loan (from 1 day to 1.5 years) or gifts; Content is available as eBooks or eBook, which has been developed specifically (Toro-Troconis, 2016) or licensing of the project (Bissels, Bruch, Obst), or what it is (eg through paper allows schools); applications available to encourage student participation before, during and after college. Often this is a pdf reader like a good reader, such as system cm limbic, anatomy body as seen Campus Book Electronic Publishers Thieme exclusively as, or to the point of care applications such as BMJ best practices and UpToDate (Fuller & Joynes, 2015).

In addition, the application has been developed by the faculty and library (Bruch, Jergfelt, 2015). Presented a brief overview of a collection of papers: Richard Fuller and Viktoria Joynes Medical Institute of Education Leeds, UK, tells us how the sources of mobile learning to shape the way students study hard healthcare. Sabine Gehrlein Library of the University of Heidelberg, Germany, this loan program for their iPad to enhance mobile technology and health education.

Maria Toro-Troconis and colleagues from Imperial College London, UK, told us about their big projects on the implementation of mobile learning strategies for graduate medical education. Oliver Obst, branch Library of Medicine, University of Munster, Germany, discussed in his article "A tablet toolbox to implement learning resources mobile digital curriculum on" the future role of libraries, especially in the business model in the future important accounts printing textbooks, Gerhard Bissels, Fachbereichsbibliothek Buhlplatz, University of Bern, Switzerland, presented the findings at the e-book that was rebuilt: how e-book tablet to improve decision. Teemu copy, Faculty of Medicine, University of Helsinki, Finland, writes about the project at the Medical Faculty of the University of Helsinki iPad.

2011 projects Meilahti Campus Library started lending Terkko of the iPad equipped with textbooks, and from 2013, the iPad has been given to each student who entered. Sarah Bruch and Hospital Tony Paget, Library, Prince Philip, Llanelli, and College of Medicine, University of Swansea, Wales, United Kingdom, notified us an application with them for six books written doc health including the BNF (British National Formulary) and the Oxford Handbook of Medicine clinical and meaningful as "just-intime" source for new doctors. Mikael Bjergfelt, University Library Karolinska Institutet, Stockholm, Sweden, praised the design to satisfy mobile KIB their application ".

Although many studies have shown convincingly here, there are other projects in Europe to combat the use of mobile technology in medical settings, which can not be covered: the launch of the iPad in 2010, University of Orthodontics Clinic Münster, Germany, is a dental school's first United States to introduce the iPad in clinical courses. The department is a loan from the iPad and iPad mini to all students of dental education. Jochen Bretschneider Mobile Learning Initiative, VU University Medical Center, Amsterdam, Netherlands, teaching medical students with the help of interactive eBooks. Mark Hamilton of the School of Medicine, University of Leicester, UK, started in 2013 to give all students the first year of the iPad to start the "digital textbooks" and replace the printed book. Guus van den Brekel, Central Library of Medicine, Faculty of Health Sciences, Groningen, Netherlands, is a loan from the iPad, scientists recorded and used regularly and learn how to use it. The Careum Medizinbibliothek, Hauptbibliothek, University of Zurich, Switzerland, is a loan from the iPad.

METHOD

Researchers collect all the important points of discussion, and synthesis them here with reference to the specific field where this paper is originally based on.

TEACHER PRACTICES WITH MOBILE TECHNOLOGY

Historically, technology has been seen as a potential solution to improve educational attainment. In 1913, Thomas Edison suggested that the film will replace books in schools in the last ten years, and the current forecast Edison failed to materialize, sentiment he remained in the minds of educators and policymakers alike. From television and computers to laptops and tablet devices now, every new technology brings the potential to revolutionize the education system (Wartella & Jennings, 2000). Since 1996, the federal government has spent more than ten billion dollars in computer technology for education (O'Dwyer, Russell, Bebell, & Tucker-Seeley, 2005), and US Department of Education (2010) issued by the National Education Technology Plan to promote learning student-centered technology as a way to improve academic achievement. this interest in technology to support student-centered learning practices, and refuse to policy makers, stakeholders, and the economist for the American people to become proficient in literacy and media technology, is contrary to the current American educational environment.

Built on the factory model of education of the 19th century, where the intention is to educate the public, the current system is outdated and focuses on skills and training practices (Peterson, 2011). While policy and development theorists have provided evidence that the practice of student-centered, as opposed to traditional didactic model, can promote student learning and engagement (eg, Dewey, 1902; Katz, 1988; Bredekamp & Copple, 1997; Vygotsky, 1978), the education system has become resistant to change and are not universally adopted this way of teaching and learning.

In fact, schools often remain resistant to the integration of technology as technology tends to disrupt traditional classroom practice (Collins & Halverson, 2009). A study of 12 K- 35 525 teachers by Project Tomorrow (2011) showed that the most frequent use of technology is for homework and practices (58%), indicating educators do not exploit the potential of technology to a unique destination but try to fit it into their curriculum has been set for use with a didactic way. Research also shows that teachers play an important role in whether and how much of the technology used in the classroom (Ertmer, 1999; Penuel, 2006), and since many teachers have been trained in traditional teaching pedagogy, this is always in the face of technology integration in in class (Parette, Quesenberry and Blum, 2009; Sheingold, 1991). In addition, the technology itself has unique features that affect the use, sometimes making practice in the classroom easier but at other times that create more problems than it's worth using the technology.

This affordances and constraints to technology integration further highlighted in early childhood education, where King talks about the appropriateness of using technology to children. Although the National Association for the Education of Young Children (NAEYC, 2012) encourages the use of appropriate technology in early education, other organizations, such as the American Academy of Pediatrics (2001; 2011; 2013), wary of screen time for young

children. Drawing on Orlikowski (1992) duality theory of technology, the current study investigates environment of early childhood education that is unique to better understand how the characteristics of an institutional, personal, and technology affect how teachers integrate computers into a tablet.

TECHNOLOGY IN EDUCATION

Every new technology provides potential for both transforming the educational environment and disrupt the status quo in the classroom (Wartella & Jennings, 2000). On the one hand, technology has been observed to promote student-centered learning, which theorists and policy support for the development of early childhood education on a more didactic teaching style (Burns, Griffin, & Snow, 1999). As Means and Olsen (1997) explains, the technology "to promote student learning through joint ventures in, challenging, multidisciplinary task authentic by providing realistic complex environment for student questions, provide information and tools to support the investigation, [and] connecting classrooms for joint investigation "(p. 9). In addition, the practice of student-centered learning activities focusing on motivation and interest related to the life of the child (Vygotsky, 1978; Wood, Bruner, & Ross, 1976). Therefore, the technology in general, and more particularly tablets, can change classroom practice and has implications for teaching and learning. On the other hand, there is often resistance by schools and teachers to integrate technology in order to maintain the current teaching practice (Collins & Halverson, 2009; Ertmer, Ottenbreit-Leftwich, Sadik, Sendurur, & Sendurur, 2012). Although access to technology improvements, the study still reported underuse of technology in the classroom, especially in the field of early childhood education (Blackwell, Lauricella, Wartella, Robb, and Schomburg, 2013). In general, the results can not be concluded whether technological advances educational attainment (eg, Cheung & Slavin, 2013), and no technology to date has been ubiquitously altered the landscape of education to transform teaching and learning practices in a large scale. As Buckingham (2007) said earlier promises of technology revolution in education has failed to produce much change.

While the debate about whether technology can or will change American education sector, support to integrate technology into the classroom has come from policy makers, economists, and theorists development, including NAEYC (2012), whose position new- this new statement supporting the use of the development of appropriate technology in early childhood education. Indeed, in all countries schools integrate mobile technology later at an increasing rate. In 2013, Apple reported 4.5 million iPads in American educational institutions, three times the number reported just a year ago in 2012 (Paczkowski, 2013). Furthermore, in the 2013-2014 school year, Los Angeles, CA, the second largest school system in the country more than 31,000 iPads was launched to serve all K-12 students in this area at a great price of \$ 30 million (Svensson, 2013). While these numbers are staggering, little is known about the effects of tablet computers to teaching and learning.

TABLET COMPUTERS

Excitement over iPads is partly due to the anecdotal evidence of mobile technology shows promising effect on the learning outcomes. mobile technology is very motivating and more attractive than the traditional classroom (Henderson & Yeow, 2012). tablet computers, in particular, can be used anywhere / anytime and foster an individualized learning, as teachers can use the device as a tool for students learning scaffold (Lemke, Coughlin, & Reifsnider, 2009). In addition, the tablet offers a unique home-school by providing students with classroom experience related to the real world of technology saturation, and tablets can reduce the digital divide by providing low-income and minority students with exposure to the device (Lemke et al., 2009). touch screen enables direct manipulation and intuitive to learn because there is no mouse (Buxton, Hill, & Rowley, 1985), making them easier than cognitive computer (Geist, 2012). Thus, teachers can choose to use tablets more often than they previously chose to use a desktop or laptop computer. In addition, from the cost standpoint, the tablet is much cheaper than laptops. Finally, the tablet provides users with access to a wide range of software due to the high number of applications that are available, with more than 500,000 apps in the Apple iTunes store and iTunes 72% of educational apps targeting preschool and primary children (Shuler, 2012).

Although little evidence exists on how the tablet computer is integrated into the classroom and how this integration change or emphasize the current teaching practices, features that provide unique evidence that the tablet computer can enact any changes in the educational environment.

DUALITY OF TECHNOLOGY IN EDUCATION

Given the unique affordances tablet, resistance to technology school, and teachers barriers to technology integration, the current study uses Orlikowski (1992) duality technology model as a framework to explain how the tablet is integrated into early childhood education and the effect of the device is in the attitude and teacher practice. prior

research on computers in early childhood education have used this approach to help explain the integration of computers (Lindahl & Folkesson, 2012).

Using the theory (1984) Structuration Giddens' with the use of technology in the organization, Orlikowski (1992) proposed to explain the duality of technology dynamic relationship between technology, agents, and institutions. In Giddens (1984) theory, the agent provide the rules, resources, and social norms that are presented by larger institutions of society, and in doing so, reproduce and also has the power to re-appropriate institutional structure through individual action. Orlikowski (1992) expanded this model to a three-part system, where institutional structures are still affecting agentive action, but the technology is an additional factor that has built-in capabilities that can be used or re-allocated by the agent-in novel ways.

According Orlikowski (1992), it is the dynamic relationship between the agent and the technology of the larger institutional structures can be changed. Apply (1992) Orlikowski model for the integration of technology in education can be achieved at different levels of analysis, but for the purposes of this study, the school will be the institutional structure, teacher agents, and tablet computer technology. On a large scale, the change (or lack thereof) in teacher practices and attitudes are influenced by the integration of technology into the classroom will eventually affect the institution, whether to strengthen or modify a preexisting structure, such as the model of traditional didactic education.

GOING MOBILE IN THE CLASSROOM

It's a question that many educators face today. The Common Core State Standards call for students to develop digital media and technology skills. One way to help them achieve that goal: combine the tools they are familiar with - mobile phones, tablets, and smartphones - into their learning environment. "Great potential with mobile is that it really is the main portal for social communications," said Mimi Ito, a cultural anthropologist at the departments of anthropology and informatics at the University of California Irvine and the John D. and Catherine T. MacArthur Chair Foundation Digital Media and Learning. "Young children learn best when they relate to them, when there is social connections bound him, and when they actually have a personal interest." National Association of Secondary School Principals has been trying to understand the social storm and Mobile Technologies. They have just released a position statement, a summary of opinion on the matter, it was surprisingly good. They actively encourage schools to receive smart phones, and social networks as part of their education provision, and offer various guidelines and advice to the different levels of practitioners. In a report, they deal head on the challenges of the rapid growth in the use of social media and mobile devices has created both a crisis and an opportunity for school leaders. Unfortunately, many realizing the first principal of social technology in an unpleasant situation, such as a conflict arising from a change in the social media. And school leaders are often unstable and cyberbullying and sexting incident in which guidance is often inadequate and contradictory. It's no wonder that school leaders responded by trying to eliminate the use of mobile and social media in school. Mobile and social technologies become ubiquitous, trying to block their increasingly ineffective. For example, in schools that ban cell phones, 54% of students still reported texting during the school day (Lenhart, 2010). And it is a rare student who can not do end runs around the filter Internet with a simple proxy server. More importantly, as mobile devices become more powerful and less expensive, their potential to improve student learning has come into clearer focus. Social networking sites provide a platform for students' creativity by enabling them to design projects using words, music, pictures and video. In recent years, including the explosive growth in student create, manipulate, and share content online (National School Board Association, 2007). Recognizing the value of education to encourage such behavior, many school leaders have shifted their energy from limiting the use of this technology to limit their abuse. They suggested some sound principles, that any enlightened teacher will share education must prepare students to become active, constructive participant in a global society. Technology-enhanced instruction has the capacity to engage students deeply in their work, connecting them with resources that are countless, and allows them to collaborate across time and space. Schools must provide student-centered experience, personal, and tailored to all students-a basic tenet of the Breaking Ranks framework for school improvement. Schools should support and value the important model in a civil and democratic society. Learning can happen only when the students felt free from violence and harassment. Schools need to offer a more effective role in decision-making to the students to promote student learning and the participation, responsibility and ownership. And then offer specific suggestions for different leaders in education.

KNOW YOUR CELL PHONE MOBILE DEVICES

The easiest of them all but still quite strong. They can be used for group discussions via text message, and because so many cell phones have cameras, they are useful for project-based photography as well. Students can also record themselves reading the story stronger for the workshop authors' or practicing a speech.

E-BOOK READERS

Their basic function is, of course, is to read the books and save the entire library. They also provide easy access to the dictionary. Many students also use their e-book reader as a replacement for the paper every day, because they can read a variety of editions and magazines on it known brands including Amazon Kindle and the Barnes & Noble Nook. An e-reader is similar in form to a tablet computer. A tablet typically has a LCD screen capable of refresh rates higher which makes it more suitable for interaction. tablet computer is also more versatile, allowing a person to eat a wide variety of content and also created it. The main advantages of electronic paper e-readers better reading of their screen, especially in sunlight, and longer battery life (Falcon, 2010). Commercial electronic paper sold mostly available in black and white (16 shades of gray). Sony Librie, issued in 2004 and founder of the Sony Reader, the first e-readers using electronic paper (Sonny, 2004). Ectaco jetBook Color is the first color e-reader on the market, but criticized muted colors (Andrew, 2013). Many e-readers can use the Internet via Wi-Fi and built-in software sometimes provides links to libraries OPDS digital or e-book retailer, which allows users to buy, borrow, and receive digital e-book. In this way, the books owned by the user who is managed in the cloud, and e-readers may download material from any location. An e-reader can also download e-books from your computer or read them from a memory card.

MP3 AND PORTABLE MEDIA PLAYER (SUCH AS IPOD TOUCH)

Free lectures and short videos are available for download through iTunes U, or on the Internet at sites such as Brainpop.com, which has animated educational videos. Apps can also be downloaded to the device and many students are equipped with the camera can be used to shoot and to submit to the website. Read blog Edutopia "iPod, listen, read" (bit.ly/dzzqll) to learn more about how these tools are used to help students master reading. MPEG-1 or MPEG-2 Audio Layer III, more commonly referred to as MP3, is an audio format for encoding digital audio using a form of lossy data compression. It is a common audio format for consumer audio live or storage, as well as the de facto standard of digital audio compression for the transfer and playback of music on digital audio players most. Use lossy compression is designed to reduce the amount of data required to represent the audio recording and still sound like a faithful reproduction of the original uncompressed audio to most listeners. MP3 files are created using the setting of 128 kbit / s will result in a file that is about 1/11 the size of CD-quality files. MP3 files can also be built at a higher bit rate or lower, with the resulting higher quality or lower. Compression works by reducing accuracy of certain parts of sound that are considered to be outside the auditory resolution ability of most people. This method is commonly referred to as perceptual coding. It uses psychoacoustic models to discard or reduce precision of components less audible to human hearing, and then record the information in an efficient manner. MP3 is designed by the Moving Picture Experts Group (MPEG) as part of the standard MPEG-1 and subsequently extended in MPEG-2 standard. The first subset of the audio has been established by several teams of engineers at Fraunhofer IIS, the University of Hanover, AT & T-Bell Labs, Thomson-Brandt, CCETT, and others. MPEG-1 Audio (MPEG-1 Part 3), including MPEG-1 Layer Audio I, II and III was approved as a draft committee ISO / IEC standard in 1991, finalized in 1992 and published in 1993 (ISO / IEC 11172 -3: 1993). Backwards compatible MPEG-2 Audio (MPEG-2, Part 3) with the bit rate and sample rate supplement was published in 1995 (ISO / IEC 13818-3: 1995) (Finlayson, 2008).

iPod Touch (processed and marketed as iPod touch) is a PC-based handheld all-purpose iOS designed and marketed by Apple Inc. with a user interface based on touch screen. It can be used as a music and video players, digital cameras, handheld gaming devices and personal digital assistants (PDA). It connects to the Internet only via Wi-Fi base station, do not use the cellular network data, and thus is not a smartphone, although it has a similar design to the iPhone and is often referred to as the "iPhone without the phone". Furthermore, it does not fit within the Apple iPhone accessories like cases their skin. As of May 2013, 100 million iPod Touch units have been sold. It also is the most popular iPod model. iPod touch models sold by storage space and color, with all models of the same generation usually offer similar features if not, processors, and performance, in addition to the existing operating system upgrades; the exception is the fifth-generation, low-end (16 GB) model was initially sold without a rear facing camera. The current iPod touch is the sixth generation model, released in 2015 (Rubin, 2014).

TABLETS

Apple iPad, Kindle Fire and Galaxy tablet models only, and they can do any e-book reader can do and then some. The app is downloaded, many education, makes the machine almost on par with the computer; you can surf the web, play games, watch (and make) movies and take pictures. Many schools have started to buy tablets for public K-5, although they are useful for older students as well. A tablet computer, usually shortened to tablets, mobile computer with touch screen display, circuit and battery in a single device. The tablet is equipped with a sensor, such as a camera, microphone and accelerometer, and touchscreen display with your finger or stylus motion recognition signal replaces a mouse and keyboard. They usually appear on the screen, pop-up virtual keyboard for typing. Tablets may have physical buttons for the basic features such as speaker volume and power, and ports for network communication and battery charging. Tablets are usually larger than a smart phone or personal digital assistant with a screen 7 inches (18 cm) or greater, measured diagonally. Tablets can be classified according to the presence and the physical appearance of the keyboard. Blackboard and booklets do not have a physical keyboard and usually have text input is done through the use of a virtual keyboard projected on the screen touch-enabled display. Hybrid, convertible and 2-in-1 does not have a physical keyboard (even if protected or hidden or can be separated), but they usually also use the virtual keyboard. Format inspired by the mid 20th century and prototyped and developed in the last two decades of the century. In April 2010, the iPad was released, which was the first mass-market tablet with multi-touch finger friendly and dedicated operating system. Tablets experienced a rapid rise in popularity and ubiquity and a large product categories (Apple, 2010).

SMART PHONE

The older the student, the more likely they will be holding the reins of one of the. Such as tablets, smart phones have many functions such as a computer. (They also phone, of course.) They can run applications and software, record audio and video, send and receive e-mail and text - functions can easily be channeled into question the classroom. Smartphones are not really smart in terms of possessing a great deal of intelligence. They just called smart connected to "feature phones," which is the name given to the basic mobile phone previous generation. Smartphones are considered more intelligent than feature phones because they can connect to the Internet; perform basic calculations so that one can play the game; save larger amounts of data such as contact lists and documents easily; and be able to use affordances such as geolocation, accelerometer, and sensors to perform a function that is not available on mobile. But they are not "smart" in the way that the next generation of smartphones will. Smart phone in the next five years will have a more powerful CPU and faster, which allows them to process large amounts of data by using highly sophisticated algorithms. And, they will learn as they interact with their owners in the world around them. They will have much more memory, and will be linked to a supercomputer like IBM Watson, which has been used for medical diagnosis doctor sent to tablet and mobile phone. This new technology is only possible because we have entered the era of "big data" with a giant leap in the amount of data available to organizations that they can use to analyze and predict the behavior of both staff and customers. As the CEO of Google, Eric Schmidt told attendees at the Conference in 2010 Technomy, in Lake Tahoe, "the dawn of civilization through 2003, there were only 5 exabytes of information created. That information is now created in two days, and the rate is increasing. People the public is not ready for the technology revolution going to happen to them. "not only the amount of data growing exponentially, but a new kind of data becomes available. This includes data about the location, orientation, movement, activity level, spending patterns and data on how mobile devices are used. All of this data has led to new methods of data analysis for both retail and for learning. new mobile application development that uses a combination of big data and artificial intelligence to provide "smart tool" to all users (Gary, 2014).

TOOLS FOR MOBILE USERS

SCRATCHED

Educators can get support for computer-programming language developed by researchers at the Lifelong Kindergarten group at the MIT Media Lab. Scratch allows students of all ages to create games and animation, and the calculation of the master and math skills. Scratch is a free visual programming language (Marji, 2014). Scratch is used by students, scholars, teachers, and parents to easily create animations, games, etc. and provide a stepping stone to the more advanced world of computer programming. It can also be used for a range of educational and entertainment constructionist purposes from math and science projects, including simulations and visualizations of experiments, recording lectures with animated presentations, to social sciences animated stories, and interactive art

and music (Choi, 2013). Viewing the existing projects available on the Scratch website, or modifying and testing any modification without saving it requires no online registration. Scratch allows users to use event-driven programming with multiple active objects called sprites (Marji, 2014). Sprites can be drawn, as vector or bitmap graphics, from scratch in a simple editor that is part of Scratch, or can be imported from external sources, including webcams. As of 2013, Scratch 2 is available online and as an application for Windows, OS X, and Linux (Adobe Air Required) (Roque, 2013). The source code of Scratch 1.x is released under GPLv2 license and Scratch Source Code License (Hill, 2013).

GOOGLE APPS FOR EDUCATION

Google has a broad suite of applications that foster collaborative learning. Documents can be edited and shared group; The calendar can be adjusted so that the students all on the same page, schedule-wise; teachers and students can back up lesson plans, notes, and other materials. The free productivity tools simplify and save time with classroom, gmail, docs and more. Classroom creates assignments paperlessly and stay organized. Devices get laptops and tablets that are affordable and easy to manage. Google Apps for Education is free. They plan to keep the core offering of Google Apps for Education free. This offering includes user accounts for future incoming students. Google was founded by a research project at Stanford University, and this is just one way can give back to the educational community (Google, 2016).

GOOD IPAD APPS FOR HISTORY AND GEOGRAPHY TEACHERS

Here are some good iPad apps for History and Geography teachers. *World Atlas HD*: iPad users can download this stunning, popular digital atlas by the National Geographic Society and educate themselves about the planet's physical and cultural properties and relationships. *MyCongress*: Stay up-to-date with the latest news and views from the House of Representatives and the Senate with profiles of Congresspeople and information about current bills. *National Geographic Today*: Indulge in bite-sized, nourishing daily doses of geography videos, photos, and more through the globe-trotting juggernaut. *WORLD BOOK – This Day in History for iPad*: Like the title states, this app displays what historical events happened on what particular day; flipping through the calendar function and looking ahead is encouraged! *History: Maps of the World*: History and geography (duh) collide on this very popular resource, which provides access to maps past and present so users can watch how borders and projections shift over time. *Constitution and Federalist Papers*: Win (or lose, but we're trying to be nice here) any argument about American politics by keeping some of its core founding documents on hand as a reference. *Google Earth*: Explore the world in veritable real-time thanks to the detailed (and sometimes super creepy) Google Earth tool, now available on the iPad. *World History Atlas for iPad*: Maps.com provides an absolutely stunning visual resource about the most important, influential maps — and their corresponding events — of all time. *205 National Anthems, Maps, Flags, Facts*: Enjoy a crash course in the basic characteristics of 205 countries and use it as a springboard into deeper geographical inquiry. *Top 100 – People in History*: Read up on the biographies of some of the world's most influential names and kickstart lessons in some not-so-famous folks who still left a major impact. (Educators Technology, 2016)

SCENARIOS FOR FURTHER EDUCATION – DEVELOPED USING THE FUTURELAB BUILDING VISIONS FOR LEARNING SPACES SCENARIO CARDS

Working and Learning Together on Placement in Business Studies:

Understudies on situation for Business Studies are for the most part set an assortment of errands to be examined and did in their work environment. A case may be "depict the enlistment and maintenance process in an association". This system, in one school, depicted by the present understudies as "exhausting" and bringing about bunches of composed work, will be drastically amended however understudies' utilization of cell phones, dependably on network and interactive media. Cell phones (handhelds or smaller scale portable workstations) will empower understudies to contact far off companions and school coaches through sound, video, messaging and email. This could incorporate multi-way 'address time' video conferencing. Giving or guaranteeing understudies have gadgets with worldwide situating frameworks (GPS) would not just permit the instructor to know where the greater part of the understudies are found, additionally to tell the understudies where each other were. By sharing their work, understudies would know where the holes were in their insight/aptitudes and could recognize somebody, a companion or a mentor, to fill those necessities. GPS would then empower them to discover who was topographically closest to the individual distinguished and direct him/her to their area. Understudies could likewise share their work while 'out in the field', so as to figure out how each other is handling the same issues. They would not need to hold up until they return to their showing base before collaborating. However, once back at the showing base, the understudies would have the capacity to store the advantages they have made amid their time on situation,

for example, video, sound, content inputs and other examination notes for evaluation and/or offering to their or future accomplices of understudies. Results for this cooperative learning situation empowered through cell phones will incorporate meeting course evaluation necessities as well as the improvement of between individual aptitudes, for example, coordinated effort abilities, figuring out how to accommodate distinctive data from various sources and correspondence with individuals of various ages, social gatherings and expertise sets. This situation was thought by others in the system to be prone to become possibly the most important factor before 2015 as the innovation is as of now set up and can possibly make a typically "exhausting" point substantially more intriguing for the learners. However there are various obstructions that would should be surmounted first, for example, the preparation and duty required from the school IT bolster staff for supporting understudies put in various areas. There may likewise be interoperability issues relying upon whether the school has chosen to give one standard gadget or to depend on understudies' close to home gadgets. In conclusion one noteworthy inquiry emerges with this situation about the moral issues of i) utilizing GPS to "track" individuals, for example, the understudies in this situation ii) recording conceivably special data about the work environment's business systems. While understudies may not protest their companions knowing where they are through GPS, they may not need coaches to know their area. Whilst managers are cheerful to prepare Business Studies understudies inside their association they may not need mixed media records leaving the premises. For this situation to be acknowledged it seems clear that there should be assent ahead of time amongst manager and school about every single conceivable procedure required in understudies accumulation and sharing of information for assignments (Wishart, and Green, (2015).

Recording Experiential Learning in Leisure and Tourism:

A relaxation and tourism understudy moves between a few distinctive in vogue venues on a work situation day discharge plan. She has been requested that make a portfolio to connect applied thoughts from the course syllabus with her experiential learning in recreation and tourism. The genuine innovation utilized would all be on the web. This would mean that reasons, for example, 'I overlooked my tablet' will be out of date as everything would be situated in an online e-portfolio framework including VLE/blog/wiki style instruments i.e. with inbuilt, very much incorporated person to person communication instruments. This online e-portfolio framework can be redesigned by handheld camera telephones and Netbooks and additionally tablet and desktop PCs and expect fast versatile broadband is for all time accessible through wi-fi or the cell system. The framework would have both private and open spaces, so that as the understudy circumvents recording her work, she can keep that in a private space. She can then build up her records by means of a tablet or desktop with a bigger screen at school or at home and exchange the subsequent task to the general population space when completed, to be seen by her mentor, chief, guide and others as required. She would likewise have entry to online instructional exercises while out in the field, to give theoretical standards and pointers to her to connection them to her practice. Results for the understudy would include: an industry perceived capability from the Institution or College; new aptitudes pertinent to recreation and tourism and in overseeing new portable innovations to bolster learning. She could keep the e-portfolio as something to expand upon in what's to come. This situation was additionally seen by different respondents from the system as prone to be essentially before 2015. They considered that this style of appraisal is liable to engage work situation suppliers and that recreation and tourism would be a reasonable subject. Such understudies can without much of a stretch catch their encounters which can be less simple or even denied different subjects for instance, building situation understudies are not permitted to bring cell phones close generation lines as producers wish to hold their plans under wraps. Respondents differ about whether this situation would be practical weighing up the reserve funds of having all appraisal finished online against the potential wireless system costs. Additionally who might finance the broadband utilization? Who might claim the innovation? There was additionally some worry over the suspicion that all understudies would have individual access to Smartphones or Netbooks, especially in this understudy populace where there are numerous from impeded foundations. Nor have e-portfolios been a staggering accomplishment to date inciting various functional, specialized and theoretical issues (Adamson, 2006). However the situation would most likely speak to understudies (until they found the amount of work it would be?) and, as everything is gotten to by means of a web program modified for the gadget it is running on, won't be debilitated by interoperability issues (Wishart, and Green, (2015).

CONCLUSION

Mobile devices and applications are changing the way people learn. Online teaching career has been set on a journey of discovery. It has been providing creative freedom, and an endless source of learning materials, and the possibility to teach students from all over the world. It is necessary to recognize the importance of technology in the classroom and e-learning as a platform to teach. More and more students are using mobile devices to connect to the web. Mobile learning (or m-learning) is the ability to learn anywhere and at any time using portable electronic devices.

Mobile learning is less structured than e-learning and in my opinion that both complements perfectly. Our world today is obsessed with doing everything faster, learning included. Self-study is clearly important in learning. As little as one hour a week studying alone can greatly improve student progress. Most students choose to study online because of time restrictions. Due to the use of mobile technology is increasing, it offers the possibility for students to learn anytime, anyplace and at their own convenience via their mobile devices. Students begin with a little homework activities, realistic. Students spend a few minutes or hours at a stunning applications are available and encourage them to learn in a way that is portable.

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