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## THE STEM APPROACH: THE DEVELOPMENT OF RECTANGULAR MODULE TO IMPROVE CRITICAL THINKING SKILL

*Research Article*

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# THE STEM APPROACH: THE DEVELOPMENT OF RECTANGULAR MODULE TO IMPROVE CRITICAL THINKING SKILL

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## Abstract

The objective of the study is to find out: 1) how rectangular module with the STEM approach to improve valid and practical critical thinking skill; 2) the effectiveness of the rectangular module development with the STEM approach to improve critical thinking skill. It is a research and development (R & D) study. This research consists of two phases, namely preliminary study and product development. Product development consists of product testing using one group pretest - posttest design experimental research. The population in this study is the students of one State Junior High School in the Kebumen region by taking five students as the sample for individual tests, 32 students for limited scale tests, and 64 students for wide-scale tests. The results of this study indicate that 1) the rectangular module with the STEM approach on the aspects of content, presentation, graphical, and language feasibility are excellent, the STEM approach feasibility and components of critical thinking skills are good category; 2) the effectiveness shows that the rectangular module with the STEM approach to improve critical thinking skills is proven effective which can be seen from the average value of N-Gain in the experimental class of 0.37 with the category of medium improvement, while N-Gain in the control class is 0.03 with low increase category.

*Keywords:* rectangular module, STEM, critical thinking skill

## 1. Introduction

The industrial revolution is a real change from the existing condition. At the moment, the era of industrial revolution 4.0 replaces the industrial revolution 3.0. The emergence of cyber-physical and manufacturing collaboration (Irianto, 2017) is a sign of industrial revolution 4.0. Industry 3.0 emphasizes on high buildings, strategic places, and direct product promotion. However, those emphases are no longer important in 4.0 eras. The crucial thing in this era is literacy; data literacy, technology literacy, and human literacy. In the past, important literacy is *calistung* (reading, writing, and arithmetic). Today, it must be data, technology, and human literacy. These three literacies are significant for the development of all types of work in the era of industrial revolution 4.0. So inevitably, the educational world must follow this trend. In line with this condition, information technology has become the basis of human life (Kemristekdikti, 2018). The industrial revolution 4.0 is also marked by an

increase in digitalization through several factors such as the increase of data volume, computational power and connectivity; emergence of analysis, ability and business intelligence; the occurrence of new forms of interaction between humans and machines; and the improvement of digital transfer instructions into physical world such as robotics and 3D printing (Sukartono, 2018). As a consequence, a country needs to prepare the next generation that has good quality and can compete globally, and master technological developments (Kanematsu & Barry, 2016). In other words, if humans can compete globally, their life in the industrial revolution 4.0 era will be easier because human resources will be replaced by mechanical power and technology.

The next generation of the nation needs to have various abilities to face the era of the industrial revolution 4.0. Education is an appropriate place to train students' abilities. Education teaches students the way of thinking and provides accurate information to stimulate students' thinking skills. One of these thinking skills is critical thinking (Becanli, Dombayci, Demir, & Tarhan, 2011). The 21<sup>st</sup>-century skills and literacies, that include: basic skills, technology skills, problem-solving skills, communication skills, critical and creative skills, information/ digital skills, inquiry/ reasoning skills, interpersonal skills, and multicultural and multilingual skills. Critical thinking skill is one of the innovations in the 21<sup>st</sup> century, where students are expected to be able to handle problems in the future. It is also one of the 21<sup>st</sup>-century thinking skills that require to be emphasized in the field of education. It is also considered as one of the foundations of other skills including communication skill, collaborative skill, life skill, career skill, global awareness, and learning and innovation skill. The critical thinking model is an important attribute for success in the 21<sup>st</sup> century (Zivkonic, 2016).

Indonesia must prepare reliable human resources in Science, Technology, Engineering, and Mechanic (STEM) disciplines to deal with global competition (Firman, 2015). STEM education has many potential benefits for individuals and the nation as a whole (Beatty, 2011). The purpose of STEM education is to encourage students to have science and technology literacy which can be seen from reading, writing, observing, and doing scientific research. It aims at developing their competencies to face daily problems related to STEM (Bybee, 2013). In this regard, in the upcoming ten years, STEM-based employment will increase by 11%. The STEM expert in Indonesia is still lack (Kosasih, 2018). This case causes a shortage of experts from STEM backgrounds. Therefore, STEM is an important issue in education at this time (Becker & Park, 2011). STEM learning is an integration of science, technology, engineering, and mathematics which is considered as tools to deal with 21<sup>st</sup>-century skills (Beers, 2011). The concept of STEM in the 21<sup>st</sup> century is developing knowledge, skills, and beliefs related to subjects using an interdisciplinary approach (Corlu, Capraro, & Capraro, 2014). STEM has also taken a central role in projects that have been implemented in developing countries, one of which is Turkey, where the project aims to improve knowledge and technical skills using science concepts (Baran, Zonbazoglu, Mesutoglu, & Ocak, 2016). Regarding the phenomenon, the regulation of Minister of Education and Culture of Indonesia implicitly support STEM education. It can be seen from the regulation number 37 of 2018. It explains that there is a change in the 2013 curriculum for elementary, junior, and senior high school by adding informatics lessons.

Based on the observation results in one of junior high school in the Kebumen region, most of the students face difficulty in solving questions of rectangular form related to critical

thinking indicator. It is caused by the ability of students is only in the form of memorizing the concept and formula. Besides, they do not understand the use of mathematics materials, especially rectangular form in daily life. As a result, the students are not interested in learning rectangular form material. This case causes a lack of learning media. The teacher teaches using a conventional way by explaining and writing in the board without other media. Whereas, the students will be easier to understand if there are other media in supporting teaching and learning process. One of the effective media is the use of module. A module which can stimulate students' critical thinking and students' ability in mathematics is a module using STEM approach. Based on the problem arises in the observation, a research will be conducted which concerns on the development of rectangular module using STEM approach to enhance students' critical thinking practically and effectively. The objectives of the research are to find out: 1) how rectangular module with the STEM approach to improve valid and practical critical thinking skill; 2) the effectiveness of the rectangular module development with the STEM approach to improve critical thinking skill. It is carried out in one of the junior high school in Kebumen region.

## **2. Methodology**

This is a research and development (R&D) study. (Borg & Gall, 1983) state that development research in the field of education is a process to develop and validate educational products. This research uses two phases, namely preliminary studies and product development. The product development in this study contains product trials consisting of individual tests, limited scale tests, and wide-scale tests. The individual and wide-scale test is employed to know the practical rectangular module. In the research process, the students get a practicality questionnaire after they study the rectangular module using STEM approach. Meanwhile, wide-scale test is employed to know the effective rectangular using the design of the experimental one group pretest-posttest. The population in this study is all of VII grade students in one of junior high schools in Kebumen region. Random clusters is employed as the sampling technique by taking 5 students for individual tests, 32 students for the limited scale test, and 64 students for the wide-scale test consisting of 32 students as the experimental class and 32 students of the control class. There are two variables in this study, the dependent variable and the independent variable. The dependent variable in this study is students' learning outcomes, namely students' critical thinking skill and the independent variable is rectangular module with the STEM approach. Data collection in this study is critical thinking skill task consisting of two essay questions in the form of pretest questions and posttest. Pretest questions are utilized to determine the initial level of ability, while the post-test questions are employed to find out how much change is produced after treatment. The obtained data are then be analyzed using the univariate t statistical test. N-Gain analysis is employed to find out the difference in value which can show students' knowledge differences at the beginning and end of learning in the experimental class and control class.

## **3. Findings and Discussion**

### **3.1 The valid and practical rectangular module**

The development of mathematics module as teaching materials aims at improving the quality of learning resources in schools, facilitating students in learning, enhancing students' critical thinking, enriching teachers' media in the learning process, and increasing students' knowledge and understanding of integrated mathematics lesson with science, technology,

engineering, and mathematics (STEM). The STEM module analysis is conducted through interviews, tests, and questionnaires to find out the validity of the STEM module.

### 3.1.1 Preliminary Study

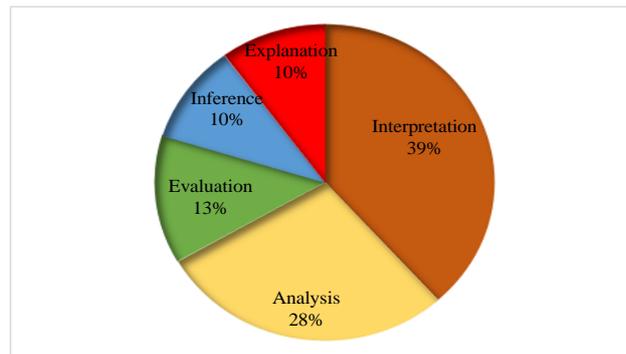
There are several results based on the interviews with mathematics teachers of State Junior High School (SMPN) 1 Puring, namely: *first*, some schools use inappropriate handbooks. For example, it does not stimulate problems or books that refer to the 2013 curriculum and it still consists of some misprint. This case is complained about by the mathematics teachers because the students feel confused. As a consequence, teachers should repeat their explanation several times. *Second*, some schools do not have teaching materials either books or module. *Third*, the age of seventh-grade students is around 13 years old. This is also taken into researchers' consideration in compiling modules to fit the characteristics of students. Learning material is arranged from concrete things to abstract things by following their age. It is expected that it can facilitate the students' understanding process.

The researchers also obtain several initial problems and the need to support the learning process. For example, (1) learning process still emphasizes material content; (2) learning process is still lack of students' active participation; (3) the students consider that mathematics is a difficult subject to be understood; (4) the learning model is still dominated by lecturing; (5) the teachers is lack of time due to a lot of materials to be delivered; (6) learning tools in the form of textbooks and students' worksheet (LKS) is not able to motivate students to learn independently; (7) the teaching materials are not interesting enough for students; and (8) students' abilities are very diverse.

Teaching materials analysis intends to find out appropriate teaching materials to overcome obstacles during the learning process. Besides, the teaching materials must be adapted to the needs of students and school facilities, so that it can motivate students to learn independently. Based on the results of observations, the school facilities do not support the use of LCDs and computers. The facilities in the class are only whiteboards. As a consequence, the researchers cannot develop teaching materials using computer technology such as interactive teaching materials and audio-visual materials. Teaching materials which can be used are in the form of mathematics learning modules or printed teaching materials. The diversity of students' ability requires teaching materials that can be studied independently according to the pace of learning. Modules are chosen because they are printed teaching materials which are designed to stimulate students to learn independently. The chosen learning module is a mathematics learning module with the STEM approach. Modules with the STEM approach are chosen because STEM is an integration of science, technology, engineering, and mathematics which can improve students' critical thinking skill.

### 3.1.2 Critical Thinking Ability Test

The critical thinking skill of the seventh-grade students of SMPN 1 Puring is relatively low. This is shown from the results of tests of students' critical thinking skill shown in Figure 1. Critical thinking skills of students can be seen from several indicators to achieve the critical thinking aspects. The critical thinking aspects are Interpretation, analysis, evaluation, inference, explanation, and self-regulation (Facione, 2013).



**Figure 1.** *The results test of students' critical thinking skill*

Figure 1 shows that the students are still not familiar with critical thinking tasks due to the low percentage of critical thinking aspects.

### 3.1.3 Product Development

#### 1) Initial Product Planning

The purpose of developing a learning media is to obtain learning modules that can improve students' critical thinking skills. Learning media users are seventh-grade students of SMP in Kebumen Regency. Media specifications are the media characteristics and the media components that will be produced, the needed facilities and infrastructure characteristics, and the characteristics of the media users. The following are the module specifications that will be implemented in research planning:

- a) The outer cover consists of the module title which describes the main materials.
- b) Initial part; the inner cover contains author's identity, consultant, module validator; the preface as the opening page which explains the role of the module in the learning process; module content map which describes module components and learning activities; table of contents containing the module framework and it is completed with a page number.
- c) Core part; introduction which includes background, objectives, material competency map, module usage instructions, and ability check sheets; learning activities which arranged according to the stages of problem-based learning; the final/post activity in the form of conclusions from each chapter.
- d) Final part; exercises containing tests from all of the chapters; bibliography which contains a list of references in compiling the module; glossary that contains a description of terms, difficult and foreign words used in the module and it is arranged alphabetically.

#### 2) Early Product Development

The planning of the design development of the initial learning media is carried out based on the need assessment, the study of the theories, and specifications of the media that have been obtained. In developing the design of early learning media, FGD (focus group discussion) activities can be carried out if there is a lack of need assessment and theoretical studies (Budiyo, 2017). FGD can be employed with users and/or with experts related to the developed products. This study uses a need assessment to decide the data from the STEM module. This initial media design development plan is in the form of theoretical planning of learning media. These theoretical products must be examined by related experts before they are made into prototypes. Based on the examination, experts present several suggestions to the researcher for improvement. This activity is called as an expert/expert validation activity.

In conducting expert validation, the researchers provide an assessment instrument (accompanied by a suggestion sheet) to the relevant experts.

#### a) The Results of Material Expert Validation

Validation of material experts is applied by involving competent experts. The researcher submits the prepared module to the material experts by including the grid and module assessment sheet. The assessment results from the material experts are shown in Table 1.

Table 1. *Assessment category of all components*

No	Component	Total Number	The Number of Ideal Score	Assessment Category
1	Content Feasibility	127	144	Excellent
2	Presentation Feasibility	124	144	Excellent
3	STEM Approach Assessment	123	160	Good
4	Critical Thinking Skill	64	80	Good

Based on Table 1, the score of content feasibility component of the three material experts is 127 out of a maximum score 144 or around 88.19% on a scale of four and it includes into the excellent category. The score of presentation feasibility is 124 from a maximum score of 144 or around 86.11% on a scale of four and it includes into the excellent category. The score of the assessment of the STEM approach is 123 from a maximum score of 160 or around 76.87% on a four scale and it includes into the good category. Meanwhile, the score of critical thinking ability shown in the module is 64 from a maximum score of 80 or around 80% on a four scale and it includes into the good category. Based on the score acquisition of the four material experts for four components, it shows that in terms of material, the module includes in the good category. It means that the whole assessments are categorized into a good category. There are several suggestions from the two material experts after validation as follows; repairing wrong typing or writing; adjusting the image of the cover with the material; avoiding writing that has no meaning; using contextual and real examples of problems; avoiding writing zero (0) in degree; improving the concept because there are several concepts that still need to be improved such as adjusting the angle context.

#### b) The Results of Media Expert Validation

Media expert validation is employed by submitting the compiled module into media experts accompanying by grids and assessment sheets. The summary of the assessment results obtained from the media expert questionnaire is shown in Table 2.

Table 2. *Assessment category of all components*

No	Component	Total Number	The Number of Ideal Score	Assessment Category
1	Graphical Feasibility	31	36	Excellent
2	Language Feasibility	22	24	Excellent

Based on Table 2, assessments from media experts show that in terms of graphics and language, the module is included in the excellent category. In terms of graphics, the score is 31 from a maximum score of 36 or around 86.11% on a four scale and it includes in the excellent category. In terms of language, the score obtained from the two experts are 22 from a maximum score of 24 or around 84.61% on a scale of four and it includes in the excellent category. In general, the components of the graphics and language of the module are excellent. There are some suggestions from media experts including; improving the writing

of mathematical notations, symbols, images, and tables; revising typographical errors; repairing the layout of the chart and its content; adding instruments on the page of the cover; adding answer key rubric. The following are some pages that are revised based on suggestions from experts.

c) Product Testing

1) Individual Test

Individual trial test is conducted on 5 students who are randomly drawn from the VII grade students in Kebumen region. Trial test of the product runs smoothly and interactively after the students reading, understanding the module, and doing on the questions. After that, interviews are conducted with students in depth. Overall, the students give positive responses to the module compiled by researchers.

2) Limited Scale Test

Limited trial test is conducted on two mathematics teachers and 32 students of VII grade students in Kebumen region. The results of the assessment are shown in Table 3 and Table 4.

**Table 3.** *Limited Trial Results for Mathematics Teachers*

No	Component	Total Number	Ideal Score	Category Assessment
1	Module Interest	32	40	Excellent
2	Material	47	60	Good
3	Language	39	50	Good

Based on Table 3. Limited trial test for mathematics teachers show that in terms of module practicality is included in the excellent category. In terms of module interest, the score is 32 from a maximum score of 40 or around 80% on a scale of four and it is included in the excellent category. In terms of material, the score is 47 from a maximum score of 60 or about 78.33% on a scale of four and it is included in the good category. In terms of language, the score is 39 from a maximum score of 50 or about 78% on a scale of four and it is included in the good category.

**Table 4.** *Limited Trial Test Results for Students*

No	Component	Total Number	Ideal Score	Category Assessment
1	Module Interest	672	800	Excellent
2	Material	608	800	Good
3	Language	640	800	Good

Based on Table 4. Limited trial test for mathematics teachers show that in terms of module practicality is included in the excellent category. In terms of module interest, the score is 672 from a maximum score of 800 or around 84% in a scale of four and it is included in the excellent category. In terms of material, the score is 608 from a maximum score of 800 or about 76% in a scale of four and it is included in the good category. In terms of language, the score is 640 from a maximum score of 800 or about 80% on a scale of four and it is included in the good both categories. After a limited trial test, several suggestions and input are obtained from mathematics teachers and students.

### 3.2 The effectiveness of the module

The effectiveness of rectangular module using STEM approach is tested using wide scale test with the design of experimental one group pretest posttest. The population in this study is all students in one of junior high schools in Kebumen region which the sample is 64 students with 32 students for experimental class and 32 students for control class. The results of the N-Gain test to determine the difference in value of students' knowledge at the beginning and end of learning of the experimental class and the control class is conducted with the SPSS program which can be seen in table 5.

**Table 5.** *The Summary of N-Gain Test Result*

Class	N-Gain Average Score	Category
Experiment	0.37	Medium
Control	0.03	Low

The average score of N-Gain test of experimental class is 0.37 which is included in the medium category, while the average N-gain of the control class is 0.03 which is included in the low category. Before applying the univariate t statistical test, the normality test, homogeneity test and balance test will be calculated first as a prerequisite.

#### 3.2.1 Normality Test

The normality test in this study is the Liliefors test with a significance level of  $\alpha = 0.05$ . A summary of normality test results is shown in Table 6.

**Table 6.** *The Summary of Normality Test Result*

Class	$L_{count}$	$L_{table}$	Test Decision	Conclusion
Experiment	0.160	0.161	$H_0$ is accepted	Normal
Control	0.139	0.161	$H_0$ is accepted	Normal

Based on Table 6. it is found that the  $L_{count}$  in the experimental class which using the module is 0.160. Meanwhile, the score of the  $L_{count}$  in the control class is 0.139. Because of the  $L_{count} \notin DK$ , it can be said that the two samples are originated from normally distributed populations.

#### 3.2.2 Homogeneity Test

Homogeneity test in this study uses the Bartlett Test with a significant 5%. A summary of the homogeneity test results is shown in Table 7.

**Table 7.** *The Summary of Homogeneity Test Result*

$b_{obs}$	$b_{table}$	Test Decision	Conclusion
0.997	0.956	$H_0$ is accepted	Homogeneous

Based on calculations,  $b_{obs} = 0.997$  with  $b_{table} = 0.956$  where  $DK = \{b | b < 0.956\}$ , or in other word  $b_{obs} \notin DK$ , so that it can be concluded that  $H_0$  is accepted. This shows that the population variance is homogeneous.

#### 3.2.3 Univariate Statistical Test

This test is used to determine the effectiveness of the use of mathematical module for problem-based learning. This test is done by comparing the average learning outcomes achieved by the experimental class and the control class. The researchers used the t-test to

compare the results of critical thinking skills of the two classes. Assuming that the population is normally distributed and homogeneous as follows.

Table 8. *The Summary of Hypothesis Test Results*

Class	N	Score		$t_{count}$	$t_{table}$	Test Decision
		$\bar{X}$	$s$			
Experiment	32	76.406	9.691	63.176	1.645	$H_0$ is rejected
Control	32	61.250	10.473			

$H_0 : \mu_1 \leq \mu_2$  (There is no improvement in students' mathematics outcome before and after using the module)

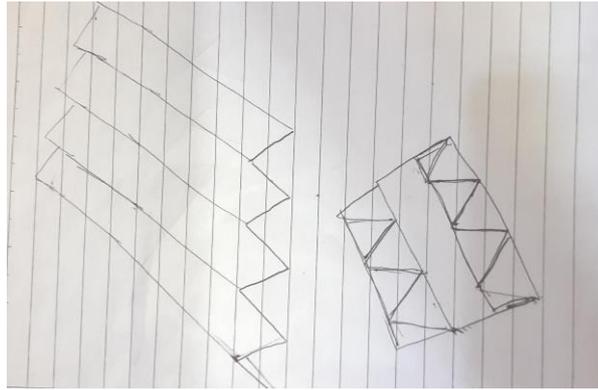
$H_1 : \mu_1 > \mu_2$  (There is an improvement in students' mathematics outcome before and after using the module)

The results of the balance test analysis in table 6 shows that  $t_{count} = 63.176$  with  $t_{table} = 1.645$  while the critical area  $DK = \{t \mid t > 1.645\}$ . The results of the hypothesis test are fully shown in Appendix 10. Thus the  $t_{count} \in DK$ , so that  $H_0$  is rejected or it can be concluded that the average mathematics learning outcomes of students using mathematical modules with the STEM approach to improve critical thinking skill is better than that who do not use the module.

Based on the results of the study, it is found that the average value of the students' mathematics learning outcomes using the STEM approach module to improve students' critical thinking skill is better than that who do not use the module. This is because the learning process is characterized by the application of critical thinking skills is providing opportunities for students to play an active role, encouraging students to be able to identify possible solutions, being able to select data or information, being able to provide opinions about the selected data, and finally being able to provide the possibility of problem solving (Arikunto, 2007). It supports STEM learning because in STEM learning, students are also encouraged to be actively involved in groups to solve a problem and they are required to think critically by integrating disciplines that exist in STEM namely science, technology, engineering, and mathematics (Beers, 2011). The findings in this study support the results of previous study conducted that there are significant differences in students' critical thinking skills using the STEM approach with the learning process in the control class (Khoiriyah, Abdurrahman, & Wahyudi, 2018). The findings of this study support the results of previous study conducted that the increase in N-Gain is in the medium category (Lestari, Astuti, & Darsono, 2018). It means that the worksheets developed with the STEM approach can improve critical thinking skill. STEM can train students both cognitively, skill fully, and effectively (Becker & Park, 2011). In recent years, STEM learning also has been widely applied in several countries such as Taiwan. Taiwan begins to integrate STEM learning which makes students act as learning center (Lou, Shih, Diez, & Tseng, 2011). STEM learning has certain characteristics, one of which is to produce a product. The STEM module presents project activities by integrating STEM disciplines. Integration in the learning process is shown in table 9.

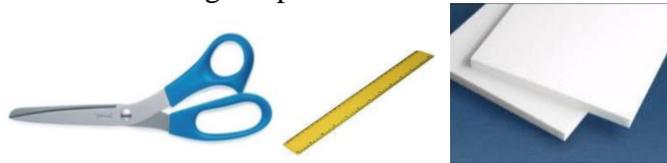
Table 9. *STEM Integration in the Learning Process*

No	STEM	Learning Process
1	Integration of Scientific Knowledge	<p>Observe the images of a collapsed bridge, utilize knowledge skills and science processes in understanding natural phenomena, and manipulate these symptoms. So, they know the cause. How is the shape of the bridge structure to make it stronger?</p>  <p><b>Kegiatan Proyek (STEM)</b></p> <p>Kegiatan: Membuat jembatan tiruan            Alat dan bahan: kertas, Gunting, penggaris, Perekat dan Kelereng</p> <p>Pada gambar di atas terlihat sebuah jembatan yang mengalami kerusakan akibat konstruksi yang tidak kokoh. Dari permasalahan tersebut carilah sebuah rancangan jembatan yang lebih kokoh, kalian dapat mencarinya diinternet. Setelah membuat jembatan sesuai yang kamu buat, ujlilah kekuatan jembatan dengan menaruh kelereng diatas jembatan yang kamu buat. Ada berapakah kelereng yang dapat dtampung oleh jembatan yang kamu buat? Kemudian hitunglah luas bangun datar yang terdapat pada jembatan yang telah kalian buat.</p>
2	Integration of Technology knowledge	<p><b>Figure 2. Problems of the bridge</b></p> <p>Analyze how bridges can last for a long time and how technology can be developed. In this case, the students are asked to make artificial bridges using paper with to determine the stronger form of bridge. The students can also learn techniques about how to make the strongest bridge structures and techniques in the process of making the bridge structure. They can use the internet to determine stronger bridges.</p>
3	Integration of technology knowledge and engineering	<p>Students determine ideas for making artificial bridge structures that are considered stronger. The bridge structure uses the concept of a flat building.</p>



**Figure 3.** *The idea of a bridge structure*

Students utilize the skills that they have to assemble stronger bridge structures using the provided materials.



**Figure 4.** *Tools for making bridge structures*

- 4 Integration of technology knowledge, Engineering, and Mathematics

In this case, the students use skills to analyze, give reasons to communicate ideas effectively, solve problems, and interpret solutions why they choose the bridge foundation that has been made. The students can also find out that the flat shape that they learned is also very beneficial for life.



**Figure 5.** *Results of the bridge structure*

As known, every child has different abilities. Likewise in terms of the ability to think critically on each student is also different. There are students who have high critical thinking skill and there are also students who have low critical thinking skills. This can be seen from the results of data analysis obtained from the test of critical thinking skill given to students. Critical thinking is very important for the future of the students, because it prepares students to face many challenges that will arise in the future, career, and at the level of their personal obligations and responsibilities (Tsui, 1999). In this case, it is very necessary for educators to direct students in the STEM learning process to be able to improve critical thinking skills. This supports the results of previous research conducted by (Tekerek & Karakaya, 2018) on the importance of awareness of STEM education conducted at State Universities in Turkey.

#### **4. Conclusion**

Based on the results of research and discussion, it can be deduced that the development of a rectangular module with the STEM approach to improve critical thinking skill that begins with a preliminary study shows that there is a need to develop a rectangular module with the STEM approach. The results of the validation indicate that it has met the module eligibility standards and has met the media eligibility standards. The results of individual trials state that the rectangular module with the STEM approach receive a positive response. The results of a limited scale trial show that the rectangular module as a whole is in the good category. In conclusion, rectangular module using STEM approach is valid and effective.

The effectiveness of the module is tested using wide scale test using the design of experimental one group pretest posttest. The result of t univariat test is 63.176. It can be concluded that there is an improvement of the average of students' outcome after using the module. The result of N-Gain is 0.37 which is included into medium for experiment class and N-Gain result for control class is 0.03 which is included into low category.

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## **EFFECTS OF COOPERATIVE LEARNING ON THE IMPROVEMENT OF INTERPERSONAL COMPETENCE AMONG STUDENTS IN CLASSROOM ENVIRONMENTS**

*Research Article*

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# COOPERATIVE LEARNING AND INTERPERSONAL COMPETENCE IN CLASSROOM ENVIRONMENTS

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## Abstract

The purpose of this study is to examine the relationship between interpersonal competence and classroom cooperation activities. This study selected and evaluated sixteen university students in problem-based learning (PBL) course. The students answered the same questionnaire before and after the cooperative learning of PBL, and the changes in their interpersonal competence were measured. The statistical analysis involved a paired samples *t*-test. The results suggest that the cooperative learning of PBL develops students' interpersonal competence in a statistically significant way. A qualitative analysis of the students' responses to the questionnaire also reveals the students' changing attitudes toward cooperative learning in the classroom environment.

*Keywords:* cooperative learning, problem-based learning, interpersonal competence, agreeableness, extraversion

## 1. Introduction

Interpersonal competence is crucial in the process of human growth. The importance of interaction with others begins with family members at an early age and continues with friends and teachers in schools and later with members of professional workplaces. Interpersonal competence is, therefore, an essential part of relationships with others and in social activities as well.

Interpersonal competence is often defined as a particular communication ability in interacting with others in a manner intended to achieve certain results or objectives (McConnell, 2018). It is usually related to teamwork or leadership and very often called forth in cooperative works or collaborative student learning.

Research on effective leadership or teamwork very often concludes that interpersonal competence is one of the factors essential to the achievement of shared organizational goals in a corporate setting or in society in general (Britton, Simper, Leger, & Stephenson, 2017; Fought & Misawa, 2016). Fought and Misawa (2016) conducted in-depth interviews of library directors and discovered that interpersonal competencies, such as communication skills and the ability to foster strong relationships, are the most important factors for their success. The Teamwork KSA Test developed by Stevens and Campion (1994, 1999), a measurement of teamwork competencies for the effectiveness of groups and work teams, designates three of five interpersonal competencies: conflict resolution, collaborative problem solving, and communication.

Interpersonal competence is also a personality trait. Dumont defines personality traits as descriptive schemas, the product of human reason and imagination (Dumont, 2010), leaving

room for regarding interpersonal competence as belonging to a realm of conceptualization. McCrae and Costa (1999) identify four presuppositions of the concept of personality traits: (a) human nature is knowable; (b) humans are capable of making an objective judgment of their own and others' characters; (c) people differ widely in their numerous personality traits; and (d) there are spontaneous elements in much of human behavior in spite of pre-determined factors. The conception of interpersonal competence as a personality trait, therefore, is vulnerable to the long-lasting "nature versus nurture" controversy.

Since interpersonal competence is recognized as an important driver of achievement in society, schools have begun to provide students with various opportunities for cooperative learning in classroom environments. Socratous (2014) emphasizes the importance of interpersonal skills. He quotes Dewey (1940), who argued that schools are responsible for the development of students' interests in many areas of learning. Dewey also proposes that all students should be encouraged to expand their horizons in an appropriate manner and to equip themselves with interpersonal/communication skills in multiple student group interactions. Following Dewey, most educational institutions from elementary schools to universities have opened many collaboration-based courses and curriculum subjects. Colleges and universities have been especially committed to providing larger numbers of courses about interpersonal skills because they believe the near-future employers of their students will require the students' interpersonal skills in various professional environments.

Here, we need to think about the student's resistance to the changes the cooperative learning program intends to bring about; this resistance mostly derives from the deep-rooted personality traits. Personality traits are known as relatively permanent characteristics of an individual, which are mostly inherited and hardly changed by behavioral practice (Helmreich, 1984; Kichuk & Wiesner, 1997). The attributes of personality permanence were mentioned earlier by Allport (1937), who stated that a person's personality trait is a generalized and focalized neuropsychic system that works specifically in guiding his or her behaviors. Then, can any educational effort to improve students' interpersonal competence affect their consistent behavior pattern and really change the student's personality traits?

We may not be able to fundamentally change students' personality traits, but we can find an improvement in their behavior pattern within the specific period of our education program. Our research focuses on examining whether students' class activity utilizing cooperation strategies and techniques can work to improve their interpersonal competency enough to produce measurable differences in their learning in a classroom environment. Skinner, Hyde, McPherson, and Simpson (2016) once compared two different groups of students; one group was a collaboration-oriented cohort, while the other was a traditional ordinary peer group. The results of their study reveal that the collaboration-oriented cohort achieved significantly higher scores in interpersonal skills compared with the other group. By comparing two different learning conditions and groups, this study proves the effectiveness of cooperative learning.

Our research shares the same educational goal as Skinner et al. (2016), but we focus more on the individual student's change before and after cooperative learning of PBL. Though here we concentrate on an individual student's change in interpersonal competence, it will be possible to test our premise on a bigger scale by studying large classroom environments.

## **2. Theoretical background**

### **2.1. Interpersonal competence as one of the personality traits**

Traits are a way of thinking about an individual's personality (Dumont, 2010). Following Gordon Allport, theoreticians such as Raymond B. Cattell and Hans Eysenck developed

categories to understand the traits of an individual in a general sense. Allport's three trait levels (cardinal, central, secondary), Cattell's sixteen personality factors (16PF), and Eysenck's three personality factors (PEN: psychoticism, extraversion, & neuroticism) are some examples of their conceptualizations and categorizations. Later studies of personality traits by both Fiske (1949) and Digman and Takemoto-Chock (1981) based their studies on Cattell's data and theorized human personality in their Five-Factor Model; five factors of personality traits are neuroticism (i.e., degree of emotional stability), extraversion (i.e., assertiveness, sociability, sense of energy, excitement), openness to experience (i.e., imagination), agreeableness (i.e., good-nature, cooperation), and conscientiousness (i.e., dependability, responsibility) (Jensen, 2005). Malco, Gordesli, Arslan, Cekici, and Sunbul (2019) explain how interpersonal competence helps students to initiate and sustain interpersonal relationships, to overcome adverse experiences, to receive and provide social support, and to derive satisfaction from social relationships. Costa and McCrae (1992) focus on the factors of agreeableness and extraversion and define them as follows:

Extraverts are, of course, sociable, but sociability is only one of the traits that comprise the domain of Extraversion. In addition to liking people and preferring large groups and gatherings, extraverts are also assertive, active, and talkative. They like excitement and stimulation and tend to be cheerful in disposition. They are upbeat, energetic, and optimistic...Like Extraversion, Agreeableness is primarily a dimension of interpersonal tendencies. The agreeable person is fundamentally altruistic. He or she is sympathetic to others and eager to help them, and believes that others will be equally helpful in return. (p. 15).

As we can see from the quotation, extraversion and agreeableness have positive effects on cooperative learning. Our research chooses these two as representative factors of interpersonal competence and concentrates on them.

## **2.2. Problem-based learning (PBL) as a way of cooperative learning**

Cooperative learning is a learning model in which students collaborate toward a common goal (Roger & Johnson, 1994; Siegel, 2005; Slavin, 1983; Socratous, 2014). Socratous (2014) argues that cooperative learning consists of five factors: positive interdependence, social skills, face-to-face interaction, individual accountability, and equal participation/opportunity. Any well-organized program of cooperative learning tries to cover all of these five factors, but it is not always successfully realized in a classroom situation.

PBL can be one of the methods to achieve the educational goal of cooperative learning, for PBL is based on cooperative activities and students' collaborative participation. PBL is a constructivist learning method, in which students study in groups by addressing or solving authentic and complex problems (Elder, 2009). In the 1960s, the McMaster University of Canada applied PBL theory to medical schools and found that various activities of PBL stimulated students to develop and learn skills of problem-solving, collaboration, and self-directed learning in addition to adaptive knowledge and higher motivation (Hmelo-Silver, 2004). It was also found that a close tie among students is an important component of the implementation of PBL. PBL can be an effective tool for cooperative learning, for it provides a scientific methodology and practical curriculum to realize the educational goal of cooperative learning.

## **2.3. Previous studies on interpersonal competence associated with cooperative learning**

In the past, the education studies of interpersonal competence mostly focused on students' academic achievement (Huitt, Killins, & Brooks, 2015; Prixten, De Fraine, Van Damme, &

D'Haenens, 2010). There were only a few studies of interpersonal competence focusing on students' social skills. A study on the improvement of interpersonal competence by PBL activity (Skinner et al., 2016) was one of those few. Skinner and other researchers examined the social skills of the undergraduate students who experienced small group PBL tutorial sessions and compared them with those enrolled in traditional courses. They report that the PBL students' scores of interpersonal skills are significantly higher than those of other students in traditional courses, and there is a positive relationship between group-based learning and individual students' social skills. However, another study of interpersonal competence in a cooperative learning environment shows the opposite result. Lara (2013) analyzed the game performance of university students who played an educational game collaboratively, and she evaluated the students' personality traits. She found that extraversion and agreeableness were negatively affecting the students' game performance. Therefore, there is so far no agreement on the effect of cooperative learning on individual students' interpersonal competence.

### 3. Methods

#### 3.1. Procedure and participants

This study examined sixteen participants from a general education course at S university, Seoul, Korea. The study required the selected students to fill out the same questionnaire twice, right before the cooperative learning of PBL and after the completion of the course. The questionnaire includes a measure of interpersonal competence. Students are informed that the study will use their questionnaires for improving teaching methodology. However, they do not know that the study will observe their interpersonal competencies, because that knowledge would provoke a biased response. The majority of the participants were female students ( $n=10$ , 63%), and mostly juniors and seniors ( $n=13$ , 81%). The second questionnaire included an extra descriptive question to obtain a deeper understanding of the change in the students' interpersonal competence by the end of the semester.

#### 3.2. Measures

The study measured students' interpersonal competency with the instrument developed by a 10-item test of Halfhill and Nielsen (2007). Halfhill and Nielsen made five items for measuring the "agreeableness" category and another five items for the "extraversion" category. Their items were modifications of the NEO-Five-Factor Inventory Short Form (Costa & McCrae, 1992). Costa and McCrae made questionnaires for measuring personality traits, and the questionnaires led to their revised NEO personality Inventory (NEO PI-R) and NEO-Five-Factor Inventory (NEO-FFI). Their inventory divides personality traits into five categories: neuroticism, extraversion, openness to experience, agreeableness, and conscientiousness. Later, Halfhill and Nielsen chose three categories for their teamwork study: agreeableness, extraversion, and conscientiousness. However, they narrowed them down again and ended up with two categories, agreeableness and extraversion. Here, we accept their final version of the test and integrate their questionnaires on agreeableness and extraversion into our examination of the students' interpersonal competence.

Our questionnaire expects students to answer ten questions in a five-choice format ranging from 1 (strongly disagree) to 5 (strongly agree). A Cronbach's  $\alpha$  was 0.74 for "agreeableness" and 0.84 for "extraversion." The questionnaire also included a descriptive question ("what was the best part of your PBL activity?") and an additional question about class satisfaction with options ranging from 1 (strongly dissatisfied) to 10 (strongly satisfied).

### 3.3. Analyses

In our research, the paired samples *t*-test examined the students' interpersonal competence. Tests occurred before the cooperative learning (BCL) and after the cooperative learning (ACL). The paired samples *t*-test compares two means of the same individual in order to decide whether the mean difference between paired observations on a particular outcome shows statistically significant differences (Paired samples *t*-test, n. d.).

Our study quantitatively analyzed the students' written responses to the descriptive question, which helped us to refine the established categorization. The principal researcher analyzed students' written responses and sorted them into two categories, agreeableness and extraversion. We used "The Adjective Check List Correlates of NEO-PI-R Facet Scale" (Costa & McCrae, 1992, p. 49) (table 1). Our study excluded other responses that were not relevant to personality traits. After analyzing the students' responses, the principal researcher delivered the initial findings to an educational specialist, who reviewed and evaluated them. This triangulation was performed to validate the data, and it is a necessary step in qualitative research to achieve a comprehensive understanding of the outcome (Carter, Bryant-Lukosius, DiCenso, Blythe, & Neville, 2014; Patton, 1999). After the triangulation, we reexamined the initial findings, modified our conclusions, and completed the finalized report on the qualitative research.

Table 1. *Adjective Check List for the analysis of the students' responses to the descriptive question*

Agreeableness facets	Adjective items	Extraversion facets	Adjective items
A1: Trust	<i>trusting</i>	E1: Warmth	<i>friendly</i>
A2: Straightforwardness	<i>demanding</i>	E2: Gregariousness	<i>sociable, talkative</i>
A3: Altruism	<i>generous</i>	E3: Assertiveness	<i>aggressive</i>
A4: Compliance	<i>intolerant</i>	E4: Activity	<i>energetic, active</i>
A5: Modesty	<i>show-off, clever</i>	E5: Excitement-Seeking	<i>pleasure-seeking</i>
A6: Tender-Mindedness	<i>sympathetic</i>	E6: Positive Emotions	<i>enthusiastic, praising, jolly</i>

*Note.* Adapted from *Revised NEO Personality Inventory (NEO PI-R) and NEO Five-Factor Inventory (NEO-FFI)* by P.T. Costa and R.R. McCrae, 1992, p. 49. Copyright 1992 by Psychological Assessment Resources, Inc.

## 4. Results

Table 2 presents the statistics of all measured variables in the paired samples *t*-text. The average score of the students' class satisfaction was 9.19 out of 10; it means that average students were strongly satisfied with the cooperative learning of PBL. Table 3 presents the corresponding correlational coefficients.

Table 2. *Variables of paired samples t-test*

Variables	BCL/ACL	Mean	N	Std. Deviation
Class satisfaction	-	9.19	16	1.167
Agreeableness	BCL	21	16	2.757
	ACL	23.38	16	1.784
Extraversion	BCL	18.81	16	3.563
	ACL	20.25	16	3.173

Table 3. *Correlations between variables*

	1	2	3	4	5
1. Class satisfaction	-				
2. Agreeableness-BCL	-.062	-			
3. Agreeableness-ACL	-.183	-.095	-		
4. Extraversion-BCL	0.156	.542*	0.085	-	
5. Extraversion-ACL	-.158	-0.046	.706*	.442	-

\* $p < 0.05$ 

The goal of this analysis is to examine the effect of cooperative learning of PBL in improving interpersonal competence. As shown from the results presented in table 4, cooperative learning of PBL increased the students' "agreeableness" up to an average of 2.38. There was a 95% confidence interval for this variable, and the difference was (-3.619, -1.131). This result implies that the effect of cooperative learning of PBL on "agreeableness" is statistically significant ( $p < 0.001$ ). Furthermore, cooperative learning of PBL also increased the students' "extraversion" up to an average of 1.44. In this case, the 95% confidence interval for the difference was (-0.048, -2.206). The increased interpersonal scores of the students' on the items "agreeableness" and "extraversion" statistically prove the importance of cooperative learning of PBL.

Table 4. *Statistic results of paired samples t-test*

Variables	BCL-ACL	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		t	df	Sig. (2-tailed)
					Lower	Upper			
Agreeableness	BCL-ACL	-2.375	2.335	0.584	-3.619	-1.131	-4.069	15	0.001
Extraversion	BCL-ACL	-1.437	2.607	0.652	-0.048	-2.206	-2.206	15	0.043

The qualitative analysis of the responses to the descriptive question shows that all the students are positive about their experience of cooperative learning of PBL. 94% of the students gave positive comments on the item, “extraversion,” 38% of them on the item, “agreeableness,” and 31% of them on both items. Figure 1 shows the frequencies of the sub-domains of interpersonal competence. “Gregariousness (E2)” in the domain of “extraversion” is the sub-domain to which the largest number of students (11 of 16 students) showed a favorable response.

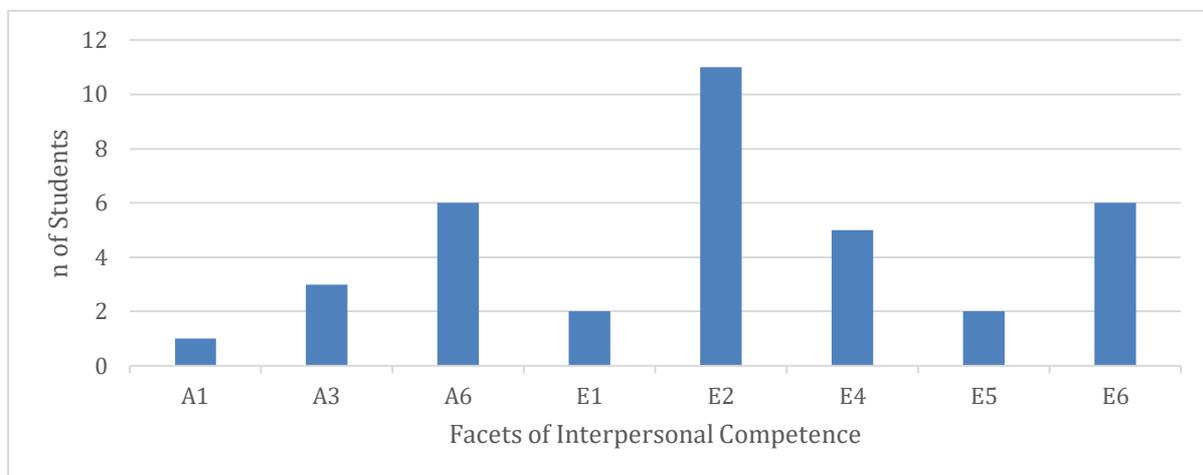
Figure 1. *Frequencies of sub-domains of Interpersonal Competence*

Table 5. *Students' responses to a descriptive question*

Domains (n of Students)	Students' Responses
Agreeableness (1)	Student a: We could get along with new friends.... I loved sharing opinions with different persons. (A6)
Agreeableness & Extraversion (5)	<p><i>Student b:</i> We enjoyed sharing our thoughts and encouraged each other's opinions... We were able to keep a bond among us... This is my first experience of team project. ... Our team members are all kind... They always made me smile during our meetings. (A1, A3, A6, E6)</p> <p><i>Student c:</i> The best part of our PBL activity was the teamwork. I was so thankful for the members' active engagement. The members were all kind and very supportive. (A3, A6, E4)</p> <p><i>Student d:</i> I loved the mood of our team. It was always friendly and cheerful. We all knew every member's ability and tried to assign the right work to the right person. ...we had many conversations... I tried to help team members. I found pleasure in understanding my team members. (A3, A6, E1, E2, E5, E6)</p> <p><i>Student e:</i> The group members were very friendly, so we all enjoyed our meeting. We could get along well. (A6, E2, E6)</p> <p><i>Student f:</i> I was pleased to experience this PBL activity... I was happy to communicate well...We were able to complete PBL without too much difficulty because we helped each other and shared our opinions so well. (A6, E2, E6)</p>
Extraversion (10)	<p><i>Student g:</i> This PBL activity created really friendly and cheerful atmosphere. (E1, E6)</p> <p><i>Student h:</i> There was no difficulty in our discussions. All the members talked a lot. (E2)</p> <p><i>Student i:</i> I was able to get closer to my group members. (E2)</p> <p><i>Student j:</i> We could talk and persuade others with different opinions and positions. (E2)</p> <p><i>Student k:</i> All the team members were helping each other and tried to make a good team. (E2)</p> <p><i>Student l:</i> First team work was very stressful, but I could learn how to deal with it. Now, I am very content with my communication ability. (E2, E4)</p> <p><i>Student m:</i> Everyone was quite active in expressing his or her opinions... No one was quiet during the meeting... Everyone was very enthusiastic and came up with creative ideas. (E2, E4)</p> <p><i>Student n:</i> The first adjustment was not easy, but a lot of meeting and talk helped us to work harmoniously together on the project. Sometimes our chatting delayed our discussion time, but our team project went well. We could learn how to respect each other. (E2, E6)</p> <p><i>Student o:</i> Everyone took an active part in the project. No one was missed at all. It was the most rewarding and satisfying group activity for two years... We came to know each other and were able to have a lot of fun. (E2, E4, E5)</p> <p><i>Student p:</i> I was very impressed by the members' passion and dedication for the project. (E5)</p>

## 5. Conclusion

The purpose of this study is to observe how the students engaged in cooperative learning improve their interpersonal competence with the help of cooperative learning techniques. This study measured the changes in the students' interpersonal competence before and after the co-operative learning sessions of PBL. The study also analyzed the students' responses to the descriptive question. The results of the study reveal the students' meaningful development in interpersonal competence ("agreeableness" and "extraversion") through the cooperative learning activities of PBL. Recent studies on cooperative learning since the 1970s have focused only on its academic and social outcomes (Gillies & Ashman, 2003). They usually conclude that cooperative learning leads to successful academic and social achievements (Gillies & Ashman, 1996; Gillies, 2006). This study, however, focuses more on the process of the students' development in interpersonal competence, and explains the relationship between cooperative learning and interpersonal competence in terms of the personality traits.

The analysis of the students' response to the descriptive question on cooperative learning proves that their interpersonal competence and social skills improve through their participation in cooperative learning activities. Students turn out to be more assertive, active, and expressive after the co-operative learning sessions of PBL. One of the students' comments sums up their learning: "Everyone took an active part in the project. No one was missed at all. It was the most rewarding and satisfying group activity for two years... We came to know each other and were able to have a lot of fun."

Figure 2 delineates the effects of cooperative learning of PBL on interpersonal competence. It explains how interpersonal competence develops with the help of the cooperative learning of PBL: the more students engage in cooperative learning, the higher the level of their interpersonal competence rises. Figure 2 also shows that the positive effects of cooperative learning on the development of the interpersonal skills naturally lead to the students' higher satisfaction with the class.

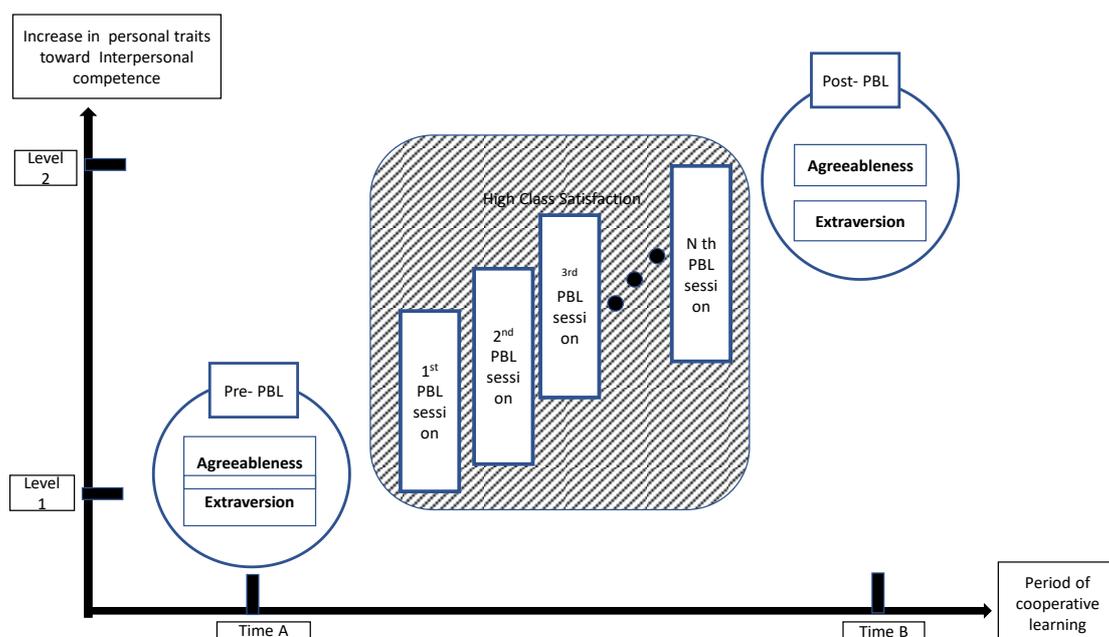


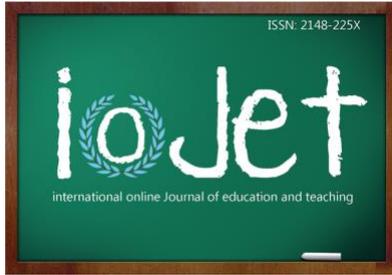
Figure 2. Schematic picture of the effects of cooperative learning on interpersonal competence

Our research proposes that students achieve significant growth in their interpersonal competence through the application of cooperative learning of PBL. However, we have to confine the relevance of our findings to a short-term educational period. Personality traits are relatively permanent characteristics, which are mostly inherited and hardly changed by any type of behavioral practice (Helmreich, 1984; Kichuk & Wiesner, 1997). However, our study suggests that Helmreich's and Kichuk and Wiesner's ideas about the relative permanence of personality traits may be wrong. Therefore, future research needs to expand the period of time and observe how cooperative learning develops students' interpersonal competence and improves their personality traits, making the most of the statistical significance revealed in our case study.

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## **TETRAHEDRON CYBER DIPL TO IMPROVE TEACHING, LEARNING AND DIGITAL EQUITY IN THE INSTITUTE OF ARCHITECTURE**

*Research Article*

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# **TETRAHEDRON CYBER DIPL TO IMPROVE TEACHING, LEARNING AND DIGITAL EQUITY IN THE INSTITUTE OF ARCHITECTURE**

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## **Abstract**

This study is a research based on asking students questions and the conceptual framework developed by Houssaye (2000). The integration of a fourth pole into the Houssaye's pedagogical triangle (2000), as well as the survey carried out with 322 students, allowed us to develop a tetrahedron designed to improve teaching, learning, and digital equity in the institute of architecture, Ferhat Abbas University Setif 1 (Algeria). The tetrahedron is called tetrahedron Cyber DiPL with Di for Didactic, P for Pedagogy, L for Learning. The pole, as a device cyber including digital inclusion, is an opportunity to use Information and Communication Technologies (ICTs). According to knowledge types: know-how (Kh), knowledge practice (Kp), and theoretical knowledge, learned or scientific knowledge (Tk), tetrahedron Cyber DiPL includes Cyber DiPL to do, Cyber DiPL to practice, and Cyber DiPL to differentiate.

*Keywords:* Survey, Houssaye's pedagogical triangle, tetrahedron Cyber DiPL, teaching, learning, digital equity

## **1. Introduction**

Algeria has set several Millennium Development Goals (MDGs) through its reports (Algeria Millennium Development Goals, 2016). While the country is making progress on several MDGs, the fact remains that the MDG on digital equity is not yet in place (Algeria Millennium Development Goals, 2016). If 3G and 4G mobile networks are expanding thanks to submarine cables linking Algeria to fiber optics, however, the institutes don't bother improving teaching, learning, and digital equity. Chalkboards are still used to communicate and teach. The white sheet and the ballpoint pen are still relevant (Algeria Millennium Development Goals, 2016). The Houssaye's pedagogical triangle (2000) is a tool frequently used (Seghroucheni, Al Achhab & El Mohajir, 2014), and it seems to go on forever!

The institute of architecture, for example, remains closed on digital equity, and yet means are not missing! In general, the computer, the printer, and the scanner equip some premises; the internet is only present in local administration, and research laboratories. At the level of classrooms and workshops, the computer and the internet are missing. Therefore, students must fend for themselves using their mobile phones if they have 3G and 4G mobile networks. For those who are not connected, they are simply forgotten! It is necessary to integrate technology in classrooms, workshops, research laboratories, and in teacher education programs (Mysore, 2018).

When considering the role of technology in development of the twenty-first century, we accept with Resta & Laferrière (2015) that digital equity and education continue to be areas of concern in the emerging knowledge-based society. For this reason, we can say with Schrum & Sumerfield (2018) digital equity is the civil rights of our time. However, we admit with Davis et al. (2007) that digital equity is not a product of consumption but an equitable distribution based on students' needs.

Though an exact definition of digital equity remains elusive (Davis et al., 2007), there have been various interesting academic meanings (Resta & Laferrière, 2015; Mysore, 2017; Reich & Iton, 2017; UNESCO, 2017; Adams et al., 2018; Howard, Schaffer & Thomas, 2018; Mysore, 2018; Passey et al., 2018; Quaintance, 2018; Resta, Laferrière, Mc Laughlin & Kouraogo, 2018; Tierney, Corwin & Ochsner, 2018; Treviranus, 2018 and Reich, 2019).

There are also topics which are widely accepted among academic communities such as:

- Digital equity considerations
- Technology policies and practices in higher education
- Digital inclusion in teaching and learning
- Strategies to avoid digital divide
- Digital equity for teaching and learning
- Representational issues in digital access in education, and so on.

In addition to the topics above, the current study also aims to suggest a tetrahedron improving teaching, learning, and digital equity in the institute of architecture. Although there are two main tetrahedrons recommended by Alava (2000) and Lombard (2003), fairly limited empirical research has been carried out in this particular topic; therefore, this study will contribute to the elimination of a gap in the literature.

## **2. Literature Review**

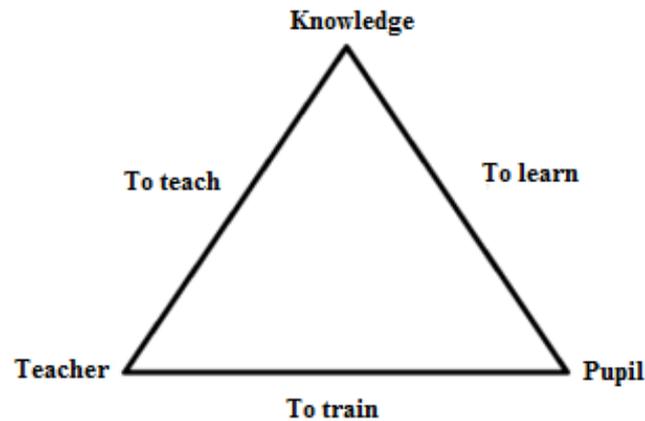
According to Smyrnaoui, Riopel and Sotiriou (2016), models designed for diverse learning situations involving several interactors aren't numerous. However, in addition to the two main tetrahedrons' Alava (2000), and Lombard (2003) (which are developed below), other models deserve to be reported such as: Altet's (1997) systemic model, Rezeau's (2001) pedagogical square (including Teacher, Learner, Knowledge and Instrument), Ailincai's (2010) KITLoK model (with Knowledge, Instrument, Tutor, Learner, other Knowledge), and Poisson's (2010) tetrahedral model (with potential educational situations as the distance learning and the E-Learning). The models developed by the authors showed the use of interactions between learner-teacher, and teacher in instrumented learning situations. The models also determined the role of knowledge and the instrument (as a digital device) used during exchanges. The most preferred and most used instrument is the computer. The use of computers in learning situations creates a form of a dialectic between knowledge, and the reflection on how to do tasks. Therefore, it is an instrument of cognitive mediation and seems to promote communication, and social relationships (Smyrnaoui, Riopel & Sotiriou, 2016). Thus, the presence of the instrument within the interactive learning environment has led us to introduce the pole DC Cyber DiPL and emphasize its importance in our study.

## **3. Purpose and Research Question of the Study**

The main purpose of this study is to present a tetrahedron designed to improve teaching, learning, and digital equity in the institute of architecture. The tetrahedron is called tetrahedron Cyber DiPL with Di for Didactic, P for Pedagogy, L for Learning. The tetrahedron is depicted with regard to Houssaye's pedagogical triangle (2000) that inspired it. Houssaye's pedagogical triangle can be developed taking into account students' wishes and needs; these wishes and needs can be identified through surveys. So, we integrated the fourth

pole into the Houssaye's pedagogical triangle in order to obtain a tetrahedron. Why a tetrahedron and not a quadrilateral or other four-sided figure? This is related to the tetrahedrons' geometry. A tetrahedron is a solid figure having four triangular faces. In other words, each face is a triangle. These are precisely the triangles that interest us in this study.

Houssaye's pedagogical triangle (2000) is a triangle with three corners: knowledge, teacher and pupil.



*Figure 1.* Houssaye's pedagogical triangle

Knowledge is the program to be taught, the content of the training. In a general way, the teacher makes learn and transmits knowledge. The pupil, for his part, acquires it. The sides of the triangle are the necessary relations for any pedagogical act. In this way, Houssaye distinguishes:

- The didactical relationship Teacher-Knowledge which allows the teacher to teach.
- The pedagogical relationship Teacher- Pupil which allows the pupil to train.
- The apprenticeship relationship Pupil- Knowledge which allows pupil to learn.

According to Houssaye (2000), in the pedagogical situation Knowledge-Teacher-Pupil, there can be only one relationship at a time. Two constitute, themselves, as subjects while the third tends to be forgotten or to fade away. In the didactical Teacher-Knowledge relationship centered on the training and learning program, if during the classroom, pupil is talkative, boisterous, and inattentive, it's because he tends to be forgotten. In the pedagogical relationship Teacher- Pupil, two actors are in action. And as the issue is at the level of pedagogical situations to be presented, some key points can be missed or misunderstood. In the apprenticeship relationship Pupil- Knowledge, it is the teacher who is missing and fading away. We then distinguish in the pedagogical triangle, three types of pedagogy: traditional, frontal, and not directive. For traditional pedagogy, priority is given to Teacher-Knowledge relationship. The pupil as an actor is put aside. In the frontal pedagogy Teacher- Pupil, it's the situation where some knowledge can be missed. In the not directive pedagogy Pupil-Knowledge, by building his own representations of knowledge, pupil can forget some of them. In the Houssaye's pedagogical triangle (2000), there are actors forgotten and tending to disappear, and the most important thing is that access to Information and Communication Technologies (ICTs) are missing. Therefore, the lack of digital equity is evident.

Given that information, the fourth pole (Device Cyber DiPL or DC Cyber DiPL with Di for Didactic, P for Pedagogy, L for Learning) was integrated within the Houssaye's pedagogical triangle to obtain a tetrahedron. Then, with knowledge types: know-how (Kh),

knowledge practice (Kp), and theoretical knowledge, learned or scientific knowledge (Tk), we discerned tetrahedrons Cyber DiPL to do, to practice, and to differentiate.

Cambridge dictionary online defines cyber as a prefix relating to computers, and especially to the internet. In other words, it is added to an existing word to transpose reality into cyberspace or to associate with it. Associated with DiPL, it concerns education sciences. It includes general digital resources and, digital teaching and learning resources. In these conditions, the device Cyber DiPL is defined as a lever for many educational activities in disciplines and learning for all ages, and whose interactions can continue through time and space. It brings together digital resources that are favored by Information and Communication Technologies (ICTs). The device Cyber DiPL can be favored by these resources which depend on educational networks set up by institutes, and training institutions.

According to these data, the research question guided this study is the following:

Can the tetrahedron Cyber DiPL be a pedagogical tool to improve teaching, learning, and digital equity in the institute of architecture?

## **4. Method**

### **4.1. Participants**

The selection has been focused on undergraduate students from the institute of architecture, Ferhat Abbas University Setif 1. 322 students have been randomly chosen from the 2018-2019 academic year (September 2018-June 2019); they were 146, 96 and 83 respectively from the first, second and third years at the time of data collection.

### **4.2. Data Collection Procedures**

The data collection of the current study was executed by means of quantitative and qualitative methods. In this regard, we have developed a questionnaire composed of 8 items using a 5-point Likert scale, with Strongly Disagree to Strongly Agree. The Students answered these questions as: Strongly Disagree, Disagree, Undecided, Agree, Strongly Agree in terms of their stance towards the item investigated. The closed questions which required a one-word answer included the following questions:

1. Is the internet important for you?
2. Are you finding the information you're looking for online?
3. Are computers and the internet useful in classrooms and workshops?
4. Do you need peripheral devices?
5. Do you use the internet for your workshop project?
6. Do digital resources improve your research works?
7. Do you agree with teaching and learning practices in your institute?
8. Do you agree with current teaching methods using the design studio (research and project phases)?

Four open-ended questions were also added (item 9 to item 12). We encouraged students to give free-form answers including feelings, attitudes, and understanding of each item. This allowed us to better access the respondents' true feelings on an issue. The questions which required more thought and more than a simple one-word answer are the followings:

9. What do you want most in your institute of architecture?
10. What drawing software do you use for your architectural design studio?
11. What are the various types of classroom technologies that can be used to liven up a learning session?

12. What is the meaning of digital equity in higher education? (Give your own definition).

The survey was fielded from November 2018 to January 2019. Champagne's book (2014), *The Survey Playbook: Volume 1: How to create the perfect survey* and Sphinx iQ 2 have been of great use for our data collection.

### 4.3. Data Analysis Procedure

We also wanted for the present study answers which require more thought, and more than a simple one word. Instead of just yes/no which quantifies an opinion, it was necessary for students to reply in an open text format such they can answer based on their knowledge, feeling, and understanding. Although open-ended questions require lengthier responses, students did not skimp on answers. We wanted the output to be actionable not just measurable. Sphinx iQ 2 was used for the data analysis procedure.

### 4.4. Two similar tetrahedrons: Alava's and Lombard's tetrahedrons

Similar tetrahedrons are also analyzed to answer the research question. Alava (2000) integrated a fourth media pole into Houssaye's pedagogical triangle in order to have a tetrahedron describing it as an E-learning tetrahedron. With four actors (Learners, Knowledge, Trainer, and Media), the tetrahedron brought out four triangles: mediation triangle, pedagogical triangle (Houssaye's triangle), didactical triangle, and documentary triangle. With the E-learning tetrahedron, training was ensured and better-managed thanks to the Information and Communication Technologies (ICTs). Alava (2000) reported that teachers could improve their knowledge, and students should enhance their way of learning because of communication technologies and cyberspace. The tetrahedron he developed is as follows:

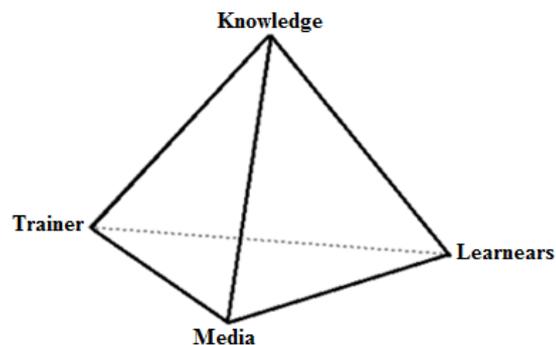


Figure 2. E-learning tetrahedron or Alava's tetrahedron

With the integration of a device-cyber-teacher, Lombard's tetrahedron (2003) (figure 3) allowed analyzing interactions between actors: Teacher, Pupil, Knowledge, and Device-Cyber-Prof. Lombard (2003) distinguished the following triangles:

- Houssaye's classical triangle: Teacher-Knowledge-Pupil.
- Cyber pure triangle: Pupil; Device-Cyber-Prof; Knowledge.
- Social triangle: Pupil; Device-Cyber-Prof; Teacher.
- Scientific triangle: Knowledge; Device-Cyber-Prof; Teacher.

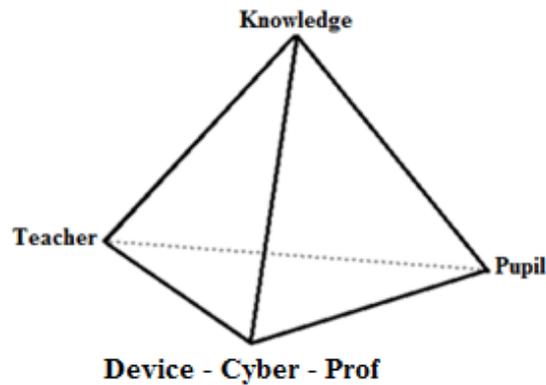


Figure 3. Lombard's tetrahedron

Lombard (2003) reported that Device-Cyber-Prof (DCF) was a technological device to improve teaching and learning, and to enhance digital equity in higher education. It was also a means of interactive communication through time and space promoting Information and Communication Technologies (ICTs). These two tetrahedrons helped us to develop our own one.

## 5. Findings and Discussion

The findings were based on:

- the survey carried out with 322 students from the institute of architecture;
- the integration of a fourth pole into the Houssaye's pedagogical triangle (2000).

### 5.1. Findings based on the survey

Findings based on closed questions:

They are presented in the following Table 1 as follows:

Table 1. Findings for the items related to students' views

(SD=Strongly Disagree, D=Disagree, U=Undecided, A= Agree, SA=Strongly Agree)

(n = number of participants, % = percentage)

Items	SD	D	U	A	SA
	n %	n %	n %	n %	n %
1. Is internet important for you?	2 0.62%	2 0.62%	3 0.93%	66 20.50%	249 77.33%
2. Are you finding the information you're looking for online?	9 2.80%	10 3.11%	6 1.86%	105 32.60%	192 59.63%
3. Are computer and internet useful in classrooms and workshops?	-	-	-	21 6.52%	301 93.48%
4. Do you need peripheral devices?	-	-	2 0.62%	8 2.48%	312 96.90%
5. Do you use internet for your workshop project?	-	-	-	100 31.06%	222 68.94%
6. Do digital resources improve your research works?	5 1.56%	7 2.17%	12 3.73%	167 51.86%	131 40.68%
7. Do you agree with teaching and learning practices in your institute?	168 52.18%	136 42.24%	7 2.17%	6 1.86%	5 1.55%
8. Do you agree with current teaching methods using in the design studio (Research and project phases)?	198 61.50%	122 37.88%	2 0.62%	-	-

The first item investigated the students' views on the importance of internet. The findings showed that most of the students agreed with the statement (A=20.50%, SA=77.33%). Only four disagree with the statement (D=0.62%, SD=0.62%), and only three were undecided (U=0.93%). The second item investigated the students' views on whether they can find information they are looking for online. Most of students agreed with the statement (A=32.60%, SA=59.63%). Nineteen students disagreed on the statement (D=3.11%, SD=2.80%), and six were undecided on the statement (U=1.86%). The third item investigated the students' views on the usefulness of computer and internet in classrooms, and workshops. Most of the students agree with the statement (A=6.52%, SA=93.48%). The fourth item investigated the students' views on the need for peripheral devices. Most of the students agree with the statement (A=2.48%, SA= 96.90%). Two students were undecided on the statement (U= 0.62%). The fifth item investigated the students' views on whether they use the internet for their workshop projects. All students agree with the statement (A= 31.06%, SA= 68.94%). The sixth item investigated the students' views on whether they can improve their research works using digital resources. Most of the students agreed with the statement (A=51.86%, SA=40.68%). Twelve students disagreed on the statement (D=2.17%, SD=1.56%), and twelve were undecided on the statement (U=3.73%). The seventh item investigated the students' views on teaching and learning practices in their institute. Most of the students disagree with the statement (D=42.24%, SD=52.18%). Seven students were undecided (U= 2.17%), and eleven students agree with the statement (A=1.86%, SA=1.55%). Lastly, the eighth item investigated the students' views on current teaching methods using in the design studio (research and project phases). Most of the students disagree with the statement (D= 37.88%, SD= 61.50%). Two students were undecided on the statement (U= 0.62%).

Findings based on open-ended questions:

Two hundred and thirty-two students (74.04%) answered the four questions. One hundred sixty-seven students (51.86%) submitted meaningful replies to the questionnaire. Findings are presented in Table 2.

Table 2. *Main students' meaningful answers*

Number of students and percentage	Items	Man students' meaningful answers
232 students (74.04%) answered the four questions.  167 students (51.86%) submitted meaningful answers.  We have selected the most interesting ones.	9. What do you want most in your institute of architecture?	<ul style="list-style-type: none"> <li>- Adaptation of the institute to requirements of the digital age.</li> <li>- Innovative teaching strategies that emphasize enjoyable and relevant educational experiences.</li> <li>- Education that will meet students' needs in a constantly changing world.</li> <li>- Development of digital learning environments.</li> <li>- Incorporation of digital technology, digital media and challenging activities.</li> </ul>
	10. What drawing software do you use for your architectural design studio?	Archi CAD, Auto Cad, HomeByMe, Kozikaza, Photoshop, Revit, Sketch Up, Sweet Home 3D, Viacad 2/D3.
	11. What are the various types of classroom technologies that can be used to liven up a learning session?	<ul style="list-style-type: none"> <li>- Interactive whiteboard (IWB), interactive digital board (IDB), interactive educational board (IEB).</li> <li>- Videoconferencing.</li> <li>- Virtual field trip.</li> <li>- Computer simulation and Modelling (Modeling).</li> </ul>
	12. What is the meaning of digital equity in higher education? Give your own definition.	<ul style="list-style-type: none"> <li>- Equal access to internet and digital technology for everyone without exception.</li> <li>- Quest for digital knowledge for all university community.</li> <li>- Access to modern information and communication technology.</li> </ul>

The above Tables 1 and 2 reveal the importance of internet and the online information with the statement (A=20.50%, SA=77.33%), (A=32.60%, SA=59.63%); the usefulness and the need of computer and internet in classrooms, and workshops with the statement (A=6.52%, SA=93.48%), peripheral devices with the statement (A=2.48%, SA= 96.90%), internet for workshop projects with the statement (A= 31.06%, SA= 68.94%), digital resources with the statement (A=51.86%, SA=40.68%); the uselessness of the current teaching and learning practices in the institute with the statement (D=42.24%, SD=52.18%), and teaching methods using in the design studio (research and project phases) with the statement (D= 37.88%, SD= 61.50%). Students wanted to use the internet, online information, computer, peripheral devices, and digital resources. It is vitally important that students learn to use them to improve their works in classrooms and their workshop projects. Access to higher education encompasses access to the technology, and connectivity necessary to access that education (Selwyn, 2016). Students didn't like teaching and learning practices in the institute and teaching methods using in the design studio (research and project phases) because IT tools and the internet are missing.

According to Table 2, students expected an adaptation of the institute to requirements to the digital age, innovative teaching strategies that emphasize enjoyable and relevant educational experiences, education that will meet their needs in a constantly changing world, development of digital learning environments, incorporation of digital technology, digital media, and challenging activities. They are using for their architectural design studio Archi CAD, Auto CAD, HomeByMe, Kozikaza, Photoshop, Revit, Sketch Up, Sweet Home 3D, and Viacad 2D/3D. These are software drawing applications using by architects. They help students to do graphic design, representational drawings, photos, and images. They also allow them to produce architectural project including, plans, elevations, sections, modelling (modeling), rendering, and 2D construction documents. The interactive whiteboards (IWBs), interactive digital boards (IDBs), and interactive educational boards (IEBs) are desired in classrooms by students as well as videoconferencing, virtual field trip, computer simulation and modeling (modeling). They have great potential as tools to enhance pedagogical practices in the classroom, and ultimately to improve student achievement (Lant & Lawson, 2016). Lastly, one hundred sixty-seven students (51.86%) defined digital equity in higher education as equal access to the internet, and digital technology for everyone without exception, a quest for digital knowledge for all university community or an access to modern information, and communication technology. These definitions although incomplete reinforce our belief that digital equity is essential in the institute of architecture. Thus, Table 2 leads us to say that teaching, learning practices, and digital equity should be improved in the institute of architecture.

## **5.2. Findings based on the integration of a fourth pole into the Houssaye's pedagogical triangle**

The integration of a fourth pole into the Houssaye's pedagogical triangle (2000) gave a tetrahedron. The tetrahedron Cyber DiPL proposed will have the following geometrical shape:

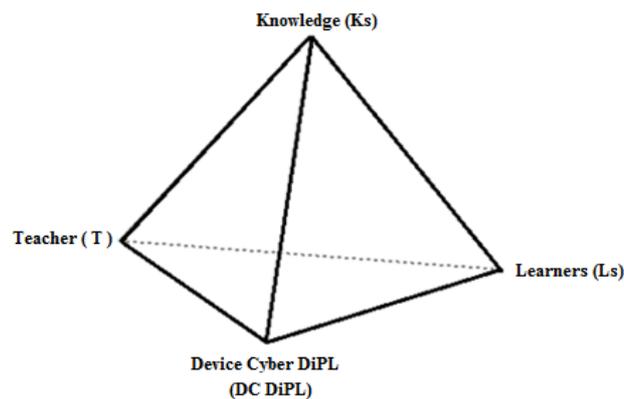


Figure 4. Tetrahedron Cyber DiPL

As mentioned above, Device Cyber DiPL (DC DiPL) is favoring by Information and Communication Technologies (ICTs). Communication technologies embedded in teaching or learning processes involve learning and development (Chai, Koh & Teo, 2018). They are a driving force in the process of transferring of worthwhile goals from a teacher to expected learners that would make them to be useful to themselves and the society at large (Akarowhe, 2017). Cyber DiPL tetrahedron can vary according to pedagogical situations and knowledge put forward. According to knowledge types: know-how (Kh), knowledge practice (Kp), and theoretical knowledge, learned or scientific knowledge (Tk), each tetrahedron provides three other triangles.

Thus, we discern for:

- Know-how (Kh): educational situation to do (ES to do).
- Knowledge practice (Kp): educational situation forged by experience (ES to practice).
- Theoretical knowledge (Tk): educational situation to differentiate (ES to differentiate).

An educational situation is defined as a triangle composed of three interrelated elements to each other to work. Educational situations according to types of knowledge are presented in Table 3.

Table 3. Educational situations according to types of knowledge

Knowledge Triangles	Know-how (Kh)	Knowledge practice (Kp)	Theoretical knowledge (Tk)
<b>Triangle of a didactic</b>	Triangle of a didactic to do	Triangle of a didactic to practice	Triangle of a didactic to differentiate
<b>Triangle of Houssaye</b>	Houssaye's pedagogical triangle		
<b>Triangle of a pedagogy</b>	Triangle of a pedagogy to do	Triangle of a pedagogy to practice	Triangle of a pedagogy to differentiate
<b>Triangle of an apprenticeship</b>	Triangle of an apprenticeship to do	Triangle of an apprenticeship to practice	Triangle of an apprenticeship to differentiate
Educational Situation (ES)	ES to do	ES to practice	ES to differentiate

The educational situation (ES) (see Table 3) includes four types of triangles:

- Triangle of a didactic
- Triangle of Houssaye
- Triangle of a pedagogy
- Triangle of an apprenticeship

According to types of knowledge: know-how (Kh), knowledge practice (Kp), and theoretical, learned or scientific knowledge (Tk), each triangle also provides three other triangles and one Houssaye's triangle.

For the triangle of a didactic, the triangles are:

- Triangle of a didactic to do: for Know-how (Kh)
- Triangle of a didactic to practice: for Knowledge practice (Kp)
- Triangle of a didactic to differentiate: for theoretical, learned or scientific knowledge (Tk)

For the triangle of Houssaye: Houssaye's pedagogical triangle

For the triangle of pedagogy, the triangles are:

- Triangle of a pedagogy to do: for the teacher who has the know-how
- Triangle of pedagogy to practice: for the teacher who has knowledge practice
- Triangle of pedagogy to differentiate: for the teacher who has theoretical, learned or scientific knowledge

For the triangle of an apprenticeship: the triangles are:

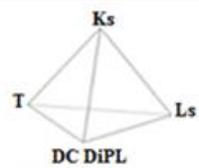
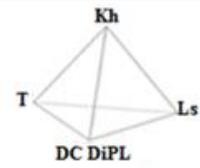
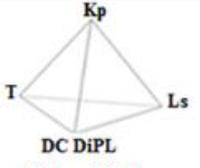
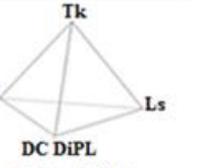
- Triangle of an apprenticeship to do: for know-how (Kh)
- Triangle of an apprenticeship to practice: for knowledge practice (Kp)
- Triangle of an apprenticeship to differentiate: for theoretical, learned or scientific knowledge (Tk).

Table 1 summarizes educational situations according to the different types of knowledge:

- For know-how (Kh), ES to do encompasses triangle of a didactic to do, triangle of a pedagogy to do, and triangle of an apprenticeship to do.
- For knowledge practice (Kp), ES to practice encompasses: triangle of a didactic to practice, triangle of a pedagogy to practice, and triangle of an apprenticeship to practice.
- For theoretical, learned or scientific knowledge (Tk), ES to differentiate encompasses: triangle of a didactic to differentiate, triangle of a pedagogy to differentiate, and triangle of an apprenticeship to differentiate.

In the light of findings in Tables 3 and the tetrahedron's shape of the Figure 4, tetrahedrons Cyber DiPL and types of triangles are presented in Table 4.

Table 4. *Tetrahedrons Cyber DiPL and types of triangles*

Triangles & Tetrahedrons	Knowledge	Know-how (Kh)	Knowledge practice (Kp)	Theoretical knowledge (Tk)
<b>Triangle of a didactic</b> = <b>T - Ks - DC DiPL</b>		Triangle of a didactic to do = <b>T-Kh-DC DiPL</b>	Triangle of a didactic to practice = <b>T-Kp-DC DiPL</b>	Triangle of a didactic to differentiate = <b>T-Tk-DC DiPL</b>
<b>Triangle of Houssaye</b> = <b>T - Ks - Ls</b>		Houssaye's pedagogical triangle		
<b>Triangle of a pedagogy</b> = <b>T - DC DiPL - Ls</b>		Triangle of a pedagogy to do = <b>T(Kh)-DC DiPL-Ls</b>	Triangle of a pedagogy to practice = <b>T(Kp)-DC DiPL-Ls</b>	Triangle of a pedagogy to differentiate = <b>T(Tk)-DC DiPL-Ls</b>
<b>Triangle of an apprenticeship</b> = <b>Ls - Ks - DC DiPL</b>		Triangle of an apprenticeship to do = <b>Ls-Kh-DC DiPL</b>	Triangle of an apprenticeship to practice = <b>Ls-Kp-DC DiPL</b>	Triangle of an apprenticeship to differentiate = <b>Ls-Tk-DC DiPL</b>
 <b>Tetrahedron Cyber DiPL</b>	 <b>Cyber DiPL to do</b>	 <b>Cyber DiPL to practice</b>	 <b>Cyber DiPL to differentiate</b>	

Tetrahedron Cyber DiPL to do (as ES to do) focuses on interactions between Teacher (T), Know-how (Kh), Learners (Ls), and device cyber DiPL (DC DiPL). It consists of:

- Triangle of a didactic to do: T-Kh-DC DiPL
- Triangle of a pedagogy to do: T(Kh)-DC DiPL-Ls
- Triangle of an apprenticeship to do: Ls-Kh-DC DiPL

In the tetrahedron Cyber DiPL to do: it is the example of teacher and the trainee teacher facing learners. Generally, they acquire somehow technological devices that exist. Technological devices can give teachers or trainee teachers the opportunity to encourage students to engage in explorations by simulations (Clarke, 2018). The teacher or the trainee teacher, by helping students to access numerical resources, increase their digital knowledge and contribute to the meaning of digital equity (Quaintance, 2018). This is an advantage that help students to use computer technologies and internet (Tables 1 and 2) eliminating digital inequities within the institute (Mysore, 2017). It is also the pooling of knowledge that may help students facing for example new IT tools (see Table 2) as the use of interactive whiteboards (or interactive digital boards and interactive educational boards) (Al-Qirim et al., 2017), and digital information (Hatlevik & Hatlevik, 2018).

Tetrahedron Cyber DiPL to practice (as ES to practice) focuses on interactions between teacher (T), Knowledge practice (Kp), Learners (Ls), and device cyber DiPL (DC DiPL). It consists of:

- Triangle of a didactic to practice: T-Kp-DC DiPL
- Triangle of a pedagogy to practice: T(Kp)-DC DiPL-Ls
- Triangle of an apprenticeship to practice: Ls-Kp-DC DiPL

In the tetrahedron Cyber DiPL to practice, it is the accumulation of practices and experiences in which actors (T= Teacher and Ls = Learners) have already acquired knowledge from previous situations (from tetrahedron Cyber DiPL to do). In the institute of architecture, students wanted to use internet, online information, computer, peripheral devices, and digital resources. They didn't like teaching and learning practices, and teaching methods using in the design studio (research and project phases). They expected an adaptation of the institute to requirements to the digital age, innovative teaching strategies that emphasize enjoyable and relevant educational experiences, and so on. According to Tables 1 and 2, the institute of architecture needs an enhancement of teaching and learning, and the involvement of teachers. In an ever-changing technological environment, students and teachers could further strengthen their knowledge and know 'where' to use technology, 'what' technology to use and 'how' to teach, and learn with it (Kelly, 2008).

Tetrahedron Cyber DiPL to differentiate (as ES to differentiate) focuses on interactions between teacher (T), theoretical, learned or scientific knowledge (Tk), learners (Ls), and device cyber DiPL (DC DiPL). It consists of:

- Triangle of a didactic to differentiate: T-Tk-DC DiPL.
- Triangle of a pedagogy to differentiate: T(Tk)-DC DiPL-Ls.
- Triangle of an apprenticeship to differentiate: Ls-Tk-DC DiPL.

In the tetrahedron Cyber DiPL to differentiate: T (teacher) has a theoretical knowledge (Tk) that allows him, for example, to better manage a classroom that includes heterogeneous learners. In architecture, students need computer and internet in classrooms and workshops (Table 1). Therefore, teaching program should be a program which is developing digital learning environments, emphasizing enjoyable and relevant educational experiences, and incorporating digital technology as well as digital media, and challenging activities (Table 2). The teacher should adapt it because learners are not the same. There are those who have significant learning difficulties. Others take time to learn and those who learn quickly. It's a way of working for equity in heterogeneous classrooms (Reich & Ito, 2017). It is the situation that can remove Learners (students) from the routine which is a lack of motivation (see Table 1). There are no bad learners. It shall be up to the teacher to differentiate his method according to learning levels to make learners succeed (Castañeda & Selwyn, 2018).

## **6. Conclusion**

The tetrahedron Cyber DiPL proposed focuses on the didactic-pedagogy-learning link by supporting it with a digital cyber device. This is an advantage that allows the teacher to adapt his program and his teaching method by exploiting new types of digital resources. This is an opportunity directing him towards digital technology as a process of digital inclusion. Digital inclusion refers to the policies that will bridge the digital divide. It tackles social inequalities by providing solutions for socially disadvantaged students to easily access and effectively use Information and Communication Technologies (ICTs) to improve their studies (Ragnedda, 2018). So, digital inclusion can be viewed as a framework for addressing the readiness of students to fully accept and prepare for the digital age. It is a means of reducing social exclusion (Hamburg & Lütgen, 2019).

By using the tetrahedron Cyber DiPL, the teacher may improve his teaching method by bringing it closer to digital technologies. It is a way to have a more sophisticated understanding of the role played by the new normal and emerging technologies (Dziuban et al., 2018). It is therefore up to teachers to make the necessary educational improvements to take advantage of this new technological era (Resta, Laferrière, Mc Laughlin & Kouraogo, 2018).

The tetrahedron Cyber DiPL can be highlighted in the institute of architecture by:

- the installation of more advanced and adequate digital equipments, and infrastructures;
- the strengthening of the internet flow;
- the improvement of traditional pedagogies used, teaching programs, and learning methods;
- the teacher training towards digital technologies.

In addition to the strengths stated above that may answer the research question, this study has limitations that need to be addressed in future studies. The first limitation is that all the participants were undergraduate students in the institute of architecture. Thus, the data sources were collected from one institute and discipline (architecture). The questionnaire-based survey can be expanded to graduate students, post-doctoral researchers, and other stakeholders in the educational setting from different disciplines and institutes to further improve the link students - digital equity. The second limitation, although in this study we tried to explain which triangles are formed in the tetrahedron from the interaction between Knowledge, DC DiPL, Teacher and Learners, a more elaborate discussion should be provided on the meaning and the function of each triangle, and its implications for digital equity. Just as each triangle could also be reinforced by significant examples. The third limitation is that the theoretical framework tetrahedron Cyber DiPL, and its links with digital equity should be supported by more meaningful examples in order to be validated. Accordingly, future research studies should include qualitative data such as interviews or other written feedback to explore the findings obtained from survey results.

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## REFLECTIVE JOURNALS AS SELF-ASSESSMENT TO PROMOTE STUDENTS' WRITING SKILL

### *Research Article*

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## REFLECTIVE JOURNALS AS SELF-ASSESSMENT TO PROMOTE STUDENTS' WRITING SKILL

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### Abstract

This research is experimental research with a 2x2 factorial design. In this study, the researcher took students of two classes as a sample of the research, one for the experimental group (EG) and the control group (CG). There were 32 students in each experimental and control class, so the total sample was 64 students. Both of these classes were considered to have English knowledge and writing skill at the same level. The samples of the experiment group taught by using a reflective journal and the control class taught by using the traditional writing method. And all these samples are viewed from students' motivation. The sample was obtained by implementing a cluster random sampling technique. Each class was divided into two groups each of which consisted of 16 high motivation students and 16 low motivation students. the researcher used Multifactor Analysis of Variance (ANOVA) 2x2 to know the effects of the independent variables Reflective Journals and traditional writing method and attributive variable (Students' Motivation) toward the dependent variable (Writing skill). And the research result reveals as follows; (1) Reflective Journals is more effective than traditional writing method to promote students' writing. (2) Students have high motivation have better writing skill than those low motivation students. (3) There is an interaction between teaching assessment and students' motivation to teach writing.

*Keyword:* Reflective Journals; Self-Assessment; Traditional Method; Motivation; Writing Skill

### 1. Introduction

In the Indonesian curriculum, writing becomes one skill which is taught in almost all levels of education. Developing writing skills are the key element of the professional qualifications of English teaching and learning (Hyland, 2011). In this case, teachers tend to give extra attention for students in teaching to produce good writing. However, writing can be quite challenging for the students because it is considered as the most difficult skill in English teaching and learning. As said by Ghaith (2002) that writing is a complex process that allows the writer to explore thoughts and ideas and make them visible concrete. In fact, most of the students have a difficult time with the complex idea if they try to think only in their minds. It is in line with Nunan (2003) view writing as a complex cognitive activity in which the writer is demanded to demonstrate control of a number of variables simultaneously at the sentence level including control of content, spelling, and letter formation and beyond the sentence structure and integrate information into cohesive and coherent paragraph and text. It means that to practice writing makes the students exercise their thoughts in ways that are very difficult without writing down on a paper.

Referring to this case, as a facilitator and controller in the class, teacher must use an appropriate technique, method, assessment, and media. There were different names of formative assessment (alternative assessment, democratic, authentic, assessment for learning collaborative assessment) which takes place during the learning process and allows feedback from its own practice that can be improved students' performances in English. Wei (2010) states that formative assessments have some different forms; such as teacher, peer, self-assessment or combination of them and uses various techniques like classroom observation, reflective journal, portfolios, questionnaires, interviews, etc. It is increasingly realized that one of the main purposes of self-assessment in higher education is to help students to develop themselves and acquire range of writing skill including skills relating to organizing their own learning, time management, task management, problem-solving, reflecting, and so on (Race, 2001). Furthermore, the self-assessment focus on the delivery of content and the aim of this assessment is to develop skills which contribute to the students' ability to judge their own progress and performance (Cassidy, 2007).

One of the self-assessment methods that can help students in writing class is reflective journal. Mlynarczyk (2013) states that there are three components of reflective journals writing and it is important elements in improving ESL/EFL students' writing abilities; such as practice, attitude, and individual tutoring. It means, the reflective journal gives the students extensive writing practice, the opportunity to express and perhaps to change their attitude toward writing, and the chance to develop a personal relationship with teacher. In other words, it encourages the learners the reflection needed to gain increased control as writers (O'Malley and Pierce, 1996). According to Taufiqulloh (2014), teaching students to evaluate their progress begins with realizing that students will be learning new skills and it can be carried out with these four steps: setting criteria, applying criteria, setting and working towards goals. So that, teachers need the students' point of view about their ability; because there are many reasons that cannot be expressed by the students in the result of the test then teacher might be consider them as an evaluation for the next teaching and learning process. Cottrell (2003) suggested that journal activity is a systematic way of documenting learning and collecting information for self-analysis and reflection. With this reflective journal writing, students can reduce the stress in writing and to give them a personal space to write their own improvement, worries, and problems personally.

Edwards (2014) notes the numerous cognitive and metacognitive benefits of self-assessment, citing the increased time spent thinking, reviewing, and summarizing all of which lead to the development of autonomy and a greater understanding of high-quality work, the nature of writing, and the assessment process. It is the same as self-assessment involves both cognitive skills and disposition (Lai, 2011). It can be concluded that writing journal is a tool to develop language skills rather than observing students the improvement of language competency. The difference is the use of online connectivity that eased students to access the application all over the place. Furthermore, writing a journal a self-assessment is the high technology tool that contains component language skills of analyzing arguments, making inferences, judging or evaluating, and making decisions or solving problems. However, students need to be trained by the teacher and the researcher on how to access the application.

Another method in writing is the traditional method. According to Hyun, et al (2017), the traditional writing method in the classroom is dominated by a summative orientation, which sees teachers administer writing tasks in the form of tests that focus primarily on writing performance and scores. The use of traditional writing assessment as scientific

measurement of learning which teachers administered writing tasks in the form of tests and focus on students' writing skill and scores. It is in line with Hyun, et al (2017) that traditional method testing serves the purpose of "assessment of learning" where students' performance and progress are assessed against specified learning targets and objectives. Therefore, scores play is a helpful method in traditional writing assessment that can be used by the teacher that they provide objective evidence for student learning and suffice for feedback. Dunn, et. al (2003) state that the traditional writing method allows students to demonstrate how well they can access and manage information in a meaningful way. This traditional assessment is used in higher education to assess many different skills in an integrated way. However, to practice student writing, giving tasks, scoring data, teacher's feedback is students' opportunity to improve their writing skill.

By the descriptions above, it is obvious that this topic is challenging to explore since there is no formal evaluation on the implementation of writing journals as self-assessment in English Language Teaching (ELT) in this school. In the writer's opinion, therefore, it might give an extra consideration on the implementation of self-assessment for students to promote their writing skill. Furthermore, the use of writing journals help the researcher in identifying and analyzing students' real problems in writing class, and also to promote students' writing skill. Therefore, the researcher decided to conduct experimental research entitled: "Reflective Journals as Self-Assessment to Promote Students' Writing Skill". And this research viewed from student motivation. From the cognitive point of view, motivation concerns more about the individuals' decision or goal (Brown, 2007). It means that individuals' intentions or goals become the main reason for an action.

## 2. Method

This research was conducted at SMAN 5 Surakarta, Central Java from February 2019 to April 2019. This experimental research used a 2x2 factorial design. In this study, the researcher took students of two IPS classes as a research sample, one from X IPS 1 as the experimental group (EG) and X IPS 2 as the control group (CG). Both of these classes were considered to have English knowledge and writing skill at the same level. The samples of experiment group are the students of X IPS 1 which consisted of 32 students (20 girls and 12 boys). And the control groups of this experiment are the students of X IPS 2 consisted of 32 students (19 girls and 13 boys). In this case, the researcher teach class X IPS 1 use reflective journal and for students in X IPS 2, the researcher taught using traditional writing method.

The population of this research was tenth-grade students from IPS classes of SMAN 5 Surakarta in the academic year of 2018-2019. There are 32 students in each experimental and control class, so the total sample was 64 students. In choosing the sample, the researchers used cluster random sampling.

## 3. Results and Discussion

### 3.1 The Results of the Research

The computation of normality test divided the scores into eight groups of data, as follows: (1) The data of the students taught by using Reflective Journals (A<sub>1</sub>) shows that the highest value of L<sub>o</sub> is 0.077 with L<sub>t</sub> (0.140). (2) The data of the students taught by using the traditional writing method (A<sub>2</sub>) shows that the highest value of L<sub>o</sub> is 0.080 with L<sub>t</sub> (0.140). (3) The data of High Motivation students (B<sub>1</sub>) shows that the highest value of L<sub>o</sub> is 0.135 with L<sub>t</sub> (0.140). (4) The data of low motivation students (B<sub>2</sub>) shows that the highest value of

$L_o$  is 0.113 with  $L_t$  (0.140). (5) The data of the students having High Motivation taught using Reflective Journals ( $A_1B_1$ ) shows that the highest value of  $L_o$  is 0.133 with  $L_t$  (0.234). (6) The data of the students having Low Motivation taught using Reflective Journals ( $A_1B_2$ ) shows that the highest value of  $L_o$  is 0.217 with  $L_t$  (0.234). (7) The data of the students having High Motivation taught using the traditional writing method ( $A_2B_1$ ) shows that the highest value of  $L_o$  is 0.202 with  $L_t$  (0.234). (8) The data of the students having low motivation taught using the traditional writing method ( $A_2B_2$ ) shows that the highest value of  $L_o$  is 0.184 with  $L_t$  (0.234). It can be concluded that all the writing scores data of the eight groups are in normal distribution because  $L_o$  of all the data is lower than  $L_t$  ( $L_o < L_t$ ) at the significance  $\alpha=0.05$ .

Moreover, the data reveal that  $\chi_{o2}$  (1.26) is lower than  $\chi_{t2}$  (7.81), it can be concluded that the data are homogeneous. It means that the data of this research are obtained from the homogenous sample.

After knowing the result of the normality and the homogeneity of the data, the researcher used Multifactor Analysis of Variance (ANOVA) 2x2 to know the effects of the independent variables Reflective Journals and traditional writing method and attributive variable (Students' Motivation) toward the dependent variable (Writing skill). In addition, it functions to check if there is an interaction among those variables. Statistically,  $H_o$  (null hypothesis) is rejected if  $F_o$  is higher than  $F_t$  ( $F_o > F_t$ ). The data result is shown in the following table 1 and 2.

Table 1. *The Mean Scores*

Motivation (B)	Teaching Media (A)		Total
	Reflective journals (A <sub>1</sub> )	Traditional writing Method (A <sub>2</sub> )	
High Motivation (B <sub>1</sub> )	83.19	74.06	78.63
Low Motivation (B <sub>2</sub> )	71.25	71.44	71.34
<b>Total</b>	77.22	72.75	74.98

Table 2. *The Summary of Multifactor Analysis of Variance (ANOVA) 2x2*

Source of Variance	SS	df	MS	$F_o$	$F_t(0,05)$
Between Columns	319.52	1	319.52	5.579	4.043
Between Rows	848.27	1	848.27	14.811	
Interaction	346.89	1	346.89	6.057	
Between Group	1514.67	3	504.890625		
Within Group	3436.31	60	57.271875		
Total $\Sigma$	4950.98	63			

- Because  $F_o$  between columns (5.579) is higher than  $F_t$  at the level of significance  $\alpha=0.05$  (4.04),  $H_o$  is rejected and the difference between columns is significant. Thus, it can be concluded that Reflective Journals differs significantly from traditional writing method in their effect on the students' writing skill. In addition, the mean of  $A_1$  (77.22) is higher than the mean of  $(A_2)$  (72.75), so that, it can be concluded that Reflective Journals is more effective than the traditional writing method to teach writing.
- Because  $F_o$  between rows (14.811) is higher than  $F_t$  at the level of significance  $\alpha=0.05$  (4.04),  $H_o$  is rejected and the difference between rows is significant. It can be said that the writing skill of students who have high motivation and those who have low motivation are significantly different. In addition, the mean of  $B_1$  (78.63) is higher than

the mean of (B<sub>2</sub>) (71.34), so that, it can be concluded that students who have high motivation have better writing skill than those who have low motivation.

- c. Because  $F_o$  columns by rows (6.057) is higher than  $F_t$  at the level of significance  $\alpha=0.05$  (4.04),  $H_o$  is rejected and there is an interaction between teaching assessment and students' motivation to teach writing. Ultimately, it can be concluded that the effectiveness of teaching assessment is influenced by the levels of students' motivation.

The next is the computation of ANOVA result. It shows that there is an interaction and effect of independent variable on the dependent variable. To compare the mean of every treatment with other means, the researcher used Tukey test. The computation result of Tukey test is provided in table 3.

Table 3. *The Summary of Tukey Test*

Data	Sample	Error Variance	$q_o$	$q_t(0,05)$	Category
A1 AND A2	32	1.338	3.34	2,89	Significant
B1 AND B2	32	1.338	5.44	2,89	Significant
A1 B1 AND A2 B1	16	1.892	4.82	3,06	Significant
A1 B2 AND A2 B2	16	1.892	0.10	3,06	Not Significant

The result of the Tukey Test above shows the following influences:

- a. Because the result of  $q_o$  between columns A<sub>1</sub>-A<sub>2</sub> (3.34) is higher than  $q_t$  value at the level of significance  $\alpha =0.05$  (2.89), applying Reflective Journals is significantly different from traditional writing method to teach writing. In addition, because the mean of A<sub>1</sub> (77.22) is higher than the mean of (A<sub>2</sub>) (72.75), it can be concluded that Reflective Journals is more effective than Traditional writing to teach writing.
- b. Because the result of  $q_o$  between columns B<sub>1</sub>-B<sub>2</sub> (5.44) is higher than  $q_t$  value at the level of significance  $\alpha =0.05$  (2.89), it can be concluded that the students who have high motivation and those who have low motivation are significantly different in their writing skill. In addition, because the mean of B<sub>1</sub> (78.63) is higher than the mean of (B<sub>2</sub>) (71.34), it can be concluded that students who have high motivation have better writing skill than those having low motivation.
- c. Because the result of  $q_o$  between cells A<sub>1</sub>B<sub>1</sub>-A<sub>2</sub>B<sub>1</sub> (4.80) is higher than  $q_t$  value at the level of significance  $\alpha =0.05$  (3.06), applying Reflective Journals is significantly different from Traditional writing method to teach writing for the students who have high motivation. In addition, because the mean of A<sub>1</sub>B<sub>1</sub> (83.19) is higher than that of A<sub>2</sub>B<sub>1</sub> (74.06), it can be concluded that Reflective Journals is more effective than traditional writing method to teach writing for students having high motivation.
- d. Because the result of  $q_o$  between cells A<sub>1</sub>B<sub>2</sub>-A<sub>2</sub>B<sub>2</sub> (0.10) is lower than  $q_t$  value at the level of significance  $\alpha =0.05$  (3.06), the difference between columns for students having low motivation is not significant. It can be concluded that Reflective Journals is as effective as Traditional writing method to teach writing for students having low motivation.

### **3.2 The Discussion of the Results**

Referring to the results of the data analysis above, the research findings can be elaborated as follows:

- 1. The Difference in effectiveness between Reflective Journals as and traditional writing method**

The research finding shows that there is a significant difference between teaching writing using reflective journals and teaching writing using traditional method. Reflective journals are more effective than traditional writing method in teaching writing, as proved by the higher mean score of students taught by using reflective journals than that those students taught by using Traditional writing method.

According to Hiemstra (2001), reflective journal is typically hand written in a notebook or on a pad of paper as means for recording thoughts, reflections, feelings, personal opinions, and even hopes or fears during an educational experience. Students' works were checked by the teacher, and notes about their writings were taken, some of these notes helped the teacher assess the teaching and learning process, which helped her to modify her teaching decisions. According to students' notes and impressions, so the journal writings supply the teacher with feedback she did not get in the classroom. By using the reflective journal, the students can practice at their own pace that enables them to be autonomous learners under the guidance and instruction from the teacher. Hamp and Heasley (2006) state that the most obvious way to help students become a good writer is by writing. Students can articulate their thoughts without the threat of those thoughts being judge later by writing journals (Brown, 2004). In addition, to complete the writing tasks, students need to keep their own personal journals. It gives students more chances to write what is relevant to them. By keeping journals, students can record their personal writing of ideas, opinions, and worries. Through personal writing, students can develop both writing skill and awareness, and increase the ability to relate each other. Moreover, writing journals will help students to develop the habit of thinking on paper and show how ideas can be discovered in the process of writing (Tuan, 2010).

In addition, since the reflective journal facilitates the students to self-assessing their own works, the students become more analytical and are able to develop their critical thinking and awareness towards the writing skill indirectly. This occurs when the students are participating in the process of evaluating what they read, write, and learn in the classroom. The students indirectly develop their critical thinking as they do the self-reviewing, self-editing, and self-evaluating. They also build the students' conscious awareness because the feedback from the teacher directly helps the students pay more attention to the content and the language.

Likewise, students' attitude in reflective journals is rather positive and students are also active in practicing their writing. The reflective journal also provides the students to develop English language learning as well as the writing skill (McMillan and Hearn, 2008). The reflective journal offers motivating, authentic, and exciting learning environment through self-assessing. The students who never write reflective journal will find interesting and motivating. Students can articulate their thoughts without the threat of those thoughts being judges later by writing journals (Brown, 2004). In addition, to complete the writing tasks, students need to keep the own personal journals. It gives students more chances to write what is relevant to them. Through personal writing, students can develop both writing skill and awareness, and increase the ability to relate each other. Moreover, writing journals will help students develop the habit of thinking on paper and show how ideas can be discovered in the process of writing. Finally, in reflective journal the students asked to write

their thought about their achievement and they get feedback from friend and teacher that require them to improve their writing. So by keeping journals, students can record their personal writing of ideas, opinions, and worries. In addition, they can monitor and improve their writing quality by reviewing their previous journal.

On the other hand, traditional writing is the common method that can help the teacher in teaching writing, yet it is still applied in nowadays teaching and learning. However, it has several weaknesses. In traditional writing method, the teacher more attends to explain more than giving the students opportunity to interact in the class. Moreover, the practice of traditional writing a method emphasizes the students to do the writing task that explained by the teacher and the result using teachers' judgment of students' performance on written accuracy. Teachers simply give the topic without providing specific learning targets; student writing is assessed against some general assessment criteria such as content, language, organization, grammar and mechanics, and the teacher feedback is summative rather than formative, mainly comprising feedback on the student performance and evaluate on the basis of scores. It will be a big problem if the teaching technique is not interactive or not interesting. It happens because the students will feel confused, bored, and uninterested in the classroom. Consequently, the students get difficulty in writing. Moreover, unclear traditional writing will impede students in identifying an idea.

From the discussion above and the result of this research, it can be concluded that reflective journals are more effective than traditional writing method in teaching writing for the tenth grade students of SMAN 5 Surakarta in the academic year of 2018/2019.

## 2. The Difference between Students Having High Motivation and Students Having Low Motivation

The research finding reveals that students having high motivation have better writing skill than those having low motivation. It is proved by the higher mean score of the students having high motivation than those having low motivation. Students with high motivation tend to be more active, creating, and do the writing delightfully. They have more confidence to do the challenges in developing their writing. Also, they have better writing skill because they can create something new, develop writing and brilliant ideas, and solve the problem in teaching and learning process that makes them energetic and enthusiastic in learning. They like and enjoy challenging situations and explore ideas and imagination to achieve the goal. Students with high motivation feel that the learning process is crucial also they tend to learn best in order to succeed in learning and to promote a positive self-image. According to Brown (2007), motivation is emerging from behavioral, cognitive, and behaviorist perspectives. A behavioral view from motivation is driven to acquire the positive reinforcement. It means that the students having high motivation will be give positive improvement in their learning because, for them, the big challenge is the way to strengthen their ability. They also usually tend to be active in following the activities in the classroom. They also finish their assignment and do the entire teacher's instruction. In the other hand, playfulness, discipline, and responsibility are the characteristics of high motivation students.

In producing good English text, students do not only need a good assessment method but also having a motivation that strengthening their ability in writing. Munns & Woodward (2006) state that students' motivation can be stimulated by well-designed learning procedures; and it helps students in understanding the content (Bingham, et al., 2010). This is an important role in writing because by having motivation the students can assess their skill. In addition, the data analysis reveals that the students having high motivation have a

better writing skill. It is highly needed for the students to have high motivation because they will come up with unpredictable ideas to make good writing by considering complex notions. In other words, motivation is required for producing a piece of good writing. Motivation determines students' writing skill.

On the contrary, students who have low motivation tend to be passive due to the monotonous concept, creation, and idea that they have. They likely produce conventional ideas rather than their own fresh ideas. They are afraid of making mistakes that make them limit their way of thinking to explore the ideas. They do not like challenges and do not confidence to get success. In addition, students with low motivation cannot write beyond what they see, read, and listen. In this state, students will be easily discouraged and disturbed when they meet the challenges in their learning. According to Harmer (2004), motivation is a kind of internal desire which encourage someone to do things to achieve something. It means that motivation is the internal stimulation for students to decide how the effort and action to reach their learning goals. Thus, if students are unmotivated students in the class have a poorer idea, get difficulty in expressing the opinion and solving the problem, and it can be a distraction to other students. So, a teacher must aware to recognize how important motivation is to make their teaching success.

On the other hand, low motivation students are reluctant in exploring their ability especially in producing a simple draft or sentence to create good writing and they tend to not active during the learning process. Further, they prefer imitating ideas from other students during the writing process. With this regard of promoting their writing skill, unmotivated students focus their attention too much that makes them cannot think and produce original ideas. They will be easily discouraged and disturbed when they meet the challenges in their learning.

### **3. The interaction between assessment method and students' motivation on the Students' Writing Skills**

The finding of the research proves that there is an interaction between assessment method and students' motivation to teach writing skill. The result of the data analysis reveals that reflective journals is significantly different from traditional writing method to teach writing for the students having high motivation, but it is insignificantly different from those who have low motivation.

Reflective journals is more effective in teaching writing to the students having high motivation because this self-assessment method requires the students to engage actively in practicing by following all activities and tasks, and evaluating their work clearly and precisely. On the other hand, using self-assessment and responding to their own practices is to increase their independence and self-management (Boud & Associates, 2010). That self-assessment contributes to the learning of individual students and to the development of an effective and responsive skill. Further, in using this self-assessment, giving additional information and feedback that can be done by the students and teacher in the reflective journals course that results in more student-centered for the students who have high motivation. According to Oshima and Hogue (2007), journal writing facilitates the students to develop the language that they need in students' learning. That is why journal writing can help the students in acquiring a level of fluency in written language.

As a result, students with high motivation can maintain their maximum goal in using reflective journals. They have high imagination, curiosity, initiative, self-confidence, and bravery in taking risk in expressing and exploring ideas. Subsequently, students having high

motivation excavate their potential ideas to create a significant contribution to their writing. In other words, they cannot just make a simple and general writing. It is in line with reflective journals that as the center point of the learning, students are required to be active in the learning process and the teacher takes role as a manager, motivator, facilitator, and controller to manage, motivate, facilitate, and control the material as well as the process of learning in the classroom.

On the other hand, the students having low motivation have opposite characteristics with high motivation students. They are likely to be passive, less confidence, have no initiation and think only one possible answer in their mind when they are facing a problem. They also do the task based on the instruction and do not eagerly think beyond it. They do not like challenging activities and tend not to take part in the activities. Moreover, in writing class, unmotivated students are not thinking about what they write, do not think about rules, problems, and how things and language work, and receive what is told by the teacher. They are usually given task for which there is only one possible answer. Therefore, they get difficulty working in a challenging situation

Due to the characteristics of low motivated students, reflective journals and traditional writing method can be implemented to teach writing to the students with low motivation. Some of their characteristics are not advocating them to enhance their writing skill. Reflective Journals used to enhance students' self-motivation, self-evaluating, self-assessing, and problem-solving in writing because low motivated students have low motivation and have limited idea that makes them having difficulty when they write. In addition, this assessment method supports 21<sup>st</sup>-century skill in which it increases students' critical thinking, motivation, and resourcefulness. By using reflective journals, they evaluate their writing, can have discussion, and can get feedback from their friends and teacher that can give opinion in solving the problem so that they can improve their writing skill. Traditional writing method can also be implemented for low motivated students. This assessment helps the students in identifying their competence. Moreover, it improves students' positive attitudes in writing and it enhances students' positive attitudes to learning in teaching writing.

From the discussion above, reflective journals and traditional writing method can be applied in teaching writing to the students having low motivation. It happens because of their characteristics which promoting their potential competency to produce good writing. Therefore, teaching and learning process is not successfully applied when it is used to teach students with low motivation. Ultimately, reflective journal is as effective as traditional writing method to teach writing for low motivation students.

#### **4. Conclusion**

Dealing with the findings the research, it can be concluded as follows: (1) Reflective journal is more effective than traditional writing method to teach writing to the tenth-grade students; (2) High motivation students have better writing skill than low motivation students for the tenth-grade students; and (3) There is an interaction between teaching assessment and students' motivation in teaching writing to the tenth-grade students. Based on the research findings above, Reflective Journal is an effective self-assessment method for teaching writing to the tenth-grade students of SMAN 5 Surakarta in the academic year of 2018/2019. Then, other researchers can conduct further research with the different variables including students' interest, motivation, intelligence, self- assessment, self-confidence, self-esteem, and many others.

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## TEACHING LANGUAGES TO STUDENTS FROM REFUGEE AND MIGRANT BACKGROUNDS AROUND EUROPE: EXPLORING DIFFICULTIES AND TEACHERS' BELIEFS

*Research Article*

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# TEACHING LANGUAGES TO STUDENTS FROM REFUGEE AND MIGRANT BACKGROUNDS AROUND EUROPE: EXPLORING DIFFICULTIES AND TEACHERS' BELIEFS

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## Abstract

This paper presents and discusses the results of a study which investigated the needs, attitudes and beliefs of foreign language teachers of refugees in Greece and other countries of Europe. The research which was conducted in two phases, with the one being the pilot phase, involved approximately 120 teachers who commented on the difficulties that they face in contexts with students from refugee and migrant backgrounds. Students' trauma experiences, lack of schooling experience, behavioral problems, lack of specially designed materials catering for the needs of refugees, and of course the language barrier, were among the most frequently claimed problems. The paper ends with some empirically derived suggestions on how teachers could deal with the challenges related to this new reality.

*Keywords:* refugee teaching contexts, teacher beliefs, challenges

## 1. Introduction and motivation for the study

The recent flow of refugees and the urgent need for integration into the European educational context is the main motivation for this study. A report on the education of asylum seekers and refugees by the European Union Agency for Fundamental rights in May 2017 refers to certain challenges that affect the educational system in the European context (EUA for Fundamental Rights, 2017). Some of these challenges were the language barrier, the high turnover, the lack of well-trained teachers, and unmotivated students. Language teachers are usually called upon to act as mediators alleviating the aforementioned problems related to population movement without, however, being given the tools to be successful in their task. This paper discusses the results of a study which investigated the problems, needs and beliefs of foreign language teachers of refugees in Europe with an ultimate view to providing certain suggestions to teachers as to how to deal with the challenges related to multilingual classrooms. After presenting and discussing the data, the paper ends by suggesting ways of alleviating the problems that the teachers encounter in classrooms with students from refugee and migrant backgrounds and specifically in bridging the linguistic and social gaps.

The research has been conducted in two phases involving more than 120 participants. Phase 1, which was seen as a pilot phase, involved English as a Foreign Language (EFL) teachers in public primary schools within the framework of the new Greek refugee schooling program (DYEP schools), teachers who participated in a programme of the Faculty of English Language and Literature of the University of Athens teaching adult refugees and teachers who taught at refugee camps and other non-formal structures in Greece. This paper presents the data derived solely from Phase 2, which involved language teachers in other European countries, as well. Participants responded to a number of closed and open questions

about the problems they face, their previous experience with refugees, the relevant training they have received and their attitudes towards teaching refugees, i.e., whether these have changed or not. The paper ultimately stresses the need to develop new pedagogies and language programmes taking into consideration the ‘mingling-of-languages idea’ (Author 1, 2015, 2018) thus promoting the ‘multi’ idea in a context where multiple languages coexist.

## **2. Teaching foreign languages to refugees**

### **2.1. The situation nowadays**

According to the 1951 United Nations Refugee Convention, refugees are those who have fled their country and are unable to return due to a “fear of being persecuted for reasons of race, religion, nationality, membership of a particular social group, or political opinion”. Many of them are not educated at all, which makes the struggle even more difficult for the language teachers, who are in turn desperately trying to find common ground for communication. It seems that there has never been such a big relocation of masses in the modern history of the world and also that these masses come from ongoing war zones. A number of studies in the host countries, such as Turkey, that has also received a vast number of refugees, identify the problematic areas related to these mass relocations (Williams, 2016, Steele, 2017). As a matter of fact, according to the UNHCR (2017), the number of displaced Syrian refugees has surpassed 5.6 million, almost half of them are children –Syria remains the main producer of refugees worldwide because of the multi-year war.

It is estimated by the UN Refugee Agency that in May 2018 more than 60.000 refugees stay in Greece. Various discussions have taken place as to what has caused this vast move of refugees to Greece. The International Rescue Committee, while reporting on the situation in Greece, has mentioned that “this is not a humanitarian crisis, but a political one”<sup>2</sup>. The political analyses, though, do not seem to practically help teachers deal with the difficulties they face in class, in combination with the country’s economic crisis put teachers in the uncomfortable situation of trying to find a solution by themselves.

According to the Greek Government and the Hellenic Ministry of Migration policy report on the rights of international protection applicants and beneficiaries of international protection all asylum applicants’ children have the right in education. In order to meet the educational needs of these refugees, formal and informal educational structures and reception facilities have been created in Greece in different settings and funded by different sources. In April 2017 the Greek Ministry of Education published a report (Ministry of Education of Greece, 2017) on the efficiency of the formal educational structures that took place in public schools. Even though 111 formal educational structures were approved by the Ministry and were set up in public schools throughout Greece with afternoon programmes for young students from refugee backgrounds, the same report discusses a series of problems which came up during running these programmes.

One of the major problems mentioned was the teachers’ lack of experience and adequate training along with their constant change and reshuffling (Ministry of Education of Greece, 2017). In fact, this is the area that this study focuses on as it identifies the problems teachers faced, what was missing, what could have been done differently and ultimately what can be done from now on. According to the Eurydice report (European Commission, 2019, p. 9), it is not a surprise that migrant students generally “underperform and express a lower sense of well-being in school compared to native-born students in most European countries”.

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<sup>1</sup><http://www.unhcr.org/greece.html>

<sup>2</sup><https://www.rescue.org/country/greece#what-caused-the-crisis-in-greece>

Education does not always seem to be inclusive while the linguistic resources students bring in the classroom are not fully exploited by the teachers or the educational systems.

## **2.2. The challenges for teachers: relevant research**

This section discusses certain problems teachers may face and presents the relevant literature on current teaching methods and approaches to teaching refugees. Given the aim of this research, this will be done with an emphasis on the actual problems teachers of refugees have reported in different studies, in combination with apt solutions provided by the respondents themselves.

### **2.2.1 Students' traumatic experiences and post-traumatic stress**

Numerous problems that refugees have to face upon arrival in the host-country are mentioned in the literature (Kia-Keating & Ellis, 2007; Montgomery, 2008; O'Toole Thommessen and Todd, 2018). "Delays with the asylum claim, and prolonged waiting time leading to severe stress, financial difficulties, social isolation, stigmatisation and discrimination" (O'Toole Thommessen and Todd, 2018, p. 228), handling the stress of resettlement (Kirova, 2019), are only some of them. Taking into account that a large number of refugees have undergone "toxic stress" because of their exposure to adverse childhood events (ACE) (Murray, 2019) and a series of traumatic experiences before entering the classroom, a teacher should not neglect the fact that these traumatic experiences will somehow interfere with the lesson and the learning procedure itself. It is the teacher who can identify the early signs of post-traumatic stress in the classroom. As a further matter, even a slight raise of the voice or the sudden slam of the door can serve as triggers of stress and anxiety for young children or even adults.

As Murray (2019, p. 9) admits "the high prevalence of psychosocial issues experienced by child refugees impacts their ability to concentrate and learn as well as interact with classmates" (cf. de WalPastoor, 2015). It is reported that specific mental health issues are quite common in refugee populations, especially post-traumatic stress disorder (PTSD) (Kirova, 2019; Murray, 2016), anxiety and depression (Kirova, 2019; Silove, et al., 1997), a generalized sense of fear, attention issues, irritability and agitation (Kirova, 2019) among others. These, in turn, can affect students' lives, their connections with the others and their environment, including the classroom and the teacher. O'Toole Thommessen and Todd (2018) highlight the fact that refugee children are emotionally and psychologically vulnerable because they may be affected by their own adverse experiences as well as those of their parents (see also Dalgaard et al., 2016). Besides, as claimed by De Haene, Grietens, and Verschueren (2007) and O'Toole Thommessen and Todd (2018) forced migration and all those traumatic experiences linked to this situation influence parental responsiveness. These issues, due to the tremendous effect they have on a refugees' overall performance, have been the subject of various studies in the past (Kanu, 2008).

In order to tackle any psychological problems successfully, apart from using mental health specialists, it is a common practice to encourage teachers to build strong connections and relations with their students and their families. A study by Vincent and Warren (1999) supports this idea and investigates the importance of refugee families to be connected with and involved in the school life of their kids an issue also discussed in the Eurydice report of the European Commission in 2019.

### 2.2.2. Students' non-school experiences and non-literacy

One of the major problems teachers of refugees are not prepared to face seems to be the issue of having a class full of illiterate students with different mother tongues and cultural backgrounds. As also mentioned in relevant research (e.g., Yasin et al, 2018),

A key challenge for the mentors is the issue that the majority of the Rohingya refugees cannot read or write in their own language because they have not studied formally at school in their country. The mentors had to teach the refugees the alphabet and how to read and write at the same time as teaching simple English communication (Yasin et al, 2018, p. 9).

The issue of literacy is a fundamental one. In his works, Freire emphasizes the fact that literacy entails much more than learning skills and it can be a political action as well. In their report on theory and methods in and out of school settings, Hull and Schultz endorse the idea the literacy can be many more than just learning vocabulary and grammar (Hull & Schultz, 2001). They address the question: "What special skills are required by teachers of students whose critical consciousness has been oppressed and who cannot show their full potential" (ibid, p. 595), a question which is relevant to this study.

### 2.2.3. Dealing with 'singular pluralities'<sup>3</sup> and diverse identities

As research suggests, dealing with different identities is another issue that teachers have to deal with (i.e., Van der Veer, 1998). Identity is a concept of great importance for teachers of refugees. Defining the term, Gutiérrez (2013, p. 45) states:

An individual's identity is partly in his or her control and partly in the hands of others who seek to define/create/act themselves. As an individual, I can project a particular image of myself by the things I say (to myself and others) and the ways I interact, but others also participate in my identity by interpreting (through their own lenses) the meanings of my words and actions.

Erickson (1995) also points out that people form but can also reform their identities in the course of their lives, from childhood and later on in adult life based on the social environment and context they live in, and the social and cognitive factors that affect them. Teachers should not only deal with all the different identities they may encounter in the classroom, but they will also have to help their students reinforce (Cummins, 2003), sustain and sometimes even shape their own identities. Besides that, the lack of family and forced relocation from their home country put at stake the identity of refugees and as a result the process of learning (Fullilove, 1996). The 'label' refugee seems to be difficult to carry and it does not help them clearly see and shape who they really are, who they used to be, combine the two and adapt to the new reality.

### 2.2.4. Dealing with linguistic and cultural diversity

Identity and language are inseparable, so another challenge for teachers of refugees, which is also confirmed through this study, is to be ready to handle the different linguistic and cultural backgrounds having as their ultimate goal the linguistic integration of refugees, as explained later in this section. The language barrier is a problem found in many studies regarding refugees. For instance, O'Toole Thommessen and Todd (2018, p. 229), who focus on the situation in England and Denmark, claim that "adapting to the school context in the asylum-country may pose difficulties for refugee children due to language challenges, social barriers, and challenges arising from gaps in education". According to Kirova (2019), the

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<sup>3</sup>Term borrowed from García, Sylvan, and Witt (2011)

language was commonly seen as a barrier in an effort towards resettlement in Canada. In addition to this, Yasin et al. (2018) also found through interviews that the language barrier is a significant challenge faced by mentors who teach English to Rohingya people being sheltered in East Aceh, Indonesia and plan to resettle in Western countries. The same authors also mention that the different habits of refugees of which they were unaware.

### **3. Aim of the study**

This study investigates the needs, beliefs and attitudes of foreign language teachers of refugees in Greece and Europe along with the difficulties they may face in the different teaching contexts. The research questions it addresses are:

- What difficulties are faced by teachers in classrooms with refugees?
- What are their beliefs and attitudes towards the teaching of refugees?

Given the crucial need in the field of language teacher preparation to address the needs of refugee students, the ultimate goal of the research was the development of a teacher training toolkit which would hopefully provide teachers with ideas on how to deal with the challenges related to this new (educational) reality. It is not within the scope of this paper to focus on the toolkit. However, at the end of the paper a number of suggestions and ideas as to how to deal with the claimed challenges are discussed.

### **4. Methodology**

#### **4.1. Research organization, procedures and data collection tools**

As already stated in the Introduction, this study was conducted in two phases while this paper focuses on Phase 2. Pilot Phase 1, which initiated in 2016 and lasted for one (1) year, involved teachers of refugees in Greece, while Phase 2, on which this paper focuses, was conducted during 2017-2018 and its participants were teachers of refugees in various European contexts. In both phases, specially designed online questionnaires were used, with the second one being the extended and modified version of the first one used in Phase 1. In fact, certain questions were skipped, some others modified while more questions were added. Thus the questions were developed not only based on the relevant literature but also evidence during Phase 1 of the project (empirically-derived). After the design of the final draft of the questionnaire, it was uploaded to Google forms and completed by teachers working with refugees around Europe. State teachers around Greece received a message with the questionnaire link. Also, teachers working in other contexts downloaded it through electronic groups provided through the social media in which they are members. In addition to this, the questionnaire was forwarded to colleagues-instructors at the University of Athens, Faculty of English and graduates of other foreign faculties as well. Members of the committee of experts of the Council of Europe regarding the update of the Common European Framework of Reference for Language, which was then in progress, were also asked to forward it to interested members.

Regarding the content of the questionnaire (Appendix A), it consists of both open-ended and closed questions and it was organized into three parts, covering the three main research areas of this study. The first part consists of questions about teachers' background, studies, training and context in relation to students' needs with a view to profiling the participants. Questions about their experience with refugee students and their training were included here. The second part incorporates questions about the challenges and the problems teachers face every day in their classes with students from refugee backgrounds, while the

last part focuses on teachers' attitudes and beliefs and whether these have changed after their experience of teaching refugees.

This research was mainly quantitative although there were some open-ended questions that were seen separately. The data collected were analysed using the SPSS tool and descriptive statistics were provided. Particularly for the respondents' teaching style and how it was affected because of the experience with students from refugee backgrounds, a correlational analysis (Pearson Chi-Square Test) was conducted. In fact, it was investigated the degree to which the change in the teaching style correlates with the teachers' years of experience in contexts with refugee students. Another correlational analysis involved again the years of experience with refugees and the participants' intention to continue teaching in such contexts. On the basis of teachers' responses (i.e., what difficulties they face, how they overcome these difficulties, what strategies they use etc), some practical advice is provided (see Section 6) in order to help future teachers working with refugees.

#### 4.2. Participants

The participants of the first phase (see Author 2, 2017) were twenty (20) teachers of refugees in Greece teaching a) in formal educational structures in public schools, known as DYEP, b) at programmes provided exclusively by the National Kapodistrian University of Athens and c) at informal educational structures funded by non-governmental organizations in camps and other contexts. At Phase 2, with which we are currently concerned, 94 teachers of refugees not only from Greece but also from other parts of Europe, participated in the survey. Almost half of the participants (44.7%) were between 22-35 years old, whereas above 46 only 23.4 %. More than 80% were women (see Table 1 below for details).

Table 1. Participants' profile

Country	Greece	53.2%
	Other	46.8%
Age	22-35	44.7%
	36-45	31.9%
	46+	23.4%
Gender	Male	19.1%
	Female	80.9%

A great number of the participants were teaching refugees at the time of the research. As for their working context, the majority of them (62%) were working in formal education contexts while only 34% in non-formal contexts (such as camps, lessons offered by non-governmental organizations). 4% were teachers of other contexts. The years of teaching experience of the respondents vary as can be seen in Chart 1 below, while a great percentage (63.4%) has very limited experience (0-1 years) in teaching refugees (Chart 2).

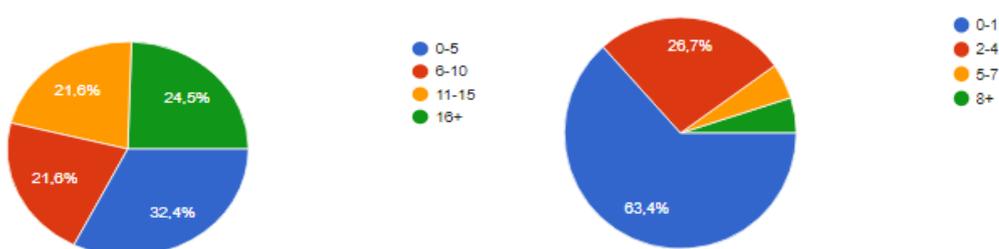


Chart 1. Overall teaching experience. Chart 2. Years of experience in teaching refugees

Despite the fact that the majority of the participants (57,8%) hold a Bachelor's and Master's degree in Education, they had not attended any training courses on the area of teaching refugees and only half of them (48,9%) claim that they had participated in certain relevant seminars (see Table 2 below).

Table 2. *Pre-service or in-service training of participants*

Did you attend any pre-service or in-service teacher training courses regarding the teaching of refugees?	Yes	40	42,6%
	No	54	57,4%
	Total	94	100,0%
Have you participated in special training seminars or events aiming at preparing teachers for teaching refugee students?	Yes	46	48,9%
	No	46	48,9%
	I don't remember	2	2,1%
	Total	94	100,0%

On the other hand, 42,2% of the respondents even though they indeed attended refugee teaching training seminars, they had not get the information they expected or no one had prepared them for the actual problems they were about to face in class.

Shifting our attention to the classes of the participants and focusing on their students' age (see Table 3 below), 54,3% of the respondents teach adults (19+) while the rest work with students under 18.

Table 3. *Profiling students*

What is the (mean) age range of your (refugee) students?	Under 12	21	22,3%
	12-18	22	23,4%
	19+	51	54,3%
	Total	94	100,0%
What is the mean number of students in your classroom(s)?	Under 10	30	31,9%
	10-15	35	37,2%
	16-20	12	12,8%
	More than 20	17	18,1%
	Total	94	100,0%
Have the majority of your students received any formal education in the country of origin?	Yes	56	59,6%
	No	26	27,7%
	I don't remember	12	12,8%
	Total	94	100,0%
How do your students feel about having classes? Do they have a positive or a negative attitude towards learning a foreign language?	Positive	76	85,4%
	Neutral	3	3,4%
	Negative	2	2,2%
	Both	8	9,0%
	Total	89	100,0%

In most cases, as claimed by 37.2% of the teachers, the number of the students per class did not exceed the 15. Only 17 (out of 94) participants had classes of more than 20 students. Regarding the formal education that students had received in their home countries, many participants (59.6%) claim that they did have some schooling experience. In relation to their attitudes and feelings towards having classes, the vast majority of the teachers (85.4%) claim that their students have positive feelings as Table 3 above indicates.

## 5. Presentation of findings

### 5.1. Most and least frequent challenges

This research aimed to shed light on teachers' problems and what their attitudes are after their involvement with students from refugee backgrounds. Chart 3 indicates the most frequently claimed problems. To start with, 36% of the respondents claim that adapting materials that can cater to their students' needs is a problem while many teachers (32%) also claim that the language barrier is a challenge to be faced. Trauma experiences (mentioned by 26% of teachers), low level of literacy or illiteracy (mentioned by 21% of teachers), students' lack of schooling experience (mentioned by 21% of teachers) and being able to deal with the different cultural backgrounds (mentioned by 17% of the participants) are some of the claimed challenges, challenges also confirmed by Gabriel, Kaczorowski and Berry (2017) in their study and extensively discussed by Murray (2019).

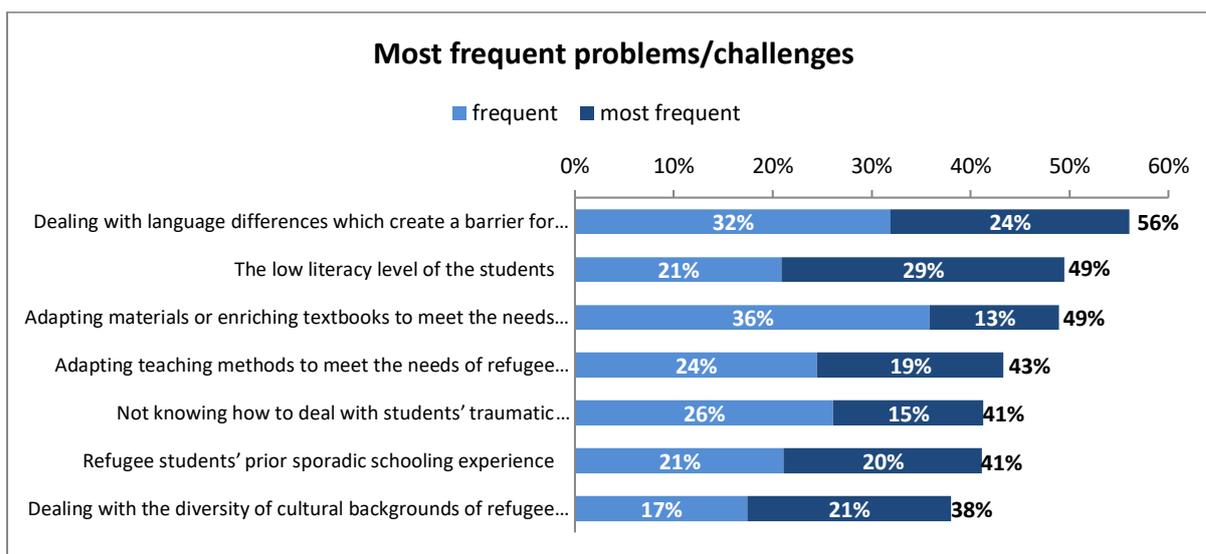


Chart 3. Most frequent problems

Among the least frequent problems as emerged through the particular survey were namely, the potential relations of the teacher with the family of the refugees (mentioned 12% of the teachers), issues of motivation (mentioned by 14% of teachers), large classes (mentioned 12% of teachers) among others (see Chart 4).

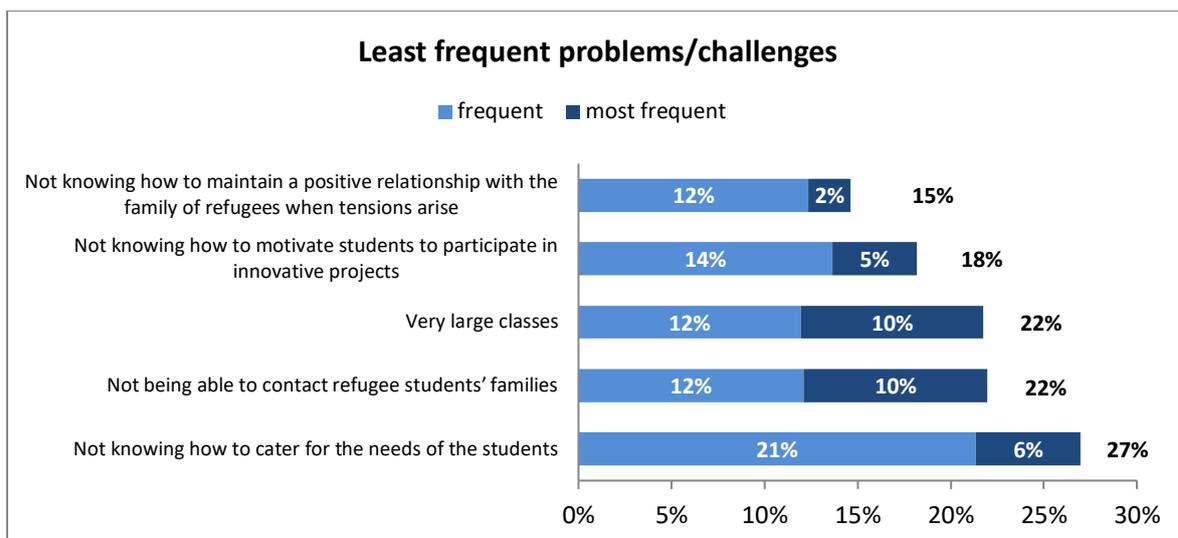


Chart 4. Least frequent problems

### 5.2. The use of materials

Another major finding is related to the materials used by the teachers. As shown in the chart below (Chart 5), almost half of the participants in Greece (48%) and 37% in other European countries, claim to prepare their own materials, even though in some cases there is certain material provided by Ministries all around Europe, targeting foreign language teaching to refugees. Although only 8% of the participants who work in Greece say that publishers or NGOs provide teachers with materials, this percentage becomes notably bigger (23%) if we shift our attention to their colleagues who work in other European countries. Some schools in European countries other than Greece seem to prepare their own material as claimed by 19% while in Greece this percentage drops at 4%. The organization of education and the Greek educational system which is actually highly centralized seem to account for this finding.

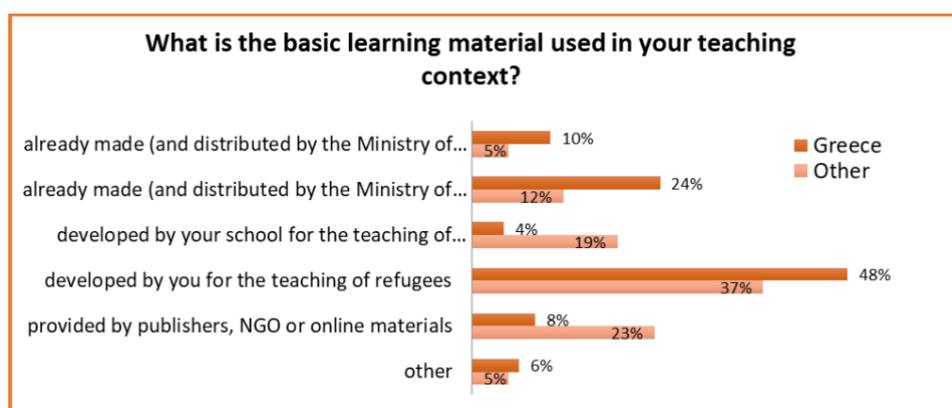


Chart 5. Materials

### 5.3. Teachers' attitudes

The participants also responded to questions regarding their attitudes. In fact, they were asked: if they have become more sensitive towards refugee crisis if their teaching style has changed if they intend on to continue teaching refugees, if they have conducted any sort of research on the topic and if they have implemented some of the findings of their research in their everyday teaching.

Surprisingly enough, as Table 4 indicates, most of the teachers (69.1%), despite the problems, intend to continue teaching refugees and to conduct their research on the field(79.8%) the results of which are to be exploited in their classrooms. As for the degree to which they have become more sensitive, the vast majority of them (82.8%) say ‘yes’.

Table 4. Attitudes towards teaching in refugee backgrounds

		Count	%
sensitive with refugee crisis issues?			
	extent		
teaching refugees?			
to learn how to implement practices for refugee students?			

Note that those participants who claimed that they wish to continue teaching refugees come from all age groups, proving that their willingness is irrespective of their age (see Table 5 below).

Table 5. Participants’ age and willingness to continue teaching students from refugee backgrounds

		Age					
		22-35		36-45		46+	
		Count	Column N %	Count	Column N %	Count	Column N %
Do you intend to continue teaching refugees?	Yes	27	64,3%	23	76,7 %	15	68,2%
	No/ Maybe	15	35,7%	7	23,3 %	7	31,8%
	Total	42	100,0%	30	100,0%	22	100,0%

Regarding their teaching style and how it was affected because of the experience with students from refugee backgrounds, it was explored the extent to which the change in the teaching style correlates with the teachers’ years of experience with refugee students. As Chart 6 indicates, the more experienced the teacher, the more changes have occurred regarding his/her personal teaching style (see Chart 6 and Appendix B).

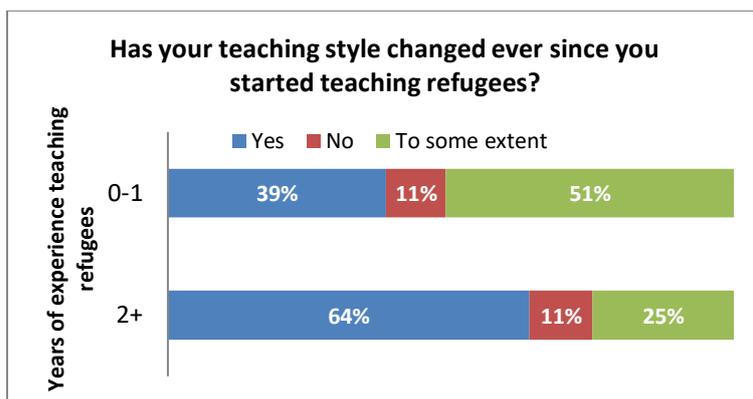


Chart 6. Teaching style and years of experience in teaching refugees

A second correlational analysis involved the years of experience with refugees and the participants’ intention to continue teaching in such contexts. Table 6 clearly shows that the Chi-square statistic is significant at the ,05 level which means that there is a significant difference between the two groups of teachers, i.e. those with much experience (more than 2 years) and those with less experience (0-1 years).

Table 6. *Intention to continue teaching refugees and years of experience of teaching refugees*

Intention to continue teaching refugees		Years of experience teaching refugees			
		0-1 years of experience		2+ years of experience	
		Count	Column N %	Count	Column N %
Do you intend to continue teaching refugees?	Yes	35	61,4%	30	81,1%
	No/ Maybe	22	38,6%	7	18,9%

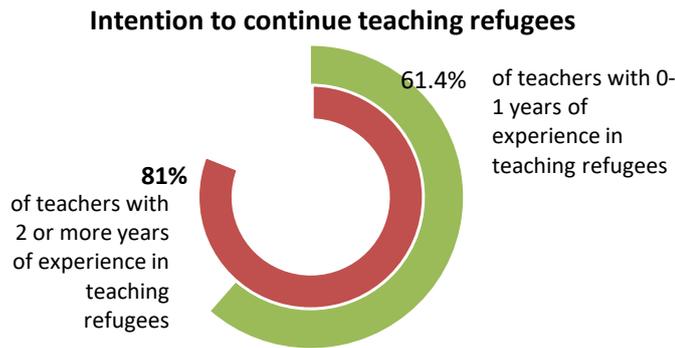
Pearson Chi-Square Tests

		Years of experience teaching refugees
Do you intend to continue teaching refugees?	Chi-square	4,072
	df	1
	Sig.	,044*

Results are based on nonempty rows and columns in each innermost subtable.

\*. The Chi-square statistic is significant at the ,05 level.

Chart 7 demonstrates in percentages this interesting result. The more the experience, the greater the willingness to continue teaching in classes with students from refugee backgrounds.



*Chart 7.* Intention to continue teaching refugees in relation to the years of experience of teaching refugees

As for the open-ended questions, interesting findings came up, which findings can be used as advice for future teachers to deal with students from refugee backgrounds. Some participants suggested that some core values a teacher of refugees should have is to be compassionate, patient and flexible to last-minute changes. A teacher said characteristically:

Extract 1: no two days are the same and you have to be ready to improvise

Another very important advice mentioned is to use non-verbal forms of communication such as visual realia and a lot of body language. This can also be done by combining multiple forms of activities such as art, theater and music in the process of learning. Moreover, teachers suggested that they have learnt to be respectful and create a warm and safe environment while at the same time emphasizing the selection of easy-to-follow activities and instructions. Straight forward rules are also important (see Extracts 2 and 3).

Extract 2: Learn as much as possible about the characteristics of a refugees class and try to create bonds with the students as this will boost motivation.

Extract 3: Have clear rules. Follow them. Show love and understanding

The participants also emphasized the fact that teachers should try to encourage dialogue and answer questions in detail while being analytical, empathetic and good listeners (see Extract 4).

Extract 4: Be really open-minded, listen to what they have to say and motivate them to speak in the language you're teaching also among themselves. Do not take anything for granted (notion of space, time, historical events, writing skills in the different styles) and follow their learning time.

Another teacher suggested:

Extract 5: [...] always ask for help for example you can have a meeting with an intercultural mediator who can give you information about each students needs and cultural/educational background.

This approach can actually create strong bonds with the students and make them be actively involved in the classroom.

## 6. Discussion of main findings

This research has aimed to shed light on teachers' problems when being involved with the demanding task of teaching students from refugee and migrant backgrounds, while at the end it attempts to present some empirical advice and suggestions as derived from the analysis of teachers' responses. This study has actually shown that teachers working in class of refugees

seem to have limited experience in teaching refugees, an aspect already noted by other researchers as well (e.g., Baldwin, 2015). Lack of training and some sort of non-preparedness on the part of the teachers has also been an important finding of this study which has also been confirmed by relevant research in the field (e.g., Nagasa, 2014; Yasar and Amac, 2018). Based on their study findings, Tösten, Toprak, and Kayan, (2017) claim that the teachers working with Syrian students were not supported and were not prepared to teach refugee-background students. Similarly, according to Yasar and Amac(2018), teachers note that they do not have adequate pedagogical skills to teach refugee or asylum-seeker students. Generally, although research has shown that the majority of teachers do not seem to have been prepared for such changes in their teaching (European Commission, 2019), according to the particular research findings teachers seem to be willing to continue teaching refugees despite the challenges.

Regarding the challenges related to the teaching, one major problem claimed by the respondents is their students' trauma experiences and how to deal with them. In fact, refugees' traumas constitute an area extensively investigated by researchers and it seems that they play an essential role in the students' academic achievement in the host country (cf. Rundell, Sheety and Negrea, 2018). This is the reason why it is important for teachers to be prepared to handle this difficulty and thus the issue of teacher training comes into play again. Illiteracy or students' lack of schooling experience is another significant challenge that teachers claim to face, a problem also investigated by other researchers in the field. Refugee students' prior sporadic schooling experience has been found to have an impact on their current education by Nagasa (2014) who investigated this issue in the context of the USA.

The language barrier problem and other cultural challenges seems to be another major problem stated. Gabriel, Kaczorowski and Berry (2017)'s study also confirms this while this has also been extensively discussed by Murray (2019), Nagasa (2014), Yasar and Amac (2018) and Dryden-Peterson (2015). Nofal (2017) also reports that Syrian students who arrived in Canada face problems related to language-related barriers in schools. The fact that refugees have to learn a new culture and language brings them additional stressors (Murray, 2019). Teachers need to be specially trained in order to deal with the different repertoires of their students. On this, Le Nevez et al.'s (2010, p. 9) comments:

A plurilingual repertoire encompasses all the language experiences of a person, irrespective of the level of competence attained in the different languages. This means that all the languages known by a person should be recognized and supported so that her various linguistic competences find their legitimate place within her life long learning experiences.

Behavioral problems and lack of relevant materials or the difficulty to create their own materials are other problems also mentioned by the participants. The creation of new materials catering to the needs of the refugee students is also related to the training factor mentioned above. It seems that the less the training, the more difficult for them to develop special materials.

Another problem seems to be the potential relations or the lack of such relations of the teacher with the family of the refugees. Lack of family support has also been found to be a problem by Yasar and Amac (2018). It is worth mentioning that according to the European Commission's Eurydice report (2019), the promotion of the involvement of parents in school and the provision of information focusing on the children's academic development is essential in an effort to help children from refugee backgrounds to become well-integrated into the education system and then into the society.

## **7. Pedagogical implications and recommendations**

### **7.1. Making real integration possible**

The goal for any educational planning nowadays is, among others, the integration of refugees and migrants, a concept relevant to any discussion about educating refugees. Linguistic integration is understood as their adjustment to the refugees' (new) communication environment, i.e., as a rearrangement of their repertoires and the integration of the languages that make up these repertoires.

In school settings, respecting students' mother tongues seems to be the key to integration although this is not always the case. For instance, Popov and Erik (2015) observe systemic problems in the education of immigrant children and express a feeling of a lack of practical intercultural competence to meet such children. Languages should not be kept separate but opportunities for translanguaging should be provided through curriculum planning and actual practice (Author 1, 2018, p. 441). In much the same vein, Canagarajah (2006, p. 603) states that mother tongue should be treated as a resource, rather than a problem and diverse literacy traditions should not be kept separate. Makoni and Pennycook (2007, p. 36) also argue for language policy in education which focuses on “translingual language practices rather than language entities”.

In the 21st century, with the creation of multilingual educational contexts, we can no longer afford to think about “monoglossic language policies” (García and Torres-Guevara, 2009). Teachers in this new context should be ready not to isolate languages, or limit instruction to one language thus following a 'repertoire-building approach' (Kalocsányiová, 2017). It is important for them to know how the language practices of a student are in motion through a variety of meaningful activities and are ready to "negotiate sense-making instructional practices (García, Sylvan and Witt, 2011) thus including rather than excluding students. Educators should be trained, in other words, to adjust their language and instructional practices to support students' linguistic and cultural diversity (ibid). To this direction, the framework of culturally responsive teaching (CRT) (Gay, 2010), can be extremely useful as it supports students in maintaining their cultural identity, native language, and connections to their culture; provides multiple opportunities to demonstrate what students learn; incorporates different perspectives; and empowers student sociopolitical consciousness (Civitillo, 2019: 342)

Translanguaging as a pedagogy which seems to be beneficial for integrating refugees, refers to building students' “language practices flexibly in order to develop new understandings and new language practices” (García, Flores and Woodley, 2012, p. 52). In the classroom, translanguaging tries to draw on all the linguistic resources of the child to maximise understanding and achievement. The section below explains the practical applications related to translanguaging and cross-linguistic mediation.<sup>4</sup>

### **7.2. Suggested strategies for teaching refugee students: towards integration**

This section provides certain recommendations for the integration of refugees through teaching foreign languages based on the research findings presented herein and relevant literature. First of all, every effort towards the integration of refugees through teaching should reflect the following principles:

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<sup>4</sup>As argued in Author 1 (2015, p. 47), being concerned with the purposeful transferring of information from one language to another, cross-language mediation can be seen as a form of translanguaging, a language practice which refers to the interplay of linguistic codes.

- a) all languages should be seen as equally valuable modes of communication and expressions of identity,
- b) acceptance of the ‘Other’, of cultural differences and mutual understanding,
- c) respect for the diverse linguistic resources as it can become useful in bridging the linguistic, cultural and social gaps.

Within this context, the teacher’s role is a central one being the one who coordinates the learning procedure in his/her classroom and is responsible for his/her students linguistic and cultural integration. The teacher is actually the one who should encourage his/her pupils to use knowledge and competences and exploit languages they are taught or know with a view to “revealing points of convergence”(Beacco, et al., 2016, p. 26). The framework of ‘culturally responsive teaching’ which addresses the differentiated needs of students from different cultural and ethnic backgrounds (Civitillo et al, 2019; Gay, 2010) should inform his/her choices given that language barrier is a major problem as manifested through this study. Within this framework, the teacher should also “manage the development of their plurilingual repertoires to optimum effect” (ibid) and “build up a system of (inter)cultural references” (ibid) linking cultural and intercultural knowledge and competences derived from the study of various languages and other subjects.

Through the cross-language mediation approach, i.e., transferring information from one language to another (Author 1, 2013, 2015), the aforementioned goals could have positive results. The teacher could actually encourage the use of mediation and translanguaging activities that can foster language awareness and openness to languages as well as comparison of phenomena specific to various languages and cultures. Stressing the importance of mediation activities, i.e., activities that ask for the transferring of information from one language to another, the CEFR Companion authors (Council of Europe 2018, p. 106) state, A person who engages in mediation activity needs to have a well-developed emotional intelligence, or an openness to develop it, in order to have sufficient empathy for the viewpoints and emotional states of other participants in the communicative situation.

Differentiated instruction strategies and the use of visual materials also constitute strategies that can prove useful as most of the time teachers are faced with the challenge of mixed-ability classes. A useful concept that could be successfully applied in the classroom is that of emotional literacy (Matthews, 2006; Sharp, 2001) closely related to the concept of emotional intelligence (Goleman, 1996) which involves the identifications, assessment and expression of ones’ feelings. Steiner indicated the importance of teaching children how to express their feelings and how this can contribute in their development (Steiner, 2003). A number of activities can be used such as drawing each feeling with different colors, use balloons and balls of colors to express discomfort or happiness among others, thus also addressing the issues of psychological traumas.

Finally, teachers’ positiveness and openness are essential tools towards creating a shared space and a warm atmosphere in the classroom. In fact, it is important for a teacher, in contexts with students from refugee backgrounds who do not share the same language, to create a shared space in which students will feel enthusiastic about the target culture(s) and safe. Defining the notion of ‘shared space’, North and Piccardo (2016, p. 24) say characteristically that the notion of creating a shared space between and among linguistically and culturally different interlocutors refers to “the capacity of dealing with ‘otherness’ to identify similarities and differences to build on known and unknown cultural features, etc. in order to enable communication and collaboration”. Li Wei (2018) also uses the term ‘translanguaging space’, a notion which refers to the capacity of using different languages and to the process of moving from one language to another thus facilitating the process of the

integration of social spaces (and thus ‘linguistic codes’). Given that refugee students spend a lot of their time in school, schools are important to “provide structure and restore a sense of normality to children's lives, particularly after war and forced migration” while the role of the teachers in creating these safe spaces which will support “positive integration” and a “sense of belonging” is fundamental (O'Toole Thommessen and Todd, 2018, p. 229).

## **8. Conclusions**

This paper discussed the findings of a study which explored the needs, attitudes and beliefs of foreign language teachers of refugees in Greece and in other countries of Europe with an emphasis on the difficulties they face in contexts with students from refugee and migrant backgrounds.

Summing up the main findings as presented herein, it seems that teachers of refugees who participated in the current research are not adequately trained as far as the teaching of this particular group of learners is concerned. Their limited experience in teaching refugees is also an important finding which reinforces European Commission's (2019) claim that teachers in Europe were not prepared for such changes. Other problems are related to the students and these are namely, their low literacy level, their traumas, their lack of schooling experience, which may induce behavioural problems, among others. Lack of relevant materials and relevant resources is among the most frequently claimed difficulties while teachers try hard to create their own materials catering to the particular needs of the students. The language barrier and the cultural differences are another serious issue which needs to be overcome, a finding confirmed by other researchers as well (see Kirova, 2019; O'Toole Thommessen and Todd, 2018). In some rare cases, large classes may hinder learning while the difficulty to contact the families of refugee students does not always facilitate their integration. Despite the problems, as this research suggests, teachers -especially the more experienced ones- seem to be willing to continue teaching in classes with students from refugee backgrounds. We hope that the knowledge gained from the participants in this study will lead to further investigation in the area of (language)/ education to refugees also informing policy decisions.

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**Appendix A**

**Teaching Refugees: A European Survey**

**Demographics and Teachers' Profile**

1.	Your email address ( <i>optional</i> )		.....					
2.	Country		.....					
3.	Age	<input type="radio"/> 22-35	<input type="radio"/> 36-45	<input type="radio"/> 46+	4.	Gender:	<input type="radio"/> Male	<input type="radio"/> Female
5a.	Basic Studies:	<input type="radio"/> BA in Foreign Language Teaching Say in which language: .....			<input type="radio"/> OBA in an area other than teaching Say which .....			
5b.	Please specify the language or the area of your studies							
6a.	Additional studies ( <i>more than one</i> )							
	<input type="checkbox"/> MA in Applied Linguistics and/or Foreign Language Didactics							
	<input type="checkbox"/> MA in another area (Say which) .....							
	<input type="checkbox"/> PhD in Applied Linguistics and/or Foreign Language Didactics							
	<input type="checkbox"/> PhD in another area: (Say which) .....							
6b.	Please specify the area of your MA or Phd							
7.	I am a teacher in ( <i>you can tick more than one</i> ): <input type="radio"/> primary schools (elementary education) <input type="radio"/> junior high school or high schools (secondary education) <input type="radio"/> university (tertiary education) <input type="radio"/> Other _____							
8.	Did you attend any pre-service or in-service teacher training courses regarding the teaching of refugees?					<input type="radio"/> Yes	<input type="radio"/> No	
9.	Have you participated in special training seminars or events aiming at preparing teachers for teaching refugee students?					<input type="radio"/> Yes	<input type="radio"/> No	<input type="radio"/> I don't remember
10.	Years of overall teaching experience <input type="radio"/> 0-5 <input type="radio"/> 6-10 <input type="radio"/> 11-15 <input type="radio"/> 16+							
11.	Years of experience teaching refugees <input type="radio"/> 0-1 <input type="radio"/> 2-4 <input type="radio"/> 5-7 <input type="radio"/> 8+							

**Your teaching context**

12.	What is your teaching context this year?(e.g. public or private school, non-governmental organization, refugee center, other) .....
13.	If you are teaching refugees in more than one context, please refer to <b>all</b> contexts here: ..... .....
14.	What is the (mean) age range of your (refugee) students? <input type="radio"/> under 11 <input type="radio"/> 12-18 <input type="radio"/> 19+
15.	What is the mean number of students in your classroom(s)? <input type="radio"/> under 10 <input type="radio"/> 10-15 <input type="radio"/> 16-20 <input type="radio"/> more than 20
16.	What is the mother tongue of your students (you may refer to more than one language in the case of classes



	with students from different countries)? .....			
17.	Have the majority of your students received any formal education in the country of origin?	<input type="radio"/> Yes	<input type="radio"/> No	<input type="radio"/> I do not know
18.	How do your students feel about having classes? Do they have a positive or a negative attitude towards learning the foreign language? .....			
19a.	What is the basic learning material (e.g., textbook) used in your teaching context? <input type="radio"/> already made (and distributed by the Ministry of Education or the government specially designed for refugees who are taught a foreign language) <input type="radio"/> already made (and distributed by the Ministry of Education or the government for students who learn a foreign language (and not necessarily refugees) <input type="radio"/> developed by your school for the teaching of refugees <input type="radio"/> developed by you for the teaching of refugees (explain what it is (book, notes, worksheets etc): ..... <input type="radio"/> Other (please specify: .....			
19b.	If you answered "other" in the previous question please specify			
20.	Are there any other facilities in your teaching context that help you when teaching? (tick more than one) <input type="radio"/> projector <input type="radio"/> interactive board <input type="radio"/> computer(s) <input type="radio"/> Internet connection <input type="radio"/> a foreign language classroom <input type="radio"/> CD players <input type="radio"/> flashcards			
21.	If your teaching context is different from past years, refer to <b>all</b> teaching contexts you have worked in (e.g. public or private school, non-governmental organization, refugee center, other) during your career as a teacher of <i>refugee</i> students. ....			

### Problems Teachers face while teaching refugee students

This part of the questionnaire focuses on the actual problems teachers face in the classroom.

22.	Has it been difficult for you to teach refugees?	<input type="radio"/> Yes	<input type="radio"/> No	<input type="radio"/> To some extent				
23.	Rate from the <b>most frequent</b> (5) to the <b>least frequent</b> (1) the problems/challenges you faced while teaching refugees							
				<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
a)	a	Dealing with the diversity of cultural backgrounds of refugee students		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
b)		Dealing with language differences which create a barrier for communication		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
c)		Adapting teaching methods to meet the needs of refugee students		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
d)		Adapting materials or enriching textbooks to meet the needs of refugee students		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
e)		The low literacy level of the students		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
f)		Refugee students' prior sporadic schooling experience		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
g)		Very large classes		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
h)		Not knowing how to cater for the needs of the students		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
i)		Not knowing how to maintain a positive relationship with the family of refugees when tensions arise		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
j)		Not knowing how to motivate students to participate in innovative projects		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
k)		Not knowing how to deal with students' traumatic experiences that have occurred in their lives compared to other students		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
l)		Not being able to contact refugee students' families		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
24.	Were you prepared for the problems you eventually had to face in class?	<input type="radio"/> Yes	<input type="radio"/> No	<input type="radio"/> To some extent				
25.	What is the advice you would give to a new teacher who is about to take over a class of refugees? Can you provide any practical tips that have helped you cope with the problems in a refugee class? .....							

....

### Teachers' perceptions/ attitudes/ beliefs.

This final part of the survey aims at the investigation of how and if your beliefs have changed and how the teaching of refugees has shaped you as professional.

26.	Has your teaching style changed ever since you started teaching refugees?	<input type="radio"/> Yes	<input type="radio"/> No	<input type="radio"/> To some extent
27.	Have you become more sensitive with refugee crisis issues?	<input type="radio"/> Yes	<input type="radio"/> No	<input type="radio"/> To some extent
28.	Has your experience with teaching refugees been a starting point for further research on the issue?	<input type="radio"/> Yes	<input type="radio"/> No	
29.	Do you intend to continue teaching refugees?	<input type="radio"/> Yes	<input type="radio"/> No	<input type="radio"/> Maybe
30.	Do you intend to use research to learn how to implement practices for refugee students?	<input type="radio"/> Yes	<input type="radio"/> No	<input type="radio"/> Maybe

### Comments

Feel free to share with us any further comments on the teaching of refugees in your country.

.....

End of the survey

THANK YOU FOR TAKING THE TIME TO COMPLETE THIS SURVEY!  
YOUR TIME IS GREATLY APPRECIATED

### Appendix B

		Years of experience teaching refugees			
		0-1		2+	
		Count	Column N %	Count	Column N %
<b>Has your teaching style changed ever since you started teaching refugees?</b>	Yes	22	38,6%	23	<b>63,9%</b>
	No	6	10,5%	4	11,1%
	To some extent	29	<b>50,9%</b>	9	25,0%

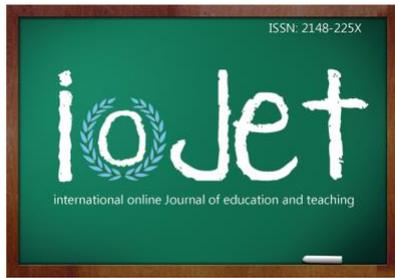
### Pearson Chi-Square Tests

		Years of experience teaching refugees
<b>Has your teaching style changed ever since you started teaching refugees?</b>	Chi-square	6,540
	df	2
	Sig.	,038*

Results are based on nonempty rows and columns in each innermost subtable.

\*. The Chi-square statistic is significant at the ,05 level.





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## IMPROVING UNIVERSITY STUDENTS' ENGLISH PROFICIENCY WITH DIGITAL STORYTELLING

*Research Article*

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# IMPROVING UNIVERSITY STUDENTS' ENGLISH PROFICIENCY WITH DIGITAL STORYTELLING

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## Abstract

The purpose of this study is to investigate whether students of English as a foreign language (EFL) at the Lebanese University (LU) can effectively improve their language proficiency by creating digital stories. To do so, the researcher introduced digital storytelling (DST) as an optional assignment in an EFL communication course offered at LU in the fall of 2017-2018. Participants were 20 second-year student-teachers majoring in EFL education. After the completion of their individual or group digital storytelling projects, all the 16 videos were uploaded on the researcher's YouTube channel and shared on Facebook and WhatsApp. Participants then answered open-ended survey questions about their experience working on DST. Results show that most participants found the activity enjoyable and educational and were eager to repeat their experience, in spite of the technical difficulties they faced. Many participants also reported having gained more self-confidence and improved their Pronunciation, organizational, technical and research skills, as well as their ability to deliver presentations. The majority of participants found the social aspect of DST highly rewarding and enjoyed sharing their work online with their friends and other English-speakers globally. The positive outcomes of this study suggest that DST should be included in the curriculum of university-EFL communication courses.

*Keywords:* digital storytelling, college-level EFL instruction, English proficiency, pronunciation, oral communication skills, social media

## 1. Introduction

Since the 1990's when Joe Lambert founded the Center for Digital Storytelling, a community arts organization in Berkeley, California, instructors have been helping young and adult students to create and share personal narratives by combing writing and digital media tools. With the rapid evolution of digital media, digital storytelling (DST), the modern version of traditional storytelling that relies on multimedia tools (Balaman, 2017), has been adopted by educators in various fields such as the sciences and the humanities who soon acknowledged that DST was an effective teaching and learning tool.

Today, several available gadgets and software are available to create digital stories such as smartphones for taking pictures and recording oral stories, and programs such as Windows Movie Maker or iMovie, and PowerPoint (Bandi-Rao & Sepp, 2014).

### 1.1. Origin and Types of Digital Stories

After founding the Center for Digital Storytelling in 1993, Lambert trained more than 15,000 people around the world in the art and craft of digital storytelling, which he sees as a journey of self-discovery using personal narratives. Lambert conceived of seven steps to create digital stories using mobile technologies and social media. Initially, he used two main simple plots, one about a stranger arriving in town, and the other about the storyteller is going



on vacation. For Lambert, these plots highlighted the fact that “at some moment in your life, change came to you or you went towards change” (Lambert, 2013).

In addition, DST is used in various educational fields as a teaching and learning tool because it includes three main elements that can convey different types of information: personal narratives, stories examining historical events, and stories intending to inform or instruct (Robin, 2008).

## **1.2. Digital Storytelling as an Educational Tool**

Over the last two decades, DST has become a powerful teaching and learning tool and has attracted the interest of teachers and learners alike (Robin, 2008).

Thus, various educational institutions worldwide began to use digital storytelling activities in the classroom as a means to motivate students to develop their digital literacy skills (Chan, Churchill, & Chiu, 2017). In addition, DST has been widely used in second language acquisition (L2) classrooms.

However, educators noted that DST should be integrated into the curriculum to help learners develop not only media literacy skills but also critical thinking skills (Kim & Lee, 2017). For example, Rubino, Barberis, and Malnati (2018) used digital storytelling to explore the values of writing collaboratively and various universities are using digital storytelling in courses related to different but related areas such as history and journalism (McLellan, 2006). DST has also been introduced in the second language (L2) writing practice to enhance L2 learners' narrative skills (Kim & Lee, 2017).

In the sciences, DST was used in medical education to encourage students' reflection (Jamissen, Hardy, Nordkvelle, & Pleasants, 2017), and was included in the teaching of mathematics to increase academic achievement (Özpinar, Gökçe, & Yenmez, 2017). It was also used as an instructional strategy for improving online collaborative learning (Nam, 2017). However, although digital storytelling has proved popular as a powerful teaching tool in secondary education, it is still relatively new and less commonly utilized in higher education (Balaman, 2017).

## **1.3. Developing Digital Literacy Skills**

Students should develop their digital literacy skills to be able to communicate and express their ideas through digital media (Chan, Churchill, & Chiu, 2017). Nowadays, digital technologies have become increasingly necessary to motivate students struggling with their writing, to help them develop their literacy, and to fulfill the needs of students living and learning in a digital world (Sylvester & Greenidge, 2010).

By combining technology and storytelling, digital stories allow authors to design and produce personal narratives by using images, written text and spoken language (Dunford & Jenkins, 2017). For example, to create their short personal narratives, EFL students can take advantage of various available digital media such as photos, graphics, video clips, written text, oral narration, animation, music, and sound effects, and the DSTs they produce can be readily viewed on a computer screen or a smaller digital device (Prins, 2017).

## **1.4. Digital Storytelling and Social Media**

Since it was introduced in 1993, the technological resources to create and publicize DST have increased enormously thanks in large part to the development and popularity of social media. In the twentieth-first century, social media has become widespread, and billions of people worldwide communicate and share ideas, photos, and comments on Facebook, Twitter, LinkedIn, YouTube and so on (Kaplan & Haenlein, 2010).

Adolescents form one of the largest groups of social media users who consume, create and share digital content online. Many of them develop their social skills by connecting with a large number of people with whom they might share similar concerns and interests (Walrave, Ponnet, Vanderhove, Haers, & Segaert, 2016), in other words, they have been informally creating their own DST. More than one billion people use Facebook for news and social interaction. YouTube, in addition to delivering music and film, has been successfully used as an informal environment for learning (Tan, 2013). All the resources and media mentioned help not only to produce DST but show how they have become a part of the modern communication culture.

### **1.5. Benefits of Using Digital Storytelling**

Digital storytelling benefits learners in a variety of ways. Bandi-Rao and Sepp (2014) give the example of a group of ESL who worked on their digital storytelling projects by recording and listening to their personal narratives. This process enabled them to think critically and make meaningful edits to their narratives. Moreover, when students are learning how to make a video from scratch, they may experience a transformative lesson and improve their literacy practices and interactions (Jamissen et al., 2017). Another study conducted by Rahim and Yadollahi (2017) showed that English language learners (ESL) who produced their stories using digital tools considerably improved their literacy skills. Besides improving reading and writing, students also developed their oral skills during their DST activities (Prins, 2017). Another clear benefit of DST is that students can perform them in small groups and hence develop their communication skills by organizing ideas, expressing opinions, analyzing and synthesizing content. Digital storytellers can also share their work with classmates and learn how to criticize their own and their fellow students' work (Robin, 2006).

### **1.6. Some Disadvantages of Digital Storytelling**

According to Sadik (2008), although it is essential that technology is integrated into the curriculum, teachers should have the required technical expertise to ensure that technology is effectively and meaningfully used in the classroom.

In the specific case of DST, since educators make different decisions about which resources are better adequate to their contexts, some prefer not to use the activity because they consider DST time consuming, in addition to the ethical issues of using copyrighted images DST involves.

Other example of additional effort DST requires from teachers is the large amount of time they need to spend checking students' recordings in order to coach them on how to use the right intonation and pronunciation (Bandi-Rao & Sepp, 2014). Despite these drawbacks, many teachers believe that digital storytelling can increase students' understanding of content, and are willing to include digital storytelling into the curriculum (Sadik, 2008).

## **2. Study Objectives and Research Questions**

The student-teachers enrolled in the EFL education course taught by the researcher are training to become primary school teachers of English in Lebanon's public and private schools. As such, they will help to educate a new generation of citizens who will contribute to the society. Despite their future responsibility, most of the student-teachers who participated in this study still lacked essential skills required from an EFL instructor. Some examples include, improving their pronunciation, learning to organize ideas and information (to create posters or PowerPoint slides, among other tasks), and developing better presentation skills.

### **1.7. Purpose of the Study**

The purpose of this study is to investigate whether DST can be an effective means to improve the teaching skills and language proficiency of the teacher-students who attend my

course in English language education at university. To conduct this study, DST was introduced as an optional assignment in an English language communication course in the fall of 2017-2018. Only 20 out of the 30 student-teachers taking this communication course elected to work on a digital story project, an activity that was worth 2% of their course grade.

### **1.8. Research Questions**

This study will address the following research questions:

- (1)- What perceived challenges do second-year student-teachers face during the process of creating and recording their digital stories?
- (2)- What are the possible benefits of their experience working on DST?

## **2. Methodology**

To answer the research questions related to the perceived challenges participants face and the benefits they may derive from working with DST, this study adopted an exploratory, qualitative approach by using descriptive and analytical research methods.

### **2.1. Participants**

The participants of this study were 20 female student-teachers between 19 and 28 years old majoring in English language education in the Faculty of Pedagogy/Education at the Lebanese University. They attended an oral/written English communication course in the fall of 2017-2018 designed to teach students how to develop and do effective presentations using professional PowerPoint slides. Digital storytelling was introduced to the course as an optional assignment that would help to further integrate technology into English-language teaching.

Prior to starting the work on their DST projects, participants agreed on a topic with their instructor. During their work, they received her feedback on the slides and audios they were using to create their stories. After they completed their assignments, their instructor uploaded their DST projects on her YouTube channel. All of the 16 videos produced by the participants were created with PowerPoint slides.

### **2.2. Data Collection Methods and Analysis**

Data were collected at the end of the semester using open-ended survey questions about the participants' choice of topic and the challenges they had faced while developing their digital stories and recording their videos. Additional questions included items such as the perceived benefits of their experience working on DST, their interest in working on a second digital story, and their willingness to recommend DST to their friends.

The data collected from the survey questions were then coded and analyzed. The coding process was guided by the answers to the questions, so theoretical sampling was used to place data collected in themes or concepts (Corbin & Strauss, 2008).

## **3. Results**

Twenty student-teachers worked on individual and group digital stories (DST). The total number of digital stories was 16, whereby 11 stories were created by 9 individual students and 5 stories were produced by 4 groups (see Table 1).

### **3.1. Digital Stories Categories and Themes**

The themes of the 16 videos can be divided in the following categories:

a-English Language Learning

b-School and Teaching

c-Parent-Child Relationship

d- Healthy Living

Details about the 16 digital stories are summarized in Table 1.

*Table 1. Digital Stories Themes*

<b>Category</b>	<b>No. of Themes</b>	<b>Students</b>
a-English Learning	2	DST1) Mother teaching her child English sentences DST2) Three ways to learn English;
b-School and Teaching	7	DST3) Drama in the classroom, DST4) Punishment DST5) School bullying DST6) Tips for studying effectively DST7) School phobia DST8) Teaching model;
c-Parent-child Relationship	8	DST9) helping parents encourage their kids to read, DST10) strengthening parent-child bonds DST11) jealousy between sisters DST12) kids' lies
d-Healthy Living	5	DS13) Laughter yoga DST14) Tips for a healthy life DST15) Yoga DST16) Quitting smoking.

It is worth mentioning that DST4, DST11, and DST12 were group work whereas, DST15 and DST16 were done by the same group. One participant worked on DST5 and DST9 while DST6 and DST14 were produced by another participant. The remaining 7 videos were individual digital stories.

The answers to the various survey questions are detailed below.

### **3.2. Choice of Digital Story Themes**

Participants working on digital stories related to English Language Learning and School and Teaching explained that they chose their topic because it had educational benefits such as offering practical teaching/studying tips, "I wanted to speak about something educational and creative at the same time like a mother teaching her son English sentences." Another participant said that she "wanted to offer students tips on how to learn English effectively." Other digital storytellers intended to advise parents such as "to encourage their children to read," and "to have a good relationship [with their children]".

One of the participants explained that she wanted her digital story to relate her own personal experience with bullying, "I wanted to show everyone that I solved this problem, became strong and have higher self-esteem." Another participant chose to do her work on health simply because she had done a PowerPoint presentation on the subject for a previous course. The topics of the remaining digital stories were chosen because they were either "trendy" or unusual and interesting, "We thought of a topic that usually no one talks about."

### **3.3. Challenges Faced while Developing and Recording the Digital Story**

All of the participants shared several problems they faced while working on their digital storytelling projects:

#### **3.3.1.Challenges Faced While Producing the Digital Story Video**

Those who were working on 6 of the 20 digital stories reported difficulties "finding an interesting idea," and "choosing the characters of the story". In 8 digital stories, participants said that they found searching for copyright-free images somewhat challenging. Other common obstacles mentioned by the participants included selecting PowerPoint slides, summarizing ideas, keeping their sentences short while speaking, and editing the script several times to make it "suitable to be published." One participant claimed that she did not face any challenge while developing her digital story.

#### **3.3.2.Video Recording Problems**

The 16 videos produced were recorded several times. The minimum rehearsal time was 3 times/video, the average rehearsal time ranged between 5 and 15 times, 1 video was recorded 23 times, and another 45 times. The two major reasons for these multiple recordings were the background noise and the mispronunciation of words in the script. Technical problems included difficulty adding audios to each slide, finding a video application, and inserting music in the video. One participant related that she had repeated the recordings 10 times because she thought that her voice was too monotonous.

### **3.4. Benefits of Digital Storytelling**

The participants mentioned several ways in which they benefited from their experience working on digital storytelling. Their views are summarized below.

#### **3.4.1.Pronunciation**

Eleven participants asserted that by repeatedly listening to their multiple recordings and "trying hard to make my pronunciation clear" they had significantly improved their pronunciation.

#### **3.4.2.Technical Skills**

Seventeen participants said that the experience clearly contributed to improve their technical skills. Some shared the following verbatim: "I learned how to make a video and upload it on YouTube," "now I am introduced to a new way of teaching which is considered to be more a 21<sup>st</sup> century-like way of teaching," "we have to be up-to-date with the new trends in social media because it is part of our daily lives."

#### **3.4.3.Working within Time Limits**

Fifteen students mentioned that they had learned how to communicate relevant information in a limited period of time, between 90-150 seconds, in addition to learning how to be clear and concise.

#### 3.4.4. Authentic Activity

Ten participants enjoyed their experience with digital storytelling because they were able to “talk about a [specific] topic in an interesting way.” Four participants added that they had found DST an authentic activity that can both be used as a communication tool and done in class by simply following the instructions and selecting the visual materials needed to illustrate their ideas.

#### 3.4.5. Personal Benefits

Seven participants shared how the experience had benefitted them at the personal level, “I expressed myself without being shy or anxious. I have done something I thought I was never capable of,” “I wanted to tell the world that I overcame bullying and that I am a high achiever at university.” Twelve participants offered that they had learned to be patient and perseverant, “I learned that it’s okay to redo my job several times to get it done,” “we recorded the video 15 times until we met the expectations of the [course] instructor.”

#### 3.4.6. Enjoying the DST Experience

Fourteen participants said that they had enjoyed their experience working with DST very much and had had a lot of fun, “although we were tired by the end of the day, it was a new experience that we really enjoyed,” “we had a good time together recording our video. We laughed a lot.”

#### 3.4.7. Social Skills

Eight participants mentioned that they enjoyed the interaction that was created between them and the people who were accessing their digital stories through social media, “I liked how the number of viewers on YouTube and Facebook was increasing.” They also said that the experience had enriched “this kind of interaction between the people and me.”

#### 3.4.8. Willingness to Work on a New Video to Broadcast on YouTube

Most students (13/20) said they were ready to start working on a new video project, “I’m willing to work on a new video because [the experience] was really fun and beneficial.” Six participants felt that they need to improve their technical skills before starting developing a new DS, “I would work on a new video if I had more facility because it takes time and hard work to make a high-quality video.” One participant simply admitted that the experience had not been interesting to her, “it takes a lot of time and effort to make a good video. I have many things more important to do rather than recording a video and uploading it on YouTube.”

#### 3.4.9. Recommending the Experience of Working on DST Projects to Friends

Fourteen participants said that they found their experience developing and broadcasting DST worthwhile and would recommend it friends without hesitation, “they will enjoy making the video especially if they make it as a group. They will enrich their background, widen their imagination, and open new doors on social media,” “they will benefit a lot because it gives you a sense of achievement,” “I think it is a way to express yourself,” “this experience develops critical thinking and problem-solving skills,” “it’s always good to try new things, especially since you get to hear your voice recorded hence improving your pronunciation,” “they will train more, and this will increase their self-confidence.” Some participants (5/20) would recommend working on digital storytelling to their friends although they knew that “they will have a lot of difficulties preparing a video for the first time,” some said that “I would recommend it if they have something interesting to tell or show”

#### **4. Discussion and Conclusion**

The main motivation of the 20 student-teachers who participated in this study was to create digital stories that informed or instructed their audience (Robin, 2008). Unlike other digital storytellers who use DST to develop their own personal narratives (Lambert, 2013), the participants of this study chose to work on 4 themes related to specific and broad aspects of education, such as: English Language Learning, School and Teaching, Parent-Child Relationship, and Healthy Living.

While working on their projects, participants focused on finding the right images online, creating scripts (written text) and recording their narratives (spoken language) (Dunford & Jenkins, 2017). They also utilized and tested different software programs such as Windows Movie Maker, iMovie, and PowerPoint (Bandi-Rao & Sepp, 2014). However, participants reported having had difficulties outlining their project and planning their work. They found it particularly difficult to decide on an interesting theme, find free copyrighted images to illustrate their stories, and organize their ideas, particularly in the process of assembling PowerPoint slides.

Other issues involved technical aspects. As mentioned previously, some were not fully-proficient and struggled with their English pronunciation, and many complained about background noise. Both issues caused them to re-record their videos several times. Other technical glitches included finding a user-friendly video application and inserting audios into each slide. Thus, most participants found the process of developing a video time consuming and tiring since to produce a "good" video they had to repeat their recordings 10-15 times on average (a few reported re-recording their work 45 times. The student-teachers' experience in video production described above addresses the research question (1) about the participants' perceived challenges during the process of working on their digital stories.

In academic terms, the decision to include DST as an optional assignment in the program of an ESL communication course taught by the researcher contributed to attract highly-motivated student-teachers. Their commitment to their work and the collaboration between student-teachers and researcher demonstrated that DST is a powerful teaching and learning tool that creates meaningful classroom interactions (Robin, 2008). While working on their DST, the participants clearly improved their digital literacy (Chan, Churchill, & Chiu, 2017), reading and writing literacies (Rahimi & Yadollahi, 2017), and their critical thinking skills (Kim & Lee, 2017). Moreover, the participants further developed their social skills and made new connections by sharing their digital stories with one another, and with other English speakers on social media (Walrave et al., 2016). For example, some participants reported having checked the researcher's YouTube channel and Facebook repeatedly and enjoyed seeing the number of views increase. This sharing of materials also helped to create meaningful interactions since the participants learned to critique each other's project and provide feedback on their classmates' digital stories, thus developing their critical thinking skills (Robin, 2006).

Bandi-Rao and Sepp (2014) have noticed that to make meaningful edits to their videos, creators of DST need essential language and technical skills. In the process of recording and editing their digital stories, the participants of this study significantly improved essential language skills, clear enunciation and accurate pronunciation. Recording also helped them develop abilities essential to teaching such as organizational, and presentation skills.

Developing DST projects, involved selecting a theme, drafting, writing and editing a script, and selecting the visual materials to illustrate the story. In this process, participants improved their oral and written language skills and their literacy practices (Prins, 2017). Additional

benefits included gaining more self-confidence and overcoming shyness, which are characteristics necessary for future educators.

Despite the many difficulties participants reported having while working on their digital stories, the majority of them express interested in start working immediately on another DST project, possibly in collaboration with a classmate or a friend so they can decide on a theme that is relevant to viewers and can inspire people to do something positive with their lives. Finally, the participants emphasized that developing DST was an enjoyable experience that also transformed the classroom environment making it a collaborative and creative space. The social and academic impact of DST discussed above addresses research question (2).

DST is essentially a creative practice, and one of its goals is to encourage communication and collaboration among individuals. In addition, digital and media literacy, which are the base of DST, are among the twelve essential 21st-century skills. Thus, by developing DST projects, EFL students can reach out to English-speakers in other parts of the world, and form meaningful interactions. In doing so, they will also enhance their language and literacy skills (Prins, 2017).

Although DST has been widely used as an activity in L2 classrooms and a few other disciplines, it has mainly been utilized as a means to help improve students' narrative writing. Research-based disciplines, such as sciences and mathematics, do not typically utilize DST as an educational tool, and teachers in these areas find DST effective as a language-learning tool that helps students improve their pronunciation and speaking skills.

In this study, I attempted to demonstrate the overall importance of integrating DST in the programs of both content courses and research-based courses by showing the various ways in which DST motivates learners to structure a narrative, do research, and work collaboratively to create their own projects. By introducing DST in the program of an EFL teacher training course in which the sciences (linguistics and technology) and communication are intrinsically related, this study shed light on the various skills university-level students can developed from their experience working on digital storytelling projects.

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## TEACHER AUTONOMY FROM A CROSS-CULTURAL PERSPECTIVE: A REPERTORY GRID STUDY FOR BELIEFS AND PRACTICES

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### **Abstract**

Living in a competitive world requires teachers to be aware of their potentials and reflect them on their daily practices. Autonomous teachers can think and act on their own rather than sticking to the established patterns. Current studies mostly deal with perceptions about learner autonomy and focus on local environment. However, what teachers understand from autonomy and their classroom practices are very important. Therefore, this study aims to investigate teachers' autonomy perceptions from cross-cultural perspective. The data was collected by using (1) Repertory Grid Technique with three teachers, (2) semi-structured interviews with 15 teachers and (3) classroom observations of 24 lessons for data triangulation to validate each other. Findings suggest that teachers from various cultural backgrounds interpret autonomy with different constructs, yet these differences complete each other in classroom practises. This is also corroborated with semi-structured interviews and classroom observations.

*Keywords:* Teacher autonomy, repertory grid, teacher cognition, cross-cultural perspective

### **1. Introduction**

The concept of autonomy for people has been an important issue in western philosophy and served a central point for deterministic accounts of human deeds (Benson, 2006). We act for reasons and we are capable of reflecting upon our actions. Thus, individual freedom becomes an important part of our lives. An autonomous person leads an autonomous life. He/she can see the available options and makes something out his/her life by deciding what is valuable and important. He/she does not follow the crowds but chooses his/her own path. However, people may not be aware of determining their actions or it is quite possible, especially in eastern conservative societies, that they have not had necessary education from their families. Autonomy contributes to the self-esteem and individual independence (Camilleri, 1997). For that reason, autonomy is a tool for strengthening teachers' power in both their social and professional life and it becomes crucial for teachers to create environment classrooms that will lead learners to be autonomous individuals.

The concept of teacher autonomy is generally connected with learner autonomy. Scholars have different definitions but they mostly agree on the term as the freedom and the power of the teachers in their classroom practices (Street & Licata, 1989; Friedman, 1999; Öztürk, 2012). In order to guide learners to take more responsibility for their learning, teachers need to be autonomous. De Vries and Kahlberg (1987) define autonomous teacher as constructivist person knows not only what to do, but also the reason behind it. Autonomous teachers think over the ways to promote constructivist culture among them. Those teachers are critical of the curriculum that is given by curriculum specialists. They might agree or disagree with some points and take responsibility for children's education.

### 1.1. Repertory grids to elicit perspectives

It plays an important role to elicit teachers' perspectives in order to know how they understand autonomy. The more we get opinions from a broader view, the easier it will be to focus on common framework. Current studies are mostly carried on local level, which inevitably yields us a limited point of view towards our subject (İlin, 2003; Öztürk, 2012; Xu, 2015). A multinational perspective, including teachers from different educational backgrounds may provide more solid information on the topic.

However, various factors inhibit teachers to voice their opinions on the given topic. Teachers might not be able to articulate their views during some research processes. For example a questionnaire, prepared with pre-supposed constructs might be familiar. Thus, the answers are likely to be formulaic or insincere and will probably produce inaccurate results (Donaghue, 2003). Interviews, on the other hand, might not also provide expected outcomes. The participants may want to please you. For that reason they are akin to tell what is logical, appropriate and sound (Björklund, 2008). Thus, we will need another tool that will help us reach teachers' mind without forcing them.

George Kelly (1955) developed Personal Construct Psychology, in which he tried to explain why people have different attitudes towards the world around them. Kelly believed that humans try to make sense of the universe by making their own hypothesis. He claimed that people use personal criteria, the constructs to interpret the world. This personal construct theory mirrors reflective practices based on their experiences (Donaghue, 2003). Kelly created the Repertory Grid Technique (RGT) as a tool to elicit participants' beliefs on a given topic. The grids can be accepted as reflective devise to raise self-awareness. The constructs are affirmed by their bipolar nature, e.g. patient-impatient, good-evil. (Kelly, 1955) This enables researcher to elicit the expected outcome from participants' cognition through their own conceptions (İlin, 2003).

Considering all these factors, the researcher prepared the following research questions in order to get a clearer picture about the topic:

- 1) What are the characteristics of an effective autonomous teacher?
- 2) Why do you think these characteristics are important?

## 2. Literature Review

### 2.1. Teacher Autonomy

Teachers' autonomy can also be defined as teachers' independence from the institution in making decisions about the instructions in the classroom (Çakır & Balçıklanlı, 2012). Shaw (2002) describes teachers' autonomy as the capacity to take control of one's own teaching. Teachers' autonomy also refers to the freedom from demands and pressure of other teachers and administrators. Autonomous teachers have the freedom to plan and practise teaching activities. Also, they have an important role in decision making about critical issues in their duties.

Teachers can exercise autonomy in six different aspects of their responsibilities. These can be categorised as curriculum, pedagogy, assessment, student behaviour, classroom environment and professional development (Rudolph, 2006). Additionally, Friedman (1999) includes variables for teacher autonomy in terms of decision making process, work environment, organizational climate and instructor's perspectives. Teacher autonomy is very important for developing professional teachers. If we want to consider teachers as professional individuals

like doctors and lawyers, teachers must have power and freedom in their career (Öztürk, 2012). When we expect teachers to carry out their works effectively, they need to have a degree of freedom from the structural and internal constraints in their school environment. Environmental freedom and internal capacity is also connected with each other. If a teacher is about to grow his/her internal capacity, he/she needs to have some degree of professional freedom. They need to have a voice in their actions (Deci & Ryans, 1991) and have the power to influence, make decisions in their profession (Vahasantanen, 2015).

Many teachers do not consider their job as merely transmitting knowledge, rather they have to interpret the syllabus and arrange the classroom materials. The aim here is that teachers are already applying some degree of autonomy in their classroom whether knowingly or not and they should develop learner autonomy in classrooms. Camilleri (1997) states that teachers need to realize that their duty is no longer being the only source of knowledge. Rather, they need to be a task setter or a counsellor. Teachers need to create learning environment that will foster learner autonomy. In order to do accomplish this, they need to address their own beliefs about teaching. Teachers should help learners develop an awareness on their own learning preference to guide them for the most appropriate learning environment both inside and outside the classroom. This role of counsellor requires monitoring students' learning and helping them overcome any learning difficulties (Camilleri, 1997).

## **2.2. Research on Teacher Autonomy**

Autonomy in a broader sense has been investigated a lot by researchers. However, these studies usually focused on teachers' views about learner autonomy (Holec, 1989; Dickinson, 1993; Little, 1995; Farrel & Jacobs, 2010). There is a considerable literature about teachers' views about their own autonomy as well, and these are usually quantitative works through which the issue in question is investigated from a large scale of sampling. Friedman (1999) developed a psychometrically sound scale Teacher Work-Autonomy (TWA) and measured teacher sense of autonomy. In this scale, Friedman conducted a replicability analysis of the scores on TWA in two studies. The first study aimed to conceptualize the notion of teacher work autonomy. Second study, on the other hand, provided empirical evidence for the validity of scores on a scale retrieved from the results of the first study. He conducted these two studies in elementary schools in Israel. 156 Israeli elementary school teachers participated in the first study. The sampling of the second study consisted of 650 elementary schools teachers. The findings of these studies indicated four important functioning areas for teachers' sense of autonomy at work. The researcher categorised these areas as class teaching, school environment, staff development and curriculum development.

Feryok (2013) carried out a study regarding the role of teachers in developing learner autonomy. The researcher placed her study on sociocultural theory based it on two constructs as zone of proximal development and imitation. The aim was here to observe and explain teachers' role in developing autonomy in Japan. The study implicated that teacher autonomy was the foundation and teacher's cognitions and practices were built on it. One other implication of this study showed that teachers implicitly know more than they can articulate in the classroom. On the other hand, Al Asmari (2013) conducted a similar research in Saudi Arabia and tried to reflect English Language Instructors' point of view at Taif University. This study showed that instructors stated the importance of the learner autonomy but they were reluctant to make any change to guide learners as they thought that without an institutional change, they would feel uncomfortable. Their students are coming from a culture that heavily depends on the authority of the teacher and the institution such initiatives would make learners think that their teacher is not doing his job. Also, instructors state that sharing responsibility

may create a fear of losing control as they have had the control of the classroom for most of their teaching life.

Xu (2015) inquired into the development of teacher autonomy of a group of novice EFL teachers who engaged in different types of collaboration with their colleagues at school in China. This three-year case study of four novice EFL teachers focused on the development of novice teachers' autonomy in collaborative lesson preparation, a traditional school-based activity in China in which teachers who teach different classes of the same grade work together to prepare lessons. Using a longitudinal design, the study examined the impact of teacher collaboration on the development of teacher autonomy, and how such impacts varied over time. Findings revealed that the two types of collaborative lesson preparation, i.e., product-oriented and problem-based collaboration, had different impacts on the development of novice teachers' autonomy which was mediated by the level of teacher anxiety. In terms of collaborative lesson preparation, Eren (2015) conducted an experimental study with undergraduate students who were enrolled for a compulsory language education program. In this study, in order to provide responsibility for students' own learning, the researcher explained the goals of the lesson and asked the treatment group to prepare materials for vocabulary development. Learner-created materials were found useful and the treatment group had significantly higher results compare to the control group.

An interesting and comprehensive study by Vangrieken et al. (2017) revealed the importance of collaboration among peers and its fostering role in teacher autonomy. The researchers created an instrument which measured teacher autonomy in three scales: collaborative attitude, didactical-pedagogical autonomy and curricular autonomy. Findings state that autonomy does not necessarily mean the exclusion of collaboration and act in isolation. Rather, it autonomy can both be combined with a preference for individual work or a desire to collaborate. According to the researchers, the blending autonomy and a high collaborative attitude indicates a more inclusive and intrapersonal definition of autonomy.

### 3. Methodology

#### 3.1. Research Design

This is a qualitative research and the data was collected by triangulation of sources in order to get an in-depth analysis and validation for the data. The Repertory Grids, following semi-structured interviews and on-going classroom observations aimed to create a sound base for the qualitative data by providing a cross-check for the constructs.

#### 3.2. Participants

For the Repertory Grid analysis, the participants included three teachers from Germany, Syria and Iran. All the teachers are working at public universities in Turkey and they all have more than 10-year experience. The first participant, named as Interviewee 2 (I2), is German and got his bachelor's degree in Germany. He is also a PhD student and has been living in Turkey for more than 10 years. The second participant, named as Interviewee 5 (I5), is from Syria and has a master's degree from an American University in Syria. The third participant, Interviewee 7 (I7), is from Iran and holds a bachelor's degree from an Iranian university.

Semi-structured interviews were carried out with 12 teachers apart from the above mentioned participants. Overall, 15 teachers working at various schools and from different teaching experiences participated in this study. Demographic information about all participants can be seen in Table 1:

Table 1. *Demographic Information*

<b>Gender</b>	<b>N</b>	<b>Teaching Experience</b>	<b>N</b>	<b>Country</b>	<b>N</b>
Male	2	1-5 years	6	Turkey	10
Female	13	5-10 years	3	Germany	1
		10 years and more	6	Syria	3
				Iran	1

It can be observed that our participants are mostly from Turkey and women constitutes majority of this sampling. Teachers from other countries have teaching experience from their homelands and they all have been teaching actively in Turkey. In addition, majority of these teachers either have 1-5 years teaching experience or 10 years or more.

### 3.3. Procedure

The participants were asked to fill in a repertory grid form by adding bi-polar constructs about the characteristics of effective autonomous teachers. Having completed the constructs, the participants were asked to think about three effective, three typical and three ineffective teachers they have met so far (totally nine teachers). After that, they were asked to grade these teachers on a one to five scale in terms of their closeness to the constructs.

At the second phase of the study, the researcher observed teachers' autonomy practises in the classroom. Having completed the classroom observations, the researcher carried out semi-structured interviews with 15 participants. In this phase, the participants were asked to explain the characteristics of autonomous teachers based on their classroom experiences. While the participants who also participated in Repertory Grid analyses were asked to explain their motives about the constructs in the grid forms and elaborate on these constructs, interview with the rest of the participants aimed to get a broader picture on this topic. In order to avoid any hesitation, the researcher did not record the interview; rather he took notes and asked the participants to elaborate on when necessary.

### 3.4. Data Analysis

Kelly's (1955) Repertory Grid Technique was used to elicit the teachers' opinions. The grids were analysed in repertory grid software by clustering high-relevant constructs together. In the second phase of the study, the researcher carried out interviews with 15 participants and they were asked to elaborate on characteristics of autonomous teachers. Each session lasted around 15 minutes. Their answers were not recorded in order to avoid any kind of hindrance that would result from recording; instead, the researcher took notes during the interview. The researcher analysed the interview data and figured out reoccurring themes during the sessions. Relevant themes were coded and an expert rechecked the whole the whole interview data in order to avoid any missing themes. Classroom observation sessions lasted for three months. Within this period, the researcher observed classes of three teachers. Each observation lasted for 40 minutes (duration of one lesson) and in total 24 lessons were observed by taking notes and using a classroom observation checklist designed for autonomy practices by Onia (2016). The checklist and notes were analysed by clustering relevant themes during the classroom practices.

## 4. Findings

### 4.1. Analysis of the Repertory Grids

The analysis of the data shows us the relevance or irrelevance between the constructs. The participants not only evaluated nine teachers, but also evaluated themselves whether they are close to the ideal one or not.

The analysis of I2's repertory grid gives us very clear opinions about the characteristics of an effective autonomous teacher. The Figure 1 below shows the results of this analysis:

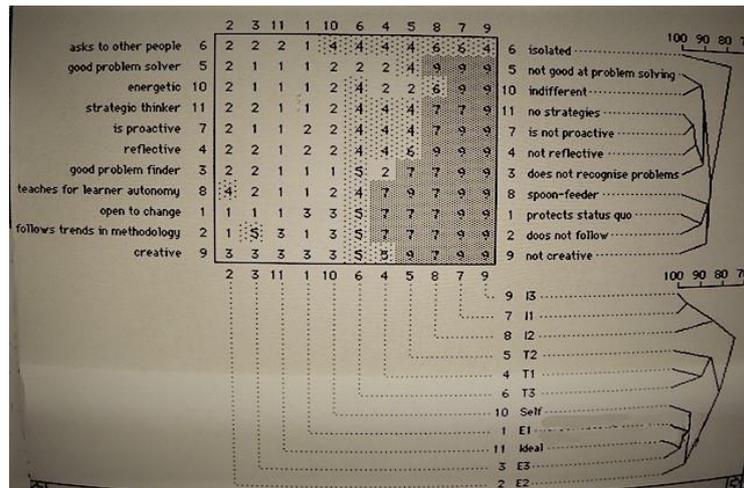


Figure 1: The Focus Analysis of I2's Repertory Grid

The analysis of this grid reveals that I2 has concise ideas towards our subject. The clusters show us the strict relation among the constructs. First of all, the most salient point is that almost all the clusters are linked above 90%. According to I2, an autonomous teacher is both a strategic thinker and a proactive person. Teachers having these qualities are also reflective towards their profession because they are good problem finders. These features have a strong relation with being a good problem solver towards detected problems as these teachers are energetic in their professional lives.

Apart from this compact relation within this group, we can also see another cluster with reflecting autonomous teachers from a different perspective. Autonomous teachers are open to change, which shows that they also follow the trends in methodology. This is a reflection of their creative nature and being aware of the importance of the autonomy for their learners as well. One loose connection about these characteristics is that such teachers do not necessarily ask to other people.

Classroom observations support his views in many ways. First of all, I2 is a quite hardworking teacher and he is strict and punctual during his classes. He applies his lesson plan accordingly and makes revisions when it is necessary. He continuously checks his students' progress and provides feedback. Although he has a strict nature, he is quite welcoming when providing feedback. Since the flow of lesson is relatively predictable, this provides learners an opportunity to have a sense of freedom, which will naturally foster their autonomy in the future. He is also quite energetic and has creative ideas when a subject in question is not understood well among students.

The analysis of I5's grid approaches this issue from a different perspective. Figure 2 shows us her opinions:

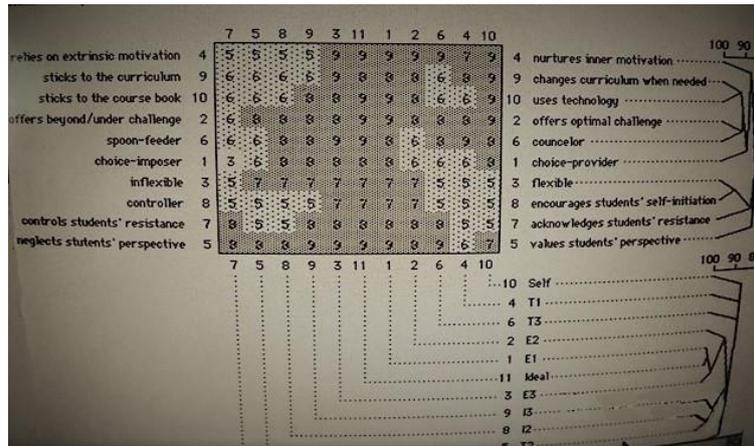


Figure 2: The Focus Analysis of I5's Repertory Grid

The analysis of this grid shows that most of the clusters have a relevance of 90%. According to I5, an autonomous teacher is a counsellor for his/her students. Meanwhile, he/she offers optimal challenge to students. Such teachers also use technology in their classes and do not stick to the curriculum. On the contrary, they change the curriculum according to the students' needs as those teachers are choice-providers in their profession.

Another striking characteristic of autonomous teachers is their flexible nature. They encourage students' self-initiations, which show a strong resemblance to I2's opinion about fostering student autonomy. They are aware of their students' capabilities, so they put attainable objectives for their students. These teachers acknowledge students' resistance and behave accordingly. On the whole, they value students' perspectives and nurture their inner motivation. Although I5 describes these as effective characteristics, she does not consider herself among effective autonomous teachers.

While participant I2 has a quite strict personality, I5 has a calm and rather flexible nature. In her classroom, she continuously encourages her students to take part in activities especially with productive skills. She is aware of her students' emotional behaviours and tries her best to overcome the obstacles that will inhibit their progress both in the classroom and beyond. She continuously blends her instruction with technology and tries to provide social media platforms which could be beneficial for developing skills.

The last participant, I7 expresses these characteristics in more separate clusters with a relevance of 90%. The Figure 3 shows the analysis of his repertory grid:

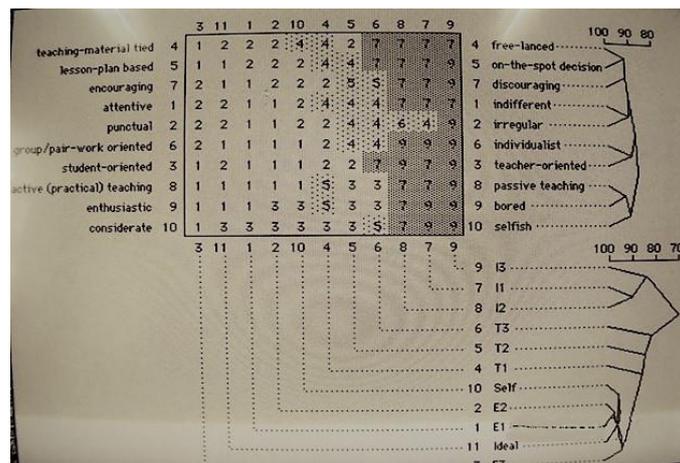


Figure 3: The Focus Analysis of I7's Repertory Grid

According to I7, an autonomous teacher is student-oriented. Such teacher is also group/pair work oriented. Another clusters show that autonomous teachers are enthusiastic ones and those teachers are active (practical) teachers as well. Additionally, they are enthusiastic in their professions. One other point is that autonomous teachers are both attentive and punctual. We can also infer that being free-lanced and being able to make on-the-spot decisions are also noteworthy characteristics of autonomous teachers. Interestingly, being an encouraging teacher does not pair with another characteristic and stands as an independent trait.

Just like the participant I2, I7 is also attentive and punctual in his classroom. Unlike the other participants, he is a bit more lesson plan and material oriented and does not make much revision. This might result from his much more group-work oriented teaching in the classroom. He tries his best to create collaborative activities in which learners will ask each other more. He does not provide the answers immediately, yet allows learners an optimum time to reach to a conclusion with group members.

#### 4.2. Analysis of the Semi-structured Interviews

Analysis of the semi-structured interviews revealed four major codes: Fostering Critical Thinking, Increasing Self-esteem, Autonomy for Life-long Learning and Reflective Practise.

##### 4.2.1. Fostering Critical Thinking:

I2 states that an autonomous teacher needs to be proactive, that is, he/she should not react to event but initiate change. This can be possible only with teachers who are energetic and committed to their profession. A teacher only sticking to textbook is unlikely an autonomous one. According to I2, another very important point to consider is being reflective. He states the importance of this issue as follows:

A second thing, autonomy requires teachers to accept that there are problems, to be equipped with the ability to face and solve problems. Of course, to be able to solve problems, one must be equipped with thinking skills. All these traits are actually based on a reflective stance. A non-reflective teacher cannot be autonomous, I think.

I2 emphasizes the necessity of critical thinking skill. In this way, teacher will be able diagnose the problems and will try to find a solution. Thus we can say that being a reflective teacher is an indispensable element for an autonomous teacher. I2 also states that such teachers

are creative people as they are aware of their working conditions but still they struggle to do their best:

Seeking autonomy also means not to accept the status quo but being open to change. This implies that autonomous teachers look beyond their horizon, and try to find out what research says about being a good teacher.

We can see that those teachers do not give up learning because of the difficulties they come across in their professional lives. All these characteristics are interrelated and contribute to the whole.

#### 4.2.2. Increasing Self-esteem:

I5 puts a special emphasis on the teacher-student interaction. She thinks that autonomous teachers reflect their traits during interaction with the students. Those teachers are well aware of the importance of autonomy for human life and they provide necessary input for their learners:

Autonomous teachers are choice-providers who give their students the self-initiation and the opportunity to take a part in choosing the subjects, activities, topics, etc. they like to learn. When students have the chance to choose their learning materials, they become more autonomous and more capable of taking right decisions. This tool of course should be carefully given to students who are mature enough and aware about their needs and goals.

I5 recalls the importance of comprehensible input for learners (Krashen, 1988) and we can see that given the freedom of choice, learners who are mature enough will be capable of taking right decisions. Of course, this has a strong relation with choice-provider nature of teachers and we can see that autonomous teachers provide choices both for their teaching and their learners.

Another point worth considering is respecting students' views and giving them a voice for their needs. I5 describes this issue as follows:

Autonomous teachers also value the students' perspective and allow them to share their points of view rather than neglecting them; the thing which increase students' self-esteem and independency. Autonomous teachers are never spoon-feeders; they are counsellors and helpers who teach their students how to fish rather than giving them fish.

Autonomous teachers value students' opinions, which contribute to the development of self-esteem and independency among students. Especially living in a competitive world, surrounded with technology makes it a much more valuable. Today's new technology is no longer new to our students. For that reason, they are labelled as "digital natives" (Prensky, 2001). That's why I5 points out the importance of using technology in classes as this will open new doors for students to discover.

Building-up self-esteem among students is not an easy task. Teachers play an important role for increasing learners' problem solving abilities. Interviewee 6 (I6) highlights this issue as:

Teachers have to be good listeners first of all but also need to be able to ask the right questions in order to encourage students to set realistic goals and paths for learning. One of the most difficult parts of encouraging autonomy is the

relinquishing of power, that is, teachers have to stand back and allow students to explore what works and doesn't work for them.

I6 points out the importance of attainable goals for fostering self-esteem; a point which could be possible by challenging the traditional role of the teacher in the classroom. Teachers need to create an atmosphere in which learners could figure out the route by themselves. However, this should not be mistaken with leaving the learners on their own and interfering nothing. Rather, teacher, as a counsellor, have to monitor the process by guiding learners when necessary.

#### 4.2.3. Autonomy for Life-long Learning:

I7 does not limit teachers' autonomy to classroom borders. Instead, he believes this is an on-going process and is a vital element for people's life-long learning. He emphasizes this issue by stating that:

Personal experience as both a classroom teacher and an administrator suggests that teachers need a great deal of autonomy if they are going to be life-long learners, and effective in the classroom if they are to be life-long learners, decision makers, leaders, and are to provide effective instruction for all students.

I7 looks at the picture from a greater perspective and considers the leading people as autonomous individuals. Thus, such teachers gain much more importance towards the development of individuals is able to take care of their own responsibilities throughout their lives.

On the other hand, I7 warns us about the potential danger for applying autonomy in the classroom. He says that there is a fine balance between an autonomous teacher and an indifferent teacher:

In allowing autonomy, they must be cautious, constantly monitoring whether their autonomy is for the good of their students, or if they are hiding behind autonomy--using it as a shield from progress. What is intriguing about teacher autonomy is not the belief that it is necessary, but that it is a double-edged sword. In allowing and providing autonomy for teachers, one must be certain those who desire autonomy have good intentions.

I7 takes our attention for the potential towards the misuse of autonomy in classrooms. He warns that it is a necessity to check whether it is fruitful for the learners or not. Actually it is related with teachers' own consciousness towards the subject as it is not possible to foster autonomy if the teacher is not even aware of this issue. He states that it is a delicate issue and the expected outcomes must be defined clearly.

#### 4.2.4. Reflective Practise

The final code that emerged from the interview is the mirroring role of teacher autonomy for reflective practise. An autonomous teacher thinking and acting on his/her own creates an atmosphere through which one can also monitor his/her own activities in the classroom for improving their work. I6 states the importance of this issue as follows:

The autonomous teacher should be methodical. He/ she defines clearly the objective of each lesson and he/ she systematically presents the materials in a way that the learner will follow and will grasp the understanding of the material.

We can see that teachers have to be methodological and present a comprehensible input for their learners. Thus, we can infer that an autonomous teacher is not the one who just leaves learners on their own during the lesson; rather he/she must prepare themselves before the lesson and be active during the schooling as well. This idea is also strengthened by the I14 during the interview:

Learning process is actually labouring for pupils. They always need to step forward and require assessment. And this hard work can be overcome by an autonomous teacher's class management. An autonomous teacher knows what is best for her group of learners. She is always well-prepared and enthusiastic. Being free with her students and sparking ideas, an autonomous teacher is always ready to fulfil pupils' learning requirements.

It can be understood that such teachers prepare suitable materials beforehand, present them in a systematically and continuously reassess their teaching. Such behaviour prepares the way for teachers' professional improvement by providing a reflective attitude for their classroom practices.

## **5. Discussion**

Repertory Grid studies enabled researchers to probe into much deeper dimensions of cognition. This is an opportunity which is not quite possible by simply carrying out interviews with participants since there are many biases that will prevent the participants to reflect their views in a more or less soothing atmosphere. That is, Repertory Grids, by probing into teacher cognition without any interference by the researcher provided an in-depth insight about autonomy perceptions. In this study, the participants created their own constructs regarding their views on teacher autonomy. They thought about characteristics of autonomous teachers and evaluated their previous schooling by comparing their closeness to the constructs. Although these three participants are from different cultures and working at different schools in Turkey, we can see that their opinions unify in terms of traits that are specific to autonomous teachers.

More specifically, we can see that autonomous teachers are open to change and follow the trends in methodology as well as being creative. There is a strong connection between being energetic and being good at problem solving. Such teachers are reflective and strategic thinkers. Interestingly, we can see that there is a weak connection between being creative and asking to other people. Autonomous teachers offer optimal challenge for their learners and thus they are more like a counsellor in the classroom rather than being spoon-feeders. They use technology into their course and instead of sticking to the course book, they adapt the curriculum when needed. Additionally, a strong relation could be observed between being punctual and attentive. These teachers encourage their learners and they are student-oriented in their approach.

Semi-structured interviews align with the results of Repertory Grid analysis. The interviews revealed common points among all teachers. First of all, it can be said that teacher autonomy helps improve critical thinking skills. Teachers need to be creative in their approach for the curriculum and decide what could work best for their learners. In this way, they will observe the classroom whether input is comprehensible for learners (Krashen, 1988). Secondly, we could see that autonomous teachers have strong self-esteem, a trait which manifests itself through activities. Naturally, this leads to an increasing self-esteem and independence among learners as well. Next, it is not a big claim to say that teacher autonomy is not limited with classroom. Autonomous teachers apply their habits out of classroom as well and this is an on-going process which inevitably shapes their life-long learning. Finally, autonomous teachers are reflective in

their approach. They prepare materials beforehand, present them systematically considering learner traits and provide a feedback during their teaching.

Classroom observations provided a third eye for practitioners views on autonomy. Their ideals and classroom practise do not show big difference. Although it is a necessity to accept that there is usually a difference between theory and practise, observations did not reveal a contradiction. Teachers tried to apply what they had already planned and learners were not unfamiliar with such applications. Because of the restrictions like exams, administrative procedures, teachers feel that they do not have much control in overall lesson, but still they implemented and when necessary adapted changes to instruction.

Findings of this research align with the studies by Friedman (1999) and Feryok (2013) in terms of professional development. Both studies indicated that teacher autonomy prepares a sound base for improving teachers' expertise. Our findings about the key role of autonomy for reflective practise are also evident in studies by Deci & Ryan (1991) and Vahasantanen (2015) in which researchers highlighted the necessity of having a voice in actions and having the power to influence and take stances in professional life. However, our findings did not reveal a very important aspect that was asserted by Xu (2015) and Vangrieken et al. (2017) in their comprehensive and crucial studies: the role of collaboration for fostering practises in the classroom. This issue was only partly mentioned by Interviewee 7 (I7) by stating the pair-work and group work as necessary characteristics of autonomous teachers.

## 6. Conclusion

We can see that characteristics of effective autonomous teachers are just like the roots of a tree, each of them contributes to the whole picture in one way. The variety in views resulting from teachers with different educational background state that the concept of teacher autonomy is understood similarly regardless of the national barriers. All teachers have some points in common and richness in their views helps us fill the dots for our approach to this issue.

Equipping our learners with appropriate education is essential in a world where individual characteristics constitute an undeniable part of daily life. Autonomous teachers play a vital role as facilitators in this process. Therefore, it won't be wrong claim to say that the more we know the characteristics of autonomous teachers, the easier it will be for us to prepare our learners for their future.

Considering our findings, we have several implications for practitioners: (1) Autonomy does not mean leaving students on their own; rather it is a reciprocal approach through which teachers would contribute to their own development in a great deal. (2) Students will benefit a lot by having a relatively more responsibility for their own learning and this will not only be limited with classroom borders but also help them in their social life. (3) Teacher should not be afraid of autonomy and distance themselves in the classroom.

This qualitative study is limited with teachers' perceptions from a multi-cultural perspective. Also, all teachers are familiar with schooling in Turkey. Therefore, considering cultural differences, it could be an important asset to elicit perspectives from teachers working at various countries. In addition, it would be a significant contribution to carry out future research by reflecting this issue from a more quantitative perspective. We also believe that gender and experience variables would be an important factor and enable to conclude more about the nature of autonomy. Finally, as Xu (2015) and Vangrieken et al. (2017) pointed out, collaboration and teacher autonomy stands out as undervalued and less investigated issues. Therefore, we strongly advise future researchers to investigate autonomy from this perspective as well.

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## **AN INVESTIGATION OF PRE-SERVICE TEACHERS' ATTITUDES TOWARDS TEACHING PROFESSION IN REGARD TO SOME VARIABLES: THE CASE OF MIDDLE EAST TECHNICAL UNIVERSITY**

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## Abstract

The purpose of this study was to investigate the pre-service teachers' attitudes towards teaching profession and explore the effects of the certain variables (gender, GPA, age, department, motives for selecting teaching profession, and the level of mother and father education) on their attitudes. The participants of the study consisted of 344 undergraduate students, (282 females and 62 males) from five different departments at the faculty of education at Middle East Technical University during the fall semester of the 2015-2016 educational year. As a means of data collection, the "Attitude Measurement Scale for Teaching Profession" developed by Üstüner (2006) was applied. The scale was a one-dimensional 5-Likert type ranging from "strongly disagree (1)" to "strongly agree (5)" with 34 items. For the analysis of the data, Independent-Samples t-test and One-Way-ANOVA were used. According to the findings obtained from the study, while the attitudes of pre-service teachers towards the teaching profession showed a significant difference regarding gender, GPA, department, and motives for selecting the teaching profession, it did not show any significant difference for age and the level of mother and father education.

*Keywords:* attitude, pre-service teachers, the teaching profession

## 1. Introduction

The profession is one of the most important factors in shaping the life of an individual (Bozdoğan, Aydın & Yıldırım, 2007). People ascribe some intellectual, emotional, and psychological means into their profession; and they develop attitudes towards their profession by reflecting these ascriptions on their behaviors over time (Korkmaz, 2009, Bektaş & Nağacı, 2012). Individuals should develop a positive attitude towards their profession in order to show the required behaviors in their profession. Thus, professional training has an essential place in the attitude towards the profession because it is the environment in which the person develops the earliest attitude towards the profession (Caglar, 2013). Especially in teacher education, the development of positive attitudes of pre-service teachers towards their profession has an important effect in gaining professional consciousness (Başçiftçi, Yanpar & Ergül, 2012).

Along with globalization, the rapid changes and developments take place in all areas as well as in the field of education. Considering that teachers are an essential component of the education system, their roles are mostly influenced and differentiated in order to meet the needs of the new educational paradigm (Açıslı & Kolomuç, 2012). In addition to having cognitive

domain qualifications such as knowledge and skills, it is necessary to have the affective domain qualifications such as attitudes and behaviors towards the teaching profession (Bektaş & Nalçacı, 2012). In other words, being knowledgeable for a teacher is not enough anymore, it is also expected that the teacher should develop positive attitudes towards his/her teaching profession in order to be more successful and more conscious about his/her profession. Besides being successful and conscious, a positive attitude determines teachers' motivation towards profession (Demirtaş, Cömert & Özer, 2011). Teachers who develop positive attitudes towards their profession will be more responsible for their duties in the most satisfactory way, will be more conscious about time management, motivate the students and develop a conducive learner-friendly and creative environment in the classroom (Doğan & Çoban, 2009). It can be said that a positive attitude is an important factor related to the success of teachers (Demir, 2004; Terzi & Tezci, 2007). Besides, teachers' attitudes towards the profession will reflect the understanding of the teaching profession, which is one of the strongest determinants of behavior in their profession. Therefore, it is important to examine the attitudes of pre-service teachers towards teaching profession regarding the way of their success and satisfaction, and also contributing to their professional development (Çetin, 2006; Üstüner, Demirtaş & Cömert, 2009).

### **1.1. The Purpose of the Study**

In light of this information, the purpose of this study was to investigate the pre-service teachers' attitudes toward the teaching profession and explore whether their attitudes differ regarding gender, age, GPA, department, mother education, father education, and their motives for selecting teaching profession. For this purpose, the present study addressed the following research questions:

- What are the attitudes of preservice teachers towards teaching profession?
- What is the effect of certain variables (gender, age, GPA, department, mother education, father education, motives for selecting the teaching profession) on pre-service teachers' attitudes towards the teaching profession?

## **2. Review of Literature**

### **2.1. Attitude**

Attitude has been subjected to the social science since the beginning of the 20th century, and several definitions have been proposed by many researchers and psychologists (Allport, 1966; Oskamp, 1977; Ajzen, & Fishbein, 1980; Eagly & Chaiken, 1995; Myers, 2002; Gilovich, Keltner & Nisbett, 2011). Attitude basically can be defined as a negative or positive view of a person towards an object, person, event, or place (Gilovich et al., 2011). On the other hand, Eagly and Chaiken (1995) defined attitude as a psychological tendency that people show towards a particular thing by evaluating with some degree of favor or disfavor. Another attitude definition was made by Myers as “a favorable or unfavorable evaluative reaction toward something or someone, exhibited in one’s beliefs, feelings, or intended behavior” (Myers, 2002, p.36). While the definitions were examined, three important points of attitude come forward, which are effective, behavioral, and cognitive aspects constitute of ABC of attitude. The first component, affective, refers to feelings and emotions while behavioral components correspond “one’s action tendencies toward the object” (Oskamp, 1977, p.10). Lastly, the cognitive aspect refers to opinions and ideas.

### **2.2. The Importance of In/Pre-service Teacher Attitudes on Teaching Profession**

The attitude of a person towards his or her profession is very crucial for his or her performance (Butler, 2004; Hussain et al., 2011). It is because this will have an impact on

productivity and also his/her relationship with people in social life or the work environment. This is also true for a teacher who is supposed to meet specific requirements (Gelisli, 2007; Terzi & Tezci, 2007). Dedication, patience are those requirements for a teacher who wants to be successful in his/her profession. In order to be successful in the profession, especially for a preservice teacher, devotion is another important factor (Aşkar & Erden, 1987).

Considered all three components of the attitude mentioned in the previous section, affective, behavioral, and cognitive, which refer to feelings, emotions, actions, and opinions and ideas, respectively. It can be said that a teachers' attitude towards his/her profession is very essential for success. It is well known that teachers' attitudes firstly affect students' lives. The studies showed that the students who were taught by the teachers with positive attitudes tend to make clear decisions for selecting their professions (Wang & Fwu, 2001; Kukari, 2004).

### **2.3. Research on In/Pre-service Teachers Attitudes**

Since teachers' attitudes towards their profession are crucial for their success, many studies carried out to find which factors affect their attitudes or how teachers' attitudes affect teaching-related issues. In the study of Suja (2007), it was found that interest in teaching, teaching experience, and attitudes towards teaching had a significant effect on job commitment of teachers. Another study conducted by Lasek and Wiesenbergova (2007) aimed to find attitudes of teachers towards their profession in terms of various variables such as age, domicile, having a teacher model, and parents-teachers. The sample of the study consisted of 105 female and 34 male students, who were third-grade level students from the faculty of education. The findings showed that all students had positive attitudes towards their teaching professions, and female pre-service teachers and those whose parents are teachers had higher attitudes towards their teaching profession than the others. Similarly, the study of Dilg (2003) concluded that in or pre-service teachers with positive attitudes towards their profession were more productive and who were more concentrated upon their academic life than the others. Moreover, the study reported that those with positive attitudes were more satisfied with their personal lives as well.

To bring a deeper understanding, there are also some studies in the literature which examine the effects of some factors on teachers' attitudes towards teaching profession (Fadlelmula, 2015; Bulut, 2009; Şimşek, 2005; Guven, 2004; Murphy, 2004; Wang & Fwu 2001; 2002). Gender, age, faculty, social and economic conditions are included in these factors. Pattnaik (2003) carried out a comprehensive study, which aimed to find the effect of gender on teachers' attitudes. The results revealed that female teachers' attitudes were higher than the male ones. The study reported that there was a common sense in the society that the teaching profession was much more female-oriented rather than male-oriented. The study of Guven (2004) aimed to explore the professional development of pre-service social studies teachers' thoughts on teaching and effectiveness. A qualitative study was performed with 48 students from the department of social studies in the faculty of education. Participants answered several questions such as why they chose their field, what sort of a teacher they want to be, etc. One of the remarkable results was that most of the prospective teachers chose their profession due to its supposed guarantee to find a job. However, their beliefs and attitudes towards the teaching profession changed depending on the outcomes of the students. More specifically, they believed that if they could help academically disadvantaged students and make a difference in their academic lives, they develop a more positive belief and attitude towards the teaching profession.

### 3. Method

#### 3.1. Research Design

The study applied causal-comparative research design. According to Fraenkel, Wallen, and Huyn (2012), these kinds of studies aim to investigate already occurred causes or consequences of the differences or similarities by comparing two or more groups of individuals. More specifically, the present study explored whether certain demographic characteristics (gender, GPA, age, department, motives for selecting teaching profession, level of mother education, and level of father education) had a significant effect on the students' attitudes towards teaching profession or not.

#### 3.2. Participants of the Study

By using purposive sampling, 344 undergraduate students from Faculty of Education in the fall semester of the 2015-2016 educational year participated in the study. Especially junior and senior students were included in the study because of being responsible for the courses related to teaching professions after the second-study year. The mean age of students was  $22.05 \pm 1.39$  years. The participants included 62 males and 282 females. The distribution of the participants according to the departments was as follows: Out of 344 students, 85 of them were from the department of Elementary Science Education (ESE), 65 of them were from the department of Elementary Mathematics Education (EME), 66 of them were from the Department of Early Childhood Education (ECE), 47 of them were from the Department of Computer Education and Instructional Technology (CEIT), and 81 of them were from the Department of Foreign Language Education (FLE). For the statistical analyses, some variables were categorized into two groups. According to METU grading system, GPA was divided into two groups as follows: (1) "satisfactory" corresponding between 2.00 and 2.99, (2) "honor and high honor" corresponding between 3.00 and 4.00. Two students' GPA was under 2.00, corresponding "unsatisfactory", which were not included in the study. The age variable was also divided into two groups as follows: (1) the students aged between 20 and 22 years old were considered as "expected graduation age", and (2) the students aged between 23 years and above were considered as "expected to be graduated". The level of mother and father education was also split into two groups as "being illiterate to finishing high school" and "having any type of higher education". Lastly, the motives for selecting teaching profession were divided into two groups as "dream job" and "others" including the reasons such as opportunities/work condition, the presence of teachers in the family and relatives, the scores of the university entrance exam, family pressure, because of being METU, no reason, etc. The descriptions of the variables were presented in Table 1.

Table 1. *Descriptions of the Variables*

Variables	Descriptions	%	f
Gender	1 = Female	82.0	282
	2 = Male	18.0	62
GPA	1 = 2.00 – 2.99 “Satisfactory”	55.0	188
	2 = 3.00 – 4.00 “Honor or High Honor”	44.4	153
	< 2.00 “Unsatisfactory”	.6	2
Age	1 = 20 – 22 “Expected Graduation Age”	66.0	234
	2 = 23 and above “Expected to Be Graduated”	34.0	110
Department	1 = ESE	84	24.4
	2 = EME	65	18.9
	3 = ECE	67	19.5
	4 = CEIT	47	13.7
	5 = FLE	81	23.5
Mother Education	1 = Ranging from being illiterate to finishing high school	298	86.6
	2 = Having any type of higher education	46	13.4
Father Education	1 = Ranging from being illiterate to finishing high school	227	66.0
	2 = Having any type of higher education	117	34.0
Motives for Selecting Teaching Profession	1 = Dream Job	112	67.4
	2 = Others (work opportunities, family pressure, etc.)	232	32.6

### 3.3. Data Collection Tool

The present study employed a causal-comparative design. As a means of data collection tool to examine pre-service teachers' attitudes towards the teaching profession, the Attitude Measurement Scale for Teaching Profession developed by Üstüner (2006) was used. The scale comprises 34 items; out of them, 24 items represent positive attitudes while 10 of them (Item2, Item5, Item6, Item7, Item8, Item15, Item20, Item21, Item30, Item32) represent negative attitudes, which were coded as reverse item (1 = 5, 2 = 4, 3 = 3, 4 = 2, 5 = 1). The scale is a unidimensional 5-Likert type ranging from "strongly disagree (1)" to "strongly agree (5)". The Cronbach alpha coefficient was reported .93, which is an acceptable reliability coefficient because of being above .70 (Kline, 2012; Field, 2009). A total of 350 questionnaires were distributed to undergraduates, and 344 of them were valid.

### 3.4. Data Analysis

In the present study, junior and senior undergraduate students from the Faculty of Education in Middle East Technical University were randomly selected. Descriptive and inferential statistical analyses were conducted through the Statistical Package for Social Science (SPSS 22.0). For the effect of the motives for selecting teaching profession variables on attitudes, one-way ANOVA was run because of having more than two groups. For the other variables including only two groups, independent t-test analyses were performed. In the following parts, the variables significantly affecting pre-service teachers' attitudes towards the teaching profession were explained in detail.

## 4. Results

According to the results of the study, the pre-service teachers had positive attitudes towards the teaching profession ( $M = 3.69$ ,  $SD = .79$ ). While gender, GPA, department, and motives for selecting the teaching profession showed a significant difference in pre-service teachers' attitudes towards the teaching profession, age, mother education and father education did not show any significant difference. More specifically, the attitudes of the students whose ages between 20 and 22 years old did not significantly differ the students whose ages above 23 years old. Furthermore, the parents of the students' educational level, whether it was being illiterate to finishing high school or having any type of higher education, did not affect their attitudes towards teaching profession. In the following parts, the variables significantly affected pre-service teachers' attitudes towards teaching profession were reported in detail.

### 4.1. The Effect of Gender on Attitudes towards Teaching Profession

An independent sample t-test was conducted to explore the effect of gender on pre-service teachers' attitudes towards teaching profession. According to the results, there was significant difference in scores for males ( $M = 3.39$ ,  $SD = 1.04$ ) and females ( $M = 3.75$ ,  $SD = .70$ );  $t(73.52) = 2.60$ ,  $p < .05$ . The magnitude of the differences in the means ( $MD = .36$ ) was small ( $\eta^2 = .02$ ). In other words, female students had higher positive attitudes than male students as seen in Table 2.

Table 2. *The results of t-test for gender*

Gender	N	M	SD	t	df	p	$\eta^2$
Female	282	3.75	.70	2.60	73.52	.011	.02
Male	62	3.39	1.04				

### 4.2. The Effect of GPA on Attitudes towards Teaching Profession

In order to investigate the effect of GPA on pre-service teachers' attitudes towards teaching profession, the independent sample t-test was performed. As seen in Table 3, the findings showed that the pre-service teachers with higher GPA had higher mean scores than the others. There was significant difference in scores for "satisfactory" group ( $M = 3.61$ ,  $SD = .79$ ) and "honor or high honor" group ( $M = 3.79$ ,  $SD = .77$ );  $t(328.6) = 2.16$ ,  $p < .05$ . The magnitude of the differences in the means ( $MD = -.18$ ) was small ( $\eta^2 = .01$ ).

Table 3. *The results of t-test for GPA*

Gender	N	M	SD	t	df	p	$\eta^2$
1.00 – 2.99	188	3.61	.79	-2.15	339	.032	.02
3.00 – 4.00	153	3.79	.77				

### 4.3. The Effect of Department on Attitudes towards Teaching Profession

One-way ANOVA was conducted to determine whether there was a significant difference pre-service teachers' attitudes towards teaching profession in terms of their departments. Five different departments from the faculty of education were included in the study, which were EME, ESE, ECE, CEIT and FLE. As seen in Table 3, the results indicated that there was a significant effect,  $F(4,339) = 5.95$ ,  $p = .00$ , indicating pre-service teachers from different

departments have different attitudes towards the teaching profession. The magnitude of the differences in the means was moderate ( $\eta^2 = .07$ ).

Table 4. *The results of ANOVA for the departments*

	SS	df	MS	F	P
Between Groups	13.64	4	3.41	5.95	.00
Within Groups	194.21	339	.57		
Total	207.85	343			

Post-Hoc comparisons using Tukey test indicated that CEIT had lower mean scores ( $M=3.22$ ,  $SD= .94$ ) than the other departments. Except for CEIT, there was no significant difference among the other four departments. The results of pre-service teachers' attitudes towards teaching profession by departments were presented in Table 5.

Table 5. *The results of multiple comparisons for the departments*

(I) Department	(J) Department	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
ELE	EME	-.09	.13	.95	-.44	.25
	ECE	.14	.12	.79	-.20	.48
	CEIT	<b>.56*</b>	.14	.00	.19	.94
	FLE	.06	.12	.99	-.27	.38
EME	ELE	.09	.13	.95	-.25	.44
	ECE	.23	.13	.39	-.13	.60
	CEIT	<b>.66*</b>	.14	.00	.26	1.05
	FLE	.15	.13	.76	-.20	.49
ECE	ELE	-.14	.12	.79	-.48	.20
	EME	-.23	.13	.39	-.60	.13
	CEIT	<b>.42*</b>	.14	.03	.03	.82
	FLE	-.09	.12	.96	-.43	.26
CEIT	ELE	<b>-.56*</b>	.14	.00	-.94	-.19
	EME	<b>-.66*</b>	.14	.00	-1.05	-.26
	ECE	<b>-.42*</b>	.14	.03	-.82	-.03
	FLE	<b>-.51*</b>	.14	.00	-.89	-.13
FLE	ELE	-.06	.12	.99	-.38	.27
	EME	-.15	.13	.76	-.49	.20
	ECE	.09	.12	.96	-.26	.43
	CEIT	<b>.51*</b>	.14	.00	.13	.89

\* $p < .05$

#### 4.4. The Effect of Motives for Selecting Profession on Attitudes towards Teaching Profession

Lastly, the independent sample t-test was conducted to determine whether pre-service attitudes towards teaching profession differ in terms of their motives for selecting the teaching profession. As mentioned in the previous part, there were two main categories as “*my dream job*” and “others” (e.g., opportunities/work condition, the presence of teachers in the family and relatives, the scores of the university entrance exam, family pressure, because of being METU, and no reason). According to the results, pre-services teachers who identified their motives for the teaching profession as “*my dream job*” had higher mean scores than the others as seen in Table 6. There was significant difference in scores for dream job ( $M = 4.22$ ,  $SD = .47$ ) and others ( $M = 3.43$ ,  $SD = .77$ );  $t(342) = 9.98$ ,  $p < .05$ . The magnitude of the differences in the means ( $MD = .78$ ) was large ( $\eta^2 = .30$ ).

Table 6. *The results of t-test for motives for selecting teaching profession*

	N	M	SD	t	df	p	$\eta^2$
Dream Job	112	4.22	.47	324.50	11.74	.00	.29
Other	232	3.43	.77				

## 5. Discussion

The results of the study show that pre-service teachers had positive attitudes towards their teaching profession, which showed consistency in the prior research, (Capa & Cil, 2000; Buluç, 2002; Saracaloğlu et al., 2004; Üstün, Erkan & Akman, 2004; Kaya & Büyükkasap, 2005; Aslan, Köksal & Akyol, 2006; Terzi & Tezci, 2007; Bedel, 2008). Moreover, according to the results of the study, pre-service teachers’ attitudes showed a significant difference in regard to gender, GPA, department, and the motives for selecting a profession. On the other hand, their attitudes did not differ in regard to age and the level of mother and father education.

Firstly, as a result of the study, pre-service teachers’ attitudes towards teaching profession differed in terms of gender. In particular, female pre-service teachers had more positive attitudes towards teaching profession than the male ones, which was consistent with the previous research conducted in Turkey (Çapa & Çil, 2000; Çeliköz & Çetin, 2004; Üstün, Erkan & Akman, 2004; Saracaloğlu et al., 2004; Cakır, 2005; Kaya & Büyükkasap, 2005; Gürbüz & Kışoğlu, 2007; Terzi & Tezci, 2007; Çapri & Çelikkaleli, 2008; Çiçek-Sağlam, 2008; Çetinkaya, 2009).

According to Levin (2010), the teaching profession was preferred mostly by females in many countries. Anker (1998) conducted a study with 41 countries, and it was found that teaching was one of the female occupations. There are many explanations for this situation, which differs across society (Ullah, 2016). According to Groskop (2006), school teaching is a soft option compared to other jobs in the public domain. Moreover, school teaching was associated with child-care rather than teaching for along years (Skelton, 2009). On the other hand, there were also a few studies, in which male students had higher positive attitudes than female students (Özben, 2010; Başçiftçi, Yanpar, & Ergül, 2012). Besides, gender did not show any significant difference in some studies (Bulut & Doğar, 2006; Tanel, Şengören, & Tanel, 2007; Kılıç & Bektaş, 2008; Can, 2010; Hacıömeroğlu & Taşkın, 2010; Demirtaş, Cömert, & Özer, 2011). One of the reasonforof the gender difference in the study might be explained

unequal sample size of female and male students. More specifically, the number of female students ( $n = 62$ ) was considerably larger than the number of male students ( $n = 282$ ).

In the study, another variable affecting pre-service teachers' attitudes towards teaching profession was GPA. The students whose GPA was higher had more positive attitudes than whom with lower GPA. The literature showed different results in terms of the effect of GPA on attitudes. For instance, Fadlemula (2015) found that GPA did not affect attitudes towards teaching profession. On the other hand, according to Zembat, Yavuz, Tunçeli, and Yilmaz (2018), the students with higher GPA had more positive attitudes towards their profession than those with lower GPA. This was an expected result. Since pre-teachers with positive attitudes are more interested in their field, they tend to be more successful.

Furthermore, the department variable significantly affected the pre-service teachers' attitudes towards teaching profession. Accordingly, pre-service teachers from the department of Elementary Mathematics Education (EME) had highest attitude scores towards teaching profession whereas the preservice teachers from the department of Computer Education and Instructional Technologies had the lowest attitude scores towards teaching profession. The present study was consistent with prior research, in which teachers' attitudes significantly differed in regard to the department (Bulut, 2009; Üstüner et al., 2009; Aksoy, 2010). This might be explained the working conditions after graduation were not proper or satisfactory (Üstüner, Demirtaş & Cömert, 2009). However, some studies showed that students' attitudes towards teaching profession did not change according to the department (Demirtaş et al., 2011; Ocak & Demirdelen, 2008; Çapri & Çelikkaleli, 2008; Şimşek, 2005; Erdem et al., 2005; Eraslan & Çakıcı, 2011). As stated by Yaşar-Ekici (2015), students might change their career plans during their education, or it might be related to the quality of education.

Moreover, the findings of the study revealed that pre-service teachers' attitudes towards teaching profession differed according to motives for selecting the teaching profession. The attitudes of pre-service teachers preferring the reason of "dream job" are more positive than the "other" reasons (job opportunities and working conditions, the presence of teachers in the family and relatives, the scores of universities entrance exam and the family desire/pressure, etc.). These findings showed consistency with the results of some studies in the literature (Yaşar-Erikçi, 2015; Aslan & Köksal-Akyol, 2006; Yumuşak et al., 2006; Gürbüz & Kışoğlu, 2007). This might be explained that pre-service teachers who selected their profession primarily based on their interests, desires, and expectations, develop more positive attitudes towards teaching profession than the others.

The attitudes of the pre-service teachers towards teaching profession did not show any significant difference in regard to age, which was consistent with the study of Yaşar-Erikçi (2015). However, the result of the present study might be explained with the range age of the sample, which only included the students from the third and fourth study year. The level of father and mother education did not significantly affect the pre-service teachers' attitudes, which was not examined in the literature. Thus, it can be said that this was the novelty of the present study. This might be explained the number of groups, which was only two as "being illiterate to finishing high school" and "having any type of higher education". Actually, the information about the level of mother and father education was collected as seven groups (illiterate, literate, elementary, middle school, high school, undergraduate, and graduate). Since the number of groups are not equal or some of them were under 30 students, this variable was categorized under two groups for the analysis. If the analysis was performed with seven groups, a significant difference might occur among the other groups.

## 6. Conclusion, Implications, and Recommendations

A very important issue investigated in the study was the pre-service teachers' attitudes towards teaching profession. It was also explored whether their attitudes differed regarding certain variables such as gender, age, GPA, department, mother education, father education, and their motives for selecting teaching profession. The results showed that pre-service teachers had a moderate positive attitude towards the teaching profession. Furthermore, while gender, GPA, department, and the motives for selecting the profession significantly affected the pre-service teachers' attitudes, age and the level of mother/father education did not affect their attitudes. As Chakraborty and Mondal (2014) stated, positive attitude towards teaching profession is a pre-request for a healthy school system; and an important sign to be successful in the profession (Coşkun, 2011; Açışlı & Kolomuç, 2012; Bektaş & Nalçacı, 2012; Özkan, 2012).

The current study has some important implications which should be considered by researchers, educators, and educational policymakers. For researchers, the present study provided a significant contribution to the literature of teacher education with respect to identifying the variables affecting the attitudes towards the teaching profession. More specifically, the variables such as the educational level of parents and motives for selecting the teaching profession were rarely investigated while the variables like gender and age were examined in many studies. Moreover, this study highlighted the importance of department variable on pre-service teachers' attitudes towards their profession. The pre-service teachers in the departments which are more advantageous in terms of working conditions had more positive attitudes than the others. The findings of this study may be useful for education policymakers when deciding on quotas for education faculties throughout the country. The study also showed that the motives for selecting profession significantly affected the pre-service teachers' attitudes towards teaching profession. The pre-service teachers whose motives were "dream job" had more positive attitudes than the others. The present study gave insight to better understand the importance of motivation. Thus, educators should consider the pre-service teachers' interests, expectations, and motivations while reorganizing educational environments.

For further studies, qualitative data collection methods like deep interviews may be carried out to investigate the reasons for the factors affecting pre-service teachers' attitudes towards teaching profession. Moreover, the level of mother and father education had only two groups in the study, and no difference was explored between these two groups ("being illiterate to finishing high school" and "having any type of higher education"). Thus, further study might be conducted by adding other levels of education groups. The inclusion of only one university was one of the limitations of this study. Thus, in order to enhance generalizability and external validity (Merriam, 2009), the study might further be conducted with different universities from different regions of Turkey.

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## A QUANTITATIVE STUDY OF TURKISH EFL LEARNERS' PERCEPTIONS ABOUT CRITICAL THINKING DISPOSITIONS

*Research Article*

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### **Abstract**

This study is an attempt to determine learners' attitudes and perceptions about critical thinking dispositions and their achievement levels in Business English classes. The participants (N=91, 61 males and 30 females) are second- and third-year undergraduate students from Management and Information Systems department enrolled in the Faculty of Economics and Administrative Sciences at a state university in Turkey, who have taken the Business English Course during the 2018-2019 academic year, fall term. The research was designed as a quantitative study. For the measurement of learners' tendency towards critical thinking dispositions, the California Critical Thinking Disposition Inventory (CCTDI), a survey instrument (51 questions, 6 subscales) adapted and translated into Turkish by Kökdemir (2003) was employed as a data collection tool. These subscales are about truth-seeking, open-mindedness, analyticity, systematicity, critical thinking, self-confidence and inquisitiveness. At the end of the semester, for the English achievement level of learners, final exam results were taken into consideration and evaluated. The data collected were analyzed through SPSS 22.0. Findings indicate that the relationship between students' critical thinking dispositions (CTD hereafter) and the final scores are not statistically significant. Also, students' level of education does not affect the tendency of the participants in terms of CTD. However, it can be said that female students are more successful than male students in academic English course. Implications are included for critical thinking dispositions to enhance academic/business English language courses in Turkey.

*Keywords:* Turkish EFL learners, perceptions, critical thinking dispositions, academic/business English course

### **1. Introduction**

Nowadays, critical thinking is a significant determiner for an individual to become successful not only in a workplace but also in life itself (Rincker, 2014). Rapid changes in the 21<sup>st</sup> century and its demands on people who are a part of a society are not clear enough to keep up with for someone who cannot think critically. The expectancy of recent developments, especially in education, demands students to become critical thinkers who can analyze and evaluate before judging. In these terms, students should be able to question the ideas and knowledge they are expected to learn, have their own ideas when it comes to judging others, and have reasoning to find out what is lacking (Alagözlü, 2007).

\* This study was presented as an oral presentation at GlobELT Annual Conference, April 11-14<sup>th</sup>, 2019. This is the extended and final version of the study.

In education, there is no differentiation of how significant critical thinking is for students from different academic majors or professions (Rincker, 2014; Kabeel & Eisa, 2016). However, its significance for ELT classes cannot be noticed considering a new language student is also exposed to a new culture and various ideas. To illustrate this point, Külekçi and Kumlu (2015) claimed that teaching or learning English can be different from other languages because of its identity, entitled as the lingua franca. According to them, the global role of this language connects more than one culture and broadens students' horizons to an international level. Stating that what shapes our language and thoughts is our culture, Alagözlü and Süzer (2010) believe that this is why we need critical thinking in language classes in order to understand different cultures and have different perspectives.

It is suggested that social structure is an effective determiner for learners to have critical thinking skills; moreover, this is why Turkish learners have difficulty with them (Alagözlü & Süzer, 2010). In this regard, the current study is going to analyze and evaluate this particular situation using a quantitative research design. In light of this purpose, the following research questions were determined to find answers about the participants' perceptions regarding CTD and their achievement levels in Business English course.

1. What are Turkish EFL learners' perceptions about CTD?
2. Which aspects are used more by Business English learners?
3. What is the relationship between CTD and participants' achievement level in Business English course?

## 1.1. Literature Review

### 1.1.1. Critical Thinking

The concept of critical thinking firstly appeared in the middle and late 20<sup>th</sup> century, however, it is believed that this concept is more than two thousand years old ("Defining Critical Thinking," n.d.). Contrary to its historic roots, it is not possible to say that there is one certain definition for critical thinking used by all. The word 'critical' appears in different collocations such as critical theory and critical pedagogy. Unlike the abstract features of critical theory, Freire (1973, 1974) mentioned about critical pedagogy as a social action and educational change and contributed to the literature by stating *praxis*, which connects theory and practice into each other in order to provide a room for change. While Chance (1986) defines CT as an ability to analyze, organize and evaluate situations for a solution, Beyer (1995, p. 8) simply calls it "... making reasoned judgments" (as cited in Alagözlü, 2007). Kabeel and Eisa (2016) relate the lack of one certain definition to multifaceted dispositional influences on thinking. Another researcher, Asleitner (2002) defined critical thinking as evaluating arguments requiring higher-order thinking skills. Similarly, Halpern (1999) stated that CT means solving problems and making inferences and decisions.

According to Facione, Sánchez, Facione and Gainen (1995), it was not even possible to make a judgment about people's critical thinking skills scientifically until the formation of The California Critical Thinking Disposition Inventory (CCTDI). They define CCTDI as an instrument through which it is possible to learn about participants' critical thinking skills and to report them on seven different scales: Analyticity, Open-mindedness, Self-confidence, Inquisitiveness, Systematicity, Truth-seeking and Maturity. Kabeel and Eisa (2016) states that a skill is what turns the knowledge we have learned into habits, attitudes and ideas. Therefore, these seven skills have different importance for individuals with different features. Taking a closer look into these skills, Facione et al. (1995) and Kabeel and Eisa (2016) defined these skills as:

**Analyticity.** The individuals who have analyticity need reasons before deciding. Defined as “the inquiring minds”, they try to find out pieces of evidence for problem-solving.

**Open-mindedness.** Individuals who are tolerant of new beliefs and lifestyles.

**Self-confidence.** The individuals who trust their own judgments and rational capacity to lead others to resolutions.

**Inquisitiveness.** The individuals who desire always to learn more and to reach new knowledge.

**Systematicity.** The individuals who think and find solutions in an ordered and organized way.

**Truth-seeking.** The individuals who seek the best objective knowledge (absolute truth) and they are open-minded to new facts, reasons and perspectives as long as they reflect the truth.

**Maturity.** The individuals who are judicious or reasonable in their own decision making.

Considering all the definitions above, critical thinking has been seen as vital for an individual to reason new inputs and different situations in various conditions. However, to put these thoughts into practice, one should improve the mentioned skills to reach reasonable solutions and judgments. Even though we all have these skills at very young ages to improve, rather than focusing on family support and effect on this issue, their improvement in our education life is widely spoken because of the long time we spend in schools and with teachers (Enciso, Enciso and Daza, 2017).

#### *1.1.2. Critical Thinking Skills in ELT and Academic Achievement*

The purpose of educating learners as critical thinkers and helping them to improve their skills is to prepare them for future; and for the sake of this purpose, teachers should adopt and enforce critical thinking skills to their students (Leach, 2011). Similarly, Enciso et al. (2017) state that students’ present and future life quality depends on their ability to improve or develop their critical thinking skills and education has a significant role in it.

Toharudin (2017) defines critical thinking as an active process containing interpretations, evaluations, observations, communications, arguments, and solutions; hence, the students should be active participants in learning by sharing or performing their processes. Enciso et al. (2017) explain that it is only possible for them to be active participants of their own learning process when educators give up transferring others’ knowledge and experience into them. They also claim that teachers can provide regular classroom practices to help their students think critically.

The problem of lack of critical thinking is seen as a situation mainly related to teachers in education. In particular, it is thought that the absence of critical thinking in their training process could be the reason of their lack of capability to use and encourage students to use critical thinking skills, which is a product of traditional teaching model (Enciso et al., 2017). Considering generations are following similar ways in a cycle, it is necessary to find new solutions. Külekçi and Kumlu (2015) explain that as a consequence of traditional education, lack of practising in classes is causing students not to improve or develop their skills. Even so, they define these students as “passive thinkers” who learn others’ experiences and knowledge not likely to use it for producing.

It may not be surprising that these educational situations need critical thinkers to find a solution in order to improve the quality of education (Toharudin, 2017). As far as the previous studies have shown, there is a positive effect of thinking on achievement (Karabıyık, 2019). Especially in ELT classes, it is more possible to come across with critical thinking in order to provide a better framework for learning English and new cultures. In his study, Ördem (2017)

claims that language teachers who are critical thinkers specifically choose thought-provoking tasks for their students and expect from them to approach these tasks in an unusual way.

Considering the previous literature, Turkish EFL learners were observed that they had a problem with expressing their own thoughts in the thought-provoking tasks (Alagözlü, 2007). According to the findings of the study, the traditional Turkish society structure is a big determiner for Turkish learners; hence, their hesitation to express their thoughts turns into a serious problem in terms of critical thinking. Alagözlü (2007) conducted a study about L2 writing and critical thinking which reports that Turkish EFL students are weak to use their own judgment and reasoning. Similarly, Tarakçıoğlu's (2008) study showed that Turkish EFL learners had difficulty to express themselves orally by using critical thinking skills. However, Floyd (2011) found out that language fluency performance is of vital importance in EFL learners' critical thinking skills. In a study about CTD, Genç (2017) aimed to find out the relationship between academic achievement, reading habits and critical thinking disposition of Turkish EFL learners. This study showed that Turkish EFL learners have low critical thinking dispositions. However, female students were found more successful, analytic and open-minded. However, Ördem (2017) carried out a study about critical thinking performances of Turkish EFL learners' listening and speaking classes and found out that they were better at some critical thinking skills such as inquisitiveness, truth-seeking, open-mindedness, and confidence. In addition to these studies, there are also research showing a positive relationship between critical thinking skills and EFL learners' listening-speaking skills (Elekaei, Faramazi & Tabrizi, 2016; Lee, 2017).

## 2. Method

### 2.1. Research context and participants

The sample group consists of 91 Business English undergraduate Turkish EFL students (61 males and 30 females). They were aged between 20-24 and second- and third-year students from Management and Information Systems department enrolled in the Faculty of Economics and Administrative Sciences at Osmaniye Korkut Ata University in Turkey, who have taken compulsory Business English course during the 2018-2019 academic year, fall term.

### 2.2. Instruments

The data collection instruments consisted of the California Critical Thinking Disposition Inventory (CCTDI), a survey instrument (51 questions, 6 subscales) adapted and translated into Turkish by Kökdemir (2003) in order to measure learners' tendency towards critical thinking dispositions. This survey was applied to the participants in Turkish for the purpose of making students understand the items properly. These subscales were about truth-seeking, open-mindedness, analyticity, systematicity, critical thinking self-confidence and inquisitiveness. In addition to this, for the English achievement levels of learners, final exam results were taken into consideration and evaluated at the end of the semester.

### 2.3. Data collection and analysis

The data were collected through questionnaires and during the class hour in the midst of the 2018-2019 academic year, fall term. After that, final exam scores were obtained at the end of the term to see whether there is any relationship in terms of participants' grades. The study was designed as a quantitative research method. The data were analyzed through SPSS 22.0 software package.

## 3. Findings

In this part, the findings of the study in line with the research questions are given. The first table provides a demographic analysis of the participants.

Table 1. Demographic analysis of the participants

		S	%
Gender	Female	59	66,3
	Male	30	33,7
Age	18	1	1,1
	19	5	5,7
	20	13	14,8
	21	40	45,5
	22	20	22,7
	23	9	10,2
	Mean±Standart Deviation	21,14±1,05	
Education Group	Daytime education	44	51,2
	Evening education	42	48,8
Class	2 <sup>nd</sup> class	48	52,7
	3 <sup>rd</sup> class	43	47,3

Looking at the Table 1, it is observed that while 66.3% of the learners are female, 33.7% of them are male; 1.1% of them are 18 years old, 5.7% of them are 19, 14.8% of them are 20, 45.5% of them are 21, 22.7% of them are 22, and 10.2% of them are 23; the mean value of their ages is  $21.14 \pm 1.05$ ; 51.2% of them are in daytime education, 48.8% of them are in evening education; 51.7% of them are sophomores, and 47.3% of them are juniors.

The arithmetic mean and standard deviation values related to critical thinking dispositions and academic English course grades of the participants are given in Table 2.

Table 2. The arithmetic mean and standard deviation values related to critical thinking dispositions and academic English course grades of the participants

	N	Min.	Max.	Arithmetic Mean	S.s.
Analyticity	80	31	58	46,41	4,67
Open-mindedness	78	17	70	33,80	8,25
Inquisitiveness	82	26	99	44,93	9,45
Self-confidence	84	17	58	40,06	9,50
Truth-seeking	85	19	104	37,65	9,80
Systematicity	85	13	50	35,16	7,45
Critical Thinking Dispositions	91	19	53	39,44	4,92
Business Language Course Achievement Level	91	32,0	98,0	63,91	17,23

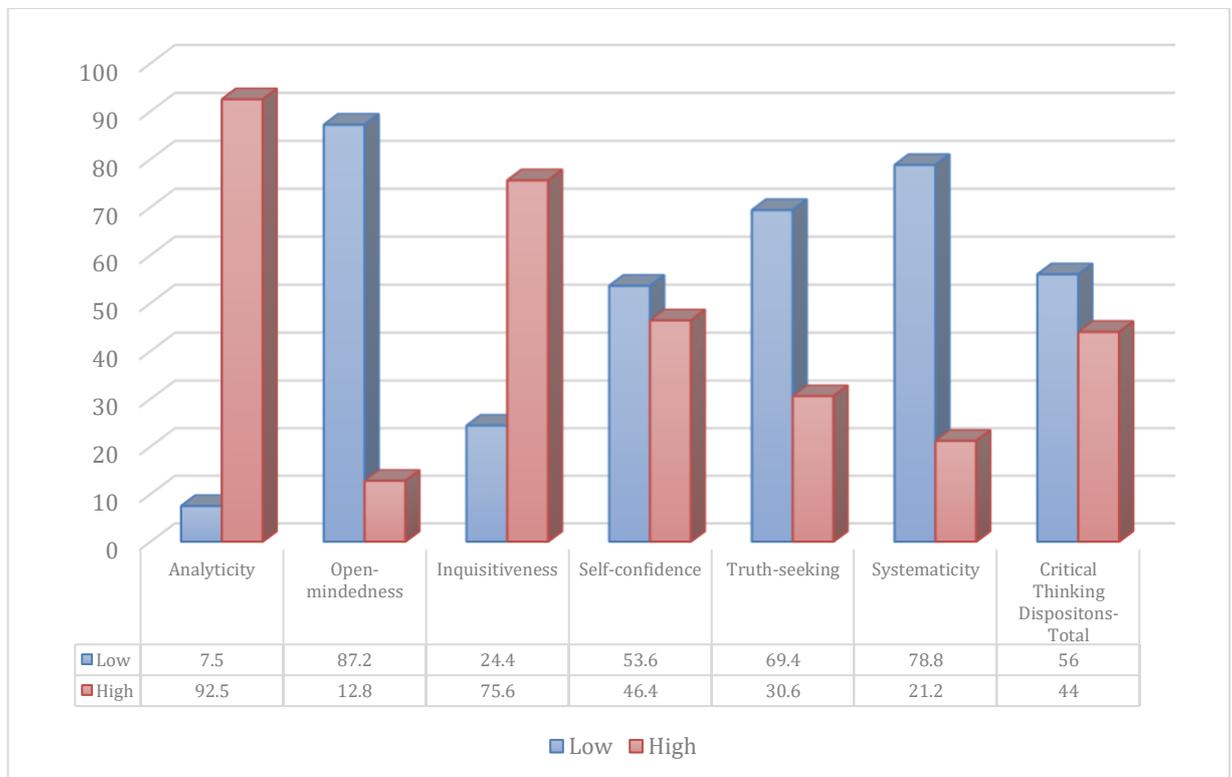
Note = Lack of answers in some questions caused differences in the number (N) of participants.

As given in the second table, it is seen that mean value of *Analyticity* is  $46.41 \pm 4.67$ , mean value of *Open-mindedness* is  $33.80 \pm 8.25$ , mean value of *Inquisitiveness* is  $44.93 \pm 9.45$ , mean value of *Self-confidence* is  $40.06 \pm 9.50$ , mean value of *Truth-seeking* is  $37.65 \pm 9.80$ , mean value of *Systematicity* is  $35.16 \pm 7.45$ ; in total, mean value of *Critical Thinking Dispositions* is  $39.44 \pm 4.92$  and mean value of *Achievement in Academic English Course* is  $63.91 \pm 17.23$ . The following table shows the participants' critical thinking dispositions.

Table 3. *The participants' critical thinking dispositions*

	Critical Thinking Dispositions			
	Low		High	
	n	%	n	%
Analyticity	6	7,5	74	92,5
Open-mindedness	68	87,2	10	12,8
Inquisitiveness	20	24,4	62	75,6
Self-confidence	45	53,6	39	46,4
Truth-seeking	59	69,4	26	30,6
Systematicity	67	78,8	18	21,2
Critical Thinking Dispositions	51	56,0	40	44,0

In the third table, it is seen that 7.5% of the participants' analytical disposition is low, while 92.5% of them have higher disposition; 87.2% of them have low open-mindedness, 12.8% of them have higher; 24.4% of them have low inquisitiveness, 75.6% of them have higher; 53.6% of them have low self-confidence, 46.4% have higher; 69.4% of them have low truth-seeking, 30.6% of them have higher; 78.8% of them have low systematic behaviour disposition, 21.2% of them have higher, and 56% of them have low critical thinking disposition while 44% of them have higher (Figure 1). These findings can also be seen in the following figure.

Figure 1. *The participants' critical thinking dispositions*

The third research question was related to the relationship between critical thinking dispositions and academic English course grades. For the purpose of this, Pearson correlation analysis was used to provide information (Table 4).

**Table 4.** *The correlation values about the relationship between critical thinking dispositions and academic English course grades*

	Business Language Course grades	
Analyticity	r	,060
	p	,596
Open-mindedness	r	-,010
	p	,930
Inquisitiveness	r	,053
	p	,639
Self-confidence	r	-,051
	p	,644
Truth-seeking	r	,034
	p	,758
Systematicity	r	-,074
	p	,502
Critical Thinking Dispositions	r	,015
	p	,888

Analyzing Table 4, all of the correlation values between critical thinking dispositions and Business English course grades were not statistically significant. As a result, it can be said that there is no significant relationship between critical thinking dispositions and Business English course grades.

According to the descriptive features of the learners participated in this study, variations in critical thinking dispositions and Business English course grades are given in Table 5.

Table 5. According to descriptive features of the participants, variations in critical thinking dispositions and academic English course grades

		Analyticity	Open-mindedness	Inquisitiveness	Self-confidence	Truth-seeking	Systematicity	Critical Thinking Disposition	Business Language Course-Grades
		Mean $\pm$ S.d.	Mean $\pm$ S.d	Mean $\pm$ S.d	Mean $\pm$ S.d	Mean $\pm$ S.d	Mean $\pm$ S.d	Mean $\pm$ S.d	Mean $\pm$ S.d
Gender	Female	46,81 $\pm$ 5,08	33,51 $\pm$ 7,07	45,65 $\pm$ 6,48	41,61 $\pm$ 9,30	38,52 $\pm$ 11,22	35,09 $\pm$ 8,00	40,33 $\pm$ 4,13	66,034 $\pm$ 16,70
	Male	45,67 $\pm$ 3,75	34,14 $\pm$ 10,29	43,82 $\pm$ 14,54	37,72 $\pm$ 8,75	35,82 $\pm$ 6,10	35,37 $\pm$ 6,51	37,95 $\pm$ 5,89	59,067 $\pm$ 17,92
	TEST	t=1,816 p=,073	t=1,000 p=,320	t=-,318 p=,583	t=,751 p=,565	t=1,815 p=1,188	t=,073 p=,238	t=-,159 p=,874	<b>t=2,216</b> <b>p=,029</b>
Age	Aged 20 and below	45,26 $\pm$ 3,66	32,68 $\pm$ 6,54	44,51 $\pm$ 15,22	38,95 $\pm$ 9,99	36,47 $\pm$ 7,61	34,91 $\pm$ 7,70	39,02 $\pm$ 4,48	63,90 $\pm$ 20,42
	Aged 21 and above	46,72 $\pm$ 4,76	33,99 $\pm$ 8,85	44,89 $\pm$ 7,18	40,63 $\pm$ 9,44	38,03 $\pm$ 10,45	35,10 $\pm$ 7,54	39,82 $\pm$ 4,48	63,99 $\pm$ 16,34
	TEST	U=386,000 p=,172	U=508,500 p=,692	U=445,000 p=,192	U=531,500 p=,461	U=551,000 p=,910	U=556,000 p=,822	U=605,500 p=,612	U=640,500 p=,879
Education	Daytime	45,74 $\pm$ 5,10	33,59 $\pm$ 9,36	43,19 $\pm$ 7,83	41,28 $\pm$ 9,86	38,23 $\pm$ 11,77	34,72 $\pm$ 6,72	38,89 $\pm$ 5,54	63,273 $\pm$ 18,90
Group	Evening	46,92 $\pm$ 4,39	33,78 $\pm$ 7,19	47,31 $\pm$ 10,33	39,59 $\pm$ 8,75	37,14 $\pm$ 7,42	35,39 $\pm$ 8,458	40,26 $\pm$ 4,23	64,571 $\pm$ 14,96
	TEST	t=-1,076 p=,286	t=-,101 p=,920	t=-1,977 p=,052	t=,811 p=,420	t=,494 p=,623	t=-,396 p=,693	t=-1,286 p=,202	t=-,354 p=,724
Class	2 <sup>nd</sup> class	46,88 $\pm$ 4,58	33,46 $\pm$ 6,45	44,92 $\pm$ 10,99	39,24 $\pm$ 10,14	38,02 $\pm$ 5,86	36,43 $\pm$ 6,93	39,40 $\pm$ 4,88	63,96 $\pm$ 18,52
	3 <sup>rd</sup> class	45,88 $\pm$ 4,76	34,19 $\pm$ 10,03	44,94 $\pm$ 7,64	41,05 $\pm$ 8,69	37,25 $\pm$ 12,82	33,85 $\pm$ 7,81	39,50 $\pm$ 5,02	63,86 $\pm$ 15,90
	TEST	t=,964 p=,338	t=-,387 p=,700	t=-,011 p=,991	t=-,870 p=,387	t=,361 p=,719	t=1,615 p=,110	t=-,099 p=,921	t=,027 p=,979

As can be seen in the previous table, while  $t$  values in the level of  $p < 0.05$  were statistically significant in terms of the gender differences in academic English course grades, the gender differences in values of “Analyticity”, “Open-mindedness”, “Inquisitiveness”, “Self-confidence”, “Truth-seeking”, “Systematicity”, and “Total Critical Thinking Disposition” were not significant in terms of  $t$  values in the level of  $p > 0.05$ . These findings show that there is a difference considering the learners’ genders in terms of their grades in Business English course. It is also seen in Table 5 that the mean value of the female learners’ Business English course grades is 66.03, which is higher than the mean value of the male learners’ grades, 59.07. In conclusion, it can be said that female learners are more successful in academic English course compared to male participants.

Analyzing the table in terms of the learners’ ages, all of the  $U$  values in the level of  $p > 0.05$  were not statistically significant with regard to values of “Analyticity”, “Open-mindedness”, “Inquisitiveness”, “Self-confidence”, “Truth-seeking”, “Systematicity”, and “Total Critical Thinking Disposition”. These findings point out that there is no difference between the learners’ age considering the values of “Analyticity”, “Open-mindedness”, “Inquisitiveness”, “Self-confidence”, “Truth-seeking”, “Systematicity”, and “Total Critical Thinking Disposition”.

On the other hand, the results given in the table shows that  $t$  values in the level of  $p > 0.05$  were not statistically significant to provide a relation between the learners’ education groups, whether it is daytime or evening, and the values of “Analyticity”, “Open-mindedness”, “Inquisitiveness”, “Self-confidence”, “Truth-seeking”, “Systematicity”, and “Total Critical Thinking Disposition”. These findings indicate that there is no difference between the learners’ class time in terms of the values of “Analyticity”, “Open-mindedness”, “Inquisitiveness”, “Self-confidence”, “Truth-seeking”, “Systematicity”, and “Total Critical Thinking Disposition”.

Moreover, analyzing the results shown in Table 5, all of  $t$  values in the level of  $p > 0.05$  related to the values of “Analyticity”, “Open-mindedness”, “Inquisitiveness”, “Self-confidence”, “Truth-seeking”, “Systematicity”, and “Total Critical Thinking Disposition” were not statistically significant in terms of the learners’ classes. These findings demonstrate that there is no difference between the learners’ classes considering the values of “Analyticity”, “Open-mindedness”, “Inquisitiveness”, “Self-confidence”, “Truth-seeking”, “Systematicity”, and “Total Critical Thinking Disposition”.

In order to find out the internal consistency of critical thinking dispositions scale, Cronbach Alpha factor was also measured.

Table 6. Cronbach alpha factor of critical thinking dispositions scale

	Cronbach Alfa coefficient	Item
Analyticity	,617	12
Open-mindedness	,660	11
Inquisitiveness	,639	9
Self-confidence	,757	6
Truth-seeking	,642	7
Systematicity	,686	6
Critical Thinking Dispositions	,606	51

#### 4. Discussion and conclusion

The present study explores Turkish EFL learners' perceptions of CTD by using a quantitative research method. According to the overall findings of the study, CTD does not differ much in terms of analyticity, open-mindedness, inquisitiveness, self-confidence, truth-seeking and systematicity from the perspectives of participants. This may stem from participants' insufficient academic background about CTD and had different cultures and learning environments than western students (Atkinson, 1997; Yang & Chou, 2008). This particular finding does not overlap with the study carried out by Ördem (2017). In his study, it was found out that the learners use specific critical thinking skills better, like inquisitiveness, truth-seeking, open-mindedness, and confidence. With this regard, it is not possible for the current study to make such an indication. In a similar line with the findings of the current study, the studies by Alagözlü (2007) and Tarakçıoğlu (2008) show that Turkish EFL learners lack critical thinking skills when it comes to express themselves written or oral. In parallel to this, the findings of the previous study (Genç, 2017) also showed learners' low critical thinking dispositions similar to previous studies except that the female students had higher scores (Kökdemir, 2003) and were found to be more analytic and open-minded. From this perspective, female students are more successful than males in academic English course in this study as well. However, Özdemir (2005) concluded that there was no difference between male and female students in terms of CTD.

Akbıyık and Seferoğlu (2002) investigated CTD and academic achievement of ninth-grade students and claimed that CTD had an influence regarding general academic achievements on science and social courses except for English lesson, which was not found to be statistically significant. There are also studies showing the impact of CT and critical discourse analysis (CDA hereafter) in EFL classes. For example, Hashemi and Ghanizadeh (2012) studied the impact of CDA to learn whether there is any influence on learners' CT skills and concluded that CDA has a positive and significant effect on CT. Another study (Afshar, Rahimi & Rahimi, 2014) stated that critical thinking was a stronger indicator in EFL Iranian learners' academic achievement rather than autonomy and instrumental motivation.

It can be concluded from these findings that critical thinking dispositions among business EFL students are not much comprehensible in terms of sub-scales of the survey employed in this study. Furthermore, as for the relationship between CTD and the final scores of the participants do not correlate positively, thus it can be said that students' critical thinking dispositions do not have much influence on improving learners' foreign language learning process.

Based on the findings, the following implications can be suggested for the benefit of all stakeholders. First, CTD should be given importance and improved through courses in the native language not just in the foreign language teaching environments, thus making them ready to think critically and creatively for foreign language learning. This can also help students raise awareness about CTD. Second, it is a prerequisite for the students to involve actively in the class for the purpose of promoting critical thinking skills (Bedir, 2013). Third, materials used in these language classes might be developed in order to make students analyze, synthesize and interpret the learning items critically. In relation to this, teacher training programs should also be supported to develop pre-service teachers' being aware of critical thinking skills in teacher education (Şeker & Kömür, 2008). Last but not least, there is a need to prepare a common syllabus for these courses because the universities in Turkey offer business language classes differ from each other in terms of class, credits and materials.

This study is, nevertheless, limited in some ways regarding methodological design, sampling and procedure. A quantitative research design was applied to obtain data from 91 Turkish EFL students in a business language class. Further research could also investigate critical thinking dispositions using mixed-method research design with larger sampling.

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## IMPROVING SECONDARY SCIENCE INSTRUCTION THROUGH CONTENT AND LANGUAGE INTEGRATED LEARNING (CLIL) IN SRI LANKA

*Research Article*

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# IMPROVING SECONDARY SCIENCE INSTRUCTION THROUGH CONTENT AND LANGUAGE INTEGRATED LEARNING (CLIL) IN SRI LANKA

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## Abstract

There has been a growing interest in incorporating CLIL (Content and Language Integrated Learning) methodology in the Sri Lankan national education system. CLIL refers to methods where subjects, or parts of subjects, are taught through a foreign language to improve both academic subject knowledge and foreign language skills. The 4C's model of Coyle et al (2010) is a popular model for the implementation of CLIL and Sri Lankan system has encouraged using this CLIL model. The main objective of this study was to inquire how CLIL is implemented in secondary science classrooms and to support the teachers. The study was action research. The collaborative action research group comprised a faculty member, a postgraduate research student and ten secondary science teachers from five schools. Arising from the fact-finding needs analysis, the intervention designed included researcher-led teacher workshops to support teachers to plan CLIL lessons. The lessons were implemented in the respective schools by the sample of teachers during school two terms with the support of the researchers. The study concluded that curriculum materials were not focused on CLIL and teachers needed heavy support for content and language integrating for the teaching of science in secondary classes. Preparation of teacher instructional manuals addressing CLIL and in-service teacher development for CLIL lesson planning is recommended.

*Keywords:* CLIL, action research, secondary science, intervention, 4C's model

## 1. Introduction

Sri Lankan system of education is focused on the global sustainable development objective of "ensuring quality and equal inclusive education approach for all as well as providing opportunities to promote lifelong education" (Ministry of Education, 2015, p.4). Education in mother tongue promoted education excellence in most learners in Sri Lanka. However, the need to attain proficiency in the English Language became a priority. However, learning English as a subject in the secondary school curriculum was not found to be adequate. The bilingual policy was introduced in 2001 in Sri Lanka to offer some of the subjects in GCE Ordinary Level in English medium while other subjects were offered in the mother tongue.

Education Sector Development Framework and Program 2013-2017 (Ministry of Education, 2012) emphasized the establishment of Content and Language Integrated Learning (CLIL) framework as the theoretical framework of bilingual education. The acronym CLIL denotes any dual-focused type of provision in which a second language, a foreign language or another, is used for the teaching and learning of a non-language subject matter, with language and content having a joint and mutually beneficial role. In Sri Lanka the first national language is Sinhala while the second national language is Tamil. English is the second and the link language in the Sri Lankan official system of languages. Hence, there is a need for studies on the classroom realities of CLIL approach used in the bilingual program. This study focused on

the aspects of teaching-learning resource texts and CLIL lesson planning through a developmental perspective.

## 2. Background

The bilingual stream of the study was scaled-up to the secondary grades in 2002, promoting the learning of and in two languages to support the content and language requirements of the learner. Sinhala and Tamil are the two national languages through mainstream education are imparted. In the initial implementation, bilingual stream of education focused on teaching Science and Mathematics in English medium from grades 6 to 11. National Policy on bilingual education is as follows:

Bilingualism should be promoted by using English as the medium of instruction for selected subjects such as mathematics, science, technology including computer literacy initially. It is expected that students will reach an acceptable level of proficiency in English without jettisoning Sinhala and Tamil which will continue to be the medium of instruction in selected subjects. (National Education Commission, 2003: 116-117)

A specific feature of CLIL is that teaching the content is not *in*, but *with* and *through* the foreign language (Marsh 2002). Coyle, Hood and Marsh (2010) have forwarded a theoretical model for effective CLIL implementation through a '4Cs model' which is a holistic approach, where Content, Communication, Cognition, and Culture are integrated. Content denotes progression in knowledge, skills and understanding of content; Cognition is the engagement in higher-order cognitive processing; Communication is the development of appropriate communication skills; and Culture is the acquisition of deepening intercultural awareness.

The Department of Science and Technology and the Department of Foreign Languages and Bilingual Education of the National Institute of Education (NIE) was given the responsibility of developing syllabi and training teachers to use CLIL, particularly in teaching science, English and mathematics in 2013. There had been two significant revisions of the secondary science curriculum. The first was in 2007, and the second revision was in 2013. It is of paramount importance to identify and examine how helpful are the curriculum materials to the science teachers in bilingual contexts to integrate the theoretical and practical aspects of CLIL.

With the introduction of bilingual education both teachers and students encountered a set of new challenges. This paper reports a classroom action research effort to investigate the ground situation of bilingual science classes and to make a collaborative intervention to address challenges faced by teachers.

## 3. Objectives of the study

The objective of this study is to analyze how far CLIL has been incorporated into the secondary science classrooms. The following research questions were adopted.

1. How helpful are the changes integrated into secondary science syllabi and textbooks to support CLIL with the recent revision of materials?
2. How do the bilingual science teachers implement the science curriculum through CLIL?
3. What are the realities of adopting CLIL into secondary science teaching and learning?

## 4. Review of literature on science teaching and learning through CLIL

Bilingual education and CLIL literature are vast across the world. However, the applicability of literature from one context to the other depends upon many factors as 4Cs vary

in their operationalization in different contexts. However, some studies reviewed here facilitate comparison with Sri Lankan context.

A Finnish study revealed that at the beginning of CLIL implementation, careful decisions need to be made on what is to be taught in the mother tongue and what can be taught through the foreign language. The study indicates that it takes time for learners to get the necessary skills of learning in a CLIL context (Jappinen, 2005). Yassin et al (2010) revealed through a study in Malaysian school science contexts that teachers posed questions were of lower cognitive order and teacher talk was very high preventing a satisfactory level of student talk. An intervention study carried out with pre-service teachers in Thai CLIL classrooms assigned to teach science revealed that they needed help from science teachers to plan science lessons. Further, it was observed that students communicated only in Thai although the teachers asked students to communicate only in English. However, the teachers were compelled to suggest that students may communicate in Thai as well. The study also indicates that the use of visual aids, ICT and hands-on activities helped the students to work collaboratively with the teacher asking simple questions in English. The study recommended that language support is necessary for students to work in a CLIL environment (Kwangawad, 2018).

A widely accepted important factor for CLIL implementation is the teacher. Rodriguez (2018) highlighted that teaching flexibility as a competence would allow the teacher to adapt the professional skills to achieve successful and meaningful learning in students. Infante and Licona (2018) suggested that free and dynamic integration through trans-languaging is a linguistically responsive pedagogical approach for bilingual teaching and learning.

The Sri Lankan literature on CLIL is sparse and is only beginning to emerge. The basis of CLIL in Sri Lanka is that some content subjects are taught and learned in English which is not the mother tongue of the learners which is either Sinhala or Tamil. The need to revise the textbooks and other curricular materials for English medium instruction was highlighted in a study done by the National Education Commission Sri Lanka (Premaratne et al, 2014). A review of the curricular materials revealed the need to introduce a major revision of curricular materials focused on CLIL implementation as the contents being mere translations of monolingual curricular materials that are not appropriate to address the 4C's model (Nettikumara & Vithanapathirana, 2015).

## **5. Methodology**

The study was conducted as collaborative action research. This action research was an effort by the postgraduate researcher who is a trained science graduate teacher and had studied in the English medium and also completed a Post Graduate Diploma in Teaching English as a Second Language (PGD in TESL) and her University Ph.D. supervisor who is a teacher educator in science education. The research student had gone through a short-term training in Content and Language Integrated Learning (CLIL) methodology conducted by the Education office of the region and the National Institute of Education, Sri Lanka.

The action research for the study was designed according to the model proposed by Kemmis and Mc Taggart (1988). This plan is comprised of the stages of planning, action, observing and reflecting. This research adopted the four stages as (i) planning (ii) intervention (iii) monitoring with facilitation and (iv) reflection. The planning stage focused on the gaining of access, fact-finding on the needs of the science teachers to conduct science lessons in bilingual modality and designing an intervention based on fact-finding. The action stage focused on the intervention led by the researchers to facilitate a change in CLIL implementation in the respective schools. The detailed activities to intervene to facilitate the improvement of CLIL lessons were developed after engaging in fact-finding with teachers. Hence, the detailed

activities are presented in section 6.2. Monitoring stage focused on the facilitation of the new CLIL lessons in sample schools with teachers. The final stage was to engage in reflection on the experience of conducting the intervention and on the data collected. This paper reports the cycle 1 of the action research.

This research was located in the educational zone in the northwestern part of the country in an area predominated by the fishing and tourism industries, where the research student had been a teacher for more than ten years. Since the bilingual stream is conducted by the provincial education authorities only in selected schools due to resource constraints, the school sample for the study was purposively selected to include four of the largest and high resourced schools in the zone and one semi-large school with moderate resources. All 15 teachers who were engaged in the bilingual stream were invited to participate. All teachers were females and however, only ten teachers consented to participate in the study. The others had reasonable personal reasons for not being able to participate. The sample included two teachers from each school. The ten teachers in the sample of participants had basic formal English language qualifications and on average 2-3 years of experience in teaching in the bilingual stream of study.

Data collection was done through observations, interviews and maintaining a record of self-reflections. Lessons of teachers were observed using a checklist based on 4C's CLIL model. A semi-structured observation schedule was also adopted to find out how the teachers facilitated their students to construct the meaning of their learning experiences using English language and acquire the necessary language skills learning science content. It was also attempted to understand how teachers promoted students' communication skills in order to develop their cognition through social interaction and how they paved the way for the students to use their cultural awareness for their concept formation process through experiential learning.

Interviews with teachers were mainly on teacher instructional guides and textbooks prepared for grades 6 to 11 by the National Institute of Education, Sri Lanka which is the body responsible for the curriculum development of the school education system and relevant textbooks prescribed to the bilingual stream by the Ministry of Education with a focus to see the compatibility based on the 4C's model and both syntactic and semantic aspects of language in relation to CLIL.

The data collected through different methods were triangulated to ensure the validity of findings generated through qualitative analysis of data collected on the research questions.

## **6. Results and Discussion**

### **6.1. Needs of the teachers revealed through the fact-finding stage**

With the permission and the encouragement from the Director of Zonal Education Office, research student met the principals of the selected schools to get their consent to conduct this action research in their schools. Research student explained the current situation of the bilingual programme conducted in Sri Lanka in detail and the problems encountered by the teachers and the bilingual learners. After having discussions and showing the interim action plan, the school principals consented to the research to be carried out in their schools. All five principles expressed their keenness to be included in the study as they understood that their bilingual teachers were being monitored and supported by a resource person who is knowledgeable about the field. At the same time, they emphasized that this work can be carried out with the consent of the teachers.

Fact-finding led to an understanding of the nature of the problems encountered by the teachers during science lessons in bilingual classes. The semi-structured interviews held with the teachers and the observation of their classroom teaching revealed that none of the teachers

had a clear conception regarding the CLIL concept. 08 teachers (80%) told that CLIL is equivalent to teaching in English medium. The teacher sample did not know the core principle of learning a subject and a language at the same time. All the teachers in the group indicated that they focused on giving the subject knowledge to their students either in the first language (L1) or in English (L2) as the need arose. Observation of 30 teaching plans, three from each teacher, revealed that none had considered the CLIL approach in writing science lesson plans for the bilingual stream. The following were the teacher perceptions regarding writing teaching plans.

- *“We usually write weekly plans not daily plans. So it is difficult to write a separate lesson plan for the bilingual class”*
- *“We have to teach parallel Sinhala medium classes so we write plans for both classes as a common plan”*
- *“It is time-consuming to focus on detailed lesson plans, and to get together to work as a group in the actual school setting is a problem”*

Teachers indicated that there were no special instructions for bilingual stream teachers in the curriculum materials and the textbooks were translations of subject texts books of mother tongue stream of study. In the discussions with the teachers, it was revealed that neither the integration of the four components of CLIL nor the linguistic aspects were given due significance. Teachers expressed that curriculum materials were unhelpful as neither the syllabi nor the textbooks had laid out or highlighted or emphasized a way to facilitate the integration of language to support language learning in students. It was observed that the syllabi comprised only science content knowledge and science pedagogical knowledge. The observations confirmed that textbook language deters students' understanding of the concepts as the translations were somewhat advanced for the students. Some effort to integrate the culture was observed with the homework assignments. The opportunities to integrate the students' experience to their culture through accepted forms of language during the classroom interactions were not observed.

## **6.2 Intervention-based on teacher needs**

The intervention comprised of workshops with teachers focusing on CLIL based lesson planning at the zonal education office and school-based facilitation for the implementation of CLIL lessons. The first workshop focused on introducing the conceptual framework of CLIL. The second workshop focused on developing the learning outcomes of a CLIL lesson in collaboration with the teachers. CLIL lesson plans were developed during the third workshop by the teacher group. The fourth workshop was held after implementing the CLIL lessons for review and facilitation and the final workshop was held to reflect on the impact of the intervention. School visits were made by the researchers to observe the CLIL Science lessons and provide feedback. The data generation methods included lesson observations, interviews with teachers, analysis of teachers and researchers' self-reports and lesson material. The activity plan was as follows:

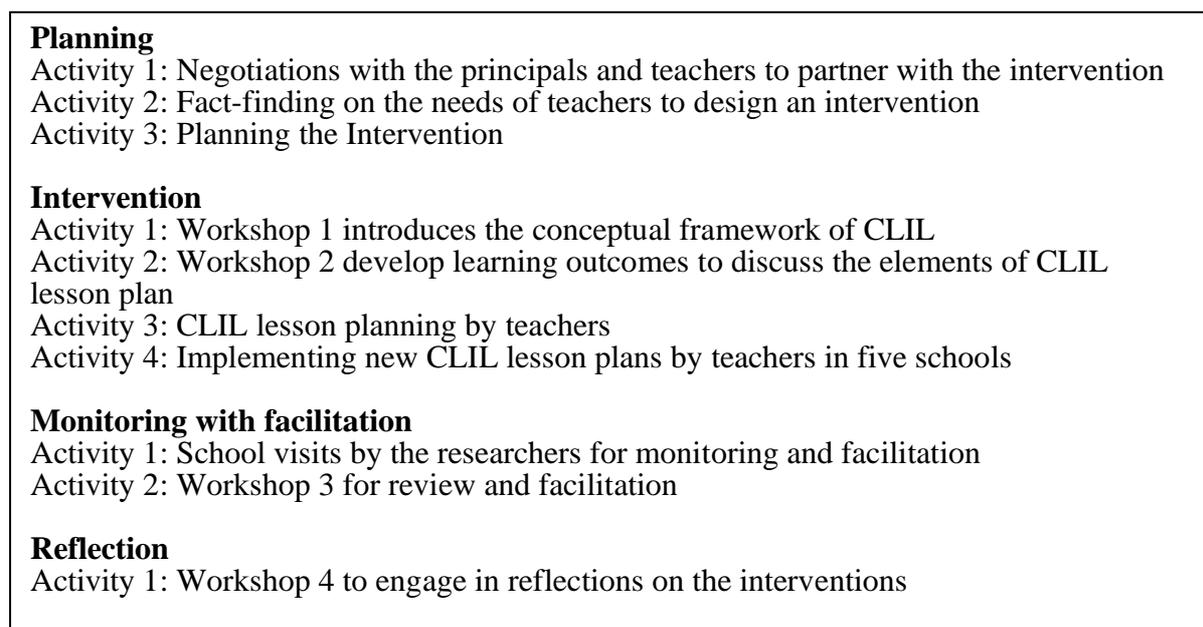


Figure 1. Action research process in developing CLIL instruction for secondary science

### 6.3 Interpreting the impact of lesson planning intervention

Teachers after engaging in group activities of perusing reading material on CLIL came-up with key ideas of 4Cs. They expressed their understanding as, integration of content across the curriculum through second language interaction while engaging learners through higher-order thinking, use of the second language in learning and mediation of ideas and interpreting the significance of content and language for successful citizenship.

Following teacher statements illustrate how the perception of the teachers changed after gaining an awareness of the concept of CLIL.

- *“Earlier I thought teaching Science in English is giving the subject knowledge only. Now I know that content and language are connected. Now I can write my lesson plans keeping that in mind.”*
- *“It is difficult to find language outcomes. I need the help of somebody”*
- *“It is good if we have a supplementary workbook along with the textbook.”*
- *“If we have a separate activity book just like a practical book then the students can keep it with them while doing the practical.”*

During collaborative CLIL lesson planning following steps were taken:

- Lessons were contextualized in authentic learning settings with teacher collaboration.
- Second language, English (L2) was integrated into the lesson by making an emphasis on fluency than on accuracy.
- Strong support was extended to teachers for integrating language structures with content by the researchers.

The following statements revealed the workshops and facilitation in the classroom lessons were instrumental to the change of the teachers’ attitudes and efficacy of planning CLIL lessons was taking place.

- *“Though we did science lessons we did not write this type of lesson plans before. We just wrote only what we want to teach. I understand the importance of lesson plans. I also did not have an idea of CLIL methodology. This is the first time I learnt that we have to think of language also when we teach science.”*
- *“When you first came to our school and talked to us about CLIL, I did not take it much seriously. I never thought these workshops would be something important like this. We like the lesson plans we all prepared. They are different. I also did not have any idea of CLIL. Now I know teaching is not easy. We have to learn the latest methods.”*

## **7. Conclusion and recommendations**

Although integration and implementation of CLIL principles were expected by the national curriculum implementation process through the bilingual teaching and learning in the secondary education sector of the country, it had not taken place effectively. Since there had not been an attempt to integrate CLIL principles to the teacher instructional manuals and the syllabi, the teachers face difficulties and are unable to engage in planning effective practices of content and language integration. It is widely agreed across the world that CLIL teaching requires a range of competences to yield successful outcomes from this complex educational approach. Hence, a systematic program should be implemented to revise the curriculum materials for the bilingual stream.

Providing an awareness of the theoretical principles of CLIL to the teachers enabled to motivate the teachers to adopt CLIL principles in lesson planning. An improvement of the teacher perceptions on the concept of CLIL resulted through supportive intervention. Therefore, it is recommended that in-service training workshops with hands-on activities should be designed and implemented by the education offices in the provinces.

Teacher education in CLIL at both pre- and in-service level needs to involve a range of programs which addresses a wide range of CLIL training needs such as supportive learning resources for both teachers and students for activities. Teachers should be trained to allow students to use both L1 and L2 in a flexible manner using appropriate levels of code-switching and trans-linguaging pedagogies to acquire the advantages of bilingual education.

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## THE EFFECTS OF USING RUBRICS AND FACE TO FACE FEEDBACK IN TEACHING WRITING SKILL IN HIGHER EDUCATION

*Research Article*

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## **THE EFFECTS OF USING RUBRICS AND FACE TO FACE FEEDBACK IN TEACHING WRITING SKILL IN HIGHER EDUCATION**

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### **Abstract**

The use of rubrics in assessing the writing performance is very popular. In general, educators in universities use rubrics for a more accurate assessment of students writing performance. The first aim of this study is to investigate how using rubrics in teaching writing skills can affect the writing performance of students. The second aim is to investigate how giving of face to face feedback by teachers can have an influence on students writing performance. To this end, ESL Writing Grading Rubric was used in the teaching of writing skill to the preparatory school students (n=36) to help them understand the targets for their learning and the standards of quality for writing skills in order to improve their writing performance. Also, face to face feedback was given to the writing assignments of students to promote the students' awareness about their writing drawbacks. The qualitative analysis of the findings based on the open-ended questionnaire and focused group interview showed that using rubrics in teaching writing skill and also giving face to face feedback improved the students writing performance. Students reported that by gaining awareness about the rubric, they could check their writing work, give feedback to their peers' work, produce high-quality writings, and got better grades.

*Keywords:* writing skill, writing rubrics, preparatory school students, face to face feedback

### **1. Introduction**

How writing skill is taught and assessed in EFL context is a topic which attracted high interest among researchers around the globe. Also, using rubrics as a way of teaching and assessing students writing skill is more popular than ever in education nowadays. Finson (1998) defines rubrics as a guide to follow when grading assessments or activities. According to Finson (1998), the rubric can be either holistic or analytic. Holistic rubrics are applied when the overall quality of students' responses is assessed. They are more product-oriented than process-oriented. However, analytic rubrics are applied to score very specific responses of students on different parts of an assessment according to the established criteria. Analytic rubrics are more process-oriented than product oriented. Rubrics show what is expected in writing assignments and describe levels of students' writing performance quality (Saddler & Andrade, 2004). Although some studies (Campbell, 2005; Rezaei & Lovorn, 2010) use rubrics only to assess students writing performance, some others (Charney, 1984; Saddler & Andrade, 2004) use them to figure out how analytical feedback provided by using of rubrics can help improvement in instruction and learning of writing skill. As Andrade (2005) and

Schneider (2006) have discussed, rubrics can be used both for instructional and evaluative purposes. Rubrics are frequently used by teachers to grade student assignments but many authors (Saddler & Andrade, 2004; Stiggins, 2001) maintain that they can serve another important role: rubrics can teach as well as evaluate. As stated by Andrade (2000), instructional rubrics refer to different levels of quality of specific assignments such as an essay or a research paper from excellent to poor. They aim to give informative feedback to students about their writing assignments and also assess their works in more detail. Instructional rubrics can have different formats according to the skill involved, but all of them have two common features: (1) list of criteria and (2) degrees of quality. According to Andrade (2000), using of instructional rubrics is beneficial because:

- They are easy to be used and explained;
- They make teachers' expectations very obvious;
- They provide students with more informative feedback about their strengths and weaknesses;
- They support learning;
- They support skills development;
- They support the development of understanding;
- They support good thinking. (p.4)

Most of the students in EFL contexts find writing skills challenging and they struggle with writing when they start their education in preparatory schools after being accepted in universities. This situation in a country like Turkey has some important reasons. Firstly, students do not possess adequate knowledge of writing due to a lack of attention to writing skills in high schools. Secondly, students do not understand what makes a finished writing assignment good because they do not know what their institution and educators expect from them. Thirdly, although the students writing assignments during the classes are provided with written feedback, most of the students cannot understand the reasons for their mistakes and they also cannot figure out the answers. Fourthly, while assessing the writing skill of students in exams, most of the educators assess the students' writings holistically and the criteria and standards for writing skill are kept secret. So, the students cannot understand what counts and how the educators determined their grades. Some students can figure that out on their own, but some others need to receive written or oral feedback from their educators. Using instructional rubrics in teaching writing skill is one of the ways of solving this problem. If a well written instructional rubric which articulates different kinds of mistakes that the students tend to make, gives details about the expectation of institutions and educators, and elucidates the quality of a good writing assignment from excellent to poor is used in our classes in teaching of writing skill then there will be obvious criteria for writing and assessing any kind of writing assignment. According to Lund and Kirk (2002), rubrics guide both educators and students through learning and assessment process with a goal of helping them understand what the students must do to attain mastery of writing skill.

Numerous studies investigated the effectiveness of rubrics in assessing EFL/ESL students writing skill but a few studies (Cothran, 2003; Fuchs & Fuchs, 1986; Marzano, 2000) pointed to the effectiveness of using instructional rubrics in teaching and learning of writing skill. For instance, Marzano (2000) reported that rubrics in addition to being an accurate measure of students' learning of writing skill, may even promote students' learning as well. The results of another study performed by Cothran (2003) showed that rubrics are a constructive addition to teachers' methods of teaching as they can offer a meaningful way to plan for and interpret students learning. Fuchs and Fuchs (1986) conducted a meta-analysis on 21 different studies and concluded that teachers who use rubrics to guide instruction and assessment were more

efficacious than teachers who used traditional assessment methods at increasing students' achievement.

However, learning any skill is not a direct result of teacher performance in the classroom. Teacher action will have no effect if there will not be any performance from students. After learning a skill like writing, it is the responsibility of the student to produce and then he/she can expect feedback from their teacher. According to Hattie and Timperley (2007), feedback is a "consequence" of performance and generally follows the instruction which provides knowledge or skill. Feedback is what takes places second and has an influential effect on students learning (Hattie & Timperley, 2007). Also, what kind of feedback is needed and works in different classrooms must be investigated. Here in this study, face to face feedback was chosen to be used in classrooms by teachers.

Hence the purpose of this study was to investigate "How using of rubrics in teaching writing skill can affect writing performance of students?" and "How giving of face to face feedback by teachers can have influence on students writing performance?". On the other hand, when feedback is combined with effective instruction in classrooms, it can be very powerful in enhancing learning.

## **2. Method**

### **2.1. Participants and Procedures**

A total of 36 ELT students who were enrolled in the preparatory school at Cukurova University took part in this study. After the first achievement test, most of our students started complaining about their grades in the writing section and asked us to reread and regrade their papers. Some of the students also said that they were expecting higher grades. After rereading some papers, we noticed that there is no problem with grading and our students only are not aware of the grading rubric which is used in our school so they cannot figure out what their writing problems and mistakes are. We thought that if our students get some knowledge about the type of criteria that must be met in writing exams, then they can have better performance.

So, all the participating students were asked to write a paragraph/essay in an assigned topic in every class meeting (three per week) for two weeks and immediately after writing performance they were asked to exchange their papers with their classmates and correct each other's mistakes and give a point to their peers' writing performance. After that, face to face feedback about each student's writing performance was provided by their teacher. In the first class meeting of the third week of the study, rubric instruction (Appendix A) was started. ESL Writing Grading Rubric which was very similar to the rubric which is used in our school while grading writing exam papers was chosen and according to the needs of our students was taught. As stated by Andrade (2000), instructional rubrics should be written and explained in a language that can be understood by students. By teaching rubric, we had two aims: firstly, to create student awareness about what their writing performance lack and secondly to let students rely on themselves not the teachers' feedback because sometimes teachers face with time shortage in their classes in giving feedback to all of the writing performances of the whole class and they cannot correct their students mistakes instantly.

In ESL Writing Grading Rubric, some important categories are evaluated:

- (1) Sentences, paragraphs, and format: An excellent essay/paragraph should have complete and easy to read sentences and various conjunctions and transitions should be used to connect these sentences. Also, sentences must be started in different ways and have various lengths. All the sentences must address the task and be relevant to the topic.

- (2) Grammar, spelling, punctuation, and vocabulary: The best piece of writing may only have 1-2 small errors in this area. High-level grammar and sophisticated vocabulary according to the level of students are expected. Furthermore, using a range of sentence structures and grammar tenses must be used in order to have a high quality piece of writing.
- (3) Thesis statement and topic sentences: To have an excellent piece of writing, these parts must be very well done. How and where to write a thesis statement or a topic sentence and which information should be included in these parts are very important aspects of a good writing.
- (4) Ideas: The ideas have to be expressed in an obvious, logical, and organized way. The supporting examples and information should be strong.
- (5) Task completion, effect on the reader: An excellent piece of writing must provide a conclusion and have to be reader-friendly and easy to understand on a first glance.

After teaching ESL Writing Grading Rubric to our students in two class meetings, they were required to reevaluate and regrade their peers' writing performances which once they had evaluated and graded without using rubric but this time using rubric. From the fourth week of this study, the participating students were asked to write essay/paragraph about assigned topics by using a rubric. Again, they were asked to exchange their writing performances with their peers and evaluate each other's writings by using rubric once in a week. Moreover, the immediate and face to face feedback was provided to all their writing performances by their teachers until the end of the semester. Saddler and Andrade (2000), describe that the quantity and quality of feedback that writers receive while writing process can help them to produce a well-crafted writing performance.

At the end of the semester, an open-ended questionnaire that was developed by researchers of this study and was based on the related literature was given to all participating students and they were required to answer two questions. These questions were about the usefulness of teaching ESL Writing Grading Rubric in learning and improving the students' writing skills and also the efficiency of teachers' face to face feedback on students writing skill's development.

A focused group interview was conducted with all the participating students in five groups of 7-8 and they answered two questions about "How can teaching of rubric in writing skill affect writing performance of students? And "How can giving face to face feedback by teachers influence students' writing performance?". These focused group interviews were all audio-taped and transcribed. The purpose behind doing interview was that it allows researchers to delve into interviewees' world as it allows for asking further explanation spontaneously and thus, minimizes possible misunderstandings. According to Denzin and Lincoln (2000), focused group interview aims to understand how a particular group of students with the same or similar contexts experience the subject of inquiry and to provide solutions for old and new problems.

### 3. Results

The qualitative data obtained from open-ended questionnaire and focused group interview were analyzed using content analysis procedures. Webber (1990) defines content analysis as "a research method that uses a set of procedures to make valid inferences from text" (p.9). In other words, content analysis is a systematic, replicable technique for reducing many words of text into fewer content categories according to explicit rules of coding (Webber, 1990). The thematic analysis method was adopted to interpret the data in this study due to its flexible nature and independent stance from certain theories, which pave the way for the researcher to

self-regulate the research process. According to Braun and Clarke (2006), thematic analysis is considered as “a foundational method for qualitative analysis” (p.4).

The analysis of the data obtained from open-ended questionnaires initiated with particular data units and then creating codes, themes, and categories. All interview data were transcribed verbatim, and these transcriptions were reviewed by the researchers for accuracy. The recurring themes were identified and then analyzed. These themes were listed and grouped into similar categories. These data represented the participants’ viewpoints about how teaching writing rubric and giving face to face feedback by the teacher affected the students’ writing performance.

The responses of the participants to two open-ended questions of the questionnaire which elicited their viewpoints about the effectiveness of teaching writing rubric are displayed in Table 1.

*Table 1. Participants’ elicited views about rubric instruction*

Students reported that rubric instruction helped them in:	<i>f</i>
1. Producing high-quality writing tasks	27/36
2. Identifying their strength and weaknesses in writing skill	18/36
3. Understanding institutional and teachers’ expectations	19/36
4. Checking their writing performances themselves	29/36
5. Giving feedback to their peers’ writing performances	30/36
6. Writing better	15/36
7. Getting better grades	25/36

Table 2 illustrates the participants’ viewpoints about teachers’ face to face feedback to students’ writing performance.

*Table 2. Participants’ elicited views about teachers’ face to face feedback*

Students reported that teachers’ face to face feedback helped them:	<i>f</i>
1. To discuss their mistakes with their teachers	24/36
2. To provide correct answers for their mistakes	20/36
3. To learn about the reasons for their writing mistakes	31/36
4. Not to repeat their mistakes again and again	25/36

The content analyses of the qualitative data obtained from a focused group interview yielded interesting expressions about the effectiveness of teaching rubric in writing skill and giving face to face feedback by teachers to students' writing performances. Focused group interview data verified our questionnaire data in other words students viewed the rubric instruction and teachers face to face feedback very positively. Excerpts 1-4 illustrated some of the students' viewpoints about the effectiveness of rubric teaching.

*"I did not know what should I do exactly when I was doing a writing task, especially in the exam. I did not know what exactly they (teachers and institutions) wanted. But after learning about rubrics, I can write better than before and I know in which parts of my writing I have problem". (Excerpt 1)*

*"Before, I could not revise my writing tasks. Now, I could revise and correct them according to what I learned in rubric instruction. I can also give feedback to my peers' writing performance". (Excerpt 2)*

*"By learning about rubrics, I understood the drawbacks of my writing and I tried to solve them. Now, I am aware of my teacher's expectations so I can write better than before". (Excerpt 3)*

*"I think rubric instruction was very useful for me. Before that, I did not give importance to some points while I was doing my writing task. But now I am more careful about things like punctuation and grammatical points. I can say that I can write better than before". (Excerpt 4)*

Excerpts 5-8 shed light on how giving face to face feedback to students' writing performances was beneficial.

*"I think face to face feedback was very beneficial. Previously, I did not know how to correct my mistakes but in face to face feedback sessions, I can discuss my writing problems with my teacher". (Excerpt 5)*

*"When my teacher gives me face to face feedback, I am certain about how I should correct my mistakes". (Excerpt 6)*

*"When I was correcting my mistakes according to my teacher's written feedback, I was not sure about my corrections". (Excerpt 7)*

*"After my teacher's face to face feedback to my writing tasks, I started to write better and not to repeat my mistakes again". (Excerpt 8)*

#### **4. Discussion**

The first research question of this study aims at figuring out whether teaching rubric was beneficial in students writing skill development. The content analysis of the qualitative data of the questionnaire and focused group interview illustrated that teaching rubric was beneficial in developing students' writing skill. Students reported that by gaining awareness about writing rubric they could give feedback to their peers' writing performances, check their own writing performance, produce high quality writing tasks, get better grades, understand institutional and teachers' expectations, identify their strength and weaknesses in writing skill, and finally write better. The present study echoed the findings of previous studies (Cothran, 2003; Fuchs & Fuchs, 1986; Marzano, 2000) which showed that teaching of rubric in writing skill is very useful and constructive in developing of students writing performance. Lund and Kirk (2002) stated that rubric can lead both teachers and students throughout learning and assessing procedure in order to make them understand what the students need to do to achieve mastery of the content.

The second research question of this study quests for answers to the question of whether giving face to face feedback to students writing tasks were beneficial in developing their writing skill. The content analysis of participants' responses to questionnaire and focused

group interview questions implied that teachers' face to face feedback to students writing performances were advantageous in developing their writing skill. The participants reported that teachers' face to face feedback helped them to learn about the reasons for their writing mistakes, to discuss their mistakes with their teachers, to provide correct answers for their mistakes, and also gave them awareness not to repeat their mistakes again and again.

## **5. Conclusion**

In conclusion, it appears that many students want to have rubric instruction in their classes in order to develop their writing skill. Also, they believe that teachers' face to face feedback is better than written feedback and they confirm that face to face feedback promoted their writing skill. Considering the findings of the current study and the relevant literature on teaching and learning writing skill the following implications were drawn for the development of students writing skill.

The findings of the current study according to the students' experiences of writing classes in their preparatory school recommend that students should be aware of the writing rubrics that are used in evaluating the students' writing performances in their schools in order to understand the expectations of their teachers and institutions. Also, with the goal of developing students writing skill, face to face feedback should be given to all the students to make them notice their weaknesses and realize their strengths so that they can evaluate their own writings and make corrections without the help of their teachers and become autonomous learners. In addition, by this way, students will be able to give feedback to their peers' writing performances.

## **6. Implications**

This study indicates some support for using instructional writing rubrics and face to face feedback by teachers to improve students writing skill. Therefore, it would be reasonable to share our expectations and our assessing rubrics as teachers with our students. Also, we should allocate some time to give face to face feedback to our students writing performances in order to enhance their chance of success in learning writing skill.

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## Appendix A

ESL Writing Grading Rubric				
	Poor	Fair	Good	Excellent
Format, Content. & Structure	<ol style="list-style-type: none"> <li>1. None of the writing is about the topic.</li> <li>2. The essay does not explicitly answer the question.</li> <li>3. The writing is disorganized, having only a body paragraph.</li> <li>4. No logical progression of ideas, no use of transitions between paragraphs.</li> <li>5. Writing needs to be more interesting and mature.</li> </ol>	<ol style="list-style-type: none"> <li>1. Some of the writing is about the topic.</li> <li>2. The essay answers nearly all parts of the question.</li> <li>3. The writing is somewhat organized, having an introduction and body paragraphs, but missing a conclusion paragraph.</li> <li>4. Some logical progression of ideas in some parts of the essay, but not others; a few transitions, but not throughout the whole essay.</li> <li>5. Writing is somewhat interesting and mature.</li> </ol>	<ol style="list-style-type: none"> <li>1. Most of the writing is about the topic.</li> <li>2. The essay answers all parts of the question with interesting information.</li> <li>3. The writing is organized, having an introduction, body and conclusion paragraphs.</li> <li>4. Clear, logical progression of ideas; uses appropriate transitions.</li> <li>5. Writing captures audiences' attention</li> </ol>	N/A
Grammar	More than 10 errors in sentence structure, verbs, parts of speech, pronouns, prepositions...	8 to 10 errors in sentence structure, verbs, parts of speech, pronouns, prepositions...	4 to 7 errors in sentence structure, verbs, parts of speech, pronouns, prepositions...	1 to 3 errors in sentence structure, verbs, parts of speech, pronouns, prepositions...
Vocabulary	<ol style="list-style-type: none"> <li>1. Poor word choice; most words are used incorrectly; sentences are simple and do not send a basic message.</li> <li>2. No detailed expressions.</li> <li>3. Use of the L1.</li> </ol>	<ol style="list-style-type: none"> <li>1. Simple word choice; some words are used incorrectly; sentences are simple and send a basic message.</li> <li>2. Almost no detailed expressions.</li> </ol>	Good word choice; some effort is made to use complex sentences and new vocabulary; there are some mistakes but the argument of the essay is clear.	Many new words used correctly; strong efforts to expand the vocabulary; words and expressions are eloquently presented.
Spelling	More than 7 spelling errors.	5 to 7 spelling errors.	3 to 4 spelling errors.	0 to 2 spelling errors.

<https://www.rcampus.com/rubricshowc.cfm?code=GX64387&sp=yes>>Rubric: ESL Writing Assessment (Intermediate)</a>



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## **METACOGNITIVE AWARENESS OF PROSPECTIVE EFL TEACHERS AS PREDICTORS FOR COURSE ACHIEVEMENT: TEACHING ENGLISH TO YOUNG LEARNERS**

*Research Article*

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# METACOGNITIVE AWARENESS OF PROSPECTIVE EFL TEACHERS AS PREDICTORS FOR COURSE ACHIEVEMENT: TEACHING ENGLISH TO YOUNG LEARNERS

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## Abstract

This study gives priority to investigating the metacognitive awareness levels of prospective English as a Foreign Language (EFL) teachers and the effects of it on prospective teachers' Teaching English to Young Learners achievement which includes and also reflects their micro-teaching process occurring during this course. For this purpose, the participants of the study consist of the 3<sup>rd</sup> and 4<sup>th</sup> grade students studying at Amasya University, Faculty of Education, English Language Teaching (ELT) Programme throughout 2018-2019 academic year. 52-item Metacognitive Awareness Inventory (MAI) (Schraw & Dennison, 1994) was used as the data collection instrument, and its relation with the teaching skills of micro-teaching in Teaching English to Young Learners course process was analyzed. As to the methodology, quantitative research approaches were applied to the collected data. Based on the findings, it was observed that the prospective teachers, who are the teachers of future and expected to open the gate for learners to perceive the information profoundly, have these pre-condition skills at different levels. Therefore, it could be stated that the English Teacher Education process of faculties needs to be explored deeply by taking into consideration the fact that homogeneity in the qualities/characteristics of English language teachers is an urgent call to provide equal chances for the learners.

*Keywords:* Metacognition, metacognitive awareness, teaching English to young learners, teaching skills.

## 1. Introduction

Metacognition is one of the terms which educational psychology has dwelt upon deliberately for many years. Since metacognition is such a key term that it has a strong influence on learning, it has been accepted as a significant predictor by several researchers based upon their findings. Thus, metacognition has been defined by many researches. For instance according to Flavell (1987, 1979), the knowledge of cognitive issues is associated with the metacognition concept and it reflects the awareness of individuals about how he/she acquires the knowledge and in what ways he/she manipulates with it. From another point of view, according to Metcalfe and Shimamura (1994), some cognitive areas such as thinking and memory, learning and motivation, and learning and cognitive development are seen as a bridge for metacognition. Schraw and Dennison (1994) and Livingstone (1997) refer to the importance of how to perform the ability to reflect upon, comprehend, and regulate the process of self-learning. It is argued that the skills that give rise to competence in a particular domain are often the same skills that are needed to evaluate competence in that domain—one's own or another one's (Kruger & Dunning, 1999). As a consequence, they assume that inadequate people may have such kinds of deficiencies in their metacognitive abilities which has been defined in different ways by cognitive psychologists (Everson & Tobias, 1998), such as metamemory (Klin, Guizman, & Levine, 1997), metacomprehension (Maki, Jonas, &

Kallod, 1994), or self-monitoring skills (Chi, Glaser, & Rees, 1982). All these terms refer to the ability to hold an idea about how an individual is conducting with when he/she is possibly definite in his/her decisions, and when he/she is likely to be mistaken. As a general and clear-cut description, metacognition is defined as thinking about thinking based on Livingston (2003). Memnun and Akkaya (2009) claimed that metacognitive awareness is very important for individuals in their lives because it helps them learn better, develop creative and critical thinking, and raise self-confidence. In addition to this, metacognitive awareness is defined as an ability through which individuals reflect their own thoughts and use convenient problem-solving skills to cope with the difficulties they have during their learning process (Joseph, 2010).

As highlighted in the review of literature, metacognition has been the scope of many researches. However, there has been very limited numbers of researches completed dealing with the metacognitive awareness of prospective English as a Foreign Language Teachers. In addition, not only the metacognitive awareness levels of prospective teachers but also to what extent they convey them to their teaching skills compose and determine the borders of the problem for this study.

It would be valuable to specify the metacognitive awareness levels of prospective EFL teachers combining the results with the teaching skills they have and reflect during their micro-teaching practices. Accordingly, the current study deserves importance by opening the gate for prospective teachers to revise their metacognitive potential and overlapping this with their pre-condition skills; such as *planning, organizing, elaborating, and summarizing* (Sarıçoban, 2015); they are expected to have while teaching English as a foreign language. The research questions attempted to seek for their answers are given below:

- 1- What are the overall metacognitive levels of prospective EFL teachers?
- 2- What are the metacognitive levels of prospective EFL teachers for sections and sub-sections of Metacognitive Awareness Inventory?
- 3- How do the metacognitive awareness levels of prospective EFL teachers differ in terms of their grades?
- 4- How do the metacognitive awareness levels of prospective EFL teachers affect their teaching skills' course grades?

## 2. Methodology

Quantitative research design, which aim to test the target objectives by searching for the relations among several and different variables, in survey model was used as a research design method in this study. By quantitative research approaches, the variables can be collected typically via the implementation of instruments that are presented to the participants in numbers and can be analyzed by statistical procedures. In detail, this method makes an effort to reach consistent results and make interpretation based on them after the specification of design, collecting data and data analysis process of the target research (Creswell, 2014). Furthermore, survey model is used as a means of providing quantitative and numeric descriptions for attitudes, or opinions of the samples of the studies. Cross-sectional and longitudinal instruments such as questionnaires or structured interviews are used in the data collection process of survey model for the purpose of making generalizations from a sample to the population (Fowler, 2009)

### 2.1. Participants

Totally 68 3<sup>rd</sup> and 4<sup>th</sup> grade ELT students studying at Amasya University in the fall and spring semester of 2018-2019 academic year participated in the study. No selection of the participants was done because of the limited number of the students but voluntary

participation of them was taken into consideration. Hence, convenience sampling which is one of the non-probability sampling method was applied in the study. According to the demographic information of the participants, the age variable ranges between 18-20 for the 3<sup>rd</sup> graders and 20-22 for the 4<sup>th</sup> graders. The gender and age distributions of the participants are given below:

Table 1. *Gender and Grade Cross Tabulation*

		Gender		Total	
		Male	Female		
Grade	3 <sup>rd</sup> grade	Count	12	22	34
		% within Grade	35.3%	64.7%	100.0%
		% within Gender	60.0%	45.8%	50.0%
	4 <sup>th</sup> grade	Count	8	26	34
		% within Grade	23.5%	76.5%	100.0%
		% within Gender	40.0%	54.2%	50.0%
Total	Count	20	48	68	
	% within Grade	29.4%	70.6%	100.0%	
	% within Gender	100.0%	100.0%	100.0%	

Table 1 shows that both the 3<sup>rd</sup> and the 4<sup>th</sup> grade groups have the same number of participants. However, the number of the participants in terms of their gender distribution within grades differs from each other. In detail, within the 3<sup>rd</sup> grades the number of the male participants consists of 12 (35.3%) male and 22 female students (64.7%) and within the 4<sup>th</sup> graders 8 (23.5%) male and 26 female students (76.5%) stand for the number of the participants, which compose 20 (29.4%) males and 48 (70.6%) females representing the whole sample of the study.

## 2.2. Data Collection Instrument

Schraw and Dennison's (1994) Metacognitive Awareness Inventory (MAI) includes 52 items assessing numerous features of metacognition referring mainly Knowledge about Cognition (KAC) which consists of Declarative Knowledge (8 items), Procedural Knowledge (4 items), Conditional Knowledge (5 items) and Regulation of Cognition (ROC) embracing Planning (7 items), Information Management Strategies (10 items), Comprehension Monitoring (7 items), Debugging Strategies (5 items), and Evaluation (6 Items). This comprehensive inventory was applied to the participants as data collection instrument. In this aspect, Schraw and Dennison (1994) define:

Declarative Knowledge is defined as the ability to use critical thinking according to the related topic or the accurate knowledge behind the process. The learners need to have insights about how, what or that; one's knowledge about his/her skills, and intellectual resources. By this way, learners are familiar with the abilities and the possibilities provided to them to gain knowledge they received through presentations, demonstrations, discussions or something else.

Procedural Knowledge is the expectation that the learners need to apply the knowledge in order to accomplish the procedure or the process. It accepts that the learners have capacity to manipulate how to put into action the procedures such as the strategies they need; in addition

to being familiar with the process the learners' being able to apply the appropriate process to various situations. The learners have self-conscious how to use discovery, cooperative learning, and problem solving to increase their knowledge about something.

Conditional Knowledge is the competence of the persistence about how and under what situations the learners need to transfer the specific process. It requires the learners to have intuition about when and why to use the learning procedures by making the utilization of declarative and procedural knowledge possible for specific presented conditions and picking up knowledge through advanced ways of applications such as simulation.

The arrangement of the process, setting the goals and designation the resources before the learning takes place as Planning.

How to sequence the skills and strategies of organizing, elaborating, summarizing, selective focusing in order to complete the process more efficiently as Information Management Strategies.

The learners' self-assessment of their learning process or their strategy use as Comprehension Monitoring.

The learners or the individuals' effort to adjust the effective comprehension and fixing their failures as Debugging Strategies.

The inquiry of the actions and how to implement the effective strategy for the next times subsequent to a learning incident as Evaluation.

Although many researchers used the inventory in a 5-point likert-type response scale ranging from *strongly agree* to *strongly disagree* (Tok, Özgan & Döş, 2010) or the MAI is graded on 5-Point Likert-type scale ranging from *always false* to *always true* to declare the participants' levels of agreement with the 52 items (Akın, Abacı & Çetin, 2007), the current study reflects the data collected according to the original of the scale which aimed to gather the participants' responses in True and False version. The Cronbach Alpha result calculated as .82 demonstrate that the reliability level of the scale is seen as satisfying according to the suggested reliability levels of scales used for social sciences.

### 2.3. Data Collection Procedure

The data for the current study was collected quantitatively from the abovementioned Metacognitive Awareness Inventory. Parallel to this, the participants are expected to respond the inventory question in True and False, which are calculated as 0 and 1 in data statistics procedure. For this purpose items 5, 10, 12, 16, 17, 20, 32, 46 extracted for Declarative Knowledge; 3,14, 27, 33 extracted for Procedural Knowledge; 15, 18, 26, 29, 35 extracted for Conditional Knowledge; 4, 6, 8, 22 extracted for Planning; 9, 13, 30, 31, 37, 39, 41, 43, 47,48 extracted for Information Management Strategies; 1, 2, 11, 21, 28, 34, 49 extracted for Comprehension Monitoring; 25, 40, 44, 51, 52 extracted for Debugging Strategies and 7, 19, 24, 36, 38, 50 extracted for Evaluation sub-dimension. In addition to this, the overall micro teaching scores of the students during the Teaching English to Young Learners course including reflections of the participants' teaching skills of lesson planning, introduction & transition, instruction giving & directiveness, suitability & appropriateness and participation & effectiveness were included as the secondary data in which the learners are expected to reflect on their metacognitive awareness levels. The complete gathered data was coded and analyzed via SPSS 20.00 package program for social sciences. For inter-group statistics parametric methods and for intra-group statistics non-parametric methods were applied to the gathered data because of the number of the participants differs as  $N > 30$  and  $N < 30$ .

### 3. Findings and Results

The distribution of the overall metacognitive awareness levels was presented by the following histogram and Q-Q Plot diagrams:

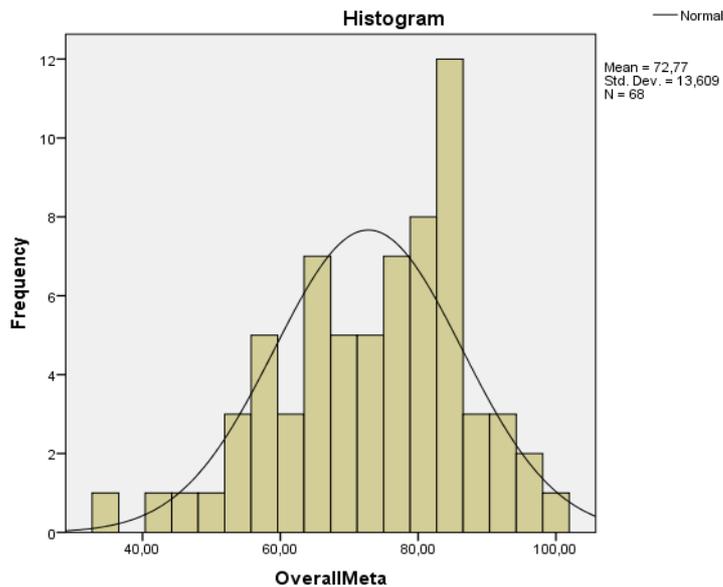


Diagram 1. *The Histogram of Overall Metacognitive Awareness Levels*

The curve illustrated in abovementioned diagram functions as normal distribution stating that independent distributions result in the average random variables independently assemble in normal distribution, which means that when the number of the random variables is sufficient enough, it could be accepted as normally distributed.

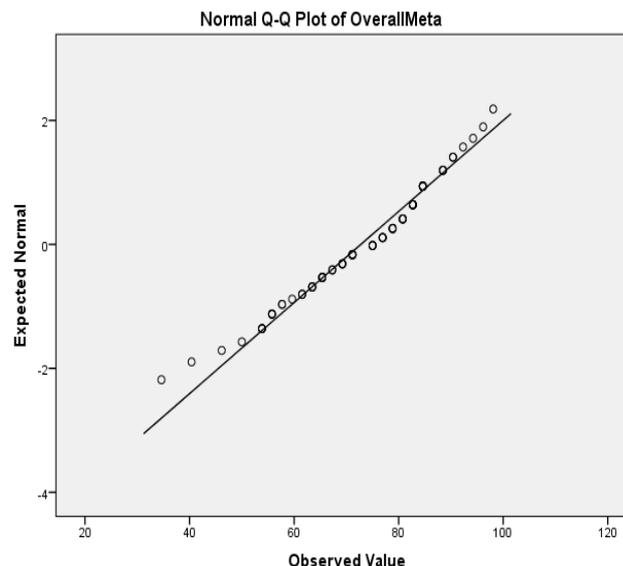


Diagram 2. *The Normal Probability Plot of Overall Metacognitive Awareness Levels*

Since the normal probability plot is an important way of showing whether residuals from regression analysis are normally distributed or not, it would be an effective support or a better

way to show how the datasets provide normal distribution. Thus, according to the X and Y axes presented in the above diagram, the straight line showing the distribution of the collected data satisfies the normality level for the current study.

Table 2. *One-Sample Kolmogorov-Smirnov Test Results*

One-Sample Kolmogorov-Smirnov Test		OverallMetacognitive
N		68
Normal Parameters a,b	Mean	72.7658
	Std. Deviation	13.60880
	Absolute	.105
Most Extreme Differences	Positive	.060
	Negative	-.105
Kolmogorov-Smirnov Z		.868
Asymp. Sig. (2-tailed)		.438

a. Test distribution is Normal.

b. Calculated from data.

In order to support the normal distribution of the variables labeled as overall metacognitive awareness levels of prospective teachers, the Kolmogorov–Smirnov test was applied to the data and as the Table 2. demonstrates the significance level of .438 addresses the conclusion that the distribution of the overall metacognitive awareness levels is normal.

Table 3. *Descriptive Statistics of One-Sample Kolmogorov-Smirnov Test Results*

	N	Mean	Std. Deviation	Minimum	Maximum
Overall					
Metacognitive Scores	68	72.7658	13.60880	34.62	98.08

As reported by Table 3., for 68 participants studying at the 3<sup>rd</sup> and 4<sup>th</sup> grade of English Language Teaching programme the minimum and maximum score of overall metacognitive awareness were calculated as 34.62 and 98.08 following by the mean values of 72.76 with 13.60 standard deviation.

Table 4. *The Frequencies of Metacognitive Scores*

Metacognitive Scores	f	%	Valid %	Cumulative %
34.62	1	1.5	1.5	1.5
40.38	1	1.5	1.5	2.9
46.15	1	1.5	1.5	4.4
50.00	1	1.5	1.5	5.9
53.85	3	4.4	4.4	10.3
55.77	3	4.4	4.4	14.7
57.69	2	2.9	2.9	17.6
59.62	1	1.5	1.5	19.1
61.54	2	2.9	2.9	22.1
63.46	3	4.4	4.4	26.5
65.38	4	5.9	5.9	32.4
67.31	2	2.9	2.9	35.3
69.23	3	4.4	4.4	39.7
Valid 71.15	5	7.4	7.4	47.1
75.00	3	4.4	4.4	51.5
76.92	4	5.9	5.9	57.4
78.85	4	5.9	5.9	63.2
80.77	4	5.9	5.9	69.1
82.69	7	10.3	10.3	79.4
84.62	5	7.4	7.4	86.8
88.46	3	4.4	4.4	91.2
90.38	2	2.9	2.9	94.1
92.31	1	1.5	1.5	95.6
94.23	1	1.5	1.5	97.1
96.15	1	1.5	1.5	98.5
98.08	1	1.5	1.5	100.0
Total	68	100.0	100.0	

With respect to the frequency distribution of the overall metacognitive scores presented in the aforementioned table, 82.69 represents the highest frequency with 7 participants meanwhile it is followed by 84.62 and 71.15 with 5 frequencies for each of them, 80.77, 76.92, 78.85, 65.38 have 4 participants in each score, 86.46, 75.00, 69.23, 63.46, 55.77, 53.85 are accompanied by 3 participants for each of the score, 90.38, 67.31, 61.54, 57.69 have 2 frequencies and 98.08, 96.15, 94.23, 92.31, 59.62, 50.00, 46.15, 40.38, 34.62 are observed as having the minimum frequency level of 1 for each score.

Table 5. *Independent Samples T-Test Results for Overall Metacognitive Awareness of Prospective EFL Teachers with Respect to the Grades*

	Grade	N	Mean	Std. Dev.	Sd	t	p
Overall Metacognitive Scores	3rd	34	67.02	11.80	66	3.814	.000
	4th	34	78.50	12.98			

In Table 5., Independent Samples T-Test Results for Overall Metacognitive Awareness of Prospective EFL Teachers with Respect to the Grades are clarified in order to show the differences between the overall metacognitive scores of the 3<sup>rd</sup> and 4<sup>th</sup> grade prospective teachers and how significantly these metacognitive scores differ. According to the results, the mean values of the 3<sup>rd</sup> and 4<sup>th</sup> graders differ significantly and the difference of two groups could be accepted as meaningful,  $t(66)= 3.814$ ,  $p<.01$ . The mean values of overall metacognitive levels for the 3<sup>rd</sup> and 4<sup>th</sup> grade students are calculated as 67.02 and 78.50 indicating that the overall scores represent an important area for prospective teachers and are expected to develop in time as they gain more practice during their educational lives.

Table 6. *Independent Samples T-Test Results for Overall Metacognitive Awareness of Prospective EFL Teachers with Respect to the Sub-Dimensions of MAI*

	Grade	N	Mean	Std. Devi.	t	p
Declarative	3rd grade	34	66.91	19.68	1.83	.071
	4th grade	34	76.10	21.62		
Procedural	3rd grade	34	52.94	22.83	2.85	.006
	4th grade	34	70.59	27.85		
Conditional	3rd grade	34	71.76	20.96	1.47	.145
	4th grade	34	78.82	18.38		
Planning	3rd grade	34	61.76	22.44	2.82	.006
	4th grade	34	76.89	21.68		
Infomanagement	3rd grade	34	73.24	14.30	2.13	.037
	4th grade	34	80.59	14.13		
Comprehension	3rd grade	34	63.03	21.14	2.94	.005
	4th grade	34	76.89	17.59		
Debugging	3rd grade	34	84.71	17.79	1.55	.124
	4th grade	34	91.18	16.47		
Evaluation	3rd grade	34	58.33	21.42	3.31	.001
	4th grade	34	76.47	23.61		

As illustrated in Table 6. the Independent Samples T-Test Results for Overall Metacognitive Awareness of Prospective EFL Teachers with Respect to the Sub-Dimensions of MAI indicates that except for the *declarative knowledge*, *conditional knowledge*, and *debugging strategies* sections; *procedural knowledge*, *planning*, *information management*

*strategies, comprehension monitoring and evaluation* sub-dimensions of metacognitive awareness inventory provide significant difference with respect to the 3<sup>rd</sup> and 4<sup>th</sup> grades of students. The outcome that explains this significant difference for the sub-dimensions of the inventory is accepted as essential and accurate,  $t(66) = 2.85, 2.82, 2.13, 2.94, 3.31, p < .05$ . The mean values of *procedural knowledge, planning, information management strategies, comprehension monitoring and evaluation* sub-dimensions were analyzed as 52.94, 70.59; 61.76, 76.89; 73.24, 80.59; 63.03, 76.89; 58.33, 76.47 for the 3<sup>rd</sup> and 4<sup>th</sup> grade students. Although the mean values of *declarative knowledge, conditional knowledge, and debugging strategies* were determined as 66.91, 76.10; 71.76, 78.82; 84.71, 91.18 for the 3<sup>rd</sup> and 4<sup>th</sup> grade prospective teachers, they do not represent the statistically significant differences.

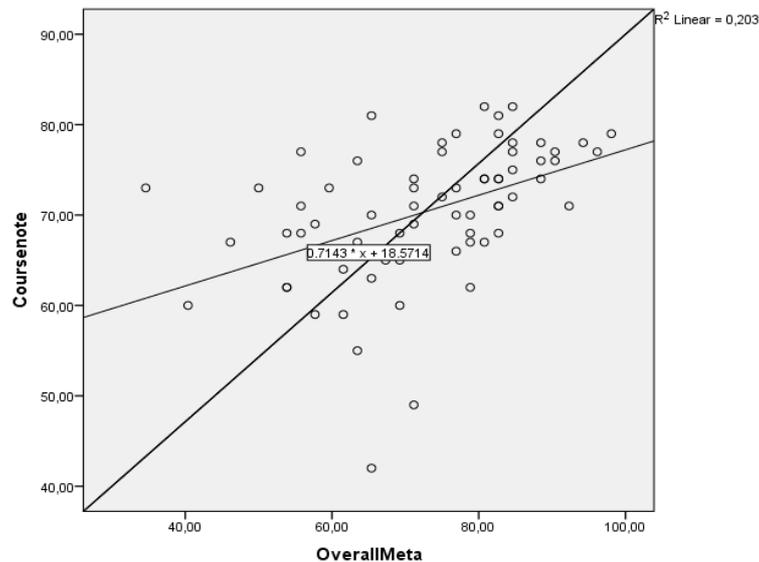


Figure 3. *The Scatter Plot Diagram for The Relation of Metacognitive Awareness and Micro-Teaching Skills*

Figure 3. The Scatter plot Diagram for The Relation of Metacognitive Awareness and Micro-Teaching Skills describes the correlation between two variables one of which symbolizes the independent and the other one signifies the dependent variable. Here in this diagram, the overall metacognitive awareness levels of the 3<sup>rd</sup> and 4<sup>th</sup> grade students was defined as the independent variable and the course notes characterizing the teaching skills of the students for Teaching English to Young Learners course was specified as the dependent variable. Since the scatter plot is an appropriate way to show strong/weak positive correlation, strong/weak negative correlation or weakest/no correlation, it could be deduced that the overall metacognitive levels and course notes of the 3<sup>rd</sup> and 4<sup>th</sup> graders meet weak positive correlation which is also supported by the following regression results and need to be taken into consideration during the process of English Language Teacher Education.

Table 7. Simple Linear Regression Results for the Effect of Metacognitive Awareness on Course Notes (in terms of Micro-Teaching Skills)

Model 1	Predicted Variable: Overall Metacognitive Awareness						
Variables	B	ShB	Beta	t	p	Zero-order	Partial
Constant	52.11	4.537		11.486	.000		
Metacognitive Awareness	.251	.061	.450	4.096	.000	.450	.450
R=.450	R <sup>2</sup> =.203	F(1,66)=16.778	P=.000				

In order to find out the effect of metacognitive awareness levels predicting the overall course notes including the teaching skills of the students the simple linear regression analysis was conducted to the gathered data. The summary of the simple linear regression analysis results is presented in Table 7. and the results indicate that 20% of the variance in teaching skills of the learners studying at the 3<sup>rd</sup> and 4<sup>th</sup> grade in Amasya University, English Language Teaching Department is explained by the independent variable of overall metacognitive awareness levels of the students. In this point, the statistic is accepted as significant at the 0.05 level of significance ( $F(1, 66)=16.778$ ;  $p=0.000$ ). With the values of  $R=.450$ ,  $R^2=0.20$ , it is obvious that the overall metacognitive awareness levels of the 3<sup>rd</sup> and 4<sup>th</sup> grade students are significant predictor of their teaching skills that they are expected to reveal during the micro-teaching practices of Teaching English to Young Learners course.

#### 4. Discussion

This study aims to provide meaningful insights into the metacognitive awareness levels of the 3<sup>rd</sup> and 4<sup>th</sup> grade students studying in the department of English Language Teaching at Amasya University. In accordance with the findings of the study, the 3<sup>rd</sup> and the 4<sup>th</sup> grade ELT students have average metacognitive awareness level with the overall mean value of 72.76., which addresses the answer of the first research question of "What are the overall metacognitive levels of prospective EFL teachers?". However, the mean value of the metacognitive levels of the students seemed to have positive influence on their micro teaching skills at first sight, it deserved importance to search for the details it included. Regarding the mean values of the overall metacognitive awareness levels for the 3<sup>rd</sup> and 4<sup>th</sup> grade students which is calculated as 67.02 and 78.50, in addition to the frequencies ranging from 34.62 to 98.02, it is observed that English Language Teaching departments have heterogeneous aspects in which it can be accepted as normal in the teacher education programs and should put more emphasis on diversity in both national and international arena where teacher candidates are expected to gain skills to work in physically and culturally diverse settings (Eret, 2013). But opposed to the current study, as Dwyer and Atlı (2015) indicate that reflections of the variability in the client base and a lack of homogeneity need to maintain a foothold in teaching in the institutions, the aspect of teaching skills should be prioritized. By this way, the teacher candidates are expected to gain the basic and essential skills at desired homogeneity level, which provide equality for the other stakeholders who receive education in their future career.

Paying attention to the answer of "What are the metacognitive levels of prospective EFL teachers for sections and sub-sections of MAI?", *procedural knowledge, planning, information management strategies, comprehension monitoring and evaluation* showed significance among each other; however, *declarative knowledge, conditional knowledge, and debugging strategies* sub-dimensions had no meaningful significance. In this sense, the

findings of the current study are in line with Pekkanlı (2009, p. 1562) who suggests that the mission of the teacher education programs is to provide the teacher candidates such an effective process so that they, as the teachers of the future, have confidence in administering their teaching knowledge to establish influential student learning situations. In addition to this, Richards' (1998, p. 65) "teacher-as-thinker" metaphor attracts attention for the issues of how teachers conceptualize their work, the thinking and decision-making process of them that influence their practice skills. Thus, the effective teacher education programs and the overall knowledge of the teachers do provide significance on prospective teachers to some extent, but what is more important than this is their beliefs affecting nearly every aspect of their classroom teaching Özgün-Koca and Şen (2006, pp. 958-59).

The results addressing how the metacognitive awareness levels of prospective EFL teachers are in terms of their grades indicate that the overall metacognitive awareness levels of prospective teachers differ significantly between the 3<sup>rd</sup> and 4<sup>th</sup> grade ELT student as well as the sub-dimensions of *declarative knowledge, procedural knowledge, conditional knowledge, planning, information management strategies, comprehension monitoring, debugging strategies and evaluation* regarding the mean values. As reflected in Debreli's study, even though teacher candidates experience limited number of sessions to convey their teaching skills, they should gain major developments and change during their pre-teaching sessions, which serve as meaningful and powerful influence on their teaching beliefs. However, they still have similar teaching and learning beliefs as at the beginning of their first years of education, they develop potential awareness of applicability of the theoretical issues they already knew, and they update and modify their beliefs appropriate to the personal teaching experiences they have received during their teacher education program. Similarly, as described in Kunt and Özdemir's research (2010), both Kagan (1992) and Pajares (1992) asserted that the prior experiences and assumptions of pre-service teachers serves as a kind of filter for themselves in that they direct the teacher candidates in making comment on the courses they are to take during their teacher education process and depend on their past experiences heavily as learners to arrange their individual teaching and learning theory of knowledge. As a result of this belief, it is accepted that the 4<sup>th</sup> grade EFL students are expected to have more inclination to the utilization of metacognitive aspects of teaching and learning based on their former lives, which also highlights one of the hypotheses the researcher of this study presupposes at the beginning of the study.

All in all, reflecting on the answer of how the metacognitive awareness levels of prospective EFL teachers affect their teaching skills consisting their "course grades", first of all it draws attention to the concerns of Microteaching, in that, it provides opportunities for prospective teachers to practice the teaching skills in an artificial environment before the actual teaching setting they will experience in their future career, which makes it such kind of a practical teacher training technique (Yusuf, 2006). As Ekşi (2012) points out despite the theoretical knowledge that the teacher education programs provide for the teacher trainees, the field-based experience known as mainly practicum process takes priority since the core knowledge of the teaching skills does not promise the perfect mastery of being a teacher. (Lewin, Heublein, Ostertag & Sommer, 1998; Seferoğlu, 2006). Thus, integrating the theory with practice is the ideal way to master the teaching skills of prospective teachers (Benton-Kupper, 2001; Çakır & Aksan, 1992; Ekşi, 2012; Fernandez & Robinson, 2006). To execute the teaching skills in practice needs basic metacognitive abilities that all prospective teachers need to have during their professional lives. From this respect, metacognitive awareness shares common sense allowing systematic and reflective ways of organizing and evaluating the practices taking place in the center of teacher education programs. Hence, metacognitive abilities necessitate the management of information-processing activities that occur

during *cognitive transactions*, more simply involves being knowledgeable about and in control of one's cognitive abilities with the goal of enhancing learning (Flavell, 1976), it is one of the key factors and a critical predictor underlying the effective and appropriate teaching skills of prospective teachers as this study aims to demonstrate statistically.

## 5. Conclusion and Suggestions

Based on the subsequent research, metacognition has been revealed as holding two main dimensions (Baker & Brown, 1984; Brown, 1985; Brown, Bransford, Ferrara, & Campione, 1983; Carrell, Gajdusek, & Wise, 1998; Flavell, 1976, 1978). The first dimension consisting of three sub-dimensions of declarative knowledge, procedural knowledge, and conditional knowledge has been defined as *knowledge of cognition*. The second dimension including planning, information management strategies, comprehension monitoring, debugging and evaluation has been described as *regulation of cognition*. All of these make attribution to Flavell's (1979) model of metacognition, which has four categories of: (1) metacognitive knowledge, (2) metacognitive experiences, (3) goals/tasks, and (4) actions/strategies. As he reported people monitor their cognitive process with these four components. Moreover, metacognitive knowledge, which is the first category in the model, is explained as the knowledge or assumptions of an individual about the components that influence the cognitive attempts. It is acquired that the awareness of one's cognitive process and the distinct "cognitive tasks, goals, actions, and experiences" (p. 906), and has three variables categorized as person, task, and strategy. The person variable is associated with any knowledge or awareness about how individuals learn and process their cognitive enterprises. Thus, metacognitive awareness should have an indispensable place for teacher education because it contributes to the teacher training process by ensuring the opportunity of integrating the practice with reality as kind of teaching skills reflections of teacher candidates.

It is evident that teachers are the most important component of the educational system and pre-service teachers should be attributed to achieve their career in excellence. Quality teachers are also quality student teachers who retain the knowledge, comprehension, skills and values to compete with the other countries and take place in the global world (Mirici, Ekşi, 2016). Parallel to these, the comparability of the educational systems with different countries is enhanced and such kind of instruments as The Common European Framework of Reference for Languages: Learning, Teaching, Assessment (CEFR), the European Language Portfolio (ELP) which aim to develop various learning styles of language learners not only in European countries but also in others should become prevalent for language learners and pre-service language teachers (Mirici, Kavaklı, 2017). Notably, by these self assessment scales, the underlying assumptions of *reflection, motivation and self-reflection* (Mirici, Kavaklı, 2017) can be promoted, which provide autonomy and put forward metacognitive awareness even at bachelor degree in English Language Teaching Departments. Since the metacognitive knowledge exists in learners of all ages (Öz, 2007), the identification of the learners needs, beliefs and reflection that reveal the potential metacognitive levels of individuals can be taken into consideration by the policy makers and syllabus designers for effective language learning and teaching planning for all levels of instruction. In this sense, qualified teachers or the student teachers of English as a foreign language may have the ability to comprehend and capacity to deal with the knowledge in order to design the curriculum and their own learning/teaching environments. These qualifications can be fulfilled with metacognitive training sessions applied in educational faculties as well (Öz, 2005). The traditional instruction giving ways with little or no time to teach metacognitive skills and strategies can be accepted as a waste of time. As for one of the 21<sup>st</sup> century competencies, the student teachers of English language who hold their graduate degrees in the programs developed for

them should be gifted with metacognitive awareness, skills, and strategies that will be promising for their own professional practice and personal lives (Wilson & Conyers, (2016).

The participants' consisting of two groups of prospective teachers studying at Amasya University limited to the 3<sup>rd</sup> and 4<sup>th</sup> graders of English Language Teaching Department because of conducting their potential teaching skills in their micro practices is considered as a limitation of the study. Moreover, the commitment to use the results of MAI and micro-teaching scores of Teaching English to Young Learners within the context of the findings of this research and the implementation of the original MAI format in which the statements have to be answered as 'true' or 'false' despite the fact that they have been adapted in many research to a common 5-point likert-type format could be counted as another limitations of the study.

Alongside with the statistical provable findings and results of the current study, further studies can be repeated with different teacher education programs or/and English Language Teaching Departments of state or private universities in Turkey in order to reach a general conclusion and belief about the metacognitive awareness levels of prospective teachers at bachelor degree. In this way, exploring the underlying reasons and reflections of why and how teacher candidates convey their metacognitive awareness to their learning and teaching settings would be an outstanding suggestion for further studies.

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## THE EFFECT OF THE SCIENCE TECHNOLOGY SOCIETY AND THE QUANTUM TEACHING MODELS ON LEARNING OUTCOMES OF STUDENTS IN THE NATURAL SCIENCE COURSE IN RELATION WITH THEIR CRITICAL THINKING SKILLS

### *Research Article*

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# THE EFFECT OF THE SCIENCE TECHNOLOGY SOCIETY AND THE QUANTUM TEACHING MODELS ON LEARNING OUTCOMES OF STUDENTS IN THE NATURAL SCIENCE COURSE IN RELATION WITH THEIR CRITICAL THINKING SKILLS

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## Abstract

This experimental study aimed to determine: 1) Differences in science learning outcomes between students who were taught via the Science Technology Society and the Quantum Teaching models; 2) Differences in science learning outcomes among students who have high, medium, and low critical thinking skills; 3) Relationship between these learning models and the critical thinking skills in terms of science learning outcomes. The participants of the study comprised 300 students from fifth grade of the private primary school in the Surakarta region. Out of the 300, 150 students were in the experimental group and 150 were in the control group. For the data collection two-way analysis of variance followed by the Scheffe test were administered. The result of the study showed that 1.) The level of science learning outcomes of the students who were taught via the Quantum Teaching model were higher than those taught via the Science Technology Society model. 2) There were differences in the level of science learning outcomes among the students who have high, medium, and low critical thinking skills. 3) There was no relationship between the learning models and the ability to think critically for improving science learning outcomes.

*Keywords: learning outcomes, science, learning models, the Science Technology Society Model, the Quantum Teaching Model, critical thinking skills*

## 1. Introduction

Education is one of the most important components in the formation and development of human resources in the face of progress and changing times. With the progress of the times that continue to advance rapidly, inevitably will require a quality generation. Quality humans are people who can compete in a good sense, by forming a critical mindset, steady, creative, and innovative reasoning.

Education, especially science has a very important role to overcome these problems. The quality of education can be known and measured from student learning outcomes that are manifested in the values obtained by students. The value of learning outcomes is one indicator that can affect the quality of human resources. But unfortunately, the development of Indonesian human resources can be said to be still quite low. The low quality of Indonesia's human resource development is evidenced by the results of research conducted by several world research institutions. The results of the Education for All (EFA) Global Monitoring Report 2010 survey released by UNESCO assesses that the Indonesian Education Development Index (EDI) is ranked 65 out of 128 countries with an education development index of 0.947 with the secondary education development index category (EFA, 2010). In 2011, Indonesia's ranking dropped to 69 from 127 countries surveyed with an educational development index of 0.934 (EFA, 2011). According to Setiadi (2014), other data are shown from the Human Development Index (HDI), Indonesia on March 14, 2013, the United Nations Development Program (UNDP) version ranked 121 out of 185 countries.

Furthermore, the survey was carried out by the OECD (Organization for Economic Co-operation and Development), the results of the OECD survey were based on the results of tests in participating countries which showed the relationship between education and economic growth. The analysis used by the OECD is based on the results of mathematics and science tests. They use broader global standards using the PISA test. The PISA test is an international study of the reading, math and science achievements of 15-year-old school students. OECD research results in 2012, showed that Indonesia has the ability of science or science ranked 64 out of 65 countries that participated in the test, with a score of 382 whereas the average score obtained by the OECD was 501. This shows that Indonesia is far below the average flat. The latest test results in 2015, Indonesia ranked 69 out of 76 participating countries (OECD: 2015). These conditions are very alarming and need special attention to handling.

Another fact, the results of science learning achieved in the fifth grade of the primary school in Surakarta so far are still not optimal. This raises questions about the quality of science learning carried out so far. The low absorptive capacity of students in natural science shows that there is still a large gap between the demands of the curriculum and the level of student ability in terms of learning science.

Many factors affect student learning outcomes. Sabri (2010) states the factors that influence the process and student learning outcomes are broadly divided into two parts, namely internal and external factors. Teaching and learning activities undertaken by teachers in elementary schools so far are still conventional. The teacher lectures more than involving students directly. The teacher is still a center of learning for students (teacher center), the dependence on the teacher is still quite large influence. The activeness of students in learning is still not visible, the child tends to sit in a chair and take notes on the teacher's explanation. The teacher has not used innovative and creative learning models. In learning activities, the material delivered to students is in the form of a learning guide sheet. The study guide contains a summary of the subject matter taken from the student handbook and other textbooks. The teacher conveys the material by explaining and the student listens and completes the guide. The training is given by the teacher before an evaluation is held. The exercise is done by students and then discussed together.

Merta et al., (2013) state that learning in primary and secondary schools is still largely dominated by expository learning, that is, teachers explain and students listen. In the learning process, it is very rare for a teacher to give a problem that is scientifically solved by students. Anas (2012) revealed that in learning teachers still tend to use the direct learning model because it is considered more practical and easier to achieve learning objectives. This results in more teacher-centered learning.

The results of research by Merta et al., (2013) revealed that some factors of low learning outcomes or grades shown from the learning process in the classroom are still dominated by the teacher. This is done by the teacher because he pursues the target subject matter set by the curriculum. The use of student-centered learning models is still not utilized. Learning activities that do not involve the active role of students make children get bored quickly and less stimulate their thinking abilities. This causes students not to understand what is explained by the teacher. Children tend to master the material with a role model, not mastering the concept of the real subject matter. When the question is only slightly changed in shape, students find it difficult to answer. This shows the students' understanding of the material is low, it will have an impact on the difficulty in solving problems so that student learning outcomes are not optimal. The ability to think of students tends to be monotonous or memorizing, it is difficult to think broadly or critically when getting different forms of questions even though the concept of the material is the same the child has difficulty answering. For the types of problems that require open answers or problem solving, students tend to find them difficult to solve.

The teacher as the holder of control in learning activities is very influential. Ruseffendi (2005) states that one way that can be done to improve the quality of learning is by increasing the role of the teacher because the teacher is a factor that can influence student success. Based on this, then in order to improve the quality of science learning, teachers should try to make the learning process involve the active role of students. Teachers can change the learning model: Many types of learning models are centered or demanding on student activity (student center). The learning models that can be used include the learning model of the Science Technology Society (STS) and the Quantum Teaching Learning Model.

Poedjiadi (2010) states that the uniqueness of the STS learning model is in the introduction, which is raised issues or problems in the community that can be explored from students. Permendiknas No. 22 of 2006 concerning Content Standards for Primary and Secondary Education Units states that in general, the learning objectives of primary school science are emphasizing mutual learning (science, environment, technology, and society) directed at learning experiences to design and create works through the application of science concepts and competence in scientific work wisely.

Based on the Permendiknas, the Science Technology Society learning model is very suitable for use in elementary schools. The teacher in this learning model is a mediator and student facilitator. The teacher brings each student to participate in learning activities. Students who learn by learning the Science Technology Society model will gain independent and meaningful learning skills. The teacher raises issues or problems in the community that can be explored from students, where the problem is related to the subject matter. Students do not get answers directly, but students must try themselves through various approaches and methods to find answers to the problems in

question. The strength of the Science Technology Society learning model is that it is contextual learning that departs from problems surrounding students related to science and technology and their effects on society. The STM model demands the role of students to be active, think critically, and creatively in responding to any changes that occur in the surrounding environment.

Tsai (2010) revealed that the application of the STS model was able to change students' views into constructivist thinking in accepting lessons. The constructivist mindset is very important in shaping students' understanding of the material being taught. Students who are taught using the STS model show improved attitudes and creativity of High School students Lee (2007). Akcay (2010) states the use of STS learning models in learning the Nature of Science (NOS) material makes a real difference in understanding and changing attitudes compared to students who are taught using textbooks. Agustini et al (2013) state that the application of the STS learning model greatly affects students in problem-solving skills. Tsai, Lee, Akcay, and Agustini's research needs to be followed up because it is only limited to the influence of the STSM learning model on changes in attitudes, thinking patterns, creativity, and student skills. Student learning outcomes need to be the main concern because it shows the ability of students in mastering a subject matter that is indicated in their grades in elementary school.

Another student-centered learning model is the Quantum Teaching Learning Model. Quantum Teaching Learning Model is a directed learning model that is made lively and fun in teaching and learning activities. Syaefudin (2009) states Quantum Teaching Learning as one of the learning models that concerns the skills of teachers in designing, developing, and managing learning systems so as to create an atmosphere of effective learning, exciting, and life skills. Wena (2008) explains the Quantum Teaching Learning model is a way to facilitate the learning process that combines elements of art and directed achievement, for various subjects. The principles of the Quantum Teaching Learning model create the best learning environment for students. A learning environment that can lead to positive thoughts and attitudes. In learning activities, teachers involve students actively in their learning activities

Sunandar (2012) states the strengths of the Quantum Teaching Learning model include that this learning model is student-centered, learning feels fun, provides freedom of expression, and can foster student enthusiasm. A positive atmosphere is fun built in this learning model. All efforts that students have made in each phase of learning get teacher appreciation. Students are made to feel happy and comfortable during learning activities. This will make it easy for students to capture and understand the material being taught. Acat and Yusuf (2014) state that the Quantum Teaching Learning model influences student achievement, retention, and attitude. Science learning in elementary school aims to provide information that the implementation of science learning is not only through the transfer of knowledge from the teacher to students, but is able to foster the ability to think, work and be scientific and through the application of science concepts. Thus, Science Learning should be carried out in scientific inquiry (scientific inquiry) to foster the ability to think, work and be scientific and communicate it as an important aspect of life skills (Permendiknas 22/2006).

In line with the above, students' critical thinking skills are very important to be developed, especially in this case fostering students' critical thinking skills in understanding and applying science concepts. This is as stated by Ariani et al (2014) and Hasruddin (2015) that the level of students' critical thinking skills is one of the obstacles that also affects the learning outcomes of Natural Sciences. This is as a result of science learning activities that have been centered on the teacher so that the development of students' critical thinking skills is still not optimal. Science education is scientific knowledge (scientific knowledge). Students are expected to learn science, have the ability to think critically and the ability to solve problems related to science. Science learning must be centered on student activities (student-centered). to be more meaningful. Students must be active both physically and mind during science learning takes place. Thus, students are able to have a good sense of science, so that everything related to science has been embedded in their minds (Situmorang, 2011). In line with the opinion of Facione (2015) aspects of critical thinking skills in science learning that need to be developed are the cognitive abilities of students, which lead to the ability to interpret, analyze, evaluate, make conclusions, the ability to explain and self-regulate.

Critical thinking is one of the internal factors possessed by students. Susanto (2013) states that critical thinking is a process of activity that involves thinking about ideas or ideas that are related to a given concept or problem presented. Students must use the brain, study ideas, solve problems, and apply what they learn (Melvin, 2006). By reviewing ideas and solving problems, the process of critical thinking becomes an ability needed in the learning process. Students in learning activities, especially when working on questions require these thinking skills. Diestler (2010) with critical thinking, people are able to understand arguments based on values, understand the inference and are able to interpret, are able to recognize mistakes, are able to use language in an argument, realize and control egocentric and emotional, responsive to different views. The ability to think critically is one factor that cannot be ignored in achieving student learning success.

This research model framework uses the science learning outcomes as the dependent variable, which is a consequence or result of the learning approach. The novelty of this research model, incorporating critical thinking skills that act as moderator variables. The role of critical thinking skills as a moderator indicates that the relationship between learning models with high critical thinking skills will have a higher effect on the learning outcomes of Natural Sciences. Also, this research is the first time to compare the Quantum Teaching learning model with the Science Technology Society (STS) together. So far no one has ever done it, so the results of this study are expected to be able to make new contributions in learning.

This study aims to determine whether or not there are 1) differences in science learning outcomes between students who take learning with the Science Technology Society model and students who take learning with the Quantum Teaching model; 2) the difference in science learning outcomes between students who have high, medium, and low critical thinking skills; 3) relationship between the learning models used with critical thinking skills in improving science learning outcomes of fifth-grade students of the Private Primary Schools in Surakarta Region Academic Year 2017/2018.

## 2. Research Method

In this experimental study, the participants were 300 5th grade students of private elementary schools in the city of Surakarta in the school year of 2017/2018. The sample of this were obtained through the Area Sampling procedure. The number of participants for the control group and the experimental group were equally 150 each. Retrieval of science learning outcomes data was done by testing techniques, while critical thinking skills data by questionnaire techniques. The data were analyzed via a two-way analysis of variance followed by the Scheffe test. A 2 x 3 factorial design with two-way variance analysis (ANAVA) techniques were administered, too.

## 3. Results and Discussions

The results of the study can be given with references to related studies as follows:

### 3.1. The result of the 2 x 3 factorial design with two-way variance analysis (ANOVA)

Table 1. *Factorial Design*

Learning Model (A)	Critical thinking skills (B)		
	High (B1)	Medium (B2)	Low (B3)
STS (A1)	A1B1	A1B2	A1B3
<i>Quantum Teaching</i> (A2)	A2B1	A2B2	A2B3

Note:

A1B1 : Groups of students who have high critical thinking skills who are treated with *Science Technology Society* (STS) learning model

A1B2: Groups of students who have medium critical thinking skills who are treated with *Science Technology Society* (STS) learning model

A1B3: Groups of students who have low critical thinking skills treated with *Science Technology Society* (STS) learning model

A2B1: Group of students who have high critical thinking skills who are treated with the *Quantum Teaching* (QT) learning model.

A2B2: Groups of students who have moderate critical thinking skills who are treated with the *Quantum Teaching* (QT) learning model.

A2B3: Groups of students who have low critical thinking skills who are treated with the *Quantum Teaching* (QT) learning model.

### 3.2. The result of the Balance Test

A balance test is a prerequisite for an experiment. The value used is the pretest value of Science of the Final Examination Even Semester fifth grade year of 2016/2017. Before a balance test is performed, the normality test and the homogeneity of the initial ability test are first performed.

Table 2. Summary of Normality Test

	Learning Model	Kolmogorov-Smirnov			Decision	Conclusion
		Statistic	Df	Sig.		
Pretest	<i>STS</i>	0.064	150	0.200	Ho accepted	Normal distribution
	<i>Quantum Teaching</i>	0.063	150	0.075	Ho accepted	Normal distribution

Results of normality test of pretest from the *STS* and *Quantum Teaching* groups indicate of Sig. > 0.05 thus data of initial ability from two groups came from populations that were normally distributed.

Table 3. Summary of Homogeneity Test

F	df1	df2	Sig.	Decision	Conclusion
0.111	1	298	0.740	Ho accepted	Homogeneous

Results of the homogeneity test showed the initial ability Sig. > 0.05 means that both sample groups come from homogeneous populations.

Table 4. Results of Independent-Sample T-Test

		Levene's Test for Equality of Variances		t-test for Equality of Means		
		F	Sig.	T	df	Sig. (2-tailed)
Pretest	<i>Equal variances assumed</i>	0.111	0.740	-0.136	298	0.892
	<i>Equal variances not assumed</i>			-0.136	298	0.892

Based on the table above shows the value of the t-statistic value of -0.136 with Sig. (2-tailed) > 0.05 so  $H_0$  which states "there is no difference between the average pretest scores of the experimental group and the control group" is accepted. So, it can be concluded that the initial ability of students before being treated equally between the two groups.

### 3.3. The result of the Assumptions of ANOVA

Data analysis requirements using parametric statistics are data obtained in normal and homogeneous distribution, then before ANOVA test is carried out normality and homogeneity tests. The normality test is done by a *Kolmogorov-Smirnov* test with the results as the following table.

Table 5. *Summary of Normality Test*

Group	<i>Kolmogorov-Smirnov</i>			Conclusion
	Statistic	Df	Sig.	
STS model	0.069	150	0.076	Normal distribution
QT model	0.062	150	0.200	Normal distribution
High critical thinking skills	0.079	72	0.200	Normal distribution
Medium critical thinking skills	0.081	111	0.070	Normal distribution
Low critical thinking skills	0.072	117	0.196	Normal distribution
STS; High critical thinking skills	0.119	48	0.088	Normal distribution
STS; Medium critical thinking skills	0.135	39	0.070	Normal distribution
STS; Low critical thinking skills	0.099	63	0.199	Normal distribution
QT; High critical thinking skills	0.109	51	0.184	Normal distribution
QT; Medium critical thinking skills	0.108	60	0.077	Normal distribution
QT; Low critical thinking skills	0.119	39	0.182	Normal distribution

Results of normality test natural science learning outcomes in each group showed a significance level of Kolmogorov-Smirnov  $> 0.05$  so  $H_0$  which states that the data came from populations that were normally distributed was accepted. Thus, it can be

concluded that the natural science learning outcomes data in each group come from populations that are normally distributed.

Homogeneity test using Levene's Test is shown as the following table:

Table 6. *Homogeneity of Variance Results*

F	df1	df2	Sig.	Decision	Conclusion
2.011	5	294	0.077	Ho accepted	Homogeneous

Based on the results of the analysis of data obtained via Levene F-statistics of 2.011 with a significance level of 0.077 which is greater than the cut-off value of 0.05 so  $H_0$  which states that homogeneous population variance is accepted. Thus, it can be concluded that the homogeneous data requirements for hypothesis testing with Two Ways ANOVA have been fulfilled.

### 3.4. The result of the Hypothesis Testing

Hypothesis testing is done by the Two-Way ANOVA test. After statistical analysis with SPSS Version 16, the results of hypothesis testing such as the following table are obtained.

Table 7. *Summary of Hypothesis Testing Results*

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.
LM	2763.146	1	2763.146	8.483	0.004
CTS	11045.864	2	5522.932	16.955	0.000
LM*CTS	164.064	2	82.032	0.252	0.778
Error	95768.781	294	325.744		
Total	1309656.000	300			

1) Difference Test Results of the Learning Outcomes between Learning with STS model and Quantum Teaching model (A1: A2)

From the calculation of ANOVA (Table 7) obtained F-statistics 8.483 with Sig 0.004 < 0.05 means  $H_0$  is rejected and  $H_1$  accepted. This means there is a significant difference in natural science learning outcomes between students who following the learning of the STS model with the Quantum Teaching model. Students who following

the Quantum Teaching model achieve higher learning outcomes than students who following the STS model. The first hypothesis consists of only two factors, namely the STS model and the Scientific model so that there is no need to do a double comparison test but only look at the marginal mean values shown in the following table (Table 8).

Table 8. *Comparison Learning Outcomes of Natural Science Based on Learning Model*

Learning Model	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
STS	60.230	1.502	57.274	63.187
QT	66.407	1.497	63.461	69.353

The average learning outcomes of natural science in students participating in learning with the STS model is 60.230 while the average value of students participating in learning with the Quantum Teaching model is 66,407. Thus, it can be concluded that the Quantum Teaching model is better than the STS model for natural science learning outcomes.

These findings are supported by Bobby DePorter's (2010) theory in which the Quantum Teaching learning model is identical to a symphony and musical performance. It means learning Quantum Teaching, empowering all the potential and existing learning environments, so that the learning process becomes fun and not as something burdensome. This can encourage students' interest in learning and participate actively in the learning process. The findings of this study generally support the results of previous studies conducted by Acat and Yusuf (2014); Juliarta et al (2014) and Ria (2014) that there are significant differences in learning outcomes of students based on learning models, where the learning outcomes of students who take part in learning Quantum Teaching models experience positive changes.

2) Difference Test Results of the Learning Outcomes between Students Who Have High, Medium, and Low Critical Thinking Skills (B1: B2: B3)

From the calculation of ANOVA (Table 8) obtained F-statistics 16.955 with Sig 0.000 < 0.05 means Ho is rejected and H2 accepted, so Ho stated that "there is no difference in natural science learning outcomes between students who have high critical thinking skills, have medium critical thinking skills, and have low critical thinking skills. This means that there are differences in natural science learning outcomes between students who have high critical thinking skills, have medium critical thinking skills, and have low critical thinking skills. From the results of the analysis, it can be concluded that there are differences or effects of critical thinking skills on natural science learning outcomes. Based on the analysis of multiple comparisons with Scheffe, a comparison of natural science learning outcomes of students who have high, medium, and low critical thinking skills is presented as the following table (Table 9).

Table 9. *Comparison of Natural Science Learning Outcomes Based on Critical Thinking Skills*

	N	Subset		
		1	2	3
<i>Critical thinking skills</i>				
High	102	55,43		
Medium	99		63,07	
Low	99			71,33
		1,000	1,000	1,000

Based on the data in the above table it can be concluded that among students who have high, medium, and low critical thinking skills have different natural science learning outcomes. From the Scheffe test, the value of science learning outcomes of students who have low critical thinking skills is in subset 1 with an average value of 55.43, moderate critical thinking skills in subset 2 with an average value of 63.07 and high critical thinking skills at subset 3 with an average value of 71.33. Thus, it can be concluded that students who have high critical thinking skills have better natural science learning outcomes than students who have medium critical thinking skills. Likewise, students who have medium critical thinking skills have better natural science learning outcomes than students who have low critical thinking skills.

The theory put forward by Chaffee (2012, p. 4) supports the results of this study that critical thinking is a thought process to clarify one's understanding of something so as to produce intelligent decisions. Characteristics of learning that are able to empower students' critical thinking are learning that utilizes the relationship between students, there are questions with the HOTS category giving sufficient time to students to provide reflections on the questions and problems given. The findings of this study generally support the results of previous studies conducted by Marjan (2014); Muhandjito Nurwulandari, and Mufti and Fazriyah (2015) that there are learning outcomes of students who have higher critical thinking skills better than students who have low critical thinking skills.

### **3) Results of Relationship between Learning Model and Critical Thinking Skills on Learning Outcomes of Natural Science.**

From the calculation of ANOVA (Table 7) obtained F-statistics 0,252 with Sig 0.778 > 0.05 means  $H_0$  accepted and  $H_3$  rejected, it can be concluded that  $H_0$  which states "there is no relationship effect between learning model (STS and Quantum Teaching) with critical thinking skills (high, medium, and low) on natural science learning outcomes" accepted. Because there is no relationship between the learning model and critical thinking skills, the comparison of learning approaches between STS and

Quantum Teaching for each category of critical thinking skills follows their marginal comparison. From the fact that there is no such relationship, so the characteristic differences between the STS and Quantum Teaching approaches for each category of critical thinking skills are the same. The mean marginal value can be seen in the following table (Table 10).

Table 10. *Comparison of Natural Science Learning Outcomes Based on Learning Approaches and Critical Thinking Skills*

Learning Model	Critical thinking skills	Mean	Std. Error	95% Confidence Interval	
				Lower Bound	Upper Bound
STS	High	69.208	2.605	64.081	74.335
	Medium	58.974	2.890	53.287	64.662
	Low	52.508	2.274	48.033	56.983
Quantum Teaching	High	73.333	2.527	68.359	78.307
	Medium	65.733	2.330	61.148	70.319
	Low	60.154	2.890	54.466	65.842

Judging from the marginal mean, the average value of students who take learning with the STS model is always higher than the average value of students who take learning with the Quantum Teaching model, both at high, medium, and low levels of interest in learning. Because there is no relationship, this also applies to students with high critical thinking skills, who get better natural science learning outcomes than students with medium critical thinking skills. Likewise, students with medium critical thinking skills, who get better natural science learning outcomes than students with low critical thinking skills

Based on the findings of this study, it can be proven from the average marginal results (Learning Model\*Critical Thinking Skills) that (1) students with high critical thinking skills who follow STS learning model of natural science learning outcomes are better than those of medium and low critical thinking skills. (2) Likewise, students with high critical thinking skills who follow the learning model of Quantum Teaching science learning outcomes are also better than medium and low critical thinking skills. (3) the learning models of both STS and Quantum Teaching interacted with critical thinking skills (High, Medium, and Low) did not show any difference in the learning outcomes of Natural Sciences.

According to Ghazali (2005), moderator variables are variables that strengthen or weaken the relationship between two variables. In this study, critical thinking skills that act as moderator variables cannot strengthen the relationship of learning models with science learning outcomes. The relationship between the STS\*CTS-High of learning

outcomes is always better than CTS-Medium and CTS-Low. Likewise, the relationship of the Quantum Teaching \*CTS-High of learning outcomes is always better than the CTS-Medium and CTS-Low. That is, in each learning model, students who have high, medium, or low critical thinking skills, are equally good at improving science learning outcomes.

Factors causing no relationship can be caused by other moderating factors, both student factors (interests, motivation, learning styles, etc.) and factors outside students (learning media, teaching materials, etc.). According to Mulyanto et al. (2018), a possible factor causing the absence of this relationship is the presence of other factors that interact with the learning model of student learning outcomes, for example learning styles. For example, the results of the research Solihatin (2011), Liyusri and Situmorang (2013), and Marpaung and Napitupulu (2014) show the relationship of influence between learning models with learning styles on student learning outcomes.

The findings of this study support the results of previous studies conducted by Erwin, Tellu, and Kundera (2015) that there is no relationship between learning models and students' critical thinking skills towards learning outcomes in Biology lessons at SMA Negeri 4 Palu. The findings of this study support the results of previous studies conducted by Widyatiningtyas et al. (2015) that there was no significant relationship between the learning model and the initial ability of mathematics to the ability to think critically mathematics in high school students in Bandung. The findings of this study support the results of previous studies conducted by Tijayanti and Marzuki (2014) that there is no significant relationship between learning methods and types of intelligence on the development of critical thinking skills of students at SMA Negeri 1 Suela, East Lombok.

#### **4. Conclusion**

Consequently, it can be concluded that there are differences in natural science learning outcomes of the students between those who are taught via the Science Technology Society Model and those taught via the Quantum Teaching model. The science learning outcomes of students who take classes with the Quantum Teaching model are better in terms of critical thinking skills than those who follow learning with the Science Technology Society Model. In addition, there are differences in science learning outcomes of the students among those who have high, medium, and low critical thinking skills. Natural science learning outcomes of the students who have high critical thinking skills are better than the science learning outcomes of the students who have medium critical thinking skills. Likewise, students who have medium critical thinking skills are better than science learning outcomes of students who have low critical thinking skills. And there is no relationship between the learning model with the ability to think critically in improving science learning outcomes. In short, teachers should prefer the Quantum Teaching Model to use in the classroom implementations and should provide students with activities to help them develop their critical thinking skills.

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## HOW PARTICIPATORY IS LANGUAGE TEACHER EDUCATION?: TRAINEES' PERSPECTIVES

*Research Article*

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## HOW PARTICIPATORY IS LANGUAGE TEACHER EDUCATION? : TRAINEES' PERSPECTIVES

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### Abstract

Within the complex “coral gardens” (Breen, 2001) of human learning and teacher education, participatory and mediational tools such as social relations, concepts and cultural artifacts or problem-posing activities, deserve more time and effort as they are scarcely investigated. This exploratory study with both cognitive-interactionist and sociocultural perspectives aims at shedding light on the ELT trainees’ views about the use of such tools through project work during their pre-service teacher training courses at a Turkish university under a mixed-methods research design. A thick description of the trainees’ interpretations of their engagement with project work displayed that participants supported the use of such tools as a teaching strategy that values themes and contents of their interest and choice regarding learning and teaching language skills and research. They showed willingness to undergo an authentic and meaningful learning/teaching experience by expressing themselves through sustained participation in such project-based activities though they noted that there is still a need for the reconsideration of the whole curriculum in line with a more transformative approach.

*Keywords:* Participatory tools, project work, language teacher education, ELT trainees

### 1. Introduction

With the conceptual shift from behaviourist and cognitive accounts of learning to social theories emphasising the effect of the learning environment on the individual, learning as a social phenomenon has been espoused from different perspectives. The Vygotskian sociocultural theory, which is ontologically constructivist and cognitive, focuses on scaffolding, mediation and the zone of proximal development, and interaction as a means for transmitting pre-existing knowledge in a model of “input, intake and output” from typically more expert to less expert one (Lantolf, 2000; Firth & Wagner, 2007). Other socialisation theories, which interpret knowledge as situated in a particular social setting through participation, strongly adopt a dialogic ontology which sees learning not as the mediated transmission of pre-existing knowledge but as embodied understanding of co-constructed, located and generated knowledge and part of our whole identity more than cognitive process (Wenger, 1998; Duff, 2007). The recognition of a dynamic, context-dependent and open nature of the learning process turned the quest for ‘universals’ into the endeavour to capture the thick descriptions of complex, cultural and ecological nature of learning like a multi-faceted ‘diamond’ - my metaphor- or Breen’s (2001) ‘coral gardens’. Instead of separating acquisition and use or cognitive and sociocultural positions, what one might hope for is to see the contrasting views as opportunities to stimulate rather than befuddle the field as Zeungler and Miller (2006) propose.

Parallel to the emergence of different social theories, second or foreign language education has undergone a shift to participatory models and principles of learner-centred teaching, learner

autonomy, the negotiated syllabus, collaborative learning, and task-based learning since the mid-seventies (Zakari, 2007). Likewise, project-based learning (PBL) has come along in second language education (SLE) as a way to reflect the principles of student-centred teaching for two decades (Hedge, 1993).

Contrary to a number of studies in general education about project-based learning or project work (PBL- PW) highlighted as an important teaching-learning and assessment tool to develop 21<sup>st</sup> century skills and competencies, there are a few research studies with mixed findings and discrepancies regarding the use of PW in second language education (Beckett, 1999 and Eyring, 1989 cited in Beckett, 2002; Campbell, 2012). Dooley and Masats (2010) integrated PBL into an EFL training unit and suggested that PBL would merit further research and implementation in EFL training programmes as student teachers are made fully aware of its benefits and are guided properly so that they could have clear expectations of the approach, effective training and support, and good models (and their own modelling through experience). PBL was mostly found to be a useful language teaching strategy to improve communicative and interpersonal skills of learners of English in different EFL contexts, while some problems related to the group dynamics and assessment criteria were pointed for further research (Lam, 2011; Abdul Khalek & Lee, 2012; Kettanun, 2015; Zhang, 2015; Yiyang, 2015; Habók, & Nagy, 2016; Vaca-Torres & Gómez-Rodríguez, 2017; Sirisrimangkorn, 2018; Abu Bakar, et al., 2019; Baghoussi & El Ouchdi, 2019). In Turkish EFL context, there are some perception studies (Subaşı-Dinçman, 2002; Gökçen, 2005; Kemaloğlu, 2006; Akkaş-Keleş, 2007), two of which focused on administrators' and teachers' assessments and, the other two of which researched on both teachers' and students' perceptions. The results of the rest of recent studies on student perceptions about PBL and its effect on their academic success and language learning (Çırak, 2006; Baş & Beyhan, 2010; Baş, 2011; Mutlu-Köroğlu, 2011; Yaman, 2014; Aşar, 2017; Duman & Kuuk-Yavuz, 2018) generally showed positive results in favour of PBL similar to the findings of the aforementioned studies.

In addition to a need for further research regarding the evaluations of students as project participators at both global and local level in EFL/ESL contexts, there is a scarcity of studies on English language teacher (ELT) trainees' experience in PW as a complementary approach to pre-service teacher education courses. Moreover, the view of language learning in the previous studies is based on communicative interaction to enhance mere comprehensible input and output production. The view of language learning and teaching espoused in this exploratory study does recognise elements of communicative approach, but it goes beyond them by shedding light on the ELT trainees' perceptions of project work at a Turkish university from a *sociocultural perspective*.

This article located within a broad interpretive and participatory framework draws on project work as a means of fostering professional development of pre-service teachers of English from a sociocultural theoretical lens through a questionnaire with closed-ended items and another open-ended questionnaire based on participants' own interpretations. The study sought to address the following main questions: What understandings about the use of project work as a participatory tool do EFL teacher trainees have during pre-service teacher training in the context of a Turkish university, and how do they interpret their participation in project work?

## 2. Literature Review

Before pointing out the theoretical underpinnings of sociocultural theory (SCT) and project-based learning, I should resonate considering the project-based learning experience and knowledge of ELT trainees as both *learners of English and pre-service teachers or trainees* from a SCT stance with the fact that teachers' unarticulated and deeply ingrained *everyday*

*concepts* about language learning and teaching are grounded in their own instructional histories as learners (Lortie, 1977). That is why it is essential to explore their experience and knowledge both as a learner and a teacher trainee. However, since these *everyday concepts* which are insufficient and even hazardous by themselves should be complemented by *scientific concepts* as Vygotsky differentiates between them, trainees may co-construct the theoretical framework they have conceptualised in teacher education courses out of the formal schooling context which is full of concrete practical activity that enables them to go beyond everyday experiences and knowledge and to link them with scientific concepts (Johnson & Golombek, 2011). The critical question as to how they internalise the concepts or more technically how human cognition is shaped in social activity is an issue of sociocultural theories as explicated in the following section.

### 2.1. The Sociocultural Theory

Unlike the understanding that ‘social activity influences cognition’, Lantolf and Johnson (2007: 878 cited in Johnson & Golombek, 2011) put it bluntly that ‘social activity is the process through which human cognition is formed’. Therefore, the holistic and interdependent nature of what is taught/learned and how is taught/learned or of cognition and activity comes into play in that they shape and are shaped by each other. In this respect, conceptual development is not a direct consequence of formal instruction but an emergence, the development of which is interdependent on the agency of the learner, the affordances and constraints of the learning environment and *mediational tools* such as activities, cultural artifacts and sustained participation.

Another Vygotskian concept, which has been the most adapted, investigated and celebrated becomes prominent in determining the quality and character of the mediation and scaffolding: the zone of proximal development (ZPD) as a metaphorical arena or space between one’s actual development or internalisation on one’s own- what you already know- and one’s individual potential cognition emerging through the mediation in social activity - what you can do with the assistance of all the other artifacts in the world- (Vygotsky, 1962, 1978; Johnson and Golombek, 2011).

In addition to recognising the importance of qualities of good mediation and roles people and artefacts play in the learner’s *interdependent* rather than individually autonomous learning journey, the problem about the pedagogical generalisation regarding the concept of ZPD is among the issues. Yet, the features of good scaffolding (Feurstein et al., 1980 cited in Williams & Burden, 1997) can still be traced in the sociocultural setting of the research study.

Another perspective of the sociocultural theory (SCT), Activity Theory, which analytically depicts a holistic view of human activities and human agency as a way to show the interconnectedness of different individual activities in social contexts (Engeström, 1987 cited in Hought, 2006), is also emergent in the project work of trainees in that the *object* and ultimate *outcome* of the lecturer of the methodology course is to develop trainees’ (*subject*) experience on exploratory classroom-based action research on practitioners’ problems as this project work will help them gain an insight on the possible affordances and constraints they will confront in their future classrooms and school communities.

The *twisting path* (Vygotsky, 1987: 156 cited in Smagorinsky, 2003) of inter and intra mental processes as part of acquisition metaphor (Sfrad, 1998) can be complemented by participatory models of classroom life, namely Communities of Practice (Lave & Wenger, 1991; Wenger, 1998), identity construction and language learning (Block, 2007) and language socialisation (Schieffelin & Ochs, 1986 cited in Poole, 1992). These stronger versions of SCTs posit that learning as an embodied and situated phenomenon is a process of enculturation and

socialisation entailing our identity and whole selves as emotional, physical and cognitive beings; moreover, a sense of belonging along with the dialectical relationship between the person and the community is learning (Lave & Wenger, 1991). Being a part of the practitioner community as newcomers with the support of old timers is through legitimate peripheral participation in sociocultural practices of the community (ibid.). Critical Theory builds the socially constituted identity, power and agency issues beyond dichotomous project of individual self, and a shift to poststructuralist views of identity (ibid.) emphasizes the multifaceted and dynamic nature of identity construction constituting and being constituted in the social world which learners are engaged with. This multiplicity and complexity of learning environment requires an ecological approach to create learning opportunities within the local context rather than one-size-fits-all and context-free approaches.

## **2.2 The Project Work within the Shifting Conceptual Framework**

PBL was first conceived by the efficiency expert David Snedden to teach science in American vocational agriculture classes (Beckett, 1999 cited in Beckett and Miller, 2006) and popularised for educators by John Dewey's student (and later colleague) William Heard Kilpatrick as a whole-hearted purposeful activity on behalf of the learner (Brubacher, 1947 cited in ibid.). The inadequacies in Krashen's (1981 cited in Beckett, 2002) input hypothesis has led to Swain's (1985 cited in ibid.) proposal that students need communicative opportunities to produce comprehensible output, which has increased the popularity of Brumfit's (1984 cited in Beckett, 2002) project-based communicative language teaching methodology. Especially, the tradition of project work has become a part of the curriculum in many contexts with a growing interest in content-based second language education (Stoller, 1997), English for specific purposes (Fried-Booth, 2002) and the major emphasis on the buzz-word 'communicative' competence. This approach proves effective as it easily lends itself to: (a) authentic language use, (b) authentic materials, (c) authentic tasks, and (d) learner centeredness (Legutke & Thomas, 1991; Fried-Booth 1986, Legutke 1985, Haines 1989, Robinson 1991, cited in Stoller, 2002).

Experiential learning, which is closely related to project work, has provided new perspectives with the changing roles of teachers, learners and curricula in society. The overlapping educational paradigms, the orientations of which are transmission, transaction and transformation, show the changing status of teaching and education in society (Kohonen, 2001). This shift requires learners to be involved in school as a community with a specific culture in its own right and to practise living in community through the continuum from training as a narrower approach to 'education' as the broader approach. Experiential learning helps learners and teachers progress in this direction since it involves a rich variety of interactive practices whereby the participants have opportunities to learn from their own and each others' experiences. A holistic dialogue as the reciprocal relationship with the learner can be enhanced through teachers' professional growth in a collegial institutional culture (Kohonen, 2001). The transformative teacher growth is an experiential process that integrates the cognitive, social and emotional aspects of professional learning in a cooperative learning community as recent literature discusses its importance through the pre-service and in-service teacher education with an emphasis on the collaboration of teacher preparation programmes, school leaders, administrators, teachers and school-based educators (Liebttag & Vander Ark, 2016). Therefore, teacher learning should be connected with actual teaching in addition to ongoing reflection and theory building as Darling-Hammond (1998: 8) asserts:

Teachers learn best by studying, doing, and reflecting; by collaborating with other teachers; by looking closely at students and their work; and by sharing what they see. This kind of learning cannot occur in college classrooms divorced from practice or in school classrooms

divorced from knowledge about how to interpret practice. Good settings for teacher learning—in both colleges of education and schools—provide lots of opportunities for research and inquiry, for trying and testing, for talking about and evaluating the results of learning and teaching.

Being introduced into ESL education as a way to reflect the tenets of student-centred teaching (Hedge, 1993), project-based learning as a kind of experiential learning has been seen as a part of content- and task-based language teaching to create opportunities that allow ESL learners to interact and communicate with each other and native English speakers (Freid-Booth, 2002). In Beckett's doctoral study (1999 cited in Beckett and Slater, 2005: 108) on teachers' goals and evaluations of project-based instruction in ESL classes, various goals for the implementations of projects have been reported such as "challenging students' creativity; fostering independence; enhancing cooperative learning skills; building decision-making, critical thinking, and learning skills; and facilitating the language socialisation of ESL students into local academic and social cultures". Though there is a variety of terms to refer to project work with certain basic characteristics (Edutopia, 2014; Larmer, et al., 2015; Grossman et al., 2019), the concise definition of project work by Beckett (2002: 54) informs this study: "a long-term (several weeks) activity that involves a variety of individual or cooperative tasks such as developing a research plan and questions, and implementing the plan through empirical or document research that includes collecting, analyzing, and reporting data orally and/or in writing".

Project work can also be defined as "a set of tasks that require learners to do an in-depth investigation into a particular topic beyond the classroom via communication with texts and people, to produce their own outcomes out of this research, and to present them in written and/or oral form to a set audience in an extended period of time" (Haines, 1989; Eyring, 1997; Wrigley, 1998 cited in Kemaloğlu, 2006: 3).

Beckett and Slater (2005) describe a methodological tool called 'The Project Framework' which can be a cultural tool to help socialize into a new way of thinking about language and language learning through the integration of language and content and skills in an undergraduate ESL classroom. They additionally define project-based language learning as a student-centered, comprehensive and enriching pedagogical approach with a focus on the development of language, content, and skills in an integrated, meaningful and technology-mediated way (Beckett & Slater, 2018; Slater & Beckett, 2019). Though there is a positive attitude towards project work in mainstream classes, the fact that ESL students' evaluations of projects in academic ESL classes are not consistent led them to go deeper into this critical issue. When it comes to the use of project work in English language teacher (ELT) training contexts of higher education, there is not any research on the experiences and evaluations of the ELT trainees about project work as a tool for developing the language learning and teaching competence; therefore, the present study is the first attempt to look into pre-service teachers' knowledge of and experience in project work through which they learn teaching methodology in language teacher education from an SCT perspective.

### **3. Methodology**

This exploratory study integrating cognitive and sociocultural perspectives aims at shedding light on the ELT trainees' views and interpretations of project work at a Turkish university through a questionnaire with closed-ended items and another open-ended questionnaire. A thick description of the trainees' experience in project work through pre-service teacher training courses has been displayed regarding whether participants have collaborative and supportive perceptions of project work with regard to the categories of eight goals and two roles (namely content goals, linguistic goals, research goals, goals regarding authentic outcome

production, affective goals, autonomy goals, technology and time management goals and two more items, the teacher's and the learner's role).

The study adopts the subjective reality as its ontology, personal knowledge as its social constructionist (Crotty, 1998) epistemology, phenomenology under its interpretivistic theoretical perspective and phenomenological research as its methodology covering a case study design of the particular context where both quantitative and qualitative methods have been utilised. It is important to display 'what it is like' to be in the mentioned situation as a good portrayal and a thick description of the case by letting the real life context and phenomenon speak for itself (Cohen et al., 2007: 254). Therefore, it is appropriate to explicitly express that the study was intended to serve to an "interpretive science in search of meaning, not an experimental science in search of laws" (Geertz, 1973: 5).

### 3.1 Methods, Participants and the Setting

In order to have a deeper understanding of the trainees' experience in and knowledge of project work, a piloted and highly reliable questionnaire whose Cronbach's alpha value is 0.85 (Kemaloğlu, 2006) was adapted to the context by adding both open and close-ended questions and applied as a preliminary tool to see how their outlook on project work is, and in connection with their explanations to these items, a second open-ended questionnaire prepared by the researcher was also given to volunteering trainees.

Since Kemaloğlu's (2006) study investigated the students' and teachers' assessments about Main Course project work applied at the English preparatory classes of Yıldız Technical University (YTU) School of Foreign Languages Basic English Department, it was changed according to the context of English language teacher education by the researcher and had two parts: a part about background information and a part with closed-ended items. Transferred to the project work in pre-service teacher training courses divided into language 'polishing' or developing courses related to speaking, listening, reading and writing and pedagogical and methodological courses, this study integrated both cognitive-linguistic aspect of project work through the first questionnaire and the sociocultural aspect through the second questionnaire. In the previous study on English learners' assessments, the goal of collaborative learning through joint decision making, found in most of the project definitions in literature was found to be missing in the YTU Main Course context as the individual learners are directly given the predetermined project topic lists related to language learning; therefore, there is a competitive rather than collaborative learning environment, the social aspect of which is missing. In contrast, in this study, the collaborative atmosphere among ELT trainees has been revealed through the second questionnaire with open-ended questionnaire. Because it was not convenient to meet face to face with groups of trainees from different classes during the time of research, an open-ended questionnaire was preferred rather than a semi-structured interview. To increase the probability of transferability of the study, it was important to reach different groups of trainees who have taken "ELT Methodology II" course, which has played a prominent role in enhancing the trainees' knowledge and experience in project work as a component of the teacher training course from a sociocultural perspective. The second questionnaire was complementary to the first one which focused on project goals, the rate of achievement of these goals, participant roles and types of project tasks in that it functioned as another important tool to get more experiential data revealing the group dynamics among the trainees. The following questions were influential in prompting more comments about the procedures of their participatory acts and tools:

- Describe the steps of your group tasks which you realised throughout the course.
- Do you find the project work beneficial for your professional development? Why?
- What do you think about the (dis)advantages of group work in this course?
- How were the group members determined?

- Do you prefer being with a close friend of yours in the same group or not? Why?
- What was/were the role(s) of the course lecturer during the project work?
- What do you think about your research process during the project?
- Answer these questions in terms of your professional development by associating them with the project work: “How was I? How have I become?”
- Please write anything you like related to the course.
- Please write anything you would like to change about the course.

It has been assumed that after four-year education, it is the best time and place to measure their knowledge and experience of project work. Also, third-year trainees participated in the study. Participants of the study were 48 ELT Trainees who will graduate from the ELT Department at a Turkish university. 12 of them (25%) were male, and 35 of them (75%) were female. The most frequent age group (20 participants) was at the age of 22 (42%). The study focused on participants in two aspects as learners of English and prospective EFL (English as a foreign language) teachers.

### **3.2 Data Collection and Explication**

The third and fourth year trainees contributed to questionnaires according to the random sampling, and the particular context revealed that one of the courses, namely ELT Methodology II, which the trainees take during the third year has fostered the trainees' autonomy through an emancipatory approach the lecturer, Canan (a pseudonym) adopted. The researcher conducted many incidental on-campus interviews with the lecturer during the course term and could observe how she prepared the course and gave feedback to the trainees as an emic insider of the context.

All data were gathered by considering the ethical issues including informed participant consent, guaranteed anonymity and confidentiality. All the names of trainees throughout the article are pseudonyms. The questionnaire with the closed-ended items was quantitatively analyzed by using Statistical Packages for Social Sciences (SPSS 22.0). The frequencies, percentages and the mean values of the items were analyzed through descriptive statistics. The small-scale nature of the study due to the limited time set for conducting the research may impose some limitations on the transferability of the study; however, the quantitative and qualitative data were used to complement each other with regard to the trustworthiness of this study. Moreover, respondent validation was applied to check the data sources after the constant comparison of the emerging patterns during the content analysis of the open-ended items. I tried to use ‘a strategic and technical detachment approach’ (Holliday, 2001: 178) during the data explication of the semi-structured open-ended questionnaire as I was familiar with the institution. Since I wanted the participants to feel comfortable while giving feedback about the lessons, I let them answer the questions in their mother tongue, Turkish. This also led them to have a more conversational and informal tone in their comments, and the translations of the data of this second questionnaire from Turkish to English were checked by another language teacher so that our consensus of opinion could result in a coherent portrayal of the participants' views.

### **4. Findings and Discussion**

In this section, after the results for each item in the first quantitative questionnaire stated by the teacher trainees are presented, interpreted and discussed, an overall comparison and discussion will be provided to the research question of the study, “How do EFL teacher trainees in the context of a Turkish university perceive project work as a participatory tool?” While trainees' perceptions about the achieved goals of project work as EFL learners were investigated through the closed- ended part of the first questionnaire, their knowledge and

experience as pre-service teachers were revealed through the seventh and eighth questions of the first survey and the open-ended questions.

As “collaboration” referring to instances when the partner is provided support about the related problem is used by Vygotsky in some writings on ZPD (Chaiklin, 2003), looking at the group dynamics and mediation within a trainee’s ZPD could be a key to understanding the role of project work in their development. Hence, emerging categories from the second open-ended questionnaire may yield to a deeper understanding of their experiences in group relations as a part of their project work. According to the trainees’ interpretations, project work as a mediatory, collaborative and creative process based on the interaction among the group members supported by their course tutor has marked such categories in terms of its contributions to their professional development:

- ✓ A mediational tool for enhancing concept development; uniting theory and practice together,
- ✓ Developing presentation and research skills, academic writing, reading and speaking skills and boosting self-confidence,
- ✓ Adapting the use of authentic language/materials,
- ✓ New insights and perspectives into the field; the influence of the role of group dynamics and the course lecturer on communication and collaboration.

#### **4.1 Teacher Trainees’ Understandings of Project Work**

Assuming that they have enough knowledge, the pre-service teachers who stated that they read about project work were asked to define project work without any help from any resource to see their understanding of project work. Definitions of the pre-service teachers were not different from the teachers in literature in terms of variety; however, they were not inclusive in terms of all the characteristics of project work. Most common and remarkable definitions of teacher trainees are provided below:

- Project work, to me, is related to tasks students or people collaboratively work on a subject and share ideas with each other.
- A task which students work on and create an original output.
- An assessment tool used to evaluate students’ knowledge of certain structures and vocabulary.

Deducing from the definitions, 19 participants (40 %) who stated that they heard about project work, can be said to be familiar with the concept of project work. However, only 14 of them (29%) have read books/articles directly about project work or books in which project work was mentioned. This may result from the fact that they are not explicitly informed by knowledge of conceptual framework of this area while fulfilling the tasks of project work in practice. In this respect, though the trainees are positively interdependent on the lecturer during the stages of project work, the contents of main tasks are directly given by the lecturer then e.g. they find a problem specified by the collaborative groups of trainees during the observations of teachers as a step of the exploratory action research project, according to their answers to the items of the 2<sup>nd</sup> questionnaire. Therefore, they are asked to find a dimension of the theoretical concept of each task in the real practice of teaching; however, they do not have a specific training on how to conduct project work in a separate course.

The overall comparison of the quantitative questionnaire is shown in Table 1 below. The extent to which the goals of project work represented by 32 items in the questionnaire were achieved was identified according to the mean values and percentages of the items analysed through the descriptive statistics. The goals can be defined as “poorly achieved” (1- 2.33),

“moderately achieved” (2.34- 3.66) and “highly achieved” (3.67- 5) according to the 1 to 5 continuum. Findings of the study revealed that participants had collaborative and supportive perceptions of project work. Participants of the study expressed their support for project work in terms of eight goal categories, namely Content, Linguistic, and Research Goals; Goals Regarding Authentic Outcome Production, Affective Goals, Autonomy Goals, Technology Goals, and Time Management Goals and two more items, Teacher’s and Learner’s Role. Application of questionnaires and interviews are still a goal to be expected to be developed for trainees to come at a higher level. As the dominant mean values of each item is very close to each other, general average means of the main headings ranging between 3,81 and 4,27 were displayed in order to compare the extents to which they are highly achieved easily. Moreover, the minimum and maximum mean values of each subtitles are 3,58 and 4,33, while the rest of them range between these two values.

Table 1. *Overall results*

Item No	Item Name	Questions-Subtitle	SDA		D		PA		A		SA	
			N	%	N	%	N	%	N	%	N	%
1	Content Goals (Mean:3,81)	1) Acquiring knowledge about a given subject	0	0	3	6,3	11	22,9	23	47,9	11	22,9
		2) Liking the subject	0	0	5	10,4	9	18,8	27	56,3	7	14,6
2	Linguistic Skills (Mean:3,86)	3) Reading	0	0	6	12,5	7	14,6	22	45,8	13	27,1
		4) Writing	1	2,1	6	12,5	8	16,7	23	47,9	10	20,8
		5) Speaking	1	2,1	6	12,5	11	22,9	16	33,3	14	29,2
		6) Listening	1	2,1	8	16,7	10	20,8	20	41,7	9	18,8
		7) Integrated skills	0	0	7	14,6	4	8,3	23	47,9	14	29,2
		8) Oral presentation	1	2,1	3	6,3	10	20,8	16	33,3	18	37,5
		9) Learning vocabulary	0	0	3	6,3	8	16,7	17	35,4	20	41,7
		10) Using vocab.	0	0	3	6,3	9	18,8	24	50	12	25
		11) Translation	1	2,1	4	8,3	12	25	16	33,3	15	31,3
		12) Using grammar	1	2,1	5	10,4	5	10,4	19	39,6	18	37,5
		13) Improving grammar	2	4,2	7	14,6	7	14,6	15	31,3	17	35,4
3	Research Goals (Mean:3,92)	14) Using the Internet	2	4,2	2	4,2	3	6,3	14	29,2	27	56,3
		15) Other sources	3	6,3	4	8,3	14	29,2	15	31,3	12	25
		16) Analyzing data	1	2,1	4	8,3	7	14,6	26	54,2	10	20,8
		17) Synthesizing data	1	2,1	3	6,3	7	14,6	23	47,9	14	29,2
4		18) Creativity	0	0	4	8,3	10	20,8	17	35,4	17	35,4

	<b>Authentic Outcome Production (Mean:3,86)</b>	19) Personal vision	0	0	5	10,4	12	25	15	31,3	<b>16</b>	<b>31,3</b>
		20) Paraphrasing	1	2,1	5	10,4	14	29,2	<b>16</b>	<b>33,3</b>	12	25
		21) Commenting	0	0	5	10,4	13	27,1	<b>16</b>	<b>33,3</b>	14	29,2
		22) Supporting	0	0	4	8,4	10	20,8	<b>17</b>	<b>35,4</b>	<b>17</b>	<b>35,4</b>
<b>5</b>	<b>Affective Goals (Mean:4,27)</b>	23) Positive attitude	1	2,1	1	2,1	4	8,3	17	35,4	<b>25</b>	<b>52,1</b>
		24) Self-confidence	1	2,1	1	2,1	8	16,7	15	31,3	<b>23</b>	<b>47,9</b>
<b>6</b>	<b>Autonomy Goals (Mean:4,10)</b>	25) Feeling of responsibility	1	2,1	2	4,2	7	14,6	14	29,2	<b>24</b>	<b>50</b>
		26) Making decisions	1	2,1	2	4,2	10	20,8	<b>18</b>	<b>37,5</b>	17	35,4
<b>7</b>	<b>Time Management Goals (Mean:4,02)</b>	27) Using time effectively	1	2,1	2	4,2	11	26,9	<b>20</b>	<b>41,7</b>	14	29,2
		28) Submitting the assignments	1	2,1	3	6,3	7	14,6	15	31,3	<b>22</b>	<b>45,8</b>
<b>8</b>	<b>Technology Goals (Mean:3,87)</b>	29) Learning how to use technology	3	6,3	3	6,3	11	22,9	11	22,9	<b>20</b>	<b>41,7</b>
<b>9</b>	<b>Teacher's-Learner's Roles (Mean:4,07)</b>	30) Needing teacher's instruction	2	4,2	1	2,1	9	18,8	<b>22</b>	<b>45,8</b>	14	29,2
		31) Teacher's comments	2	4,2	4	8,3	4	8,3	16	33,3	<b>22</b>	<b>45,8</b>
		32) Doing assignments	2	4,2	2	4,2	4	8,3	16	33,3	<b>24</b>	<b>50</b>

<b>10</b>	<b>Applying questionnaires/ interviews</b>	33) Questionnaires	<b>YES</b>		<b>NO</b>		34)	<b>English</b>		<b>Turkish</b>		<b>Both</b>	
			<b>N</b>	<b>%</b>	<b>N</b>	<b>%</b>		<b>N</b>	<b>%</b>	<b>N</b>	<b>%</b>	<b>N</b>	<b>%</b>
			20	41,6	<b>28</b>	<b>58,3</b>		10	50	8	40	2	10
		35) Interviews	18	37,5	<b>30</b>	<b>62,5</b>	36)	7	38,8	<b>8</b>	<b>44,4</b>	3	16,6

KEY: Bold figures represent the highest scores.

Note: N: Number of Participants; SA: Strongly Agree; A: Agree; PA: Partially Agree; DA: Disagree; SDA: Strongly Disagree

The first goal category, “content goals” represented by the subtitles ‘acquiring knowledge about a given subject’ and ‘liking the subject’ were found to be relatively succeeded as revealed by agreement responses. Within the “linguistic skills” category, the integrated skills involving reading, writing, speaking and listening and language components such as vocabulary, grammar were found to be improved at a moderately high level during the project tasks involving presentation and translation.

According to Table 1, in addition to content and linguistic goals, the percentages distributed among agreement and strong agreement display that data processing goals, the goals regarding authentic outcome production, the category of autonomy and time management goals were

found to be met at a high level. Furthermore, the most highly achieved goals are related to the affective factors, the use of technology and the roles of their teacher and the trainees as learners. More specifically, the items that are highly achieved according to the trainees' views have been found to be about presentation skills, vocabulary and grammar within linguistic skills; using the internet during research process; creativity, the personal vision and the support of ideas as the authentic outcome production; affective goals like positive attitude, self-confidence; the use of technology, the punctual submission of the assignments, the teacher's role as a commenter and the learner's role in doing assignments.

When it comes to the items about conducting interviews and questionnaires, it can be seen that the percentage of the trainees who apply those instruments is quite lower in general. Trainees as learners of English during the skills improvement courses in the first two years of their education and later on did not realise successful projects involving outside-class interaction especially to improve English speaking skill though there is an almost balanced use of English and Turkish in the applied instruments. It is possible to say that the project tasks during the third and fourth year teacher training and methodology courses may compensate for the paucity in their experience of using such instruments to some extent as can be explored through their responses about the project work especially in one of their courses in the next section.

#### **4.2 Teacher Trainees' Interpretations of their Participation in Project Work**

Adopting the main premise that learning is co-constructed through socioculturally mediated activity, I have taken stock of the nature of the activity embedded in one of the methodology courses named "ELT Methodology II" in a teacher education program in Turkey as a reflection of expectations about the way pre-service teachers develop teaching expertise, and explored the collective attempt to accomplish project work about the methodological subjects through the assistance and mediation of both the lecturer and peer trainees. Critically looking at the social practices and situated contexts in which trainees are engaged is expected to shed light on how social interaction and participation in project work support and enhance the development of trainees' expertise on the content of the course.

Project work, a mediational tool for the trainees, serves as a cultural artifact or a goal-oriented activity that shapes their conceptual development as stated by Lale: "Our observations of real classroom environments provided us with a predisposition and knowledge of what sort of problems we can confront as a teacher and of how we can deal with classroom management in our future professional life."

Through the methodology course, the experiences of trainees who participated in an exploratory/ inquiry-based project work in a peer group display that the group dynamics have been very influential in their collective engagement in critical examinations of pedagogical quandaries that they have identified as present during their observations of teachers in real classroom settings. An ELT trainee, Erhan, stated his feelings as follows:

We told each other what we had observed during the sessions of different teachers, and this made us better observers because not every one of us could catch the same details as one another could, and we complemented what was missing in each other's puzzle and united what all of us knew, heard and felt about the observation together.

Therefore, group protocols operate as material tools to guide trainees' thinking and they are also conceptual tools and constitutional parts of the activity which are in the mind of the facilitator's/ lecturer's mind. Moreover, the compensatory tools that trainees transform from authentic materials such as newspapers, brochures, cartoons as alternative solutions to rote learning in some classrooms highlighted the sociality of materials rather than their physicality.

Furthermore, the scientific concepts they learned during the lecturing time in the training courses transformed their everyday concepts during their *apprenticeship of observation* (Lortie, 1977) into psychological thinking tools they use while problem solving across instructional contexts they observed. Overall, from a sociocultural theoretical perspective, the mediation that trainees receive through social relations, concepts and cultural artifacts or activities plays a critical role in the development of teaching expertise in language teacher education programs. In this respect, project work within the methodology course of the ELT Department has been a concrete exemplary hands-on experience for the ELT trainees to establish the relationship between the theoretical concepts and everyday knowledge of teaching in real settings rather than a discrete and de-contextualised kind of lecturing about or rote memorisation of abstract terms. In so doing, using project work in this course may bridge the long-lasting divide between the theory and practice in language teacher education by merging the subject matter knowledge about language, second language education in academic coursework with the pedagogical and procedural realities of classroom teaching. In other words, the ELT trainees co-construct and internalise the scientific concepts through the sociocultural ELT context of teaching environment by means of project work.

It is also necessary that strategic assistance should be given to novice teacher trainees during the course term by the teacher educator and fellow classmates; in this study, teams of three or four trainees carrying out the project work were guided by the lecturer of the course when necessary inside and outside the classroom both implicitly and explicitly. The type of feedback is revealed through words of the trainee, Emine: “The role of the course lecturer was to give detailed feedback on our observations about professional problems, different attitudes of students and teaching skills and techniques”.

Seeing the incongruence between the pedagogical theories and the actual classroom practices, the lecturer, Canan changed mere lecturing into a course design with five tasks, which allows the trainees to do field work about the content and language teaching skills of the course through first-hand exploratory research in the real classroom settings; therefore, groups of trainees could develop an agency and autonomy as a consequence of project work. It can be concluded that instead of a “banking model” teaching methodology (Freire, 1970 cited in Breunig, 2005) as a source of educational hegemony, Canan resorted to a problem-posing and experiential method of education to teach ‘ELT methodology’ course to the teacher trainees by employing project-based small-group work, seminar-style lecture, student presentation, discussion and creative expression. In this respect, according to the researcher’s observations, holding negotiation approach through open discussion and mutual trust, she changed traditional ‘pupil status’ into co-constructive groups of teacher candidates who find meanings of their own and take initiative in and responsibility for their own learning.

As stated in the description of ELT Methodology II, this course is based on the active participation of each individual within and beyond the team work as the content is an introduction to “classroom-based research, teacher directed research and action research, diagnosing learners' language related needs and problems and remedial teaching activities; principles of learner monitoring and role of learner assessment in lesson planning; national and international professional organizations (e.g. TESOL and INGED) and practical journals (e.g. English Teaching Forum, ELTJ, TESLJ and TESL Reporter)”. Among the aims of the course are “to detect the language problems that learners face and to provide teacher trainees with necessary knowledge and skills to develop appropriate activities”. As a part of the process-oriented assessment except for mid-term and final exams, the lecturer asks the students to keep language teaching portfolios and to perform micro teaching activities; besides, they discuss articles about methods in TESOL from those publications. In addition to lecturing, question

and answer sessions, discussions and microteachings through mediatory tools like Power Point slides, the projector, the internet and portfolios.

The preliminary weeks for the project work is mostly predicated on in-class reflective discussions about principles and priorities of EFL/ESL teaching methodology, the roles of a language teacher and descriptions of learning context from a classroom-based action research. The tasks for the rest of the term comprise “examining the physical conditions and opportunities/affordances of a state/ private school, interviewing school teachers about their professional problems (teaching students with special educational needs in crowded classrooms, trying to negotiate with irresponsible parents, seeking support from school administration etc.) and finding solutions to the language-, learner- and teacher- related problems they diagnosed and discussing the solutions in the classroom, examining the teacher and student interaction types and behaviours in a few hours of the lesson of a faculty instructor by using observation checklist and observing and evaluating their peers through Teaching Skills I & II courses or video-taping their own performance outside the class and reflecting on their performance to make effective self-evaluation reports”. After each task, trainees prepare a written report they collected in their portfolios and present them in the class during discussion and feedback sessions.

A detailed timetable of the tasks can be put into an order as follows. The first part/task of project work for teams of three or four trainees is related to diagnosing *language*-related needs and problems by doing field work and preparing checklists for interviewing with two or three state/private schools’ teachers at schools and writing formal reports. The following week during discussion and feedback session, trainees categorise primary and secondary school language classroom problems such as learner related, teacher related, administrative, parental problems and the problems under the direct control of the teacher according to their theoretical knowledge base formed during previous lectures and self-study. The second task of the project work is concerned about diagnosing *teacher*-related problems on communication by preparing checklists for data collection and by observing and evaluating their peers through Teaching Skills I& II courses or video-taping their own performance outside the class and reflecting on their performance to make effective self-evaluation reports. As the third task, the trainees have written formal reports and performed in-class discussions about the collected data on learner-related problems after doing two-hour observation by using the checklists prepared for preparatory classes of School of Foreign Languages and general English courses at the university. Fourthly, as a part of ‘testing and evaluation’ session, emphasising the importance of the evaluation procedure and the remedial work, trainees prepared remedial activities on learner related problems they observed during the field work and wrote a formal report on the fourth task. For the last task, trainees made presentations on learner autonomy, professional development and the importance of membership in international and national professional organizations.

Eleven-week course sessions have involved five project tasks, each of which teams of three or four trainees fulfilled through a range of activities and practices in real classroom environments as a complementary to theoretical pre-sessions of the course. Before conducting interviews with school teachers, doing observations and microteaching, the mediational means through which trainees burgeon and verbalise their understanding of the rationale behind language-, learner- and teacher-related problems may be reflective writing reports, microteachings and in-class discussions. The peer and self- assessments of each trainee (when they are individually presenting) or each team about their own microteachings as dynamic assessment (Poehner, 2008 cited in Johnson and Golombek 2011) also create opportunities for the teacher educator to suggest expert instructional responses according to the trainees’ actual

and potential capabilities within their ZPDs through dialogic cooperation. Some of the contributions of the project work to the professional life of trainees were stated as follows:

“I learned how and to what extent authentic language can be used in an EFL classroom setting” (Kaan).

“I understood that the characteristics of a good researcher are to be a good and careful listener, reader and observer who analyses and disseminates the research data according to the exact picture in the context” (Emine).

“It (project work) is beneficial for developing presentation skills, academic writing, reading and speaking skills and boosting self-confidence” (Erhan).

“New people mean new ideas, and this project work created opportunities to explore the unknown through group synergy” (Çiğdem).

The procedures of the course can be espoused by taking stock of the principles of Vygotskian Sociocultural Theory that development does not lead learning *from* inside to outside through input from the world; rather, learning from outside to inside through dynamic interaction between learner and significant other *in* the world leads development (Vygotsky, 1987). In their report of the eleven-week project which focused on integrating the research, practice and presentation skills needed for understanding and enhancing the roles of a language teacher and a practitioner researcher in the classroom, the trainees recognised the need to adapt different language teaching methodologies to the local context according to the needs, learning styles and diversities of the students. They also learned how to overcome the potential differences by seeing them as various opportunities during the collaborative team work as Çiğdem expresses:

Communication and collaboration among the group members have improved, also the distribution of group tasks among us contributed to our sense of responsibility, and we have overcome the potential impediments such as dilatoriness and procrastination through building team spirit and a sense of community. Generally, everyone becomes a part of a group formed right from the beginning of the program in the first year, and if everything goes well, that group acts together until the end of the last year. Likewise, our group of four people came together in the first year. It is very advantageous to be a part of the group in that it ensures our continuous improvement through good interaction among us.

Another trainee, Gökhan, espoused a different perspective regarding the group dynamics while fulfilling tasks:

Group forming was based on reciprocal and momentary willingness, as a result of which considerably committed groups came together as there was no ‘polarization’ among the class fellows and the degree of in-class relationship was good enough to encourage everyone to work in any group. It is not very attractive for me to work with closer friends in the same group because close friends know what they generally think about and how they behave and they may not see different perspectives by interacting each other all the time; however, to be in a group with newcomers and new acquaintances is an opportunity to become familiar with various views and experiences; that’s why I am very happy of developing new relationships during my project work through which we built a systematic and successful team and gained deep insights into new practices.

The project work approach the lecturer adopted as a mediational tool helped the trainees understand the goals and content of the ELT methodology from the theoretical and academic point of view to the on-the-job or reflection-in-action perspective associated with the metaphor about looking from the high hard grounds down to the swamp with its complex, unpredictable

and dynamic nature (Schön, 1987: 1). One of the trainees, Gökçen, supported the project work approach to this course by stating:

Bridging the gap between theory and practice was provided through the different tasks of project work, and this was a preliminary experience to have a taste of real classroom atmosphere before teacher practicum course; therefore, I would rather taking part in more project-based courses preparing us for the essential issues in our future professional lives awaiting us.

ELT trainees who realised project work for their ‘ELT Methodology II’ course as a combination of interrelated tasks including various stages like planning, conducting library research, observing, doing field work, synthesizing their data and presenting their findings; consequently, they felt very satisfied with the project approach to the one of the core teacher training modules of the department because they found the tasks worthwhile for their professional development as fledgling newcomers of the TESOL community.

## **5. Conclusion**

The overall survey results of this study revealed that the goals of project work through which trainees acted as learners of English were highly realised according to their views except for their experience in the application of interviews and questionnaires, while the conclusions of the previous studies including various participants (students, teachers, administrators and student teachers) suggested mixed perceptions about project work in that some of them felt project work was too demanding owing to their workload while others found it pedagogically very valuable (Beckett, 1999 as cited in Beckett, 2002; Subası-Dinçman, 2002; Gökçen, 2005; Kemaloğlu, 2006; Çırak, 2006; Baş & Beyhan, 2010; Baş, 2011; Dooley & Masats, 2010; Lam, 2011; Mutlu-Köroğlu, 2011; Abdul Khalek & Lee, 2012; Campbell, 2012; Yaman, 2014; Kettanun, 2014; Zhang, 2015; Habók, & Nagy, 2016; Aşar, 2017; Vaca-Torres & Gómez-Rodríguez, 2017; Duman & Kuuk-Yavuz, 2018; Sirisrimangkorn, 2018; Abu Bakar, et al., 2019; Baghoussi & El Ouchdi, 2019). The particular context of the “ELT Methodology II” course has also provided us with different insights as to how concepts of a teacher training course can be socially constructed through the action research as part of the project tasks realised by cooperative groups of trainees.

All in all, the project work can be regarded as a means of realising the ultimate goal of any educational enterprise, which is improving the student learning, considering the trainees as learners of English during the English skills and competence courses of the first two years of ELT Departments. On the other hand, as a contribution to their professional development as would-be teachers of English, I believe project work is a good practice or praxis as a way of digging the context-dependent and participatory process of teacher learning. As the sociocultural theoretical perspective under teacher professional development has been conceptualised over three decades of research, there are still hidden areas within the complexity of the situated teacher learning process within the cultural, institutional and historical domains (Johnson & Golombek, 2011). Among the uncharted territories of teacher education and especially language teacher education from a sociocultural perspective comes out project-based learning (PBL) as I posit that PBL may be examined from stronger social views of learning rather than theories merely about the comprehensible input and output production through mediated learning, and I believe this study has enriched the literature with its theoretical and practical implications from this framework. It is necessary to conduct further research studies to understand the role of project work in language teacher education in different contexts from a sociocultural perspective.

At the beginning of the complicated, prolonged, highly situated and deeply personal process of teacher professional development that has no start and end point (Johnson & Golombek, 2011), I consider project work that the pre-service English language teacher experiences as a part of academic coursework in teacher education programs tremendously contributes to his/her professional development. Pre-service teachers may take advantage of project work while being exposed to the broader social, cultural and institutional settings where teachers live and work in the methodological and pedagogical courses so that they can witness the praxis of sound instructional opportunities and the use of mediational means. In this sense, they shape their own professional teacher identities by looking through the window of in-service teachers and seeing their discursive practices.

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## **ENSURING STUDENT-CENTERED, CONSTRUCTIVIST AND PROJECT-BASED EXPERIENTIAL LEARNING APPLYING THE EXPLORATION, RESEARCH, INTERACTION AND CREATION (ERIC) LEARNING MODEL**

*Research Article*

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# ENSURING STUDENT-CENTERED, CONSTRUCTIVIST AND PROJECT-BASED EXPERIENTIAL LEARNING APPLYING THE EXPLORATION, RESEARCH, INTERACTION AND CREATION (ERIC) LEARNING MODEL

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## Abstract

Experiential learning literally is making meaning from direct experience. It plays vital role in facilitating the process of creating knowledge, sense-making and knowledge transfer in teaching, training and development. This study assessed the effectiveness of Exploration, Research, Interaction and Creation (ERIC) Learning Model which is a framework adopted from various theories and philosophies such those of student-centered, constructivist-based, project-based, experiential, multisensory, reflective, participatory, interactive, cooperative, collaborative and active learning. Mixed method was used employing pre-experimental design and narrative analysis of learning experiences. Pre-test and posttest, survey, interview, observation and focus group discussions were made. There were 32 college students in the Tourism Management Program enrolled in NAS 106 (Environmental Science) and 28 enrolled in BST 323 (Ecotourism) for Academic Year 2018 - 2019 at Columban College, Inc. and were used as subjects. Quantitative data were treated using Mean, Weighted Mean and t-Test for Dependent Samples. Student's engagement and involvement were maximized by exploration, research, interaction and creation and they adapted the skills and strategies for them to become responsible learners and lifelong learners. There was a significant increase in the performance of students as well as develops more positive attitude towards the topics.

*Keywords:* student-centered, constructivism, project-based, experiential learning, ERIC Learning Model

## 1. Introduction

Experiential learning literally is making meaning from direct experience. It plays vital role in facilitating the process of creating knowledge, sense-making and knowledge transfer in teaching, training and development. It was first conceived by John Dewey in the mid 1930's, experiential education has been used various disciplines due to its interdisciplinary nature.

The theory of experiential learning by David Kolb (1984) has greatly contributed to the increasing philosophy of experiential education concepts and models. He defined experiential learning as the process of creating knowledge. His work on experiential learning in which learning takes place in a cyclical way acts as a point of reference for experiential education especially in higher education (Mughal, 2011). The theory proposes the assumptions that learning is a process and not as an outcome, driven by experience in a more holistic and integrative manner. Furthermore, learning requires the learner to resolve conflicts through dialect and requires the individual to interact with its environment, thus creating knowledge.

Rogers (1969) asserted that learning occurs on a continuum from meaningless to significant, experiential learning. He proposed that five elements are present in experiential learning:

1) direct, personal involvement, 2) learner initiation, 3) pervasiveness, 4) learner evaluation, and 5) the essence is meaning

Dewey (1938) introduced the term “reflective thought” to describe the process by which an individual learned from observations of their experiences using five distinct steps: “(1) a felt or perceived problem; (2) its area and difficulty; (3) suggestion of possible explanation and answer; (4) logical development of the bearings of the suggestion; and (5) further observation and experiment resulting to its acceptance or rejection.

Learning should take place in a real-life, real-world context so students will find more meaning on the theories and concepts taught to them in school. The timeless educational principle by Dewey says, “we learn best when we do what we learn.” (Manatad & Torres, n.d)

Experiential learning activities has three components as stressed by Kristian (2015):

1. Alignment of learning goals, activity, product and assessment
2. Understanding students and their motivations; and
3. Create the right learning conditions based on competence, relatedness and autonomy.

Learning by doing is one of the most important aspects of experiential and student-centered learning (Laguador & Dizon, 2013). It is the teaching that engages the students in the actual situation. It motivates and empowers learners by giving them some control and direction over learning process and activities. It is the teaching that encourages collaboration and cooperation among learners, acknowledging the classroom (be it virtual or real) as a community where everyone shares the knowledge and skills. It promotes students’ reflection about what they are learning and how they are learning it.

The ones who benefit most with this type of learning are those mature learners who have been long removed from the traditional classroom and need the motivation of contextual learning to get them back into the swing of academia; learners who need to personally experience the value of a topic in order to be motivated to learn; learners who have trouble learning within the formal classroom, and need an alternative learning method in order to succeed, and learners who can benefit from having hands-on examples to reinforce their traditional learning (Schwartz, 2012).

The literatures reviewed highlight the importance of coming up with various relevant models of ensuring student-centered, constructivist-based, project-based, experiential, multisensory, reflective, participatory, interactive, cooperative, collaborative and active learning.

## **2. Conceptual Framework**

The study is anchored on the idea that experiential and authentic learning is a result of learner-centered, constructivist-based and project-based method or activities used in teaching.

Teaching, method is a series of related and progressive actions performed by the teacher and the learners to accomplish the general and specific aims of the lesson. It is a procedure or series of steps that must followed strictly to achieve the learning goal (Salandanan, 2007)

Every individual has his own perspective in learning, one factor of such is the methods of teaching used which are classified into Instructor/Teacher Centered Method, Content – Focused Method, Learner – Centered Method and Interactive/Participative Method. Learner-centered method focuses on students’ learning in the lessons but is also about teachers’ learning from and within the process where they refine how they teach particular lessons to students (Abanador, Buesa, & Manibo, 2014).

ERIC Model is a framework adopted from various theories and philosophies such those of student-centered, constructivist-based, project-based, experiential, multisensory, reflective, participatory, interactive, cooperative, collaborative and active learning.

Students are encouraged to acquire and apply knowledge, skills and feelings in an immediate and relevant setting – whether real or simulated. In this type of learning, the teacher tends to create learning environment with which students encounter directly to interpret a phenomenon rather than thinking about it. Experiential learning, from an epistemological perspective aligns with constructivism, which posits that learners construct meaning from their experiences.

Experiential learning in a constructivist and project-based perspective emphasizes learning through reflection on experience, considers individuals to gain and construct knowledge by interacting with their environment through a set of perceived experiences and/or perceived problem. It is, according to Jacobs (1999), a process through which a learner constructs knowledge, skills, and value from direct experiences. Works of Dewey, Piaget (1966), Kolb, and Wells (1995) have significantly contributed to the constructivist view of experiential learning as well as on problem-solving as one mechanism to experiential learning. Constructivism as a theory, as a philosophy and as an approach to teaching implies that the learners or the individuals are constructors of their own knowledge which is generated by interacting with their socio-cultural environment as viewed by Vygotsky (1978). Kolb (1984) described in his book “Experiential Learning”, that this type of learning focuses more on individual development through reflection on its past experiences as part of constructivism. Kolb’s model describes that learning happens when knowledge is created through the transformation of experience. However, issues of cognition with respect to environment interaction as pointed out by Vygotsky tend to lack from his theoretical model and that children tend to imitate the actions of based on their perception.

Kolb asserted that the learning process can begin at any stage. For discussion purposes, “Concrete Experience” (Do) will serve as the starting point. At this stage, the learner has direct interaction with the phenomenon being studied and learners grasp information through apprehension using the senses to see, hear, smell, feel, or taste the phenomenon. Following the model, the next stage is “Reflective Observation,” (Observe) where learners reflect on what they experienced in which information is transformed through intention. Kolb describes intention as a cognitive process in which the learner mentally breaks apart the experience and internalizes the information. During the “Abstract Conceptualization” (Think) stage, learners grasp the information through comprehension by forming rules, generalizations, or hypotheses about the phenomenon being studied. The final stage is “Active Experimentation,” (Plan) which is characterized by the learner testing the rules, generalizations, or hypotheses formed in the previous stage. Kolb asserts that during this stage information is transformed by extension, which again involves direct interaction with the phenomenon.

Roberts (2006) interpreted experiential learning process into four stages: (1) initial experience, (2) reflection, (3) generalization and (4) experimentation.

The conception of experiential learning is an established approach in the tradition of adult education theory. (Miettinen, 2010)

Rogers posited that problem-solving, inquiry-based learning, simulation, programmed instruction, and basic encounter groups are all congruent with experiential learning. Phipps and Osborne (1988) looked at problem-solving approach as process of experience provocative situation, explore references/sources, arrive at a group solution, attempt a trial solution and evaluate the effects. Trowbridge and Bybee (1996) viewed inquiry-based learning involving 5 E’s: Engagement, Exploration, Explanation, Elaboration and Evaluation.

In Dale's Cone of Experience, it illustrates that experiences occur at different levels, ranging from direct, purposeful experiences to experiences with verbal symbols. The base of the cone is described by more concrete experiences, such as direct experiences (real-life experiences), contrived experiences (interactive models), and dramatic participation (role plays). Learners are "doing" and actively learning at this level. The peak of the cone is the most abstract where the experiences are represented non-realistically by symbols, either visual or verbal. The learners are "passive" using only their ears and eyes. The middle of the cone is slightly more abstract and is characterized by learners realistically "observing" the experience. These levels are differentiated from the lower levels of the cone because students are passive with the phenomenon. Levels in this section of the cone include fieldtrips, demonstrations, role play, exhibits, motion pictures, and audio recordings or still pictures.

Joplin (1981) conceived that the scope or duration can occur on a continuum from "mini" to "maxi". At the "mini" level, experiential learning can occur as a "flash of insight"; while at the "maxi" level, the entire curricula of a school can be orchestrated through experiential learning.

Learning is a continuous process and experts must understand that the experiential diaphragm of individuals is filled with information starting from their childhood and lasts throughout life. Individuals tend to draw on their experiences of their interaction with people, places, situations and environments throughout their lifetime.

Furthermore, some learner-centered teaching principles emphasizes that the nature of the learning process is most effective when it is an intentional process of constructing meaning from information and experience and that construction of knowledge wherein the successful learner can link new information with existing knowledge in meaningful ways. (McCombs, 2000)

The ERIC Learning Model which is a synthesis of all the theories and philosophies stated, illustrates that significant experiential learning of students can be attained through constructivist- and project-based activities in the classroom and in the field through exploration, research, interaction and creation. Experiential learning is continuous, cyclical and lifelong. The benefits of this model make learning more engaging and practical rather than merely transferring of information.

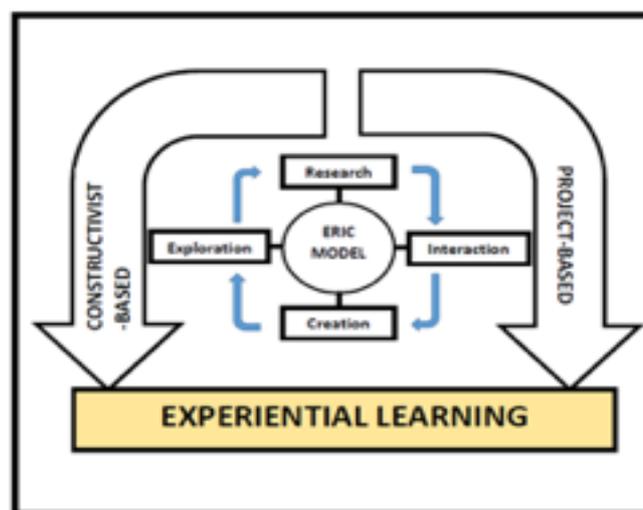


Figure 1. The ERIC Learning Model

### 3. Objective of the Study

The study determined the effectiveness of using the Exploration, Research, Involvement and Creation (ERIC) Learning Model in constructivist-based and project-based experiential learning in Environmental Science and Ecotourism among Tourism Management students of Columban College, Inc. It aimed to:

1. Determine the performance of the students in Environmental Science and Ecotourism courses before and after using ERIC Learning Model;
2. Test the effectiveness of using the ERIC Learning Model in increasing performance in the course;
3. Describe significant learning experience of the students in the different stages of ERIC Learning Model;
4. Assess the attitude of students towards learning topics in Environmental Science and Ecotourism courses as a result of using ERIC Learning Model

### 4. Methodology

The study uses mixed method of qualitative and quantitative approaches. Pre-experimental (One-Group Pre-test and Posttest Study) design was used to compare the pre-test and posttest performance of a single group as well as their level of interest before and after the use of the ERIC Learning Model. A benefit of this design is the inclusion of a pre-test to determine baseline scores. Pre-experimental designs follow basic experimental steps but fail to include a control group. In other words, a single group is often studied but no comparison between an equivalent non-treatment groups is made. A single case is observed at two time points, one before the treatment and one after the treatment. Changes in the outcome of interest are presumed to be the result of the intervention or treatment. No control or comparison group is employed

Forbes (2013) stressed that the advantage is that it can compare scores after a treatment to scores on the same measure in the same participants before the treatment. The disadvantage, however is that it does not include a no-treatment control group or a business-as-usual comparison group which makes it still prone to many threats to internal validity, including those related with observing the same subjects over time.

Quantitative data were gathered using 30 item-teacher-made tests (pre-test and posttest) in selected topics covered (Ecological Relationships, Ecological Succession, Pollution, Socio-cultural Aspects of Ecotourism, World's Coastlines and Geological Heritage, and Wildlife Tourism) and questionnaire-checklist was used to measure the attitude of students in the two courses after exposing to the ERIC Learning Model.

Qualitative case analysis of the learning experience of the students was also done as reference to the evaluation of effectiveness of the ERIC Learning Model. Focus Group Discussion, observation and in-depth analysis were used in this part. Experiences were narrated as documented.

There were 32 college students in the Tourism Management Program enrolled in NAS 106 (Environmental Science) and 28 enrolled in BST 323 (Ecotourism) for Academic Year 2018 - 2019 at Columban College, Inc. and were used as subjects. Data were treated using Mean, Weighted Mean and t-Test for Dependent Samples.

## 5. Results and Discussions

### 5.1 Performance of College Students Before and After Using the ERIC Learning Model

The mean scores of the respondents before instruction of the topics Ecological Relationships, Ecological Succession and Pollution were 12.35, 7.93 and 13.05, respectively with a verbal interpretation of “Did not Meet Expectation.” However, the mean scores increased to 25.68, 24.15 and 26.34, respectively using the ERIC Model as instructional strategy.

Similarly, the mean scores of the respondents before instruction of the topics Socio-cultural Aspects of Ecotourism, World’s Coastlines and Geological Heritage, and Wildlife Tourism were 9.34, 7.42 and 6.37, respectively with a verbal interpretation of “Did not Meet Expectation.” However, the mean scores also increased to 23.25, 24.67 and 22.69, respectively using the ERIC Model as instructional strategy.

Experiential learning involves a direct encounter with the phenomena being studied and explored rather than merely thinking about the encounter, or only considering the possibility of doing something about it. This simply means that students can learn effectively through their own experiences (Dolotallas & Nagtalon, 2015).

Table 1. Performance of Students Before and After Using the ERIC Learning Model

Environmental Science Topics	Mean Score (N = 32)		t-Value and P-Value	Decision (using $\alpha$ at 5%)
	Before	After		
Ecological Relationship	12.35	25.68	4.23 0.031	Reject Ho
Ecological Succession	7.93	24.15	6.22 0.000	Reject Ho
Pollution	13.05	26.34	4.19 0.037	Reject Ho
Ecotourism Topics	Mean Score (N = 28)		t-Value and P-Value	Decision (using $\alpha$ at 5%)
	Before	After		
Socio-cultural Aspects of Ecotourism	9.34	23.25	4.37 0.026	Reject Ho
World’s Coastlines and Geological Heritage	7.42	24.67	7.44 0.000	Reject Ho

Wildlife Tourism	6.37	22.69	6.17 0.000	Reject Ho
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*Ho: There is no significant difference between the performance of the college students before and after using the ERIC Model in teaching selected topics in Environmental Science and Ecotourism courses.*

## 5.2 Test of Difference between the Performance of College Students Before and After Using the ERIC Learning Model

The null hypothesis: “There is no significant difference between the performance of the college students before and after using the ERIC Model in teaching selected topics in Environmental Science and Ecotourism courses” was rejected at 5% level of significance. The computed t-values after comparing the pre-test and posttest scores in Ecological Relationships, Ecological Succession and Pollution were 4.23, 6.22 and 4.19, which are all significant. Moreover, the computed t-values after comparing the pre-test and posttest scores in Socio-cultural Aspects of Ecotourism, World’s Coastlines and Geological Heritage, and Wildlife Tourism were 4.37, 7.44 and 6.17, which are all significant.

The search for knowledge and deeper understanding begins with experience and that no learning takes place unless the student is both involved and engaged in and transformed by the learning process.

## 5.3 Learning Experiences of Students during the Different Phases

Experiential Learning, Problem-Based Learning, or Cooperative Learning can be evaluated as a brain-compatible because they respect learners as a unique individual with their socio-cultural perspective; build trust, safe, confirmative, non-threatening, but challenging atmosphere for learners, create an enriched complex learning situation, provide meaningful, significant and realistic experiences, offer choices in activities, give learner time and possible opportunities to process and reflect on what they are experiencing and learning, etc.

### 5.3.1 Exploration

One of the students narrated that “observing things in their natural habitat is different than just watching them in television. It made me more curious about how things happen as they are.” Another student said that the activity in the exploration phase are more multisensory in nature and “exploring with other learners as a group was fun, exciting and memorable.” The observation and learning guide given by the professor at the start of the exploration, as mentioned by one of the participants “helped us focus our learning but there are instances where we went beyond the limit because of curiosity and inquisitiveness.”

Collaboratively, the learners look at the phenomenon and according to some learners, “made them see the relationship of things, understand why they happen, and reason out for cause-effect cases.”

Dano-hinosolango and Vedula-dinagsao (2014) cited that students become responsible on their own learning if they will be given the chance to explore the phenomena, interact and be engaged in their own learning process. For experiential learning, students have the chance to become active participants in the learning process by providing them with authentic activities to become responsible learners. Much of the works on experiential learning is actually about learning from primary experience that is learning through multisensory experiences.

According to the empiricist theory of science, true knowledge is based on perceptions. With his senses an unprejudiced observer can make unbiased perceptions of reality. These can be presented in the form of elementary observation statements; sometimes called “protocol” statements. These statements form a foundation for true knowledge. Following the rules of formal logic, it is possible to develop laws and theories from these statements (induction). From these laws and theories, in turn, one can infer new propositions and forecasts concerning reality (deduction) that can be tested empirically, that is, to show their correspondence with unbiased observations as mentioned by Miettinen.

This initial phase helps the learners to see the big picture perspective: Experiential activities must allow the students to make connections between the learning they are doing and the world by observation and exploration. It builds in students the ability to see relationships in complex systems and finds a way to work within them.

### 5.3.2 Research

The Research phase involves cooperative learning, information-seeking activity, and evidenced-based learning. Though research involves exploration, this process requires complex pattern of thinking to explain things scientifically. It links man’s perception to reality, solves problems in scientific manner, establishes theory, explains phenomenon with empirical evidence and analyzes topics critically and analytically.

One participant said that the interesting in this phase is when they were allowed to further gather evidences and information about the topics. “Together we went to the library to read about the topic assigned, we brainstormed and we interviewed experts to gather pertinent data.”

This phase of the model promotes further experiential learning by providing students with opportunities to critically engage in learning – that is, providing them with a deeper and more meaningful understanding of theoretical knowledge within and beyond the textbook. A participant stressed that researching also need mentoring and guided navigation of the realities of the phenomena.

The phase also allows reflective practice. As cited by Roland (2017), experiential learning is for the development of a thoughtful, personal commitment to professionalism through reflective practice – intrinsically, through reflective practice, students become agents of their own learning characterized by a meta-cognitive awareness of their development as novice professionals. One responsibility of educators is to recognize that experience should lead to growth, not only to be mindful of the general principle of the shaping of actual experience (Gross & Rutland, 2017).

### 5.3.3 Interaction

As observed, research result was presented and involving them to talk about what they have known or experienced. This prompts avenues for students to talk more about their prior

knowledge and new discoveries. In this phase, teacher may integrate more cooperative learning activities for students to share with their peers. Even if they are not called in the class, there will still be an opportunity to express oneself through small group sharing. It has been shown also that giving enough time for the group learning in the classroom gives more effective outcomes. As viewed by one participant, sharing knowledge and perspectives with other learners is a key element of developing collaborative practice.

Learners should be able to reflect on their personal learning, bringing the “theory to practice” and gaining understanding into themselves and their interactions with the world.

Constructivist theory explains how students construct meaning by linking existing knowledge with new information. Active interaction among the learners themselves and between the learners and the teacher as well as with other members of the community is highly encouraged to enhance construction of meaning or learning. There is a good exchange of information and learning experiences allowing the students to discover, explore and experience skills and strategies in learning.

This phase emphasizes a variety of different activities that shifts the role of the instructors from providers of information to facilitating student learning. It includes specific strategies like cooperative learning strategies, brainstorming, reflective learning, active discussion, etc. When a classroom operates with learner-centered instruction, students and instructor share the focus and interest. Instead of listening to the teacher solely, students and teacher interact actively. Group work is encouraged, and learners collaborate and communicate with one another. It creates a safe space for learners to work through their own process of self-discovery and absence of excessive judgment.

#### 5.3.4 Creation

Some participants revealed that their learning retention becomes more concrete and significant as they move from one phase or experiential learning mode to another throughout the learning model until creation phase.

Viewed from an experiential learning lens, developing and enhancing learner engagement involves exploring ideas and reflecting on this learning, as well as learning from others’ experience and shifting points of view to synthesize and create new knowledge and understanding (2014).

At this phase, it is important that students know how to learn. The focus of project-based learning environment is that teachers serve as the facilitators of learning. With this, students apply their knowledge and skills in varied contexts and situations that includes making use of the resources available for them. The creation phase is just apt for students to make them learn by doing by simply working on a project. It is here where students are engaged and involved in their learning process so that they can adapt or apply the skills and strategies they have learned. Laguador and Camello (2013) said that the learners must take part on many challenging roles of designing plans and implementing the programs that would give them the sense of leadership and ownership of their achievements.

Creation is engagement in purposeful endeavors. It highlights that the learner is the self-teacher, therefore there must be “meaning for the student in the learning.” The learning activities must be personally relevant and significant to the student (Chapman, McPhee, & Proudman, 1995).

Learning is enhanced when students are given the opportunity to function outside of their own perceived comfort zones both to physical and social environment, and being accountable for one’s actions and owning the consequences.

Table 2. Sample Performance Tasks of Students in the Different Phases

ERIC Learning MODEL	Environmental Science	Ecotourism
	Ecological Relationship	Wildlife Tourism
Exploration (Observation and multisensory learning)	Visit the garden, pond or river bank. Observe how organisms interact/relate to one another.	Tour the Zoobic Zafari. Observe the behavior of caged animals (tigers, birds, reptiles, etc)
Research (Cooperative and collaborative learning, Information-seeking, Evidence-based learning, Reflective Practice)	Each group will write a research paper on a specific relationship observed (example, interaction of butterfly and flowers, fish with another fish, etc.). Watch video clips for additional information.	Each group will be assigned to write a research paper on the behavior of one particular animal in its natural environment and compared it to what they have observed. They could go back to the place to interview caretakers, authorities on wildlife animals.
Interaction (Cooperative Learning, Brainstorming, Reflective Learning)	Report the results to class. Discuss with other groups. Write individual reflections. Sharing of reflections. Synthesis of the topics follows.	Report the results to class. Discuss with other groups. Write individual reflections. Sharing of reflections. Synthesis of the topics follows.
Creation (Project-Based, Engagement, Evaluation)	Teacher will assign project. (Example, construction of terrarium/ aquarium, fishpond, school guidelines on garden management, etc.)	Teacher will assign project to each group. (Example, training young kids on wildlife behavior, training module on animal handling for caretakers and tourists, conservation of wildlife animals, comic strips on wildlife behavior, etc.)

## 6. Attitude of Students towards Learning Environmental Science and Ecotourism

The survey result showed that students enrolled in Environmental Science strongly agreed that because of using the ERIC Learning Model as strategy in learning, the lessons became easy for them in which they learn concepts without fear or anxiety; their self-confidence in working and learning with others was boosted; and their motivation, interest and enjoyment in learning the course was developed. They only agreed that the Model helped them learn the concepts and topics easily and that the course is important in everyday life.

On the other hand, students enrolled in Ecotourism course strongly agreed that because of the Model as strategy in learning, the lessons became easy for them; their self-confidence in working and learning with others was boosted; they felt comfortable and confident in answering questions and problem-based activities; and their motivation, interest, satisfaction and enjoyment in learning the course was developed. They agreed that it helped them develop

the mind and taught them to think as well as it helped them realize that the course is a very worthwhile and necessary subject.

Overall, they developed a positive attitude towards their courses.

Table 3. Attitude of Students towards Learning Environmental Science and Ecotourism as a Result of Using the ERIC Learning Model

Attitude	Environmental Science		Ecotourism	
	Mean	VD	Mean	VD
<i>The strategy used (ERIC Learning Model):</i>				
Makes me realize that the course is a very worthwhile and necessary subject.	3.76	A	3.83	A
Helps me to develop the mind and teaches me to think.	3.54	A	3.96	A
Makes me realize that the course is important in everyday life.	3.92	A	3.76	A
Makes me feel a great deal of satisfaction out of studying the course.	3.84	A	4.27	SA
Develops my enjoyment in studying the course	4.26	SA	4.36	SA
Makes me really like the course.	3.66	A	4.03	A
Makes me happier in the class than in any other class.	3.46	A	4.11	A
Develops my motivation and interest in learning the course.	4.27	SA	4.32	SA
Makes me comfortable and confident in answering questions and problem-based activities.	3.58	A	4.21	SA
Makes the lessons easy for me.	4.32	SA	4.36	SA
Boosts my self-confidence in working and learning with others in the course.	4.28	SA	4.22	SA
Helps me learn concepts and topics without fear or anxiety.	3.95	A	4.28	SA
<b>OVERALL</b>	<b>3.90</b>	<b>A</b>	<b>4.14</b>	<b>A</b>
<i>Legend for Verbal Description (VD)</i>				
<i>A = Agree</i>		<i>SA = Strongly Agree</i>		

The use of the model enhances student engagement and thus results to more authentic learning, enjoyment, interest, motivation and confidence. It provides opportunities to learn the skills as well as values necessary to effectively navigate the realities of the topic or phenomena; it provides opportunities for students to develop a personal commitment to self-and group learning with reflective practice; and it emphasizes on the importance of theory and ideas, as well as emphasis on the importance of experience and reflection in development of values and positive attitude.

## 7. Conclusions and Recommendations

The way or how teachers teach creates impact on the progress of child's learning and well-being. The teacher is encouraged to become more learner-centered in his or her teaching employing experiential learning strategies embedded with constructivist- and project-based activities. The use of ERIC Learning Model ensures that the students master their learning skills and strategies because teachers can provide more opportunities for the enhancement of

the learning skills and strategies to make them learn by doing. It ensures student-centered, constructivist-based, project-based, experiential, multisensory, reflective, participatory, interactive, cooperative, collaborative and active learning. It is very important that students are engaged and involved by exploration, research, interaction and creation so that they can adapt the skills and strategies for them to become responsible learners and lifelong learners. There was a significant increase in the performance of students as well as develops more positive attitude towards the topics.

Further use of the model in other field of specialization or topics for validation is necessary. Teachers could be trained in adopting and testing the model.

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## LANGUAGE TEACHER IDENTITY CONSTRUCTION OF FOREIGN LANGUAGE TEACHING ASSISTANTS

### Research Article

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### Abstract

Language teacher identity has been studied in several contexts in English Language Teaching (ELT) field; however, looking at language teacher identity in a United States context in which teachers from other countries teach their native languages as a foreign language has been a rare topic so far. Therefore, this phenomenological qualitative study investigated the lived experiences of four foreign language teaching assistants who lived and taught in the United States through Fulbright Foreign Language Teaching Assistant (FLTA) Program. The findings indicated four main emerging themes: (a) pedagogical shift, (b) cross-cultural awareness, (c) challenges, and (d) goals and expectations. These dynamic components shaped language teachers' identity in this context. The results are presented under the framework of language teacher identity. Implications as a guide for future FLTA teachers and for teacher exchange programs are provided.

*Keywords:* language teacher identity, pedagogical shift, challenges, goals and expectations

### 1. Introduction

The initial concept of identity dates back to the Greek philosopher Socrates and his advice to the citizens of Greece “know thyself” to urge them to reflect on themselves (Rowe, 1999). As the concept has been studied for a long time, there are many explanatory definitions going beyond merely knowing oneself. For instance, Norton (2013) defined identity as “the way a person understands his or her relationship to the world, how that relationship is constructed across time and space, and how the person understands possibilities for the future” (p. 4). For

decades, scholars have been investigating numerous aspects of identity including education, which takes us to the concept of teacher identity. Duru (2006) highlights the necessity of examining teacher identity to gain an impression of traditional teaching and “to create, and reconstruct the possibilities for the new educational reforms, programs, paradigms, and change educational processes for a better life” (p. 121).

The concept of teacher identity is worth studying in multicultural contexts and some exchange programs such as Fulbright Foreign Language Teacher Assistant (FLTA) Program or Erasmus and Comenius teacher exchange programs are important sources providing language teachers with reflecting on their teacher identity in multicultural contexts. Being one of these important programs, the Fulbright FLTA Program is sponsored by the United States government and binational partnerships with foreign governments. Within this program, foreign participants exchange in various areas, “including the sciences, business, academe, public service, government, and the arts and continue to increase mutual understanding between the people of the United States and the people of other countries” (Bureau of Educational and Cultural Affairs, 2019). FLTAs are the participants who teach their native language in a foreign context. For example, Turkish teachers whose expertise is teaching English and whose native language is Turkish are chosen by the Fulbright FLTA committees and teach Turkish in the United States. In the context of the present study, FLTAs refer to the instructors who taught their native languages at tertiary level in the United States. These instructors stayed in the US for about nine to 10 months in the 2016-2017 academic year.

The present study is a small-scale phenomenological study investigating the professional identity (re)formations of four non-native FLTAs through academic and social challenges they experienced while teaching their first languages (L1s) in an English-speaking country. The purpose of this exploratory study is to have a deeper understanding of the lived experiences of FLTAs by delving into their socialization processes and challenges both common and unique to each participant. In the field of applied linguistics, it would not be difficult to find studies on teacher identities, yet there is scarcity in research on teachers of foreign languages teaching their L1s without specific training (Ghanem, 2018).

This current study might be useful for prospective teacher candidates, especially the ones who are planning to become FLTAs and teach their L1s abroad. The study may also contribute to foreign language teaching by offering a perspective on teaching practices along with socialization issues. Additionally, the findings of the study might lead to further research focusing on the lived experiences of teachers of their native languages and "NonNative" English Speaker Teachers (NNEST). The present study addresses the following research questions:

1. What are the lived experiences of FLTAs during their stay in the United States?
2. How does knowing how to teach a language (e.g., knowing how to teach English) influence teaching another language (i.e., native language)?
3. How does the change in the environment (students, colleagues, and socialization and adaptation processes) affect teachers' professional identity?

## 2. Theoretical Framework and Literature Review

Teacher identity is a dynamic phenomenon that teacher candidates start to develop while they study in teacher education programs. The process of teacher identity development continues throughout a teacher's career. In other words, as Beauchamp and Thomas (2009) state, "identity shifts may occur throughout a teacher's career as a result of interactions within schools and in broader communities" (p. 175). Internal factors such as emotions (Rodgers &

Scott, 2008; Van Veen & Slegers, 2006; Zembylas, 2003), and external factors such as job and life experiences in particular contexts (Flores & Day, 2006; Rodgers & Scott, 2008; Sachs, 2005), and changes in the environment (Beauchamp & Thomas, 2009; Wu, 2003) have great influence on teacher identity shifts.

There are some research studies focusing on the effects of the social, cultural and professional changes on language teachers' identity (e.g., Beijaard, Verloop, & Vermunt, 2000; Duru, 2006; Varghese, Morgan, Johnston, & Johnson, 2005; Hong, 2010; Rogers & Scott, 2008; Uzum, 2015). Yazan (2018) also examined teacher identity and defined it from five points of views:

- (1) teachers' own beliefs and perceptions of themselves as teachers;
- (2) others' expectations and social positioning;
- (3) its dynamic and evolving nature;
- (4) (re)construction of identity in social contexts and interactions;
- (5) teachers' commitment to, participation and investment in the profession. (p. 27)

These all are intertwined in shaping the professional identities of teachers. Language teachers' identity, on the other hand, are also affected by the language they use in teaching the subject area, and by being a native or non-native speaker of it. Synthesizing this information, Yazan introduced a conceptual framework for language teachers' identity that is comprised of six main components: teacher's learning, teacher's cognition (i.e., beliefs, perceptions, and attitudes about teaching), teacher's participation in communities of practice, contextual factors, teacher biographies (i.e., background), and teacher emotions.

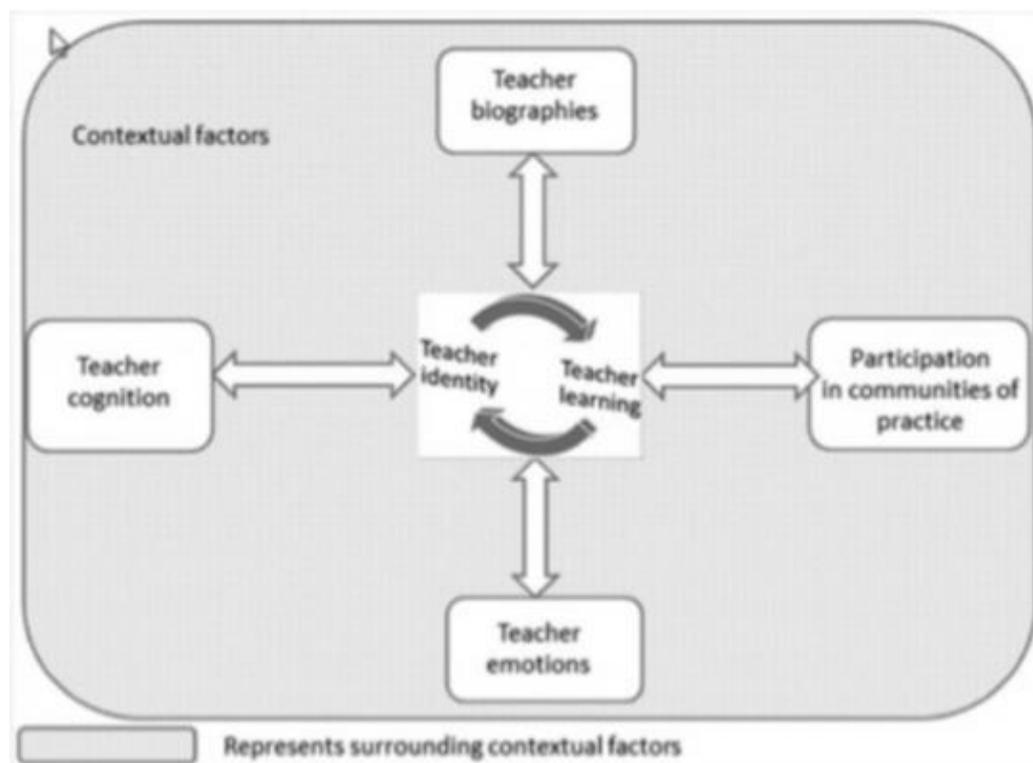


Figure 1: Yazan's (2018) illustration of his conceptual framework for language teacher identity.

In this regard, teacher learning refers to a type of learning that is socially constructed and emerges as a result of teachers' including themselves as the members of a learning community that includes students, curriculum, teacher educators, colleagues as well as the

tasks and activities that teachers create. Teachers are a part of this dynamic system and learning is continuous. In this continuum, teachers adapt and adopt different roles, negotiate with other teachers and their students and find and use resources that they could help both themselves and their students.

On the other hand, teacher cognition refers to teachers' systematic patterns in their "beliefs, knowledge, theories, attitudes, images, assumptions, metaphors, conceptions, perspectives about teaching, teachers, learning, students, subject matter, curricula, materials, instructional activities, self" (Borg, 2003, p. 82). According to Yazan (2018), teacher cognition covers most of the learning and teaching forms. These forms are mainly "unobservable mental dimensions" (Borg, 2009, p. 163). As teachers are involved in more teaching practices and negotiate with others around them, including students, colleagues and mentors, what they do in class is shaped by what they believe and know, and what they negotiate with others around them. This is similar to a recycling procedure.

Furthermore, "participation in communities of practice" component of the language teacher identity framework originates from Lave and Wenger's (1998) "communities of practice." It refers to teachers' practices within the community that they construct with their students and their mentors. In these communities, language teachers actively participate in the socially constructed activities, and as a result, their identity and the values they assign to the tools (e.g., language) change dynamically. In addition, contextual factors in language teacher identity framework act as an encapsulating element for the other components because context in which teachers teach languages may change the materials they use, the way they teach, the values they assign to objects. Regarding this component, Yazan (2018) stated, "teacher identities are configured and reconfigured as they utilize the resources and discourses in these contexts, interact with their colleagues and students, and navigate the system of activities."

Teacher biographies are also important in the construction of language teacher identities. Teachers' past experiences and their preconceived ideas about the culture they will be teaching or about the people of that culture affect teachers' future acts while teaching. Teachers' past experiences cannot be separated from the language they teach, use and learn. According to Yazan (2018), "the interaction between teachers' biographical trajectories and their current self-images illuminates our understanding of how L2 teachers develop and enact their identities as they traverse the activities of initial teacher education." Last, teacher emotions are as important as other components because learning how to manage a variety of emotions help teachers manage the situations they encounter while teaching. They may encounter serious emotional incidents in class and knowing what to do in each situation helps them develop their teacher identity.

Overall, being a language teacher who teaches his/her native language in another culture or country is directly related to language teacher identity shifts and challenges experienced in that culture. These shifts are dynamic and can be considered under language teacher identity framework that puts teachers in the middle of the components mentioned earlier. Language teacher identities are (re)constructed based on many factors and interactions or negotiations. Thus, with the guidance of the previous studies to be mentioned in this section, and within the framework by Yazan (2018), this paper aims to investigate how the changes in the environment (students, colleagues, socialization process, and adaptation process) and the challenges they pose affect a teacher's identity in an FLTA context.

Regarding teachers' professional identities, Song and Gonzales Del Castillo (2015) investigated the professional identities of five NNESTs as classroom teachers in the U.S. The framework for this study included three areas of professional identity formation that are

linguistic competence, cross-cultural competence and pedagogical competence (Varghese et al., 2005). The researchers empowered the NNESTs by enabling them to reflect on their professional identities. The participants were from different countries such as Bosnia, China, Korea, and Russia. They all came to the U.S. as adults and had accents. The interviews showed that the participants' perceived linguistic strengths were being bilingual and/or multilingual, their ability to use L1 for explanations, being able to understand various accents, and having cognitive intellectuality. However, academic writing, colloquial language, fluency in speaking, their accents, and intonation were the linguistic challenges for them. For cross-cultural competence, their perceived strengths were being open-minded to other cultures, establishing a better rapport with learners, and being a role model for them. The main challenges were being self-conscious about mistakes, teaching native speaking students, and having limited resources and exposure to English language and culture. For pedagogical competence, NNESTs and NESTs do not differ much in terms of instructional strategies, according to the participants. However, preparing contextual resources relevant to the local culture might be a challenge for NNESTs.

Furthermore, Ghanem (2018), in her study, delved into the identity construction of eight German language assistants at a southwestern university in the United States. The main investigation was on how they developed their identities, how the developed identities impacted their actual teaching, and how they identified themselves as teachers of German. Descriptive and qualitative designs were employed. And the data were collected through three questionnaires, field notes of classroom observations, three self-reflective journal entries, focus-group interviews, and semi guided interviews with each participant. After the data analysis, several themes emerged including self-image, role of students, function of instructional context, and motivation for teaching. These themes were categorized in three emergent themes, instructional content, interpersonal relationships, and intrapersonal factors. Regarding the instructional content, the main findings were that being a teacher is more than just explaining what is written in textbooks. Language instructors should be aware of the news, and the culture in its current form to talk about them. The culture is vivid and staying informed is necessary to convey it as its true form. Emergent terms, in terms of their self-images, were working relationship with the learners, reaching, and interaction. Their learners' progress in the subject matter was central to their work. Mostly, they described their duty as being a facilitator and mediator of information. The last theme, intrapersonal factors, included motivation for teaching and their self-perceived roles as teachers. Despite the variety, mainly motivation theme was connected to excitement shown by the students and participation in the classroom. The latter was associated with the responsibilities, staying current with the culture, and the level of formality in the classroom. The study suggested that the identities of foreign language graduate teaching assistants should not be ignored in their education, including confidence and authority. Along with the identities, other concerns have focused on departmental expectations, continuous teacher training in their departments, and collaboration with fellow teachers.

Furthermore, Mutlu and Ortaçtepe (2016) investigated the identity (re)construction of five foreign language assistants who attended FLTA program. They focused on the shift from being a non-native English language instructor to being a native Turkish instructor in accordance with their image of themselves and their beliefs about teaching/learning a language. In the data collection process, the participants were asked to write journals on a regular basis and semi-structured interviews were employed for further investigation. The findings of the study shed light on how the shift in the role of being a teacher affected teacher identity and native versus non-native teacher dichotomy. First, while teaching Turkish as a native speaker had a positive influence on the participants' self-image, their self-efficacy was

found to be higher when teaching English as a non-native speaker. The reason behind this finding was teachers' "idealization of native speaker norms" (Mutlu & Ortaçtepe, 2016, p. 566), which means that being a native speaker teacher is considered an asset in teaching a language. Second, it was revealed that teacher identity is in flux, and there is a continuous interaction between the participants' native Turkish teacher identity and non-native English teacher identity. Last, their beliefs about teaching/learning a language played an important role in their identity (re)construction. Although they believed that being a native speaker or having a native-like proficiency was a desired feature, they emphasized the necessity of being trained to teach the language more efficiently because they found the experience of teaching their native language challenging due to lack of training; that is, they did not know how to teach Turkish although they are proficient users of the language. The results of the study revealed the necessity of teacher training in language teaching programs to eliminate some of the challenges encountered by both native and non-native teachers.

In another context, Trent (2014) investigated how a group of teaching assistants in Hong Kong schools build their identities, what limits and allows them in these processes, and how the variety of beholders would support this work of identity. The framework adopted in the study (Varghese et al., 2005) concentrated on the role of practice, language and discourse while investigating identity. The participants were nine English Language Teaching Assistants (ELTAs) from different schools in Hong Kong; 18 students of these ELTAs, and nine English language teachers working with these ELTAs. The data were collected through in-depth semi-structured interviews with ELTAs and other participants in the study. The findings indicated that the participants mostly considered ELTA program as a transition process towards being a 'full teacher' (Trent, 2014), yet some of the participants critically questioned their future decisions in becoming a teacher. The author emphasized that the authorities are supposed to reconsider the identity positions of these teachers to continue to appeal them within Hong Kong schools.

Furthermore, Saraç (2010) focused on Turkish FLTAs' experiences in teaching their native language in the United States, especially dwelling upon their knowledge of how to teach Turkish grammar. For this purpose, Saraç (2010) collected data by employing semi-structured interviews with five alumni language assistants. The results revealed that there is a consensus among participants about the 'ideal way' to teach grammar. All the participants stated that authentic and meaningful language input need to be given to the learners while presenting the target structures, and the input should be as communicative as possible for teaching the language efficiently. Besides, four themes emerged as features of how to teach grammar more effectively, namely being "communicative, interactive, task-based, and learner-centered" (p. 75). However, the participants claimed that lack of enough reference materials for teaching Turkish as a foreign language was one of the most challenging part of their experience as a language assistant.

## 2. Methodology

A phenomenological research design is employed to depict the original lived experiences of participants while conducting this current study. The main perspective feeding phenomenological research is that our experiences hold our true knowledge of the environment surrounding us because delineating and interpreting these experiences is the main duty of a researcher (Cohen, Manion, & Morrison, 2018). To be able to touch upon the shared essence of several individuals commenting on one shared phenomenon, Moustakas' (1994) modification of the Stevick-Colaizzi-Keen method of analysis of phenomenological data was used. As suggested by Moustakas (1994), to avoid bias and prejudice, the 'Epoche', freedom from suppositions, was adopted. Phenomenological reduction provided the

researchers with the perspective to see the phenomenon through the eyes of the participants, along with bracketing, which indicates mere focus on the research, and horizontalizing and deeming initially each statement as equal. And as imaginative variation suggests, possible meanings were sought. While analyzing the data, each statement weighed for their significance, and non-overlapping statements were listed. Individual statements were synthesized and combined as the themes emerged. As stated by Creswell (2007), breaking down the experiences of several participants and combining them in a single phenomenon by their universal themes is what phenomenological research design aims at.

## 2.1. Setting and Sampling

The participants in the current study were four non-native EFL teachers from different countries who participated in FLTA program funded by Fulbright Commission in 2016-2017 academic year (see Table 1). The participants worked as language assistants at various universities in the United States, teaching their native languages to the students for almost a year. Then, they returned to their home countries. Convenience and purposive sampling were used while choosing the participants. All four participants attended the program in the same year and returned to their home countries in 2017. The rationale for choosing participants who attended the program in the same year is to minimize potential recall bias as different timeframes after the program might cause issues with recalling the events, and history effect such as political factors as there was election rally in that specific period. Furthermore, the participants were chosen from different countries in order to see similarities and differences in their perspectives.

Table 1. *Participant Descriptions*

	Age, Gender	Ethnicity & Country	L1	Degree	Role	Teaching Style	Data Source
Participant 1	28, M	Turkish & Turkey	Turkish	BA in ELT	Primary teacher	Flipped classroom, online and face-to-face teaching & primary teacher	Unstructured Observation Semi-structured Interview (20 + 30 min. face-to-face)
Participant 2	28, F	Russian & Russia	Russian	BA in Linguistics	Assisting teacher	Face-to-face teaching	Semi-structured Interview (30 + 25 min. Skype)
Participant 3	30, F	Filipino & Philippines	Tagalog	BA in English MA in ELT	Assisting teacher	Face-to-face teaching	Semi-structured Interview (45 + 20 min. Skype)
Participant 4	40, F	Vietnamese & Vietnam	Vietnamese	BA in ELT MA in Applied Linguistics	Primary teacher	Flipped classroom, online and face-to-face teaching & primary teacher	Semi-structured Interview (40 + 20 min. Skype)

Participant 1 and Participant 4 worked as the main language teachers at the host institutions because there were no other teachers teaching their L1s. However, Participant 2 and Participant 3 assisted the main language teachers as language assistant to teach their L1s (see Table 1). As a primary teacher, Participant 1 taught Turkish to five first-year students two hours a week online and one 3<sup>rd</sup>-year student one hour a week face-to-face. He held four hours of office-hours weekly for his students so that his students could come to his office to ask questions and get any help with Turkish. He mostly used flipped classroom style and also developed online materials. On the other hand, Participant 2 taught Russian as a language assistant because there was already one Russian teacher in her host institution. She had one 1<sup>st</sup>-year student and one 2<sup>nd</sup>-year student in her classes. Both students learned Russian separately for one hour a week. Besides these, she held weekly conversation club hours and study sessions besides four hours of office-hours every week. She gave importance to the connection between culture and language, and therefore, organized cultural events that focused on Russian holidays.

Furthermore, Participant 3 taught Tagalog to two students three hours a week as a language assistant. She held conversation hours for two hours a week. She did not have any online classes but she developed online materials based on the request from the host institution. In addition, she held four hours of office hours every week to help her students. Lastly, as a primary teacher, Participant 4 taught Vietnamese to 21 1<sup>st</sup>-year students and 2 2<sup>nd</sup>-year students in a flipped classroom style. She developed online materials and held one hour of virtual classes a week for both of her classes. Besides these, she held four hours of office hours a week to help her students outside the class.

## 2.2. Data Collection and Analysis

Before the actual data collection process, doing field observations is usually useful to become familiarized with the research setting and participants (Creswell, 2007). However, in this specific context, conducting field observations for each participant was not feasible because the participants reside in distant countries and they already returned to their home countries. For this reason, the researchers first had a short informal chat with one participant, which enabled them to further refine their interview questions. After getting the Institutional Review Board (IRB) permissions and informed consent of the participants, the semi-structured interviews were conducted either face-to-face or online, and all interviews were video-recorded (see Appendix A). In total, two interviews were conducted with each participant. In other words, since the data did not reach the saturation level, the second interviews were conducted with each participant after the first ones. The second interviews were 3 weeks apart from the first ones. Each interview took approximately 30-40 minutes, and each was conducted by two researchers from the research team (see Table 1). After each session, the researchers transcribed and crosschecked the data. The participants were given pseudonyms to ensure anonymity in reporting findings.

In order to ensure trustworthiness during the data collection and analysis stages, several methods were utilized. First, after each interview, the emerging themes and findings were compared with the previous ones so that the data were constantly compared, and themes were reorganized when necessary. In order to make sure that the data were accurate, the transcriptions were checked by the participants and the researchers. With the help of this overview process, the imprecise or inaccurate pieces of data were corrected. Furthermore, to increase reliability and objectivity even further, the analyzed data and findings were crosschecked by another researcher; consequently, the researcher bias threat was eliminated as much as possible. Making use of constant comparison, member checking and external audit, the trustworthiness of the study was guaranteed.

### 3. Findings

At the end of the analysis, the findings were categorized under four emerging themes, which will be explained in detail below. These themes are (a) pedagogical shift, (b) cross-cultural awareness, (c) challenges, and (d) goals and expectations. The themes were elaborated with various sub-categories as demonstrated in the following diagram:

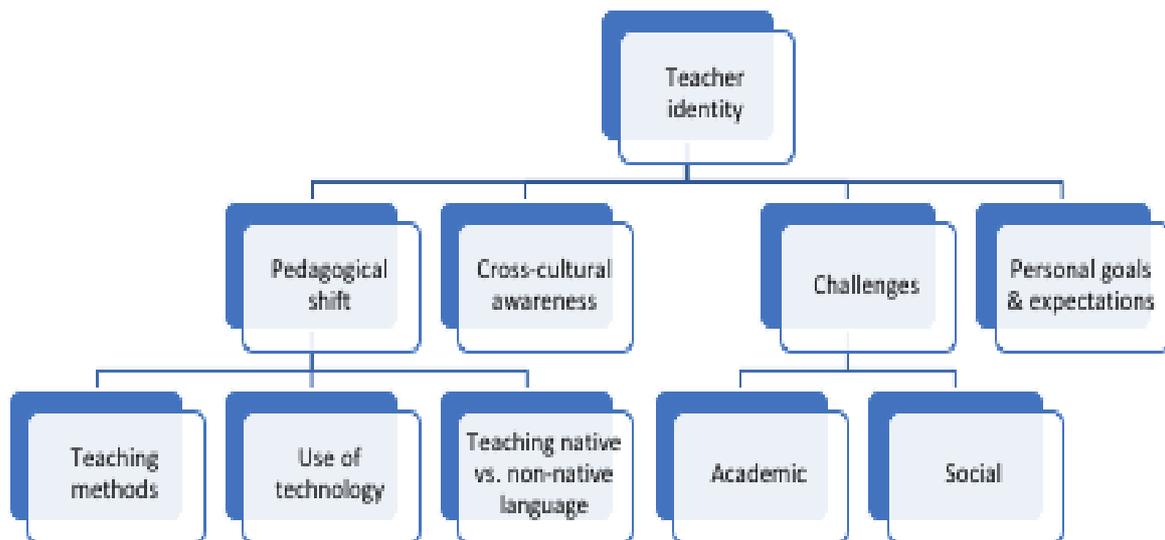


Figure 2: Components of FLTA Program Teacher Identity

#### 3.1. Pedagogical Shift

##### 3.1.1. Teaching native language vs. non-native language

The similarities considering the shift in the language taught are usually related to emotions in the classroom regarding both contexts. Only one participant did not mention her affective state, yet the rest of the participants stated that their attitudes in the classroom were one of the elements they brought with them. One of the participants stated that he was cheerful in both contexts, and another two mentioned their supportive nature and good rapport that they could provide while teaching both languages. Participant 2 suggested that her rapport resulted in learners' feeling more confident while asking questions. In addition, Participant 4 was always a dedicated and supportive teacher along with her adaptive nature towards learners' needs. Nevertheless, she added that she felt the urge to become more serious while in American context. As seen in the examples, the teachers' affective states have been reported as the main trait they keep in both teaching contexts with little exception.

The linguistic competence as a result of being native speakers of the language they were supposed to teach was a bit more intriguing. Although they are native speakers in the FLTA context, most participants stated that they had to study the linguistic forms beforehand so that they would be more competent while answering learners' potential questions. Participant 4, on the other hand, indicated that she did not have any problems while teaching her native language since she was an expert in that language. She could also focus on the advantageous

sides of being a non-native English teacher. She mentioned that her non-native pronunciation actually helped her since she could understand the potential problems her students may encounter. Moreover, she suggested that learning grammar from a native English speaker could be difficult for the students, and she could present grammar rules in Vietnamese if the learners keep having difficulties. However, she stated that she had problems while teaching English for specific purposes (ESP) courses for Vietnamese medicine students while the other participants had little or no problems in teaching English. It can be inferred that the effect of being a native speaker might not always yield positive consequences in different contexts as seen in the comments of the participants.

Confidence is another component that teaching one's native language brings along. Participant 4 reported, "I have resources and necessary knowledge of Vietnamese," indicating that she had no problems in Vietnamese language. Also, she added that she represented the current state of the language and she could teach idioms and colloquial language more effectively. Participant 2 demonstrated her confidence by saying:

*But, of course, when I am producing any texts in English, there is a certain level of insecurity as I am not a native speaker and even if it sounds right to me it might be wrong. And in Russian well still can be wrong but most probably if I think it's right, it is right.*

Participant 1 indicated some issues regarding the order of structure while teaching, yet he implied the expertise which originated by being a native speaker of the language that is being taught. Participant 3 slightly differs in the competence since her context synthesizes both languages. She mentioned that English was not considered as a foreign language and used as medium of instruction in schools, along with constant code-switches between English and Filipino. Unlike the previous statements, however, Participant 2 claimed to be more confident in teaching English since she learnt the rules, but acquired her native language. This particular finding is also parallel with Mutlu and Ortaçtepe's (2016) findings on teacher identity.

### 3.1.2. Teaching methods

The FLTA experience left both similar and different traces in the participants in pedagogical sense. Although they mostly stated that teaching their native and nonnative language do not differ in pedagogy, and that they could apply the training they had in English to the new context, all participants agreed that FLTA influenced their teaching style and helped them refine their methods. Before starting the program, the FLTAs got an orientation training, which helped them adapt to the new students in the US context. What is more, for Participant 4, the program enabled her to conduct more communicative and interactive classes in her home country, where grammar translation method is more common. In a similar vein, Participant 1 also claimed that teaching in a different context helped him be more inclusive with his students. For Participant 1 and 3, teaching their native language to beginner level students also raised their awareness on the importance of diversifying their teaching methods and adapting their technique to the level of students.

### 3.1.3. Use of technology

Another emerging theme was related to the familiarity with technological tools in teaching practice. Participant 4 improved her technology skills by getting familiar with flipped classroom and other online tools for teaching and learning. She had to learn everything about it from scratch because they did not have that technology in Vietnam. She spent some weeks to figure out the details of the online system and how to support students in case of a technical problem. Even though technological facilities were limited in her home institution,

she now engages her students in online platforms more, such as Edmodo, so that her students could come to class prepared in advance. Participant 1 also had some new experience in online teaching through Learning Management Systems (LMS) because most courses were conducted online during his teaching practice in the United States, and he still uses them.

### 3.2. Cross-cultural vs. Intracultural Awareness

None of the participants had lived abroad for nearly a year before the FLTA program; therefore, they had a chance to experience the target culture and to learn more about the lifestyle there while introducing their own through extracurricular activities. Participant 2 encountered different understandings of privacy and student-teacher relationship while living in a tight community in the US. In her home country, privacy was more important and teachers' relationship with students was more formal and distant. However, it was the opposite for the place she lived in during FLTA. On the other hand, Participant 4 claimed that living in the United States helped her to act as a bridge between the Vietnamese students and American culture, and to inspire them for studying abroad. She also ended up changing some of her views on American people. To illustrate, she stated that Vietnamese people generally think that the American look down on the Vietnamese because of the history between the two countries. However, during her stay in the US, she realized that it is not true. Another surprising cultural aspect for her was the experience with heritage learners:

*Actually, at first, I thought that the Vietnamese are the same everywhere. But then I found out that, for the Vietnamese people living in America, they are just like American. They are not Vietnamese anymore because they were born in America and grew up there... then they have the way of thinking and lifestyle just like an American.*

The only similarity between Participant 4 and her Vietnamese heritage learners in the United States seemed to be the language they speak, and almost nothing else.

However, one common point with the heritage learners in the United States and the Vietnamese was the political aspect of the north and south relationships in Vietnam. Her heritage learners are from the south while Participant 4 is from the north, and the two regions have distinct accents. According to Participant 4, "Southern people often blame northern people for destroying their lives during the war. They didn't want a teacher from the north." She thinks political reasons were the underlying reason for the learners' resistance to her teaching. The issues in the home country could be brought up in a completely different context. In that sense, Participant 4's specific experience with these learners might have raised her intracultural awareness, as well.

### 3.3. Challenges

#### 3.3.1. Social challenges

The first social challenge experienced by Participant 1 is the adaptation problem. He thinks that it is mostly because of the ideas of a wide variety of people living there. Before moving to the United States, he had felt that he would blend in easily. However, afterward, he felt a lack of confidence and thought that he was not very developed, both socially and professionally. The second challenge was understanding different behaviors in daily life. He clarified the situation by giving a specific example: "I had problems meeting people after about two or three months. They do not insist as Turkish people do, so it was challenging to understand that".

According to participant 2, there were some cultural differences between Russia and the United States, but nothing was a big problem for her. It could be inferred from her statements that privacy is the most apparent social challenge she faced:

*I think we have a higher level of privacy here in Russia. I don't know, I've never been to any professors' house, or none of my students' have visited my apartment. And students live in a dorm and also Moscow is such a huge city so like you have a certain level of privacy and anonymity here. School life and private life are separated.*

Participant 3 and 4 found cultural differences challenging, as well. Participant 3 reported that straightforwardness of Americans was challenging. She also added that she had difficulties in meeting her boss's expectations and figuring out how to approach her. As for participant 4, she uttered a similar social challenge to the one Participant 1 faced, which is understanding different behaviors in society. She thinks that she had this problem because of her age. She was forty when she moved to the United States. She stated that she had some preconceived ideas and thoughts in her mind, and American people did not behave in the way she thought. For instance, once, she got into trouble with one of her students and her supervisor because of a joke she made because making jokes about people is very common in Vietnam, but American students might get offended.

### 3.3.2. Academic challenges

The typical academic challenge that participant 1 and 2 faced was the linguistic characteristics of the native language. Participant 1 specified his thoughts on it as:

*I had not thought Turkish before, I thought it would be much difficult, but in the end, even though I had to work more before the classes to understand how it worked because I did not know grammatical rules, and semantics, the suffixes, and morphology is also another problem. I had problems with those, but I had to work more before, and I could deal. I applied the training I had in English.*

Although participant 2 has an education in teaching Russian as a foreign language, she stated that she still had difficulties in explaining the questions students asked her. Participant 3 claimed that her native language Tagalog has many accents, and teaching them was challenging. On the other hand, Participant 4 reported that she had no problem with Vietnamese linguistic features.

Even though technology use was mentioned earlier as a theme from the perspective of pedagogy, it was also one of the challenges that FLTAs encountered. Developing online materials was an academic challenge for Participant 3. She always taught face-to-face before moving to the United States. She was happy that she was supposed to teach face-to-face in the United States; however, she was told to develop online materials for using them later on. This caused stress on Participant 3 and she felt that she lacked the skills to create online materials that she was not going to use. Those materials were supposed to be uploaded on the learning management system that her host university was developing. This was because there were no materials for Tagalog available online, and they needed to be made from scratch. Creating these materials was an academic challenge for her.

Differences in American and Vietnamese education system were challenging for Participant 4. These differences were technology use and flipped classrooms. She claimed that she had to become familiar with the latest technology that she does not have in her country. Beside this, when she moved to the United States, she had no idea about flipped classrooms. Thus, preparing classes through the flipped classroom was a prominent academic challenge for her.

### 3.4. Personal Goals and Expectations

#### 3.4.1. Self-improvement

Professional development is defined by Day (1999) as “all natural learning experiences and those conscious and planned activities which are intended to be of direct or indirect benefit to the individual, group or school, which contribute, through these, to the quality of education in the classroom” (p. 4). Participant 1 stated that attending professional development activities provided in the host university was appealing. Although education is a global phenomenon, an education system differs from country to country. Thus, to see another education system was a noteworthy reason for participant 2. She mentioned that she wanted “to see other professors’ teaching and to learn something from them”.

Similar to what Participant 1 stated, growing professionally was also appealing to Participant 3:

*That time I did not have that desire to pursue my Ph.D. yet. I told myself I want to grow more professionally, but I do not want to pursue a Ph.D. yet, so I might apply to a short-term program.*

In terms of self-improvement, Participant 4, who is from Vietnam, had a different reason from other participants to attend this program. She reported that she studied English with mostly Vietnamese teachers who focused on grammar, rather than speaking, listening, and other communication skills. She also mentioned that she still does not have much chance to communicate with foreigners in Vietnam. Thus, one of the reasons that made her apply to this program was to improve her pronunciation practicing English with native speakers.

#### 3.4.2. Personal goals

Findings showed that participants had similar personal goals to attend the program. Participant 1 claimed that one of his reasons to participate in the program was to live somewhere else. Similarly, Participant 2, 3, and 4 wanted to see another culture. However, Participant 4 was the only participant who clarified why she wanted to know the target culture. She wanted to be a bridge between the Vietnamese students and American culture and to inspire them to study abroad. Apart from these personal goals, Participant 4 also had an exciting expectation from living in the United States, and it is possible to say that her expectation is based on her country's history with the United States. She saw the program as a chance to learn more about American people and culture:

*In history, America was used to be our enemy. Many people still think that the Americans would look down on Vietnamese people. Vietnamese people do not understand American people or vice versa. I think that would be a perfect chance for me to learn everything about those.*

## 4. Discussion

In this phenomenological study, we investigated the lived experiences of four language assistants (i.e., FLTAs) and how the experience of teaching their native language in the United States affected their identity positioning from different aspects. The findings of this study will be discussed in line with the components of the theoretical framework and the findings of the previous studies in the field, broadening the context simultaneously.

The pedagogical and contextual shift induced by the FLTA experience enabled the participants to shape and refine their teaching methods and techno-pedagogical knowledge as Burns and Richards (2009) claimed. FLTAs reflected on their practices and revised their own personal pedagogy in teaching languages. What is more, they had the chance to experience

being both a native and a nonnative teacher in two different contexts, which helped them realize the similarities and differences, or advantages and disadvantages between two teacher identities. For them, the pedagogy for teaching their native language or English did not make much difference overall. Still, they felt the need to revise their linguistic knowledge on their native languages. This finding aligns with Martel's (2015) finding in that teachers learned teaching a foreign language by negotiating their teacher identities.

In addition, as native teachers, they were confident in teaching the colloquial or idiomatic expressions and they trusted their expertise in their mother tongue, while one participant explicitly claimed that she was more confident in teaching English rather than her native language. Both common and differing experiences of the participants supported their teacher learning and teacher cognition, which are important factors in (re)constructing teacher identity (Yazan, 2018). As Miller (2009) also mentioned, teacher identity depends on the thoughts, knowledge, beliefs, and activities of teachers. Therefore, they are "part of teachers' identity work which is continuously performed and transformed through interaction in classrooms" (Miller, 2009, p. 175).

In a similar vein, cultural encounters were also important in shaping and changing the assumptions and perspectives, or cognitions of the participants. Our findings suggest that these changes in cognition might stem from both one's own culture and another culture, as well. Being in direct contact with native English speakers made the participants reflect on their own teaching and conversational skills. As mentioned by Varghese et al. (2005), teacher identity depends on the interlocutors and the context in which teachers teach languages and interact with their learners and others around them. Norton (2010) emphasized, "we are negotiating and renegotiating our sense of self in relation to the larger social world, and reorganizing that relationship across time and space" (p. 350). In other words, language assistants in FLTA context in the present study continuously reflected on their language teacher identities that emerged as a result of living in two different cultures. In addition to this, for example, one participant changed her assumptions or misconceptions related to heritage learners. What is more, traces of the social and political climate in her home country were also reflected into her teaching environment in another country. Therefore, constructing language teacher identities depends on both contextual and personal factors, including preconceptions about certain values.

The findings also suggest that teacher biographies also have a role in shaping teacher cognition and learning, and teacher identity, in turn. Coming from different backgrounds or bringing different past experiences sometimes led the participants to differ in their views on teaching their native language. Participant 4 had previous experience in teaching Vietnamese, so she clearly expressed her confidence in teaching Vietnamese, while it took some time for Participant 1 and Participant 2 to feel the same way about teaching their own native languages.

Teacher emotions, on the other hand, did not show much difference in the native and nonnative contexts for the participants. Their attitude towards the classroom and their practice were mostly the same. The participants stated that they showed the same enthusiasm and positivity towards their students in the United States, trying to be supportive, fun and dedicated. Having a good rapport with their students helped them be more motivated. This finding aligns with Benesch's (2017) and Yazan and Peercy's (2016) findings in that teachers had to manage their varying emotional feelings while they were teaching in class to be able to have good rapport with their students. However, one participant claimed she felt the need to act more serious with American students because of the nature of their interactions with each

other in that particular context. This specific case could also be considered as a way of positioning the teacher's identity based on learner characteristics.

### **5. Limitations and Implications**

One limitation of the study is the physical distance between the participants and the researchers. Except Participant 1, the other participants lived in different countries, which hindered face-to-face communication. The researchers both observed and interviewed Participant 1, but they only had online interviews with the other participants. In order to compensate this limitation, the strategy of member checking was employed. By asking the participants to check the researchers' interpretations, this limitation was tried to be eliminated. Besides, due to being in different time zones, the number of interviews was limited to two.

Another limitation is that the researchers had access to the information about the language assistants who attended the program only in 2016-2017 academic year, which led to recall bias because all the participants chosen returned to their home countries about 1.5 years ago at the time the data were collected. The participants had difficulty remembering some details, especially about the challenges they experienced. To overcome that limitation, the participants were provided with some further questions and those questions helped them elaborate their answers.

The findings of the study might shed light on future studies in the field. The study can easily be replicated with more participants in multicultural contexts as it is in this study or monocultural contexts. The study may also be considered as guidance for the FLTA candidates, as it provides insights on the socialization and adaptation processes of non-native language assistants in addition to the possible challenges they may encounter. Furthermore, the current study raises awareness in that a teacher who is trained in teaching an L2 but is supposed to teach their L1 may have difficulty or experience identity shifts in teaching their L1. Such possibilities should be considered before the FLTAs start their journey. For instance, there are very few programs in Turkey that focus on teaching Turkish as a foreign language. Considering the lived experiences of FLTAs in this study, trainers aiming to train teachers to teach their L1s could ponder upon the themes examined in the current study to design their curriculum and train teachers who are supposed to teach their L1s.

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## Appendix A

### Interview Questions

1. Can you provide some information about your teaching experience in Turkey (years of experience, in which institutions did you work, student profile....)?
2. Can you provide some information about your current working conditions (the student profile, your class hours...)?
3. For what reasons did you choose to attend the Fulbright Foreign Language Teaching Assistantship (FLTA) program in the US?
4. To what extent did the FLTA program meet your expectations?
5. What sorts of socio-cultural challenges did you face during your stay in the US? How did you cope with them? To what extent did you manage to cope with them?
6. Do you feel that your language teaching practice has changed after your FLTA experience? If yes, please explain how.
7. What sorts of social and academic challenges did you face while teaching your native language? How did you cope with them? To what extent did you manage to cope with them?
8. How is your current teaching practice in English similar to or different from your teaching practice in your native language?
9. Do you think “you” as a non-native teacher and “you” as a native teacher are similar to or different from each other?
10. How did your training as an EFL teacher affect your practice in teaching your native language?
11. What are your strengths and weaknesses as a non-native English teacher?
12. What are your strengths and weaknesses as a native (Turkish/ Russian/ ...) teacher?
13. How has your experience in FLTA contributed to your teaching practices as an English teacher/instructor?
14. How do you feel about your teaching ability (as a native /non-native teacher)? How does it affect your stance (or your relationship with your students) in the classroom ?



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## **THE RELATIONSHIP BETWEEN THE EMPOWERMENT OF TEACHERS BY SCHOOL ADMINISTRATORS AND ORGANIZATIONAL COMMITMENTS OF TEACHERS**

*Research Article*

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# THE RELATIONSHIP BETWEEN THE EMPOWERMENT OF TEACHERS BY SCHOOL ADMINISTRATORS AND ORGANIZATIONAL COMMITMENTS OF TEACHERS

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## Abstract

This research which aimed to investigate the relationship between the empowerment of teachers by high school administrators and school commitments of teachers was designed in relational screening model. The study group of the research was composed of 188 volunteer teachers working in the public Anatolian High Schools in Aydin during 2017. “*Behavioral Teacher Empowerment*” and “*Organizational Commitment*” scales were used. As a result of the research, it was determined that the highest empowerment was in the administrative support dimension and the highest commitment level was in the affective commitment dimension. It was revealed that there was not a significant difference in the dimensions of empowerment according to gender, seniority and branch variables of teachers. In the analyses performed regarding the commitment levels of teachers, while there was not a significant difference in terms of the dimensions according to branch variable, it was found that female teachers had higher affective commitments than male teachers. Teachers with professional seniority of 31-40 years had higher affective commitments than those with professional seniority of 11-20 years. It was determined that the highest level of relationship was between communication and affective commitment dimensions.

*Keywords:* Administrator, empowerment, teacher, teacher empowerment, organizational commitment

## 1. Introduction

Increasing the performances of employees by motivating them so that they perform better and supporting them should be among the first in the to-do-list of the organizations and managers. For this reason, it is an inevitable fact that empowerment should be among the administrative activities. Empowerment is used in many areas ranging from management to education and it is utilized as staff empowerment in the field of management and as teacher empowerment in the field of education. The empowerment of teachers by administrators can increase the commitments of teachers to their school by diversifying their relationship with the school. In the study conducted, the concept of teacher empowerment is explained first, which is followed by the concept of organizational commitment, and then the relationship between the empowerment of teachers and their commitment levels is determined.

The concept expressed as teacher empowerment is empowering the teachers by the administrators and trying to make the school achieve its aims by the empowerment of them (Kiral, 2019). According to Klecker and Loadman (1996), teacher empowerment means powering up teachers by their administrators. Melenyzer (1990) states that teacher empowerment means increasing teachers’ job performance, giving the control and decision processes to teachers, supporting teachers to acquire professional knowledge, skills and

power, and providing the attainment to adequate power. Maeroff (1988) states that increasing the status of teachers and their professionalization is empowerment.

According to Terry (1995), it is a necessity for schools to empower teachers by administrators because it is revealed that the administrators have empowered their teachers, struggled to increase their potentials and focused on their professional developments when successful schools are investigated. The reason for focusing on teachers is to increase teacher competency and thus, to improve students' achievements and performances. Blase and Blase (1995, 1996) states that school administrators empower teachers by supporting them, creating vision, making them feel sufficient, and taking their views in the activities into consideration, and that they also create empowerment by influencing their teachers, making them feel that they are competent and professional, letting them participate actively in the school activities, and supporting them in all kinds of activities. Since administrators know that work performance and productivity of teachers will increase and they will perform more willingly and enthusiastically when they empower teachers, they make empowerment consciously (Bredeson, 1989; Goynes, Pedgett, Rowicki & Triplitt, 1999; Keiser & Shen, 2000). Thus, it is the school administrators that should undertake the most fundamental role in teacher empowerment.

School administrators should firstly get to know their teachers very well, analyze their weaknesses and strengths appropriately, and act accordingly. Their communication with their teachers should always be good, and they should inform their teachers about the goals and objectives of the school. If they wish to create a desired change within the school, they should plan this in advance and manage this process in the best way (Dufor & Berkey, 1995; Hoge, 1977) because it is observed that job satisfaction, work performance, productivity, motivation, and job quality of the teachers who feel themselves empowered increase, that their sense of self-confidence, self-esteem, and entrepreneurship are prompted, and that they struggle to increase both their own success and the success of their students (Keiser & Shen, 2000; Payne & Wolfson, 2000). If the case is the improvement of students and the education system, the enhancement of educational outputs, professionalization in education, a solution-oriented education, and the acceleration of school development, the empowerment of teachers by school administrators (Melenyzer, 1990) is not only a necessity but also an obligation. Within this context, teacher empowerment is examined under five dimensions. These dimensions can be explained as follows.

*Delegation of authority:* Delegation of authority is the transfer of existing powers to subordinates (Kiral, 2015). Delegation of authority is implemented in all organizations. The benefits of delegation of authority in schools are teachers' embracement of their jobs and the increase in their commitment to their schools, their job satisfaction, motivation, decision-making and communication skills (Goynes et al. 1999). Whetton and Cameron (2011) state that delegation of authority helps employees to increase their self-confidence and work more effectively, and increase their job performance by supporting them to overcome the negative feelings such as inconvenience and weakness. It is suggested that the delegation of authority has such benefits as increasing the potential of the work to be done, facilitating the supervision of work, acting quickly and fast, approaching the problems rapidly, providing the right and adequate decision-making, determining the responsibilities, and providing the development of employees (Kocak, 2011; Moye, Henkin & Egley, 2004 ).

*Administrative support:* The concept of administrative support is the support provided for the employees by the management during the work they have been doing within the organization and is the employees' perception of this support given by the management as support (Eisenberger, Fasolo & Lamastro, 1990). Administrative support for schools is to

provide teachers with professional, personal and environmental support for achieving educational objectives (Melenyzer, 1990; Short, 1992). Administrative support can be time, money, material, project, educational and resource support (Melenyzer, 1990; Rhoades, Eisenberger & Armeli, 2001). In addition to this, creating learning school by school administrators can be considered as support because encouraging the teachers to improve themselves in the professional and personal sense, giving them the opportunity to learn, and leading them to improve themselves mean supporting them (Short, 1992). Supporting teachers from various aspects is empowering them (Kocak, 2013) and commitment of teachers to their schools and professions (Firestone, 1993) and therefore the development of teachers and consequently the enhancement of students and the education system mean the increase of educational outputs. As can be seen, administrators have some influences on teachers. Encouraging the employees in their work increases their work performance (Aselage & Eisenberger, 2003; Rhoades, Eisenberger & Armeli, 2001; Wayne, Shore & Liden, 1997). Supporting teachers for scheduling their timetable, organizing educational settings, providing materials, providing them assistance for their wishes regarding the lessons both materially and spiritually, and for their professional and personal development, and creating opportunities lead teachers to perform their profession better. (Blase & Blase, 1996; Blase & Kirby, 2000).

*Participation in decision making:* Participation in the decisions is the fact that the administrators take the opinions of the employees while making decisions within the organization and involves them in the decisions made (Niehoff, Moorman, Blakely & Fuller, 2001). Involving teachers in the decisions regarding the school by school administrators is one of the most significant components of empowerment. Participating in the decisions means providing control in the school environment for teachers and feeling that they are effective on the output. This is, of course, related to empowerment (Hicks & Dewalt, 2006; Martin, Crossland & Johnson, 2001; Short, 1992). According to Blase and Kirby (2000), another method of empowering teachers is to ensure their participation in the decisions made. While school administrators make planning regarding the school in order to achieve the goals within the school and schedule the program related to school activities, participating in the decision-making process will lead teachers to have a voice in the task to be done and be successful. Blase and Blase (1996) state that open communication paths and encouragement so as to ensure that the decisions of teachers are respected in the meetings and they participate in the decisions empower teachers. It is also important in the empowerment of teachers that the administrator trusts teachers in solving problems, crises and conflicts, and enable them to participate in the decisions on these issues. Teachers should be turned into individuals that are consulted on a variety of issues from discipline to program, time regulation, parental relationships, and innovation (Bredeson & Johansson, 2000; Short & Greer, 1997; Short & Rinehart, 1992).

*Teamwork:* According to Gard, Lindstrom and Dallner (2003), team is the name given to the group of people who work together and in coordination, and support each other to achieve the goals of the organization. Teams are composed of people from different backgrounds, having different knowledge and skills, and perspectives of life that come together in order to achieve organizational goals (Dee, Henkin & Duemer, 2002; Somech, 2005). In organizations, people with different skills are brought together and organizational goals are aimed to be achieved by benefiting from the dominant role, creativity, talents and intellectual aspects of each individual (Everard, Morris & Wilson, 2004).

Different types of teams are significant in teacher empowerment and educational organizations just as in other organizations because it is revealed that the sense of belonging and commitment among the individuals who have come together with team consciousness

strengthens and by forming the consciousness of us, responsibilities are fulfilled, work performance increases, and the members of the team put their individual interests into the background for organizational goals (Kirkman & Rosen, 1999; 2000; Somech, 2005). The teams established within school are set to solve various problems in the school (Kiral, Arslan & Kiral, 2011). Since the aim is to solve problems, fulfill and accomplish the work, teams undertake such approaches as working together, sharing responsibility and cooperating (Dee, Henkin & Duemer, 2002; Somech, 2005). Organizations working as teams are more successful and perform as solution-oriented (Kiral, 2015). The teams established within school have a structure that focuses on solving the problems of teachers and the school itself, works together, shares responsibility, influences each other and learns from each other when they are supported by the administrators (Dee, Henkin & Duemer, 2002), and thus, teams are a necessary component for organizational development (Somech, 2005).

*Communication:* Communication is a useful process in which the message is received and delivered in various ways (Schermerhorn, Hunt & Osborn, 2002). Open and direct communication between teachers and administrators is important in terms of being able to establish a channel for sharing information, resources and news so as to achieve educational goals (Moye, Henkin & Egley, 2004) because administrators and teachers should keep in touch in order to achieve the school goals, administrators should inform teachers when necessary and ask their opinions and communicate when making important decisions (Kiral, 2019). Inadequate communication or lack of communication prevents achieving the goals or makes them difficult (Maeroff, 1988). Empowering communication within school is one of the most important tasks of school administrators (Blase & Blase, 1996; Short & Greer, 1997). According to Blase and Kirby (2000), school administrators should be the leader administrator in order to empower teachers and they should convince with a constructive language not by using their authority but by using the leadership power and the ability to influence, without breaking hearts. Besides, administrators should try to integrate the school by adopting a solution-oriented approach. School administrators should approach their teachers by using a positive language and be fair at school. Improper use and expression of the official authority in different ways is negatively perceived by teachers and thus, it undermines their enthusiasm towards their job and their confidence towards the administration. Furthermore, the administrators who are honest, positive, optimistic, thoughtful, and tolerant towards their teachers and who reflect all these to their communication are taken into consideration more by their teachers and thus, teachers make more effort for the school goals. The inconsistent behaviors and expressions of administrators form an environment of distrust by creating a negative atmosphere within the organization.

Byron and Kerchner (1991) state that communication is the most important component of empowerment, and that it is even enough itself to make teachers work efficiently. Short and Greer (1997) express that administrators need to increase communication in order to empower teachers at school and that it is the most important issue to be addressed during their administrative activities. Goyne et al. (1999) reveal that empowered teachers have improved sense of belonging to work and their professional commitments increase.

It can be seen that organizational commitment is defined by Meyer and Allen (1997) as the behavior which is shaped by the employees' relationship with the organization and which allows them to make the decision of becoming a permanent member of the organization; while it is defined by O'Reilly and Chatman (1986) as the degree of accepting the aims of the organization by the employees. Mowday, Steers and Porter (1982) define the concept of organizational commitment as the integrity and harmony of the aims of organization and employees; whereas Luthans (1995) states that it is an attitude of the employees regarding their loyalty towards the organization. Robbins (1993) describes organizational commitment

as the identification of the employees with the organization and their aims, and the desire of the employees to continue their memberships within the organization. In terms of organizational commitment, while the commitment to organizational aims come into prominence in the definitions of Mowday, Steers and Porter (1982), and O'Reilly and Chatman (1986), Meyer and Allen (1997) emphasized the types of organizational commitment, and Luthans (1995) gave importance to the concept of "*devotion*". Based on all these definitions, the concept of organizational commitment can be defined as the indigenization of organizational aims by the employees, their dedication to these aims, and the identification of their aims with those of the organization.

The members of the organization are constantly in interaction with each other. This situation is influential on the employees in discovering each other and revealing their knowledge, skills and abilities. For this reason, in the recruitment of employees, organizations try to select the most appropriate person for the culture of the organization. However, bringing the right staff in the organization is a very difficult task. Yet, it is more difficult to keep this staff within the organization for a long time. While employees get into a number of economic expectations from the organization, they also expect many things regarding the working conditions, job satisfaction, work experience, personal needs, and many other expectations related to the organization. Meeting all these needs is not an easy task. The existence of employees within organizations for years, and sometimes during lifetime can be explained by organizational commitment (Samadov, 2006). Nonetheless, it is important for the individual to obtain a certain reward or output from the organization in their organizational commitment (Balci, 2003).

According to Mowday et al. (1979), the attachment of employees to a certain organization and recognizing themselves with that organization and devoting themselves to it is organizational commitment. Organizational devotion can be classified as value, work and coherence commitment. Value commitment involves the acceptance of organizational aims and values with strong faith; work commitment involves the commitment for the sake of the organization; and coherence commitment involves volunteering to remain as a member of an organization (Chang & Chang, 2008).

Katz and Kahn (1977) discuss the employee's commitment to the organization in two groups as instrumental and narrative. Instrumental commitment is, in a sense, related to external rewards. In narrative commitment, there are internal rewards and it is not possible for other organizations to impress employees that are committed to the organization with narrative commitment. Mowday, Steers and Porter (1979) discuss organizational commitment as attitude commitment and behavior commitment. Attitude commitment refers to the identification of the employee with the aims and values of the organization and performing accordingly. Behavior commitment refers to the state of staying in the organization considering the damage that the employee may cause in the event of resigning (Nayir, 2013). Organizational commitment can be classified in three ways as; (1) professional commitment; performing the job with passion and identification with the profession; (2) commitment to colleagues; the identification of the individual with other employees and feeling commitment to them; and (3) commitment to work; the feeling that the employee feels for their work (Gozen, 2007; Basyigit, 2006; Meyer, Allen & Gellatly, 1990). As can be seen, researchers have examined commitment in different ways. In this study, organizational commitment is examined as affective, continuance and normative commitment. These are explained below:

*Affective commitment:* Affective commitment of the employee to the organization refers to the integration of the employee with the organization. The employee considers the organization as a family and regards themselves as a member of this family. The employee

continues in the organization not because they need to be a member of the organization but because they really want to (Allen and Meyer, 1990, 1996; Boezeman & Ellemers, 2008; Meyer & Allen, 1997; Meyer, Stanley, Herscovitch, & Topolnytsky, 2002; Mowday, Steers & Porter, 1982).

*Continuance commitment:* In this type of commitment, employees approach the organization utterly with a cost-benefit understanding. There are three factors that allow this type of commitment to be formed in the employee. These are: (a) The rewards that employees hope for as a result of the investments made in time within the context of seniority, time and labor; (b) The fact that employees have little or no alternative of finding a job in another organization; (c) Due to the fact that the employee is satisfied with their salary and that material facilities of the organization is diverse and attractive, the employee does not want to lose them (Karakus, 2008). As can be noticed, material elements are an effective element in the continuance of the employee within the organization.

*Normative commitment:* The employee is bound to the organization by the sense of responsibility as they think that staying in the organization is the best and most moral choice. Three factors are effective in the formation of this commitment. These are: (a) Employee's family, cultural and organizational values, (b) The norms of doing good to good and evil to evil that stem from the social contract understanding of the employee; and (c) Psychological contract that is the expression of the mutual responsibilities between the employee and the organization and of those between the employee and the administrator (Meyer & Allen, 1991).

As can be seen, the commitment of employees can increase their organizational efficiency. Therefore, they make more efforts for the organization. Increasing the commitments of employees can be achieved through their empowerment. In an organization where empowerment is implemented, employees will work together in harmony and be able to solve problems together. This spirit of unity can play an important role in increasing the continuance and development of the organization. Organizations can ensure their continuity by means of their entrepreneur and responsible members that can renew themselves (Meyer & Schoorman, 1992; San, 2017).

It can be said that as empowerment improves the sense of belonging and commitment to profession, professional work satisfaction levels, motivations and organizational commitments of teachers working in the schools of the school administrators empowering their teachers increase and their abilities of cooperating, communicating and decision-making are at a high level because self-confidence and work performance of teachers strengthened by their school administrators increase (Goyne et al.1999). According to Payne and Wolfson (2000), teachers consider their school administrators as a resource for supporting, informing and improving them professionally. This perception of school administrators by their teachers puts the administrators in an important position within schools, which can be made possible by the empowerment of teachers by their administrators. If school administrators expect success in their schools, they should empower their teachers (Acaray, 2010) and thus, increase their teachers' organizational commitment. When the literature was reviewed, it was revealed that the studies were conducted on teachers' psychological empowerment and their commitment levels [e.g. Bogler, Ronit & Somech (2004); Lanschinger et al. (2009); Jha (2011); Joo & Shimm (2010)]. The studies were on psychological empowerment and commitment levels of teachers. There is no research on these two topics (behavioral empowerment and commitment). If you empower the teachers, he/she will be committed to his/her school. So He/she will work better and more efficiently, will be motivated to work. Research results are therefore important. However, in this research, it was aimed to determine

the relationship between teachers' behavioral empowerment and their organizational commitment levels. Based on this general objective, the following questions were aimed to be answered:

1. What are the empowerment and organizational commitment perception levels of teachers?
2. Do teachers' empowerment and organizational commitment perception levels show a significant difference according to seniority, gender and branch variables?
3. Is there a significant relationship between empowerment and organizational commitment perception levels of teachers?

## 2. Method

This study, which aimed to reveal the relationship between the empowerment of teachers by high school administrators and teachers' commitment to school, was designed in relational screening model (Balci, 2009; Karasar, 1991). The purpose of screening model researches is to picture the current situation related to the subject of the research and make a description about it (Buyukozturk et al. 2008). In this research, it was aimed to describe the relationship between the empowerment of teachers by Anatolian High School administrators and teachers' commitment to school according to the views of teachers.

### 2.1. Study Group

Prior to collecting the data of the research, official permission was received from Aydin Provincial Directorate of National Education and then, the researcher collected the data by personally going to the schools. The study group of the research was composed of 188 voluntary teachers who worked in all the public Anatolian High Schools in Aydin province during 2017 year. The number of female teachers participating in the study were 104 (55.3%) and male teachers were 84 (44.7%). 24 of these teachers had a seniority between 1-10 years (12.8%), 61 of them had a seniority between 11-20 years (32.4%), 75 of them had a seniority between 21-30 years (39.9%), and 28 of them had a seniority between 31-40 years (14.9%). When the branches of the participant teachers were analyzed, it was revealed that 93 of the teachers (49.5%) were the teachers of verbal courses, 69 of them (36.7%) were the teachers of numeric courses, and 26 of them (13.8%) were the teacher of skills courses.

### 2.2. Data Collection Tool

In the study, "*Behavioral Teacher Empowerment Scale*" and "*Organizational Commitment Scale*" were used as the data collection tools. The scales used in the research are described in detail below.

*Behavioral Teacher Empowerment Scale*: The Scale, which was used in order to reveal the empowerment levels of teachers by school administrators, was developed by Kiral (2015). In the scale, five-point Likert grading was used as between "*Always (5), Usually (4), Sometimes (3), Rarely (2) and Never (1)*". In the construct validity analysis performed by Kiral (2015), it was revealed that the scale was composed of 5 dimensions. In the scale, there was a total of 30 items; 5 items in "*delegation of authority*" dimension, 4 items in "*administrative support*" dimension, 9 items in "*participation in decision making*" dimension, 8 items in "*teamwork*" dimension, and 4 items in "*communication*" dimension. The scale did not include any reverse-coded items. The Cronbach's Alpha internal consistency coefficient was found between .87 and .96 in the dimensions. As the study was carried out on the teachers for "*Behavioral Teacher Empowerment Scale*", construct validity analysis was not performed again in this study. However, the Cronbach's Alpha coefficients for this study were found to vary between .90 and .95 in the dimensions. These values obtained were the indicator of

adequate validity and reliability for the research. According to Tavsancil (2014), it is adequate to have alpha values between .60 and .80 to claim that the scale has valid reliability values. Therefore, these values obtained are the sign of the fact that the scale has high reliability (Ural & Kilic, 2005; Balci, 2009).

*Organizational Commitment Scale:* The Scale was developed by Meyer and Allen (1991). The scale was a 5-point Likert type scale as between “*I totally disagree (1), I disagree (2), I am neutral (3), I agree (4) and I totally agree (5).*” The scale was composed of 18 items and 3 dimensions as “*Affective Commitment, Continuance Commitment and Normative Commitment.*” Four items in the scale were reverse-coded. The scale was adapted to Turkish language and the validity and reliability analyses were performed by Baysal and Paksoy (1999), and it was used by many researchers (Wasti, 2000; Kurtulmus, 2014; Ozbakir, 2015, etc.). In the reliability study conducted by the researchers, it was determined that the Cronbach’s Alpha values of the scale varied between .66 and .81 in the dimensions. The Cronbach’s Alpha values in the reliability analysis performed for this research were found to be between .73 and .80.

### 2.3. Data Analysis

In the analysis of research data; frequency, percentage, mean, parametric (t-test and ANOVA) tests and correlation tests were used. The personal information of teachers was determined with frequency and percentage; their empowerment and commitment levels were determined with mean and standard deviation; whether teachers’ behavioral empowerment and commitment levels differed significantly according to independent variables (gender, seniority, branch) was determined with parametrical difference tests (t-test and ANOVA) as the data provided the norms of normality; and Tukey test was used in order to determine which groups the difference stemmed from as a result of ANOVA. The norms of normality were determined by central tendency measures and it was revealed that skewness and kurtosis coefficients of the data groups were between +1 and -1. ( $p > .05$ ) (Can, 2015; Ural & Kilic, 2005). Pearson Product-moment Correlation Coefficient was used to determine the relationship between teachers’ behavioral empowerment and their commitment. In the analysis, the fact that the correlation coefficient was between 0.00-0.29 was interpreted as low, and that the correlation coefficient was between 0.30-0.69 was interpreted as moderate, and that the correlation coefficient was between 0.70-1.00 was interpreted as high (Buyukozturk, 2008). The statistics revealed were tested at .05 significance level.

### 3. Findings

The mean and standard deviation scores of the responses that the participants gave to the scales so as to reveal teachers’ empowerment by school administrators and organizational commitment levels of teachers were calculated and the results obtained were given in Table 1.

Table 1. *The empowerment and organizational commitment perception levels of teachers*

Scale	Dimensions	$\bar{X}$	S
<b>Empowerment</b>	Delegation of authority	3.53	.88
	Administrative support	3.86	.78
	Participation	3.55	.87
	Teamwork	3.57	.98
	Communication	2.96	.99
	Overall	3.52	.81
<b>Commitment</b>	Affective	3.18	.54
	Normative	2.83	.73
	Continuance	2.94	.55
	Overall	2.99	.42

As could be seen in Table 1, teachers perceived empowerment in administrative support dimension at the highest level ( $X=3.86$ ,  $S=.78$ ), which was followed by teamwork ( $X=3.57$ ,  $S=.98$ ), participation in decision making ( $X=3.55$ ,  $S=.87$ ), delegation of authority ( $X=3.53$ ,  $S=.88$ ), and communication ( $X=2.96$ ,  $S=.99$ ) dimensions, respectively. Their overall empowerment perception level is good ( $X=3.52$ ,  $S=.81$ ). When teachers' school commitment levels were investigated, it was found that they had affective commitment at the highest level ( $X=3.18$ ,  $S=.54$ ), which was followed by continuance commitment ( $X=2.94$ ,  $S=.55$ ), and normative commitment ( $X=2.83$ ,  $S=.73$ ), respectively. Teachers' overall school commitment level was above average ( $X=2.99$ ,  $S=.42$ ).

As a result of the tests conducted according to teachers' gender (t-test), seniority and branch (ANOVA test) variables, it was concluded that there was not a significant difference between teachers' empowerment levels. While there was not a significant difference in the tests performed regarding the teachers' commitment levels according to branch variable, it was concluded that there were significant differences according to gender and seniority variables. The results of t-test performed in order to reveal the perceptions of teachers regarding their commitment levels according to gender were given in Table 2.

Table 2. t test results according to gender variable

Dimension	Gender	n	$\bar{X}$	S	Sd	t	p
Affective	Female	104	3.15	.54	186	.599	.550
	Male	84	3.20	.53			
Normative	Female	104	2.88	.74			
	Male	84	2.77	.72			
Continuance	Female	104	3.03	.54			
	Male	84	2.83	.55		2.494	.014*
Overall Commitment	Female	104	3.02	.42		1.147	.253
	Male	84	2.95	.42			

When Table 2 was examined, it could be seen that there was not a significant difference in the other dimensions of commitment except for continuance commitment dimension according to teachers' gender [ $t(186)=2.494$ ,  $p<.05$ ]. It was found that the perceptions of female teachers regarding continuance commitment ( $X=3.03$ ,  $S=.54$ ) were significantly higher than those of male teachers ( $X=2.83$ ,  $S=.55$ ). The results of ANOVA test performed so as to reveal the perceptions of teachers regarding their commitment level according to their seniority were given in Table 3.

Table 3. ANOVA test results according to seniority of teachers

Dimension	Seniority	n	$\bar{X}$	S	Sd	F	P	Sig. Diff.
Affective	1-10 years	24	3.13	.52	3;184	3.165	.026*	2-4
	11-20 years	61	3.03	.55				
	21-30 years	75	3.23	.47				
	31-40 years	28	3.38	.60				
Normative	1-10 years	24	2.75	.95				
	11-20 years	61	2.99	.73		1.476	.223	-
	21-30 years	75	2.75	.66				
	31-40 years	28	2.76	.69				
Continuance	1-10 years	24	2.89	.52				
	11-20 years	61	2.92	.59		.323	.808	-
	21-30 years	75	2.95	.53				
	31-40 years	28	3.02	.57				
Overall	1-10 years	24	2.95	.37				
	11-20 years	61	3.00	.45				
	21-30 years	75	2.98	.41				
	31-40 years	28	3.04	.46				

When Table 3 was examined, it was revealed that there was not a significant difference in the other dimensions of commitment except for affective commitment dimension according to teachers' seniority [ $F_{(3-184)} = 3.165$ ;  $p < .05$ ]. Tukey multiple comparison test was performed in order to determine from which seniority group the difference stemmed and it was found that affective commitment levels of teachers with 31-40 years of seniority were higher than those of teachers with 11-20 years of seniority ( $X=3.03$ ,  $S=.55$ ). Correlation test results regarding the relationship between the empowerment of teachers by school administrators and teachers' perceptions of organizational commitment were given in Table 4.

Table 4. *Pearson Product-moment Correlation Coefficient results regarding the relationship between the empowerment of teachers by school administrators and organizational commitments of teachers*

Dimensions	1	2	3	4	5	6	7	8
<b>Authority</b>	-							
<b>Support</b>	.716**	-						
<b>Decision</b>	.745**	.737**	-					
<b>Team</b>	.713**	.725**	.842**	-				
<b>Communication</b>	.625**	.601**	.764**	.782**	-			
<b>Affective</b>	.078	.070	.119	.098	.732**	-		
<b>Normative</b>	-.048	-.042	-.063	-.081	-.070	.260**	-	
<b>Continuance</b>	.165*	.175*	.169*	.081	.584**	.365**	.113	-

\*\*  $p < .01$  and \*  $p < .05$

When Table 4 was examined, it could be seen that there were positive, high and moderate level relationships between among the dimensions of empowerment and that the highest relationship was between the participation in decisions and communication dimensions ( $r=.84$ ). It was found that there were moderate and low level relationships among the dimensions of commitment and that the highest relationship was between affective and continuance commitment dimensions ( $r=.37$ ). It was also revealed that there were significant, positive relationships among the dimensions of empowerment and dimensions of commitment, and it was determined that the highest relationship was between communication and affective commitment dimensions ( $r=.73$ ).

#### 4. Conclusion and Discussion

When the results of the research were examined, it was concluded that the highest empowerment was in administrative support dimension. In the study conducted by Kiral (2015), the teachers stated that their administrators exhibited empowerment in administrative support dimension at most. Both studies are similar in this respect. It was also concluded in the analyses performed that there was not a significant difference among the dimensions of empowerment according to gender variable. This finding of the research is in parallel with the researches conducted. In the research conducted by Gardenhour (2008), the relationship between work setting and empowerment according to the perceptions of teachers was investigated. According to the research, it was found that gender did not have a significant relationship with empowerment. In addition to this research, it was revealed in the researches carried out by Kiral (2015), Short and Rinehart (1992) that there was not a significant difference in the empowerment of teachers according to gender. In the research, it was concluded in the analyses performed that there was not a significant difference among the dimensions of empowerment according to seniority variable. Similarly, in the research conducted by Dincer (2013), it was revealed as a result of the responses given by teachers that formal authority using behaviors of school principals did not show a significant difference according to seniority. No significant difference was found between the views of senior teachers and the views of teachers with high seniority. In the research carried out by Egriboyun (2013) on the administrators and teachers working in secondary education

institutions, it was determined that seniority variable did not show a significant difference in the administrative support dimension in the administrators and teachers. In the researches conducted by Kiral (2015) and Aslan (2006), it was found that seniority did not reveal a significant difference in empowerment.

In the current research, it was concluded that the highest level of commitment was in affective commitment dimension. The results of the researches by Balcik (2018), Balay (2000), Kursunoglu, Bakay and Tanriogen (2010), Maral (2015), Meyer, Stanley and Parfyonova (2012), Odabasi (2014), and Ozbakir (2015) were found to be similar with the current research. The fact that teachers' affective commitment mean score was the highest is a positive and desirable result because the employee with high affective commitment is identified with the organization and enjoys being a member of the organization (Allen & Meyer, 1996). The fact that affective commitment was higher than other dimensions of commitment may be the indicator that teachers are satisfied with the school they work for, that they identify themselves with the school, and that they are struggling for the success and development of the school. While there was not a significant difference in the analyses performed regarding the commitment levels of teachers according to branch variable, it was concluded that there were significant differences according to gender and seniority variables. As a result of t test performed regarding gender variable, it was concluded that there was a significant difference between the views of female and male teachers in continuance commitment. While there are researches similar to current research revealing that commitment did not differ according to gender variable [Balcik (2018), Kiral and Kacar (2016), Kurtulmus (2014), Ozbakir (2015), Sharma, Mohapatra and Rai (2013), Yuksel (2015)]; there are also researches revealing that commitment differed according to gender [Aksanaklu (2018), Gok (2014), Odabasi (2014), Maral (2015), Meyer, Stanley and Parfyonova (2012), Scandura and Lankau (1997)]. When teachers' state of commitment was examined, it was concluded that teachers with 31-40 years of seniority had higher affective commitment levels than teachers with 11-20 years of seniority. In the studies by Aksanaklu (2018), Balcik (2018), and Allen and Meyer (1991), it was found that there was a significant difference according to seniority.

It was revealed that there were positive, high and moderate level relationships among the dimensions of empowerment and that the highest relationship was between participation in the decisions dimension and communication dimension. It was found that there was a moderate and low level relationships between the dimensions of commitment, and that the highest relationship was between affective commitment dimension and continuance commitment dimension. It was also revealed that there were positive, low, moderate level and high, significant relationships between the dimensions of empowerment and the dimensions of commitment. The highest relationship was found between communication and affective commitment dimensions.

When the studies investigating the relationship between empowerment and commitment were examined, it could be seen that the studies focused mainly on psychological empowerment. In fact, no similar study was found investigating the relationship between "*behavioral empowerment and commitment*". In the study conducted by Bogler, Ronit and Somech (2004) on secondary school and high school teachers in Israel, they examined the relationships among teacher empowerment, teachers' organizational commitment, professional commitment and organizational citizenship. As a result of the research, a significant relationship was found between teachers' empowerment perception levels and their organizational-professional commitment and organizational citizenship behavior. The positive relationship between psychological empowerment and organizational commitment is similar to the studies conducted by Lanschinger et al. (2009), Joo and Shimm (2010), San

(2017), and Jha (2011). While Jha (2011) found a significant relationship between psychological empowerment and affective commitment and normative commitment dimensions of organizational commitment, he revealed that there was not a relationship with continuance commitment dimension. As a result of the research, no positive relationship was found between psychological empowerment and affective commitment dimension of organizational commitment, and in the meaning, competence and autonomy perceptions of psychological empowerment.

According to the results of the research, administrators can increase in-school activities and organizational associations in order to enhance continuance commitment levels of male teachers. So as to increase affective commitment levels of teachers with 11-20 years of seniority, platforms where they will be able to share ideas with experienced teachers can be created. By enhancing their communication with teachers, school administrators can help teachers increase their school commitment levels. The same research can be conducted in different school types and the difference between the views of teachers can be revealed. With the researches carried out by using mixed method, administrator strategies that will enable teachers to be committed to their schools can be revealed. By using the Psychological Empowerment Scale, various researches can be conducted aiming to determine organizational commitment levels of teachers.

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## **CULTIVATING STUDENTS' HIGHER-ORDER THINKING SKILLS IN EFL CLASSES: THE ROLE OF THE TEACHER AND THE TEXTBOOK**

### *Case Study*

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# CULTIVATING STUDENTS' HIGHER-ORDER THINKING SKILLS IN EFL CLASSES: THE ROLE OF THE TEACHER AND THE TEXTBOOK

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## Abstract

Incorporating higher order thinking skills (HOTS) in the process of the teaching and learning becomes a demand of the 21st century as well as the latest senior high school curriculum in Indonesia. Hence, this study aimed to know the role of the teachers and the textbooks to promote HOTS in EFL classes. The research was a case study and took place in one of the senior high schools in East Java, Indonesia. The result of the study showed that English language teachers had an adequate understanding about HOTS. However, the teachers were too much dependent on the materials and exercises in the textbooks. In addition, the students' low level of English language proficiency was the core challenge for them to understand explanations or exercises developed for promoting HOTS of the students. It means that teachers had a crucial role to help their students understand the materials and the exercises presented in the textbooks. To sum up, there was a symbiosis mutualism between English language teachers and the textbooks to promote students' HOTS.

*Keywords:* Higher-Order Thinking Skills, HOTS, English Teacher, English Textbook

## 1. Introduction

These days, the integration of HOTS in education field is essential since it is one of the fundamental skills in the 21st century skills for the students to be able to face the global challenge (Soulé & Warrick, 2015). The fact that leads the Indonesian Ministry of Education and Culture to incorporate HOTS in the process of teaching and learning through the implementation of the 2013 curriculum (Ahmad, 2014; Setyarini, Muslim, Rukmini, Yuliasri, & Mujianto, 2018), including English subject. As mastering English is crucial in order to have better job prospects, keep up with scientific and technological growth and achieve the academic purpose to access international information (Enç & Kuluşaklı, 2019; Mirici, 2015). However, the practice of HOTS assimilation is not as easy as what has been expected for there are some enormous obstacles faced by education practitioners in the field, especially English teachers (Tyas, Nurkamto, Marmanto, & Laksani, 2019)

The aspect which has becomes one of the biggest obstacles in integrating HOTS is related to the teachers' knowledge and perception towards HOTS. It is crucial for the teachers to understand the concept of HOTS as the right conception will lead to the right practice as well as will contribute to the successfulness of HOTS promotion. Collins (2014) states that teachers' awareness about the importance of teaching HOTS are very important to guarantee the success

of learning. Nevertheless, the integration of HOTS into teaching-learning activities in the Asian context, including in the Indonesian context, has pros and cons among education stakeholders (Hashim, et al., 2018). Ironically, the study of Yusoff and Seman (2018) indicates that English teachers do not hold sufficient knowledge of HOTS as they could not give satisfactory explanation about the concept of HOTS.

In general, Lewis and Smith (1993) define HOTS as the process of taking new information and the information stored in memory and/or reorganizing and encompassing this information to achieve a purpose or find possible answers in novel situations. For an education purpose, Brookhart (2010) claims that HOTS cover three categories, namely transfer, critical thinking, and problem solving. More specifically, Conklin (2012) declares that HOTS encompasses mainly critical thinking and creative thinking. Coincidentally, Brookhart (2010) and Conklin (2012) confirm that HOTS in education field are closely linked to Bloom's revised taxonomy. It is in line with the policy from Ministry of Education and Culture (2018) which classifies HOTS into the cognitive levels, as the parts of Bloom's revised taxonomy.

Nowadays, Bloom's revised taxonomy, which is set by Anderson and Krathwohl (2001), is currently being used more widely than the original one that was established by Benjamin Bloom. Regarding the cognitive level, the first three levels of cognitive domains in Bloom's revised taxonomy belong to lower order thinking skills (LOTS), which are remembering (C1), understanding (C2), and applying (C3) whereas, HOTS are categorized by the last three levels of cognitive domain of the taxonomy including analyzing (C4), evaluating (C5), and creating (C6) since the last three levels require different learning and teaching methods than the learning of facts and concepts (Brookhart, 2010; Conklin, 2012; Ministry of Education and Culture, 2018). As the support, Mishra & Kotecha (2016) claim that Bloom's revised taxonomy as a reference point to HOTS. They believe that HOTS is represented in the level of analyzing, evaluating, and creating. Furthermore, Conklin (2012) claims that analyzing (C4) and evaluating (C5) accommodate critical thinking, while creating (C6) represents creative thinking. Conklin (2012) also points out that Bloom's revised taxonomy is a viable questioning strategy that can promote HOTS in the classroom. Hence, the taxonomy can be used by teachers to plan instructions in order to facilitate the teaching and learning of HOTS, as well as to help students develop their thinking skills.

Even though it is clear that Bloom's revised taxonomy can be used by the teachers as a questioning strategy that can promote HOTS in the classroom, the study of Sunggingwati and Nguyen (2013) shows that the Indonesian English teachers rely on the textbook for pedagogies and for the kinds of questions that they ask to the students. The teachers are exposed mainly to low-level questions. Thus, they face some challenges in generating high-level questions in these conditions and require assistance, especially in the form of a textbook for guidance in order to do this. Textbooks belong to the main material sources in EFL teaching and learning process in Indonesia. Notwithstanding the ongoing reputation of computer-assisted and multimedia-enhanced English instruction with the advancement of English teaching reform, textbooks remain the core of teaching and testing (Yidi & Zhengwei, 2018). Consequently, the government needs to provide a well-designed English textbook to help the teachers in developing good instructions. The textbook is hoped to provide teachers with teaching ideas and plans for teaching English in the classroom. It has to contain HOTS – based exercises as what has been mandated by the 2013 curriculum in order to facilitate teachers and students in the teaching and learning of HOTS. Furthermore, textbooks could be one of the best and most reliable sources for teachers to teach and for students to learn how to be higher-order thinkers (Tarman & Kuran, 2015).

Unfortunately, some of the studies which examine the questions in English textbook show that most questions found in English textbooks prescribed for students, are in LOTS levels. Maharani, et al. (2018) conducts an evaluative research to find out the quality of the English textbook for tenth grade students published by the Ministry of Education and Culture in term of instruction used. The result shows that the textbook is not qualified as the good textbook because there are found only 40% instructions which belong to HOTS – based instructions from 234 instructions. The same phenomena also found in the Asian context in which the questions contained in English textbooks are mostly aligned with LOTS when analyzed using Bloom’s revised taxonomy (Anasy, 2016; Olimat, 2015; Raqqad & Ismail, 2018; Ulum, 2016; Zareian, Davoudi, Heshmatifar, & Rahimi, 2015). Otherwise, Yuliana & Tungka (2018) who examine the critical thinking in the reading section in the government English textbook for Indonesian eleventh grades of senior high school find that the HOTS – based exercises proportion is bigger than LOTS – based exercises proportion. It means that the examined textbook meets the criteria of a good textbook as it contains a greater proportion of HOTS – based questions (Sunggingwati & Nguyen, 2013). In other words, it can be said that the examined English textbook can facilitate the teachers in teaching English as well as in developing students’ HOTS. In spite of the inadequacy of English teachers and English textbooks, this article aims to explore the role of English teachers and English textbooks in cultivating students’ HOTS through English language teaching.

## **2. Methodology**

In this qualitative research, a descriptive case study design was used. It was intended to make the researchers able to analyze the case or phenomenon which happens in the field. In addition, Yin (2018) states that the main goal of the descriptive case study is to assess a sample in detail and in-depth, based on an articulation of a descriptive theory. The research was conducted in one of the state senior high schools in East Java, Indonesia. The school was chosen since it belongs to the school which has implemented the pilot project of the 2013 curriculum which means that HOTS is already integrated in the teaching and learning process in this school.

An English teacher of the eleventh grade is selected as the participant of this research as it is related to the existence of the government English textbook for the eleventh grade in which it contained a good proportion of HOTS – based exercises (Yuliana & Tungka, 2018). Questionnaire, observation, and interview were used to collect the data. A semi-structured questionnaire was given to the teacher in order to know her knowledge and understanding towards HOTS. In addition, non-participatory observation in the classroom was held to know the role of English teacher and English textbook being used in cultivating students’ HOTS. To ensure the data which were obtained from questionnaire and observation, a semi-structured interview was also carried out with the English teacher. For obtaining in-depth information about the role of the English teacher and English textbook to promote students’ HOTS, a structured questionnaire was given to the students of eleventh grade who are taught by the English teacher being investigated. A semi-structured interview was also held with the students to get the detail information of the case.

The data of this research were in the form of information related to the role of English teacher and English textbook to cultivate students’ HOTS. To analyze the data gotten from the field, a data analysis technique from Miles, Huberman, and Saldana (2018). The steps of analyzing the data are data condensation, data display, and data conclusion. The process of data condensation included writing summaries, coding, developing themes, generating categories, and writing analytic memos. After that, the result of questionnaire, observation, and interview which had been proceed in the data condensation was displayed descriptively so that the

information related to the research's issue could be seen evidently. The last step in data analysis process is drawing conclusion in which the data were verified and the initial conclusion was made.

### 3. Findings and Discussion

The findings of the research as well as the discussion are presented under the subtitle in accordance with some important aspects as follows:

#### 3.1. The English Teacher's Understanding and Perception towards HOTS

Knowing the English teacher's understanding and perception towards HOTS is pivotal in the process of promoting students' HOTS. It is due to the fact that the understanding and perception of the teacher towards HOTS will affect the successfulness of HOTS cultivation. Further, experts claim that the right conception of HOTS that the teacher has will lead to the right practice as well as will contribute to students' HOTS development. The background of the teacher was also the important point to be portrayed. As what had been stated before that the research was taken place in the state senior high school which belong to the pilot school of the 2013 curriculum enactment, it could be understood that the teacher was already familiar with the integration of HOTS in the teaching and learning process. Moreover, based on the teacher's recognition, she had joined some workshops and trainings related to the 2013 curriculum implementation as well as HOTS integration.

According to the teacher's explanation, HOTS are closely connected to the use of critical thinking and creative thinking. She also mentioned about the cognitive level of Bloom's revised taxonomy but she did not state further about the connection of critical thinking and creative thinking with the taxonomy. Additionally, she said that the three top cognitive levels in the taxonomy, which are analyzing (C4), evaluating (C5), and creating (C6) belong to HOTS. The explanation of the teacher is in line with the statement of Brookhart (2010) and Conklin (2012) about the use of Bloom's revised taxonomy as a guidance to develop students' HOTS.

Being asked further about the integration of HOTS in the process of English teaching and learning, she claimed that HOTS could be presented to the students through HOTS – based exercises and HOTS – based tasks. When being asked about the kind of questions which belong to HOTS, she answered that the questions which belong to HOTS are the difficult questions. The result showed that the teacher still misinterpreted the concepts of HOTS. Further, it can be seen that she is still confused about differentiating skills for solving HOTS problems and skills for solving difficult problems. She had a tendency to assume that HOTS – based questions are the questions which categorized as difficult and complex, whereas, indeed, HOTS – based questions are not always the difficult one, and vice versa (Brookhart, 2010; Conklin, 2012; Mishra & Kotecha, 2016). In addition, Tyas et al., (2019) ensure that the precise knowledge of HOTS is the English teachers' rudimentary armament in promoting students' HOTS through the process of teaching and learning. It means that holding the right conception of HOTS will give advantages for English teachers in cultivating students' HOTS.

Talking further about the teacher's perception towards HOTS, she welcomed the integration of HOTS very much and had a willingness to integrate HOTS in the teaching-learning process since she realized that the skills are needed by the students to face the challenges of the 21st century. However, she explained that she found some difficulties to promote students' HOTS, among others is the heterogeneity of students' thinking ability as well as language mastery. In more detail, she explained that giving HOTS – based questions or exercises to the students whose English mastery is in the upper intermediate level is much easier than giving the questions or exercises to them whose English mastery is in the lower intermediate level. The students with lower intermediate level of English mastery will deal with two things at the same

time, they are the language barriers and the thinking level as well for English is a foreign language for Indonesian students. Related to the existence of English as a foreign language teaching, the study of Singh et al., (2018) indicates that weak English as foreign language learners need special treatment in the teaching and learning process which means that the teacher is required to give more attention to them.

From the result of the English teacher's understanding and affection towards HOTS, it could be portrayed that the teacher is aware of the importance of HOTS and has a strong willingness to integrate HOTS in her classroom. In addition, she actually holds a good understanding about the general concept of HOTS in which she could explained the definition as well as the characteristics of HOTS well. She also has adequate understanding about the relationship between HOTS and Bloom' revised taxonomy. Yet, she still finds difficulties in distinguishing skills for solving HOTS problems and skills for solving difficult problems.

### 3.2. The Role of English Teacher and English Textbook to Cultivate Students' HOTS

After knowing the understanding and perception of the English teacher towards HOTS, it seemed easier to know the teacher's role in cultivating students' HOTS. Through the classroom observation, it is known that the teacher started the lesson by giving some initial questions about the material that would be delivered. The questions that the teacher gave were about to engage the students to the material as well as to connect their real life with the material. The material that was given is exposition text. However, the questions given by the teachers were almost categorized as LOTS – based question, such as:

Table 1. *Questions produced by the English teacher*

No.	Questions	Types
1.	What do you know about bullying?	Lower order thinking skills (LOTS)
2.	Have you ever experienced bullying?	Lower order thinking skills (LOTS)

The questions mentioned above are belong to LOTS – based question in which the questions only focus to know the students' understanding towards the topic given. After giving some initial questions about the topic, the teacher asked to students to look at certain page of the textbook that has the same topic with the previous questions the teacher gave, that is bullying. In the textbook, a text about bullying and a set of questions are presented well. The students were asked to read the text consecutively, after that they were asked to answer some questions following the text in the textbook individually, as follows:

Table 2. *Questions from the English textbook for individual work*

No.	Questions	Types
1.	Do you think bullying is a serious issue in your school? Give reasons to support your opinion.	Higher order thinking skills (HOTS)
2.	Did this opinion article raise/change your awareness about bullying? Please explain.	Higher order thinking skills (HOTS)
3.	Do you think it is necessary to educate people on the issue of bullying? Why? Give reasons to support your opinion.	Higher order thinking skills (HOTS)
4.	Do you think bullying should be declared as a punishable crime? Give reasons to support your answer.	Higher order thinking skills (HOTS)

Having answered some questions in the textbook individually, the teacher then divided the class into several groups to have a discussion. The discussion was initiated by the questions presented in the textbook, as follows:

Table 3. *Questions from the English textbook for group work*

No.	Questions	Types
1.	Discuss the article on bullying in a group. Does it change your perspective on bullying or not? Give reasons to support your answer.	Higher order thinking skills (HOTS)
2.	Are you aware of cyber bullying? Do you think it is worse than physical bullying? Why? Support your opinion with examples.	Higher order thinking skills (HOTS)
3.	What can young people like you do to prevent or stop bullying? List at least three things you and your friends can do to prevent or stop bullying.	Higher order thinking skills (HOTS)

By looking at the set of questions from the textbook, it is clear that the questions are belong to HOTS – based questions since the questions triggered the students to take and use information as a tool to find possible answers or to solve problems in a new situation. It is in line with the definition of HOTS which is proposed by Lewis and Smith (1993). Moreover, the questions are classified into HOTS as the questions are belong to the level of analyzing (C4) and evaluating (C5). In the end of the lesson, the teacher gave the students a homework to write a personal journal in which the question was taken from the textbook, as follows:

Table 4. *Questions from the English textbook for homework*

No.	Questions	Types
1.	Place yourself in the shoes of a person who is bullied every day at school. How would you feel? Write down your feelings and what would you do about it?	Higher order thinking skills (HOTS)

The question for the homework is also classified as HOTS – based questions since it represents the level of creating (C6) of Bloom’s revised taxonomy.

From the result presented above, it could be clearly seen that the questions from the textbook are more HOTS oriented than the questions produced by the teacher. It means that, by looking at the classification of the questions, the questions contained in the textbook have more possibility to cultivate students’ HOTS than the teacher’s questions. Moreover, the result of the observation showed that the teacher tended to depend a lot on the materials and exercises contained in the textbook. Hence, Shomoossi (2004) suggests English teachers to use the questions or exercises provided in textbooks rather than generate questions themselves regarding the types of the questions.

### **3.3. The Students’ responses towards the Role of English Teacher and English Textbook to Cultivate Students’ HOTS**

In the process of investigating the role of English teacher and English textbook to cultivate students’ HOTS, it is crucial to know the students’ responses since they are the parties who have direct contact with the teacher and the textbook, and their responses would be beneficial to search in-depth information as well. In the process of collecting students’ responses, the researchers tried to group the students based on their language mastery; they are above and below the average levels. The grouping process is intended to investigate each group response as the teacher said that the heterogeneity of the students’ language mastery becomes the biggest obstacle along with students’ cognitive level diversity.

The students who have above the average level of English mastery were given a questionnaire which consisted of fifteen statements in which they are asked to give yes/no response towards the statement. The statements are about the use of the question in the textbook, the teacher's role, as well as the process of the teaching and learning in developing their HOTS. After getting the students' responses from the questionnaire, an interview was also conducted to clarify their responses. The students claimed that they are already familiar with the integration of HOTS in English lesson; they also stated that it is the part of their routine English lesson. Being asked about the questions/exercises contained in the textbook that they use as learning material in the classroom, they explained that they did not find any meaningful challenges in understanding and answering the questions presented. When shown questions which belong to HOTS – based questions from the textbook, they showed the same response that they could answer the questions well. In the process of the teaching and learning, the students showed their enthusiasm in following the lesson, yet they did not asked questions to the teacher. When the researchers wanted to clarify the reason behind it, the students argued that they have understood the meaning of the questions and did not need any further explanation about the questions. Talking about the role of the teacher in cultivating their HOTS, the students explained that the teacher plays a bigger role in presenting to them the material related to lesson and has a smaller role in developing their HOTS. They claimed that the questions in the textbook contributed to the cultivation of their HOTS. Moreover, in understanding and answering the questions related to HOTS, they do not find any meaningful difficulties.

The same questionnaire was given to the students whose English mastery is below the average level, an interview was also held to search for in-depth responses. The students had the same claim with the students from the group of above the average English mastery level in which they are already familiar with the integration of HOTS as it is the part of the routine English teaching and learning in their classroom. Being asked about the questions/exercises presented in the government English textbook for the eleventh graders, they admitted that they have difficulties in understanding the meaning of the questions. Their responses are understandable since it is closely related to their language mastery and their lack of vocabulary mastery. Having difficulties to understand the meaning of the questions affects their ability in solving or answering the questions presented to them. The problem makes them face obstacle in solving or answering the questions. The similar response was given by them when the researchers showed them HOTS – based questions contained in the textbook. The response from the students proves that the language barriers do exist. It is in line with the answer of the teacher in which she claimed that language barriers become the obstacle in developing students' HOTS. Due to their limited vocabulary mastery, they often asked questions to the teacher in the process of teaching and learning, their questions were about the meaning of words that they do not know. Interestingly, the teacher did not answer the students' questions directly, instead she tried to give clues or hints related to the meaning of the words the students did not know. She allowed the students to open the dictionary but it is an English to English dictionary in which the definition of the words they asked are also presented in English, this fact required the students to search for clearer answers from the teacher. Talking about the role of the teacher in cultivating their HOTS, the students admitted that she plays a pivotal role in the process of developing their HOTS. It is related to the teacher' role in helping them understand and solve the questions or problems which belong to HOTS type. Further, they claimed that the teacher plays an important role in explaining them the material related to lesson, helping them to understand and solve or answer HOTS – based questions. Specifically, they stated that the helps from the teacher enable them to understand and solve or answer HOTS – based questions although the teacher are rarely giving them HOTS – based questions from her own. They explained that even though the textbook contained HOTS – based questions, they could not be higher order thinker if they do not understand the meaning of HOTS – based

questions contained on it. Moreover, the way the teacher answers their questions, especially about giving clues or hints related to the meaning of words they do not know the meaning, spurs them to think critically. In the end, they said that the teacher has a bigger role in cultivating their HOTS than the role of the questions contained in the textbook.

From the result of students' responses towards the role of English teacher and English textbook, it can be seen that there is a different response between the students whose English mastery is above the average and the students whose English mastery is below the average level. The students with above the average English proficiency claimed that the textbook has a bigger role to cultivate their HOTS, while the students with under the average English proficiency admitted that the teacher plays a more instrumental role than the textbook in promoting their HOTS based on the reasons explained before.

#### **4. Conclusion**

Regarding the role of English teacher and English textbook in cultivating students' HOTS through language teaching, it can be concluded that based on the types of the questions presented, the questions contained in the textbook are more HOTS oriented than the questions produced by the teacher in which it means that the textbook has bigger possibility to promote students' HOTS. In addition, the result of the observation showed that the teacher tended to depend a lot on the material and questions contained in the textbook. However, the teacher also plays an instrumental role in helping the students with language barrier in the process of understanding and answering HOTS – based questions contained in the textbook. It means that there is a symbiotic mutualism between English teacher and English textbook in cultivating students' HOTS. Further, the students with language barriers claimed that the teacher helps them a lot to be higher order thinker. Based on the result of this research, it also could be seen that although the teacher has an adequate understanding about HOTS, although she still holds finds difficulties in distinguishing skills for solving HOTS problems and skills for solving difficult problems. It is the responsibility of the Indonesian government through the Ministry of Education and Culture to give workshops, trainings, and evaluations to ensure that the education practitioners, especially teachers, hold the right understanding and concepts of HOTS in order to be able to integrate it in the teaching and learning process. The teacher's dependency on the materials and exercises contained in the textbook to cultivate students' HOTS is a main trigger for Indonesian government to develop textbooks which can accommodate teachers in the process of HOTS promotion. It also provides a strong basis to conduct future research on the importance of content analysis of the textbook, especially the types of the exercises contained in the English textbooks which are used as main materials in the teaching and learning process. It is also suggested to conduct the research about the implementation of the exercises contained in textbooks in promoting students' HOTS.

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## INFLUENCE OF QUESTIONING TECHNIQUES IN EFL CLASSES ON DEVELOPING STUDENTS' CRITICAL THINKING SKILLS

### *Research Article*

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# TEACHER'S QUESTIONING IN SENIOR HIGH ENGLISH CLASSROOM: AN INVESTIGATION OF STUDENTS' CRITICAL THINKING SKILLS

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## Abstract

Rapid changes in global education directly affect each education aspects including skills that should be mastered by students and teaching strategy used. Moreover, developments of education in the 21st century put stronger importance on Higher-Order Thinking Skills (HOTS) in which critical thinking skills include. In this case, the teacher's questioning as a strategy promoting HOTS to cultivate critical thinking skills will be the concern of this research. The research aimed to examine the level of questions used by the teacher and its contributions to students' critical thinking. The research was carried out using case study design in Senior High School in East Java. In obtaining the data, classroom observation, field notes, and interviews were employed. The results showed that the teacher used both low order questions and high order questions. Additionally, it was also found that lower-order thinking questions could not facilitate students to think critically, however, it only leads the students to understand the concept given. Hence, it was suggested to maximize the use of higher-order levels questions to train the students to think critically.

*Keywords:* Teacher's Questioning, Students' Critical Thinking, Higher Order Thinking Skills (HOTS)

## 1. Introduction

In recent years, critical thinking has become one of the most ubiquitous terms frequently discussed in educational circles because of its great influence on life. Cottrell (2005) mentions critical thinking skills helps students in improving attention and observation, identifying the key points in a text or message, improving their ability to respond to the appropriate points in a message, increasing knowledge of how to get one 's point across more easily and improving skills of analysis. In other words, people with refined critical thinking skills will easily understand the situation around them and surely in making decisions. Moreover, critical thinking is an inseparable aspect of 21<sup>st</sup>-century learning in which Higher Order Thinking Skills (HOTS) required. In line with Kemendikbud (2018) which mentions critical thinking is one of the three essential aspects need in mastering HOTS besides problem-solving and transfer of knowledge.

Ennis (1989) defines critical thinking is reasonable, reflective thinking that is focused on deciding what to believe or do. Critical thinking is reasonable thinking because it demands us to have good reasons for our decisions. Critical thinking is reflective because it involves thinking about a certain problem from several different angles all at once, including thinking

about what the right method is for solving the problem. Critical thinking also aims at deciding what to believe and what to do. In other word, critical thinking links theoretical reasoning (reasoning about what the facts are) with practical reasoning (reasoning about what to do or how to do). Additionally, Fisher (2011) also defines critical thinking is a skilled and active interpretation and evaluation of observations and communications, information and argumentation. In sum, critical thinking is an active process that requires someone to have skill in reasoning, decision making, reflective thinking, and problem-solving.

Knowing that critical thinking is valuable, embedding critical thinking skills in the curriculum through HOTS based learning is undeniable important since it helps sustain an educated citizenry, prepares students to be a success in both career and life, and prepares students to meet mandates of state and national tests and standards (Stobaugh, 2013). Therefore, questioning as strategy promoting Higher Order Thinking Skills (HOTS) (Conklin, 2011; King et. al, 2013) and cultivating critical thinking (Brooks, 2012; Ur, 1996) will become the focus of this research. Ur (1996) defines questioning is a teacher utterance which is commonly used as an activation technique in teaching, mainly within the Initiation - Response - Feedback pattern. Teacher questions are not always realized by interrogatives but can appear in the form of statements or commands. Additionally, questioning can be used to gain the students' oral response which ranges from simple recall of information to abstract processes of applying, synthesizing, and evaluating information (Zepeda, 2009; Stobaugh, 2013).

Based on the explanation above, it can be assumed that students' thinking level is strongly affected by the questions level teacher posed in class. Therefore, Bloom's Taxonomy will be used as a tool to assess the level of thinking and build an understanding of each level. Bloom's taxonomy (1956) classifies the cognitive level into six major headings arranged from simple to complex. It comprises six categories: knowledge, comprehension, application, analysis, synthesis, and evaluation. However, in this research, Bloom's Revised Taxonomy will be used. The Anderson and Krathwohl revision (2001) retains six cognitive process categories: remembering, understanding, applying, analyzing, evaluating and creating. The figure below shows the difference between the original version and the revised one.

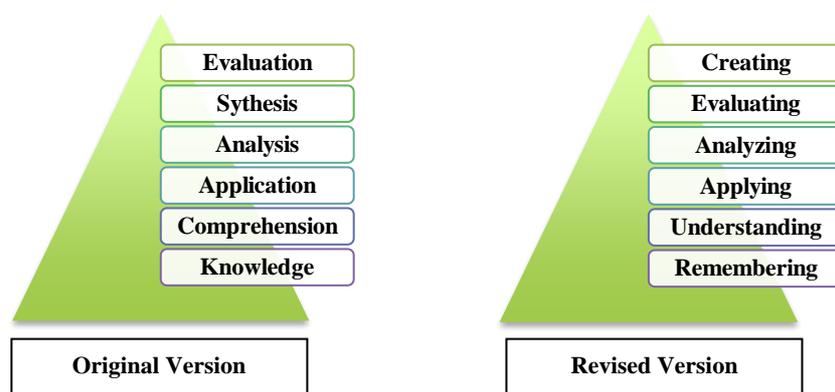


Figure 1. Original Bloom's vs. Revised Bloom's Taxonomy (Conklin, 2011: 51)

Conklin (2011) and Kemendikbud (2018) mention the last top three levels of Bloom's Taxonomy of the Cognitive Domain consider as Higher Order Thinking. Additionally, the last top three levels (analyzing, evaluating, and creating) are often representative critical thinking (Kennedy et al., 1991). In line with the statement mention, Nordvall and Braxton

(1996) also state the top three levels of the taxonomy represent Higher Order Thinking and critical thinking. Further, Brooks et.al (2012) used Bloom's Taxonomy to categorize the level of questions. Level of questions can be classified into two parts that are low order questions and high order questions; each of them can be broken down into several types of questions. High-order questions make greater cognitive demands and require pupils to analyze, synthesize and make evaluations while low-order questions consist of recall questions, comprehension question and application questions which do not require greater cognitive.

The following are some previous studies that discuss teacher's questioning. Rohmah (2003) conducted research using a mixed-method to investigate English teacher's questions in reading classes including types of questions, functions of teacher's questions, question levels and the strategies applied. The data show that the distribution of types of questions prevents the students from talking extensively. It was also found that closed questions dominate the teacher's questions. The closed questions comprise 80% of all questions. Besides, most of the teacher's questions functioned as a way of checking pupils' specific recall of facts. As a result, the students' participation was very little. Another research was done by Khan (2011) also showed that most of the questions categorized as low- level cognitive questions. The total percentage of questions during 445 minutes was 60 percent with 267 questions were asked. Among 267 questions 67 percent were knowledge-based, 23 percent were comprehension based, 7 percent were application-based, percent were analysis based and 1 percent was synthesis based. However, the ratio of evaluation based questions was zero.

Moreover, Ashadi and Lubis (2017) did research entitled A Survey on the Levels of Questioning of ELT: A Case Study in an Indonesian Tertiary Education to examine the levels of questions used by English Education lecturers in their summative assessment in Indonesia tertiary education. It was found that the lower order thinking level still dominated the question types (69%). There were only 31% higher-order questions used on the summative test. Further, Kurniawati and Fitriati (2017) conducted a discourse study which aimed to investigate the teachers' questioning skill in asking the cognitive level of questions during the teaching-learning activity. The teachers also used all of the questioning techniques which are redirection, probing, prompting, wait-time and rephrasing. Additionally, the research showed that the level of question dominating the teaching and learning process is the low-level question which is the understanding level.

Many previous studies (Rohmah, 2003; Khan, 2011; Ashadi and Lubis, 2017; Kurniawati and Fitriati, 2017) have focused more on the types of questions, the functions of the teacher's questions, the levels of the questions teachers posed in the classroom and the strategies applied. However, few research studies have examined the contributions of teacher's questioning on students' critical thinking in the Indonesian context. Recently, cultivating students' higher-order thinking especially critical thinking has become a hot issue in the field of language education. Therefore, this research aimed to examine the level of questions used by the teacher and investigate the role of the teacher's questioning on students' critical thinking.

This research is expected to be beneficial to contribute to the English teachers and other researchers. It is expected that this research will be beneficial as additional references or consideration in conducting further research about Higher Order Thinking Skills (HOTS). Further, it is hoped that the research will give such insight into the essence of teacher's questions and its effect on the teaching and learning process.

## **2. Methodology**

Since the focus of this research is to examine the level of questions used by the teacher and its contributions to students' critical thinking, qualitative research is the appropriate approach to be used to reveal in-depth and detailed information about the event. This qualitative research was conducted by employing a case study as the design. Yin (2018) states a case study is a qualitative approach that investigates a contemporary phenomenon within its real-life context and the boundaries between phenomenon and context that are not clearly seen.

This research was carried out in a Senior High School in East Java. The participants engaged in this research were an English teacher who taught tenth-grade students and 36 tenth grade students. The students consist of 9 male students and 27 female students. Observation, field notes, and interviews were done in obtaining the data. In doing the observation, the researcher acts as a nonparticipant observer. The observation focuses not only on the classroom interaction, but also the learning activities and its contribution to students' critical thinking. During classroom observation, the researcher takes note of what is going on in the class and operates a video recorder to capture the teaching and learning process.

In this research, the interview was conducted to get in-depth information that cannot be attained by observations and to gain further information about the implementation of questioning in the classroom during teaching reading skills. The interview will be addressed both to the students and the teacher involved in this research. The interview was designed to obtain the data related to the contributions of teacher's questions on students' critical thinking. In the process of interview, the researcher uses a recorder to record the entire information provided by English teachers and the students to help the researcher for the ease of data transcription and to provide an accurate record of the conversation. Six students were interviewed in this research to obtain data related to the role of teacher's questions.

In analyzing the data, the researcher used pattern matching as the data analysis technique from Yin (2018). The process of pattern matching is divided into three phases which comprise (1) stating the study's proposition, (2) testing the empirically-found pattern from each distinct method against the predicted one, and (3) providing theoretical explanations and developing research outcome. The researcher develops a hypothesis based on the theory. Cognitive development theory (Bloom, 1956; Anderson Krathwohl, 2001; Conklin, 2011; Stobaugh, 2013) was used in this research. It is assumed that high order questions promote students' critical thinking. Then, the researcher matches the predicted pattern with the founded pattern. After that, the researcher gives a brief explanation related to the research results and findings.

## **3. Findings and Discussion**

In examining the level of questions used by the teacher and its contributions to students' critical thinking, several data got from observation, field notes and interviews were collected. Based on the data that have been obtained, several findings were revealed to answer the problem statements. Below are the findings of the current research that later be justified to other relevant theories.

### **3.1 Cognitive Level of Questions Teacher Asked in Class**

In cultivating critical thinking in class, the teacher used varied cognitive level in giving questions to find out the level of students understanding. The cognitive levels of questions found during the learning process were categorized based on Bloom's Revised Taxonomy. The number of questions the researcher obtained was 70 questions during four

meetings. It was found that low order questions and high order questions were used during the teaching and learning process. The frequency and the sample of the teacher's questions were explained below.

Table 1. *Samples of Questions Asked by the Teacher*

<b>Cognitive Level of Questions</b>	<b>Examples</b>
Remembering	What is congratulating?
Understanding	Can you classify which expressions show congratulation and which expression show complementing?
Applying	When someone congratulates you for example you are having a new phone. What would someone say to you?
Analyzing	Can you differentiate between which one is complementing and which one is congratulating?
Evaluating	I must congratulate you on your success. Do you think that this is also the expressions of congratulation?
Creating	Can you make congratulating card in this paper?

Table 2. *Frequency of Each Cognitive Level of Questions*

<b>Cognitive Level of Questions</b>	<b>Total of Questions</b>	<b>Percentage</b>
Remembering	19	27%
Understanding	17	24%
Applying	8	11%
Analyzing	8	11%
Evaluating	16	23%
Creating	2	3%
<b>Total</b>	<b>70</b>	<b>100%</b>

Based on the data mention, it can be concluded that all types of questions covering remembering, understanding, applying, analyzing, evaluating and creating were used during the teaching and learning process. It also can be seen that there were three dominant cognitive levels of questions asked by the teacher, namely remembering, understanding and evaluating. The results indicated that the teachers asked evaluating questions often among the other high order questions level. It is in line with the result of the interview. The teachers said that evaluating questions were frequently asked.

*Questions that I often used are C4 (analyzing) and C5 (evaluating). However, low order thinking questions comprise C1 (remembering), C2 (understanding) and C3 (applying) are still used in the learning process. While C6 (creating) is used in assigning tasks in the form of directions. However, the proportion of each question is based on the situation in class.*

In terms of the frequency of each cognitive level of questions, as stated in Table 2, the number of low order questions was much higher than high order questions. Low order questions still dominated comparing to the high order questions. The following is the comparison between low order questions and high order questions.

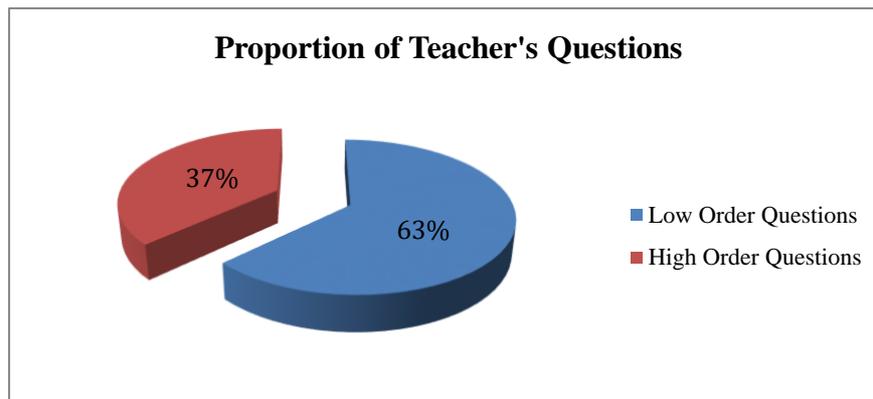


Figure 2. The Proportion of Teacher's Questions

There were only 37% high order questions used in the class compared to 67% low order questions. It is happened due to the difficulty occurred during the teaching and learning process. Students had difficulty conveying ideas due to a lack of vocabulary which made the teacher posing questions that lead them answering questions. It is proved by the observation and interview that limited vocabulary and grammatical knowledge influenced the students' inability to put their ideas into words. Therefore, students rarely respond to teacher questions.

*Students 1: Sometimes, I have difficulty in answering questions given due to the limitation of vocabulary. It makes me difficult in expressing ideas into sentences.*

*Students 2: Unfamiliar vocabulary used in the class makes me difficult in grasping the intention of the questions.*

In solving this phenomenon, the teacher leads the students by giving hint through questions. Sometimes, the teacher repeats the questions given or changes the vocabulary used. In this case, the teacher wants the students to master the material given besides inserting critical thinking skills.

### 3.2 Contribution of Teacher's Questions on Students' Critical Thinking

Based on the observation done during the learning process in the tenth-grade students, the teacher used plenty of low order questions (63%) a whole. It means that the teacher's questions could not improve students' critical thinking due to the number of questions asked, yet it only could facilitate students to think critically. In line with the theory of cognitive domain (Bloom, 1956; Anderson and Krathwohl, 2001; Conklin, 2011), lower cognitive

questions only require students to simply recall the prescribed data from memory, concentrating on factual information. In this research, low order questions asked related to vocabulary and context of the text.

However, the variety of questions the teacher asked in the class cultivates the students' critical thinking skills. In analyzing the contribution of teacher's questions on students' critical thinking, the researcher analyzed low order questions and high order questions. It is known from the questions posed in the class, there are several high order questions asked. Further, the teacher's questions facilitate students to think critically. As stated by Shen and Yodkhumlue (2012), Higher Cognitive Questions can promote students' higher-order thinking, that is, Critical Thinking. Higher Cognitive Questions require students having independent thinking such as problem-solving, analyzing and evaluating information. Moreover, the interview also showed that teacher's questions help students to think critically.

*Students 1: Teacher's questions help me to understand the material and to think critically. The questions asked triggering us to think and comprehend the material. Moreover, the level of the questions which is arranged based on the difficulty level facilitates us in learning the material.*

*Students 2: The existence of the teacher's questions requires us to think in-depth. Moreover, the questions make me feel curious about the material then directly learn it seriously. So, the teacher's questions help me in understanding the material and think critically.*

From the reason aforementioned, it is known that the teacher's questions facilitate students' critical thinking. Yet, due to the number of high order questions which is less than low order questions, teacher's questions could not give a significant effect on the development of critical thinking in class. Nevertheless, it does not mean that low order questions are purposeless in the teaching and learning process. They are still important to be asked because it can lead the students to reach a higher level of cognitive thinking. Additionally, teacher's questions either low or high order questions still become the common strategy for eliciting responses from students during the whole class teaching.

#### **4. Conclusion**

Teachers are an important component in the educational system; therefore, quality teachers are important for the competitive and global world, without exception in this 21st century learning (Mirici & Yangın, 2016). Teachers are required to have several competencies in the teaching-learning process, including understanding the materials, having the ability to use technology, and having broad knowledge about creative strategy in teaching (Astuti, Fauziati & Marmanto, 2019). In this case, teacher's questioning is regarded as one of the essential techniques in the EFL classroom. The act of thinking is often driven by questions (Elder & Paul, 1998). Therefore, through the art of questioning, EFL teachers can help students to build understanding and think critically and creatively. Moreover, questioning helps EFL teachers achieving teaching objectives more effectively and knowing students' potentials. In the present case study, it was assumed that the teacher would ask enough high order questions to promote students' critical thinking. Nevertheless, the findings of the study were in contrast with this assumption. The results showed that low order questions, related to recalling facts or understanding factual information, were often used than high order questions, which require students to have independent thinking and reasoning. The results of the research were in line with the research conducted by Ho (2005)

and Kurniawati and Fitriati (2017). Additionally, the number of high order questions limits the development of students' critical thinking. Hence, it was suggested to maximize the use of high order levels questions to train the students to think critically. It is belief that enacting high order questions could strengthen students' critical thinking. Besides, it is important to prepare the student's language skills to facilitate them in the teaching and learning process.

Although the research has reached its aims, there are some unavoidable limitations. First, due to the time limit, the observation was only done four times. Second, the number of participants was only an English teacher with her 36 students from the tenth-grade senior high schools in East Java. Further, it is suggested for other researchers to broaden the research area. Other researchers are also recommended to investigate the role of teachers' questioning on students' critical thinking, especially in another education field.

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## **A STUDY ON THE IMPACTS OF DIGITAL STORYTELLING ON EFL LEARNERS' SELF-EFFICACY AND ATTITUDES TOWARD EDUCATION TECHNOLOGIES**

*Research Article*

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# A STUDY ON THE IMPACTS OF DIGITAL STORYTELLING ON EFL LEARNERS' SELF-EFFICACY AND ATTITUDES TOWARD EDUCATION TECHNOLOGIES\*

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## Abstract

This study aimed to investigate whether a digital storytelling (DS)-integrated pedagogy was effective for developing students' self-efficacy and attitudes toward educational technology. 43 English-as-a-foreign-language (EFL) English-major students from the School of Foreign Languages (SFL) at Sivas Cumhuriyet University (SCU) participated into this study. There were two groups in the study, namely experimental and control groups. The experimental group was exposed to DS-integrated instruction while no intervention was given to the control group. Control group students followed their regular course requirements. Before and after the experiment, both groups were tested by using a survey aiming to determine learners' self-efficacy beliefs for and attitudes towards the use of technology in education. The quantitative data indicated that the exposure to DS impacted the experimental group students' efficacy and attitudes toward educational technology in the positive direction. However, the control group students' scores did not exhibit a noticeable change. The qualitative data also documented that students heightened their self-efficacy and had a positive stance for the use of technology in their learning as a result of participation into this experiment. The resulting information can be helpful for those who are willing to create a teaching environment that meets the needs and expectations of 21<sup>st</sup> century students.

*Keywords:* digital storytelling, self-efficacy, attitudes, technology, multi-literacy skills, 21<sup>st</sup> century skills

## 1. Introduction

The ubiquitous use of technology has led to a seismic pedagogical shift in educational settings and forced educators to reshape their curriculum compatible with the modern era (Mikusa, 2015). For this reason, scholars are seeking for new ways grounded on a 21<sup>st</sup> century instructional approach (Best, Franklin, & Walthour, 2015) that caters for the needs and expectations of present-day students described as *Net Generation* (Oblinger & Oblinger, 2005; Tapscott, 1998), *digital natives* (Prensky, 2001), *Internet-savvy* (Levin & Arafeh, 2002), *tech-savvy* (NetDay, 2004) or *iGeneration* (Ferriter & Garry, 2010). All these descriptions revolve around the idea of uniformly portraying today's young generation as having an innate ability to use technology comfortably (Prensky, 2001). But indeed such a conceptualization might be a myth (Helsper & Eynon, 2010; Kirschner & Bruyckere, 2017; Margaryan, Littlejohn, & Vojt, 2011; Thinyane, 2010) or an illusion born out of students' familiarity with technology depending on their daily use (Combes, 2006, p. 401) because "there also appears to be a significant proportion of young people who do not have the levels of access or technology skills predicted by proponents of the digital native idea" (Bennett, Maton, & Kervin, 2008, pp. 778-779).

In other words, not all learners may possess the so-called *intuitive* skills, such as digital literacy, spatial-visual, multi-tasking or information-seeking skills associated with using a range of digital technologies (Bennet et al., 2008; Combes, 2012; Margaryan et al., 2011; Thompson, 2013) needed to be considered truly technology literate (Ng, 2012). And the ones who appear to be comfortable with technological devices are largely engaged with basic

technology operations utilized for personal aims in informal settings (Heo, 2009), but not for educational purposes (Kennedy & Fox, 2013; Kumar, 2009; 2010). As suggested by Ng (2012), personal use of technology does not necessarily translate into educational use of technology and *comfort* with employing technology tools on daily basis might not be synonymous with *competency* to utilize these tools efficiently to promote learning (Kennedy, Judd, Churchward, Gray, & Krause, 2008; Oblinger & Hawkins, 2005, p. 12).

Another popular claim for a homogenous generation of digital natives is to assume today's students as always positive for welcoming new technologies in educational contexts, yet this may not be the case at all time (Combes, 2009; Margaryan et al., 2011), because there could also be "as much variation *within* the digital native generation as *between* the generations" (Bennett, et al., 2008, p. 779). It is evidenced that there are still some students in the digital age who are not interested in technology adoption in education (Clayton, Blumberg, & Auld, 2010; Margaryan et al., 2011; Thinyane, 2010), and who do not like the use of technology (specifically the Internet) as learning materials (Combes, 2009; 2012) or not prefer technology-based instruction (Littlejohn, Margaryan, & Vojt, 2010). But as suggested by Ertmer (1999) and Kiili, Kauppinen, Coiro and Utriainen (2016), for successful technology integration, the internal barriers of persons such as negative perceptions of competence, negative attitudes or resistance should be surmounted because the more students become confident and positive for technology use in education, the more enhanced is their participation in learning. Therefore, preparing students who have great comfort in and willingness for the integration of technology is a must in the contemporary education system.

Considering the invasive influence of technology on the way of learning and using a language, language education is no doubt without exception to this phenomenon (Afrilyasanti & Bashtomi, 2011; Eaton, 2010; Kanokpermpoon, 2012). That is, compatible with the modern era, language educators are expected to develop learners' competencies in technology skills and promote positive views on these skills in education settings (Eaton, 2010). Students' effective navigation of technology tools might, in turn, help language learners express themselves better in different modalities (Chun, Kern, & Smith, 2016), which is a prerequisite for an effective adaptation to the society that is constantly producing multi-layered texts in communications in today's world (Torres, Pascual y Cabo, & Beusterien, 2017). To this end, tangible and pedagogically sound methodologies not based on simply equipping classroom with technology, but letting a deliberate technology use through authentic, meaningful, and engaging ways are needed (Eady & Lockyer, 2013; Mikusa, 2015). DS, the combination of the narrative with non-verbal elements (images, sound, voiceover, or videos, etc.), is such a methodology creating a virtual learning environment in which students navigate digital technologies effectively (Robin, 2008; 2016). As a real-life technology-mediated pedagogy, DS allowing for the transfer of personal technological devices into educational venues easily (Heo, 2009) might eventually lead to a change in learners' efficacy and attitudes toward educational technologies in the positive direction. However, examining the effectiveness of DS on learners' self-reported self-efficacy beliefs and their attitudes for educational technologies remains unexplored in the literature.

### 1.1. Aim of the Study

Depending on the gap in the existing literature, this research study aims at exploring (a) the possible effect of exposure to DS on learners' (self-assessed) efficacy beliefs for the technology use in their learning behaviors and (b) the effectiveness of DS on learners' attitudes toward technology use in learning. In light of these purposes, the study addresses the research questions (RQs) below:

*RQ 1: Does a DS experience have an impact on EFL learners' (perceived) self-efficacy beliefs for the use of technology in education?*

*RQ 2: Does a DS experience have an impact on EFL learners' attitude towards the use of technology in education?*

The resulting information might add a lot to the existing literature as to the efficiency of a technology-rich application on enhancing the two affective constructs- *efficacy expectancy* and *attitudes*- towards technology use in educational settings through hands-on experiences gained by composing stories digitally.

## 2. Literature Review

### 2.1. Definition(s) and Description of Digital Storytelling

At the simplest form, DS refers to the new form of the traditional storytelling (Gregori-Signes, 2014; Figa, 2007). Various definitions exist in the literature for DS, also described as multimedia storytelling (Tang, 2016), interactive narratives (Schäfer, 2004), digital compositions (Tatum, 2009), or virtual storytelling (Figa, 2007), but all definitions center around the idea of mixing the narrative with multimedia devices such as images, graphics, music, sound and the author's voice (Gakhar, 2007; Gregori-Signes, 2014) to tell and share a story which generally lasts for 2-5 minutes (Rance-Roney, 2008).

DS emerged in the 1990s and gained popularity with the help of the Center for Digital Storytelling (CDS) (<https://www.storycenter.org>). Through this Center, the notion of DS has spread out and a lot of people from different fields of study have become interested in composing a digital story (Robin, 2008). The CDS has also shared the ways of composing a digital story highlighting its basic elements and suggested seven important elements of digital stories (Robin, 2006; Robin, 2008, p. 223) presented in Table 1:

Table 1. *Center for Digital Storytelling's seven elements of DS*

Elements	Description
Point of View	is the main point of the story
A Dramatic Question	is the question that attracts the audience's attention and is usually answered when the story is finalized
Emotional Content	refers to the points connecting the audience to the story in a personal and powerful way
Gift of Your Voice	is surrounding the narration with the voice of the author to make the story more effective and personal
The Power of Soundtrack	is the music corresponding the story in the background and thus supporting the storyline
Economy	is telling the content as economically as possible
Pacing	is the rhythm of the story

(Robin, 2006; Robin, 2008, p. 223)

In addition to these elements, the stages to compose an effective digital story are also suggested (Frazel, 2010):

- *the preparation stage* in which the students find a topic and write their scripts to be the basis for their digital stories and edit their scripts through feedback
- *the production stage* in which the students select the suitable multimedia elements (e.g., music, images, sound, or voiceover) accompanying their scripts and make their digital stories by using video editing tools (e.g., PhotoStory, iMovie or MovieMaker) or Web 2.0 applications
- *the presentation stage* in which the students show their stories through in-class presentations and post them to the web.

Although some variations can be seen in the process, by following more or less the same stages in the digital-story making, DS can be a valuable tool for educational contexts as a technology-rich application.

## 2.2. The Use of DS in Education (Specifically for Developing 21<sup>st</sup> Century Skills)

The previous research evidenced that DS offers numerous advantages such as creating an authentic environment for learning (Sadik, 2008), building language-driven knowledge (Van Gils, 2005), fostering critical thinking skills (Yang & Wu, 2012), interactive communication (Castañeda, 2013), creativity and inventive thinking (Porter, 2009), creating an agentive sense of self (Hull & Katz, 2006), promoting authorship (Skinner & Hagood, 2008), increasing engagement (Sadik, 2008), academic achievement and motivation (Yang & Wu, 2012), and language learning (Afrilyasanti & Bashtomi, 2011; Gimeno-Sanz, 2015; Yang & Wu, 2012).

DS also helps learners to gain 21<sup>st</sup> century skills by encouraging them to express themselves in different modes, to negotiate, to collaborate, to activate analytical thinking and to communicate interactively (NCREL & Metiri Group, 2003; Niemi, Harju, Vivitsou, Viitanen, & Multisilta, 2014; Robin, 2016). In the 21<sup>st</sup> century framework, effective communication is not limited to using language-only mode, but it covers using different channels and skills to convey the intended message (Torres et al., 2017). Therefore, considering the close relationship between technology and language for expression in different modes, in this new era, the educational standards need to be updated in a way that prepares especially language learners to gain multi-literacies vital for the 21<sup>st</sup> century citizenship (Kalantzis & Cope, 2008). In this sense, DS, grounded on the 21<sup>st</sup> century skills framework (Robin, 2008), might improve multiple literacies (Robin, 2016) in the language education settings. The evidence from the previous research (Castañeda, 2013; Thang, Mahmud, Ismail, & Zabidi, 2014; Vinogradova, 2011) confirmed that the use of DS had positive impacts on building 21<sup>st</sup> century skills by engaging language learners in the process of meaning-making in different modes, negotiation, collaboration, activating higher-order skills, managing complexity, and networking.

## 2.3. Impact of DS on Self-efficacy

In addition to the enhancement in 21<sup>st</sup> century skills as a result of participation into DS, this methodology can also positively impact learners' *perceived efficacy* towards technology skills, which are, as suggested by Robin (2016), inextricably linked to the 21<sup>st</sup> century skills.

Bandura (1997) describes self-efficacy as “beliefs in one’s capabilities to organize and execute the courses of action required to produce given attainments” (p. 3). Bandura (1986) claims that self-efficacy is one of the most influential conceptions in someone’s everyday life execution (p. 390). He also expresses four important sources of self-efficacy as mastery experiences, vicarious experiences, social persuasion and emotional and physical reactions (Bandura, 1994, pp. 2-3).

Depending on the common sense, while modern-day students are often portrayed uniformly as self-efficacious for using digital technologies, it has been reported that a proportion of students still have limited skills in proper use of technology (Compos, 2006; 2012; Kennedy, et al., 2008; Margaryan et al., 2011; Ng, 2012; Thompson, 2013). And the ones characterized as digital natives feel comfortable with using digital devices in personal uses, but infusion of these technology skills in personal lives may not always ensure being efficacious in utilizing technology for educational purposes (Kennedy & Fox, 2013; Messineo & DeOllas, 2005). That is to say, the pedagogic use of technology in learning contexts may not be the characteristic feature of this Net generation (Kirschner & Bruckyere,

2017). Therefore, today's students may also need to develop technology literacy skills specifically applicable for educational purposes, through active participation into authentic and relevant technology integrated activities such as DS (Heo, 2009; Sayavaranont & Wannapiroon, 2017). Digital-story preparation can change learners' beliefs in regards to the perceived technology proficiency level in the positive direction by creating a virtual environment in which learners effectively navigate technological tools to make meaning in different modes throughout the digital story making process including designing, shooting and evaluating steps (Robin, 2008).

In this vein, a small but growing amount of research evaluated the effectiveness of DS on learners' self-efficacy beliefs. Heo (2009) conducted such a study with the participation of 98 pre-service teachers whose major was English language teaching by testing the effect of experiencing DS on self-efficacy beliefs and dispositions toward educational technology in a pre- and posttest survey design. Before and after the implementation, a Likert scale survey was applied in order to assess the possible changes in the variables as a result of participating in a DS-integrated methodology. The results indicated positive changes in the researched foci after the DS-integrated implementation.

Similarly, Li and Morehead (2006) examined how a DS experience affected self-efficacy beliefs for technology use with 20 students from a mid-western American university, each of whom formed a digital story after six workshops. The data were collected by pre- and post-surveys and semi-structured interviews. The findings showed that DS was effective in teacher education programs in order to raise students' self-efficacy for technology use in education. As a more recent study, Kauppinen, Kiili, and Coiro (2018) also investigated the possible uses of DS in improving self-efficacy level for technology integration through self-evaluation reports administered following the DS implementation. The participants were 37 pre-service teachers who composed a digital story in small groups. The researchers reported that DS had a great potential to enhance learners' confidence for technology use in their learning.

Given these findings, it is safe to conclude that DS is a promising method to heighten prospective teachers' self-efficacy beliefs for the use of technology in education. However, these studies were notably conducted in pre-service teacher education programs; therefore, it might be misleading to generalize the results to other *learner populations*. Spicer's (2013) study may contribute to the literature in this sense by examining the use of DS to heighten confidence in technical skills from the learners' point of view. The study scrutinized whether DS impacted perceived self-efficacy for technical skills specifically in media production. There were 12 students participating to the study in which data were collected through pre- and posttest surveys and semi-structured interviews. The researcher concluded that an experience of digital story making affected learners' self-efficacy beliefs in technical skills in the positive direction. Castañeda and Rojas-Miesse (2016) also attempted to research whether DS was effective on the construct of self-efficacy towards technology use in education from the learners' perspectives in a one-semester mixed-methods study. The participants were 11 university level foreign language students. Quantitative data were gathered from pre- and posttest surveys. The researchers concluded that DS facilitated learners' perceptions of technology self-efficacy in a language learning environment.

#### **2.4. The Impact of DS on Attitudes (toward Educational Technology)**

In addition to ensuring some possible changes in the self-efficacy level after having hands-on experiences through technology-enhanced learning, DS, a technology-rich methodology, can also have the potential to affect the participants' attitudes toward educational technologies. *Attitude*, defined in the negative sense as negative dispositions, feelings or resistance toward a certain situation (Aiken, 1980), is needed to be overcome for effective

technology use in educational settings (Kiili et al., 2016). Opposing to the assertion of a homogeneous generation who unanimously expects a radical transformation in traditional education in a way that is equipped with technology (see Prensky, 2001; Tapscott, 1998, for discussion), some students may not be as favorable as assumed for the adoption of educational technologies (Margaryan et al., 2011; Bennet et al., 2008), presumably because the frequent and personal use of technology may not predict motivation for the educational technology (Margaryan et al., 2011; Mikusa, 2015). In order to make students more positive towards technology employment in education, as suggested by Heo, (2009) and Sadik (2008), there is a need for the exposure to real-life, meaningful experiences like DS that encourage positive perceptions of technology utilized for learning and further adoption.

Although the research focus is not on the attitude change, Yavuz Konokman and Yanpar Yelken (2016) investigated the effect of digital story-making on prospective teachers' resistance toward research and technology-oriented education with 50 participants at Mersin University in Turkey in two groups: one experimental group asked to compose a digital story through an inquiry-based learning approach and one control group asked to prepare a digital story through an explanatory teaching approach. The results indicated that digital storytelling changed the experimental group students' resistance toward technology-based instruction in the positive direction. Balaman (2016) also explored the effectiveness of DS on learners' attitudes toward instructional technologies with one group pre- and posttest research design with 20 students from Turkey. The students composed a digital story within a 14-week period of time. Data were gathered from a survey implemented before and after the experiment and semi-structured interviews when the implementation period was finalized. The results showed that DS experiences changed learners' attitudes in the positive direction even though the result is not statistically significant.

As seen from the above, DS can effectively change someone's attitudes, perceptions, perceived abilities and competences, all of which, as suggested by Bandura (1994), are forming the underlying structure of one's *self-system* holding a major role in shaping perceptions of specific situations in the world and the reactions in differing environments. The findings of the existing studies mentioned above are important in shedding light on the literature as to the positive effect of DS on the two variables, namely *self-efficacy* and *attitudes*, which are quite important for acceptance and the utilization of technology in education, but there is a lack of research which tests the efficiency of the tool in affecting both factors within the same context. Moreover, most of the above-mentioned studies were notably conducted with pre-service teachers; the results of which may not be generalized to *learners'* settings. More importantly, apart from Castañeda and Rojas-Miesse's study (2016), not much information was evidenced in a research study regarding the role of DS in developing either variable from the learners' perspectives in a language education context. Depending on this gap, this study might add a lot to the related literature in this vein.

### 3. Methodology

#### 3.1. Participants

This research was implemented at SFL, SCU, which is a state university in Turkey. There are two one-year English language instruction programs at SFL, one is based on compulsory English language education and the other has a voluntary basis. The participants were 43 EFL students (12=male, 21=female) recruited for the study in two groups: experimental (n=23) and control groups (n=20). The participants were English-major students at prep school where one-year intensive English language instruction was compulsory. These students' proficiency level was intermediate. The participating students were taught in four language skills and grammar 25 hours a week in total. The researcher was also the instructor of these

students in the writing course in which this current study was carried out. The students were given a five-hour writing course per week.

Since this study aimed to test the possible changes in the related variables for technology use, prior to the implementation, students' existing computer and Internet experiences were also determined in both groups (Heo, 2009). Depending on the results, it is found that students existing computer experience ranges as follows: less than 1 year (9.3 %), 1-3 years (20.9 %), 3-5 years (18.6 %), 5-7 years (16.3 %) and more than 7 years (34.9 %). In addition, their Internet experiences change from less than 1 year (4.7 %), 1-3 years (2.3 %), 3-5 years (34.9 %) to 5-7 years (23.3 %) and more than 7 years (34.9 %). The statistics for students' daily computer use range from less than 1 hour (62.8 %), 1-3 hours (32.6 %) to 3-5 hours (4.7 %). Their daily internet use changes from less than 1 hour (24.9 %) and 1-3 hours (23.3 %) to 3-5 hours (30.2 %) and more than 5 hours (21.6 %). With all this demographic information, it can be stated that the students had a considerable amount of experience in terms of the Internet and computers.

### 3.2. Materials and Instruments

For the experimental group, online video-editing software, namely *WeVideo* ([www.wevideo.com](http://www.wevideo.com)), a tutorial for the software use, storyboarding sheets, *Google Drive* (<https://drive.google.com>) and *Facebook* ([www.facebook.com](http://www.facebook.com)) accounts were utilized. *WeVideo* is free cloud-based software allowing storytellers to capture, create, view and share their digital stories. Through this video-editing tool, anyone can create a digital story by mixing both verbal (e.g., the script) and non-verbal elements (e.g., images, music, effects, or voiceover) and store it online. This Web 2.0 tool provides a virtual environment in which students prepare their stories collaboratively. What distinguishes *WeVideo* from the other software tools (e.g., *PhotoStory* or *MovieMaker*) is the feature of not requiring any programs to install on a computer. Students can work on their digital stories at any time on a computer which has the Internet connection. Therefore, *WeVideo* is largely recommended for educational purposes (Gliksman, 2016; Robin, 2016). See the figure below:

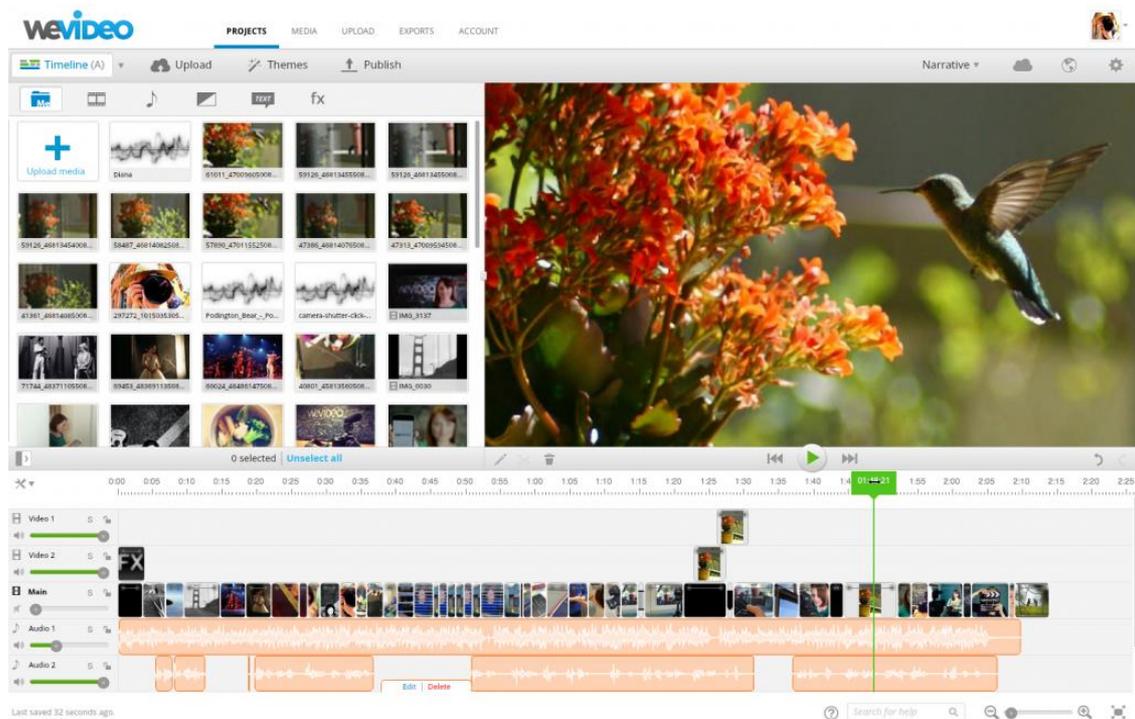


Figure 1. Screenshot of *WeVideo*

*Google Drive* (<https://drive.google.com>), a cloud-based application, was also utilized for getting feedback about the storyboarding sheets in which students made plans about the structure of their digital stories in detail. The digital storyteller got feedback either from the teacher or from a classmate by using his/her account. This application with its important component namely *Google Docs* allows users to make or receive comments or edit the text collaboratively (Ambrose & Palpanathan, 2017) by highlighting the specific parts of the text. As for sharing the videos, *Facebook* ([www.facebook.com](http://www.facebook.com)), a social networking site, was utilized. Before the implementation, the researcher had created a closed *Facebook* group, namely *Digital Storytelling*, only the members of which could share digital videos, see the posts, make comments or like posts. The students from the experimental group used this *Facebook* group throughout the implementation (See Figure 2 for a sample digital video shared on *Facebook*).



Figure 2. Screenshot of a sample digital video posted on *Facebook*

The students in the traditional instruction type did not use any of the materials mentioned above. As for the data collection instruments, a pre- and posttest survey was used for both groups. This five-point survey, ranging from strongly disagree (1) to strongly agree (5), was composed of two sections. Before using this scale in the actual study, it was piloted with 51 students from SFL at CU. This piloting section helped the researcher to check the internal consistency of the instrument. Additionally, the piloting session allowed the researcher to make necessary changes such as deletion of irrelevant items, adding new ones or rewording ambiguous expressions. The finalized version used in the actual study had 39 items in total. In addition to these 39 items asked in the two sections, this survey also had a cover page and a demographic information part asking the participants to state their experience with computer and the Internet (Heo, 2009).

The first 16-item section aimed to assess participants' self-efficacy beliefs for technology use in their learning behaviors. This section was adapted from the survey used by Wang, Ertmer and Newby (2004) in order to assess pre-service teachers' self-efficacy beliefs for technology integration in their instruction. Since the original scale was prepared to be used for pre-service teachers, the researcher of this current study made necessary changes in the wording such as using *learning* instead of using *teaching* before the piloting the instrument.

The reliability scores of the first section of the survey were .92 and .96 Cronbach's *a* scores at pre and posttests, respectively.

The second 23-item section of the questionnaire was designed to explore learners' attitudes toward technology use for educational purposes by adapting the existing questionnaires including the Information and Communications Technologies Scale by the University of British Columbia (*UBC ICT Instrument*) (Guo, 2006) and the other well-grounded scales found in the previous literature (Kay, 1993; Kirsch, Jamieson, Taylor, & Eignor, 1998; Loyd and Gressard, 1984). This section of the survey had .90 and .93 alpha scores at pre- and posttests, respectively.

The two-section survey was administered to students in two groups in Turkish before and after the experimental phase. Another data collection instrument was the semi-structured interviews conducted with ten experimental group students after the intervention was finalized to explore their in-depth analysis of the implementation. These interviews were carried out in Turkish and recorded by the researcher.

### 3.3. Data Collection Procedures

At the beginning of the term prior to the study implementation, the instructor/researcher was assigned to two prep classes by SFL at SCU. With the purpose of this research study, the researcher named these two classes as experimental and control groups randomly. The researcher was responsible for teaching writing to these both groups in five hours a week. This current research study was implemented within a 14-week period in total. The DS-experiment was integrated into this five-hour writing course for the experimental group. Each student from the experimental group composed five different digital stories in the given topics in the narrative paragraph-writing genre, but not in the other paragraph types. Initially, five hours per week were allotted for the implementation, but the allotted time was reduced to two or three hours a week in course of time. Each digital story was prepared by following the route (Frazel, 2010; Mitsikopoulou, n.d.) shown below:

Table 3. *Digital story making procedure*

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#### Preparation stage

- Writing the narrative paragraph on the given topic to be the basis of the digital story (about 180-200 words)
- Discussing and editing the script via feedback given by the teacher or classmates using Google Drive accounts
- Storyboarding, a graphic organizer in which plans as to visualizing and detailing all aspects of the story are made

#### Production stage (technology integration stage)

- Selecting or creating non-verbal elements (e.g. images, sound, or music)
- Accompanying the script with non-verbal elements using the storyboards
- Capturing the written script as a digital voiceover in the digital story (using *WeVideo*)
- Rendering into the video file format by using all the related elements (e.g., script, music, and images) using the *WeVideo* tool
- Finalizing the videos by making final checks

#### Presentation stage

- Playing the stories for the audience (showing the artefacts through in-class presentations)
  - Posting the digital stories to Facebook
  - Getting further feedback for digital stories (through Facebook) and commenting on others' digital stories (on Facebook)
-

The control group followed routine pen-and-paper-based traditional writing practices. Like the experimental group, the control group students wrote five paragraphs in the same topics in the narrative writing genre. Both groups had the same syllabus and teaching materials for the five-hour writing course throughout the process. But experimental group students were also expected to go through a digital-story making process alongside with the course requirements.

At the beginning of the experimental phase both groups were administered a pretest survey to reveal the participants' existing efficacy and attitudes toward the educational technology use. The same test was re-administered to the two groups at the end of the experiment as the posttest survey. Moreover, ten experimental group students were interviewed by the researcher as to whether digital story making was effective for the two foci in question at the end of the study.

### 3.4. Data Analysis

To answer the RQs aiming to explore the impact of DS experiences on learners' self-efficacy levels and attitudes toward educational technology, both quantitative and qualitative data were collected. The quantitative data were yielded from the pre/posttest survey with two sections (the self-efficacy subscale and the attitude subscale) administered to both groups and analyzed by the Statistical Package for Social Sciences (SPSS) program. For the first RQ, the scores gathered from the first section of the pre- and posttest survey were averaged for an overall self-efficacy score for each group in each test and these average scores were used for the subsequent analyses. Then a 2×2 mixed Analysis of Variance (ANOVA) was used to test the possible impact of DS on learners' self-efficacy for technology use in their learning. A similar procedure was followed for the second RQ regarding the quantitative data gathered from the second section of the pre- and posttest survey results and analyzed using the SPSS program. The quantitative data were averaged for an overall attitude score for each group in each test and these average scores were used for the subsequent analyses. Then, a two-way mixed ANOVA was run to determine if there was an interaction between the variables. The independent variables in this study were *group* and *treatment time points* while the dependent variables were pre- and posttest scores.

In addition to the quantitative data, for an in-depth analysis, the researcher also collected data for the two RQs through semi structured interviews carried out with ten experimental-group students at the end of the current experiment. The interviews were carried out in Turkish. The students were asked if the DS-making process affected their self-efficacy and attitudes toward education technologies. The recorded interviews were transcribed verbatim, coded and grouped into the themes by the researcher.

## 4. Results

### 4.1. The Impact of DS on Learners' Self-Efficacy Levels

The results yielded from the analysis of both groups' pre- and posttest scores through the mixed ANOVA test were shown in Table 4:

Table 4. *The mixed ANOVA results for self-efficacy scores*

Source		Sum of Squares	df	Mean Square	F	Sig.	$\eta^2$
time* group	Sphericity Assumed	5.899	1	5.899	16.488	.000	.287
Error(time)	Sphericity Assumed	14.668	41	.358			

This table indicated that a statistically significant group by time interaction was found,  $F(1, 41) = 16.488, p < .001$ , partial  $\eta^2 = .287$ , suggesting that the treatment type (group) differentially impacted the participants' self-efficacy levels in technology use over time.

The source of this two-interaction was further analyzed by using graph lines and General Linear Model (GLM) follow-up ANOVAs.

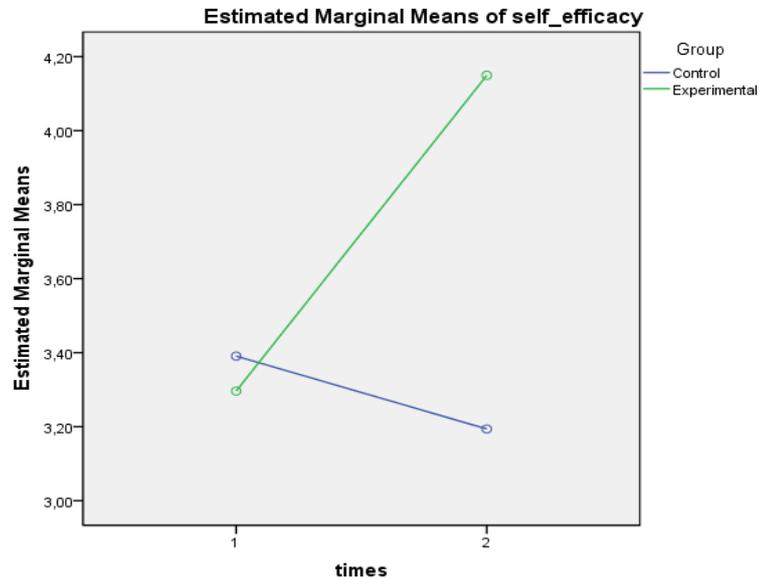


Figure 4. The estimated marginal means of self-efficacy

Figure 4 illustrates that the crossover of the lines means an interaction between the independent variables (*time and group*) for the dependent variable (self-efficacy scores). In the pre-test, the two groups' scores were nearly the same; however, at the posttest, although the control group students' scores did not change dramatically, the experimental group substantially increased its score. It is clear that the gap between the groups was widened at the posttest, suggesting the superiority of the treatment instruction (*DS-integrated approach*) over the traditional method.

Follow-up between-group and within-group univariate ANOVAs also indicated that the experimental and control groups' pre-test results were not statistically different at the outset,  $F(1, 41) = .174, p = .679$ , partial  $\eta^2 = .004$ . However, after the experimental phase, a significant difference between two groups was calculated,  $F(1, 41) = 20.279, p < .05$ , partial  $\eta^2 = .331$ , suggesting that the level of self-efficacy beliefs for the technology integration was statistically significantly higher in the experimental group ( $M = 0.96, SE = 0.21$  mmol/L,  $p < .05$ ), compared to the control group.

As for within-group comparisons, no statistically significant effect of time on self-efficacy scores for the control group was found,  $F(1, 19) = 1.153, p = .296$  partial  $\eta^2 = .057$ . This result implies that the control group students' self-efficacy levels did not change over time. For the experimental group, a statistically significant effect of time on self-efficacy scores was elicited,  $F(1, 22) = 22.247, p < .05$  partial  $\eta^2 = .503$ , demonstrating that the experimental group significantly scored higher at the posttest, ( $M = .85, SE = 0.18$  mmol/L,  $p < .05$ ), compared to the pre-test. Overall, on the basis of the simple main effect of time results, it can be concluded the treatment type differently affected the groups' self-efficacy scores in favor of the DS-integrated instruction type.

In addition to the quantitative data, the qualitative data aiming to gather learners' perceived beliefs for their efficacy in educational technology use were also analyzed and found that a vast majority of the interviewees (9/10) expressed that they had a heightened level of efficacy for technology use as a result of the participation into this implementation. Sample quotations are shown in Table 5 below:

Table 5. *Sample extracts taken from interviewees' responses for RQ 1*

Interviewee	Interviewees' responses
1	<i>"At first, of course I had difficulty in preparing my video. But in the second or third ones, we started to develop these videos more comfortably. I feel more confident in those issues now".</i>
2	<i>"Yes, I have never prepared a digital story before. Through this implementation I learned how to make a digital story. It is good for me. (...) but at first when you first stated this [the DS implementation] at the beginning of the year, I was really anxious for that because I had never used such video-making programs before. But not now".</i>
3	<i>"My stress level for technology use decreased after this implementation".</i>
6	<i>"Before this study, I did not even have an email address, so with this task I had my first email address. Additionally, I had difficulty in combining multimedia elements such as visual music etc. I was typing very slowly. But after this project, I started to type faster".</i>
7	<i>"Yes, because at the beginning, I did not have any idea about technology use. So, at first, I was really afraid of not preparing the task properly or not comprehending what I had to do. But then, I saw that I could use the technology in my learning effectively".</i>
10	<i>"Yes, it [this implementation] increased my confidence. At the beginning, I was afraid but after this project, I believe that I can help anyone who needs help in technology use in learning".</i>

As seen from the excerpts, students seemed to overcome their initial anxiety for the use of technology and they developed a sense of confidence for getting involved in such tasks. Additionally, some interviewees (Students 1, 2 & 6) also noted that through this implementation, they felt more comfortable in using technological tools for subsequent technology-integrated tasks (Table 6):

Table 6. *Sample extracts taken from interviewees' responses for further use of technology*

Interviewee	Interviewees' responses
1	<i>In my subsequent projects, I can comfortably use technology and will have no stress.</i>
2	<i>By using these programs [DS programs], I saw that I would use those programs by myself for any technology-supported projects. I had high confidence for technology use after I prepared my videos.</i>
6	<i>Now I had a higher confidence for any technology-based projects. Now I know everything related to computers because while preparing my digital stories I mistakenly entered into other sites many times, which in turn increased my efficacy for technology use in my learning.</i>

To sum up, the collected qualitative data revealed that an overwhelming majority of the students did not feel anxious for using technology in their learning after this implementation. That is, in accordance with the survey results, it seems that DS positively impacted the students' self-efficacy beliefs for the technology use in their learning.

#### 4.2. The Impact of DS on Learners' Attitudes toward Educational Technologies

The quantitative data results yielded from the analysis of the two groups' pre and posttest scores via the mixed ANOVA are presented below:

Table 7. The mixed ANOVA results for attitude scores

Source		Sum of Squares	df	Mean Square	F	Sig.	$\eta^2$
time*group	Sphericity Assumed	2.453	1	2.453	9.280	.004	.185
Error(time)	Sphericity Assumed	10.838	41	.264			

Table 7 illustrated that there was a statistically significant two-way (group\*time) interaction,  $F(1, 41) = 9.280$ ,  $p = .004$ , partial  $\eta^2 = .185$ , suggesting that the treatment type (group) differentially impacted the participants' attitudes toward the technology use over time. The source of this interaction was further analyzed by using graph lines as shown in Figure 5 below:

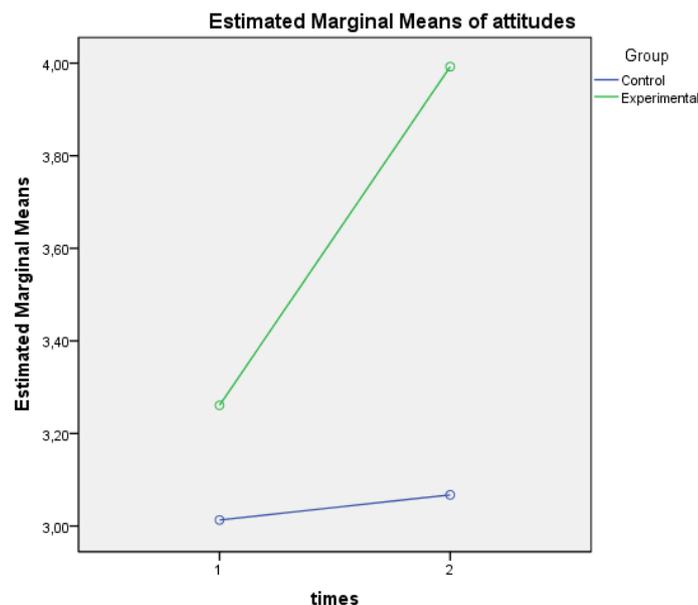


Figure 5. The estimated marginal means of attitude scores

This figure illustrates that at outset the difference between the two groups' pretest results was not very high; however, at the posttest, the two groups' posttest results were very different from each other in favor of the experimental group. Although the control group's scores did not exhibit a noticeable change, the experimental group substantially increased their scores. It clearly reveals the superiority of the treatment instruction (*DS-integrated approach*) over the traditional method.

In addition to this, between- and within-group comparisons were also calculated by using univariate ANOVAs. No statistically significant difference between both groups' pre-test results was found,  $F(1, 41) = 1.528$ ,  $p = .223$ , partial  $\eta^2 = .036$ . But the experimental group's posttest results were significantly higher from those of the control group at the posttest,  $F(1,$

41) = 34.636,  $p < .001$ , partial  $\eta^2 = .458$ , suggesting that through DS, the experimental group had more positive attitudes toward the technology use in education, ( $M = 0.92$ ,  $SE = 0.15$  mmol/L,  $p < .05$ ), than its traditional counterpart.

Within-group ANOVAs also indicated that there was not a statistically significant effect of time on attitude scores for the control group,  $F(1, 19) = .122$ ,  $p = .730$  partial  $\eta^2 = .006$ , implying that that the control group's pre and posttest results did not change significantly.

For the experimental group, it was found that there was a statistically significant effect of time on attitude scores,  $F(1, 22) = 21.655$ ,  $p < .001$  partial  $\eta^2 = .496$ . This finding shows that the experimental group had more positive attitudes toward technology integration at the end of the implementation, ( $M = 0.73$ ,  $SE = 0.16$  mmol/L,  $p < .05$ ), compared to the pre-test scores. Overall, the quantitative data illustrated that the DS-integrated pedagogy was effective for positively impacting learners' attitudes toward the use of technology for educational purposes.

The qualitative data collected through semi-structured interviews illustrated that all of the 10 interviewees unanimously stated that they were more positive for the utilization of technology in education as a result of participating into this task. Table 8 indicates some sample excerpts:

Table 8. *Sample extracts taken from interviewees' responses for RQ 2*

Interviewee	Interviewees' responses
2	<i>"I became more positive towards such tasks. I started to do them by enjoying. To be honest, I did not enjoy at first and I was negative towards technology use in class but later it changed. I started to enjoy. Now I find those tasks more enjoyable. Therefore, such implementations should be used in courses because they can attract students' attention and students can participate into such courses more".</i>
5	<i>"At first, I was negative but after I prepared my digital stories I started to deal with technology because it made my job easier. I am more positive now. I found it more enjoyable and much easier. I think I can do well with computers".</i>
7	<i>"Before this implementation, I did not have any knowledge, desire or interest for technology. But after I saw that I could use technology effectively in my learning, I became more positive because it was more enjoyable".</i>
9	<i>"At first, I have not heard about WeVideo, so actually I was a bit negative because of my anxiety for technology use. But by using this program, it became enjoyable for me. Even now I show my other friends how to use this program because it is really enjoyable".</i>

As seen from the quotations above, in time students seem to have overcome their fears of using a technology-rich application and enjoyed more. What is striking is that these students mentioned that they were willing to use this technological tool in later projects, clearly indicating that they had a positive stance towards the use of this tool in education. In conclusion, depending on both qualitative and quantitative findings, it is worth noting that the students were more positive towards using technology in their learning through DS. Hence, it seems that the DS-integrated pedagogy positively affected the participants' attitudes towards technology use.

## 5. Discussion

In line with the claims by Bennet et al. (2008), Li and Ranieri (2010), and Margaryan et al. (2011) suggesting that today's students are not as homogenous as assumed in technology use with ease and confidence, students in this current study reported having fears, anxiety or hesitation towards education technologies in the initial phase of the study. But the exposure to DS impacted participants' confidence and also their attitude towards education technologies in the positive direction. Moreover, this study revealed that the DS intervention positively affected the students' likelihood of integrating technology in their subsequent activities.

The findings of this study are parallel to the results of the previous research reporting that the DS experience positively affected participants' technology competencies (Castañeda & Rojas-Miesse, 2016; Heo, 2009; Kauppinen et al., 2018) and views (Balaman, 2016; Yavuz-Konokman & Yanpar-Yelken, 2016) on using technology for educational aims.

The positive outcomes of this study with regard to the heightened self-efficacy scores can be tied to the following points: First, students dealt with the technology tools effectively in almost each phase of the implementation from finding the related multimedia elements to publishing the digitally-composed videos on Facebook and as mentioned by Gimeno-Sanz (2015), the *learning-by-doing mechanism* enacted through the DS-intervention might have positively influenced learners' perceptions of their abilities in employing technology tools in educational settings.

Also, the *mastery experience*, the most important source of the self-efficacy construct (Bandura, 1994), which is based on the idea that one's performance accomplishment or failure is determinant of one's self-assessment of success in an endeavor (Bandura, 1977; 1997) can explain students' high scores in the variables of the current study. Throughout the study, students' creation of five tangible end-products might have given a sense of accomplishment in this technology-oriented task based on hybridizing the traditional storytelling with new ways utilizing technology products and practice, and this evidence of mastery experience might have eventually reinforced efficacy in the subject matter (Castañeda & Rojas-Miesse, 2016).

The other source of self-efficacy, *vicarious experience* (Bandura, 1997), might have been promoted through the evidence gathered by observing others' performances in digital-story making and in turn believing that they can also show similar performances (Castañeda & Rojas-Miesse, 2016). Additionally, the third source of self-efficacy, *verbal persuasion* (Bandura, 1994), might have been fostered by both the teacher and classmates' constructive comments made on the performances (Castañeda & Rojas-Miesse, 2016), most of which were in the positive direction. As suggested by Bandura (1997), getting positive feedback from the others is associated with an increase in one's efficacy perception. The last source of this construct impacted in this intervention is *emotional arousal* (Bandura, 1977). The non-threatening but supportive environment ensured in this study might have been effective for overcoming learners' negative feelings such as anxiety, discomfort, or fear and have helped learners become comfortable in navigating technology tools much more effectively.

The results as to the positive attitudes toward educational technology use yielded in this study can be best explained by the *perceived usefulness of the task*, an important factor for the technology usage intention (Davis, Bagozzi, & Warshaw, 1989). Because this technology-oriented task promoted effective expressions in different modalities, the participants might have evaluated that technology tools are of essence for multimodal communications relevant to today's world, eventually resulting in holding a more positive

stance for technology-enhanced instruction. The positive results regarding the attitude score can also be attributed to another essential factor for the intention to use technology, the *enjoyment* factor (Lee, Cheung, & Chen, 2005). As highlighted in the interviews, students seem to have enjoyed through this real-life pedagogy, thus favorably affecting the views on using technology in education. *Perceived ease of use* in this innovation also emerges as an important factor affecting the students' views of using technology tools in learning behaviors, as evidenced in the related literature (Davis, 1985; 1989; Lee, 2009). Through DS students deployed readily available technology with ease, which might have led the students to be more positive for such technology-enhanced tasks by helping them transfer their knowledge and experience regarding the use of technology for daily routines to learning environments.

Moreover, the *positive attitude* for educational technology after participating into this study can also be linked to the mutual relationship with the concept of *self-efficacy*. The evidence from the previous studies (Agarwal & Karahanna, 2000; Compeau & Higgins, 1995; John, 2015) confirmed that because self-efficacy is antecedent to cognition, one's positive perception of the competencies in technology skills is the predictor of technology acceptance. That is, if someone believes that s/he has the related skills to accomplish a task or feels that s/he can be capable of doing a particular job, that person becomes more positive, excited and enthusiastic in performing that task (Kulviwat, Bruner, & Neelankavil, 2014, p. 192). Moreover, it is suggested that when someone becomes efficacious with a technology-oriented resource, the more likely s/he will evaluate the subject as useful, enjoyable, and easy (Kulviwat et al., 2014), all of which are the important factors for the "attitude" variable (Alenezi, Abdul Karim, & Veloo, 2010). From the opposite point of view, it is also documented that someone's attitude for technology use is the determinant of his/her efficacy expectancy (Wu & Tsai, 2006). And few other studies (e.g., Alanazy, 2018; Yau & Leung, 2018) confirmed that there is a significant positive relationship between these two constructs in technology acceptance and use. In this sense, yielding high scores regarding the two variables, *self-efficacy and attitude*, can be associated with the reciprocal relationship between these two foci. Depending on this, a possible future study which will specifically investigate whether these constructs are related to each other within the scope of DS-intervention might contribute a lot to the existing literature.

## 6. Implications and Conclusion

On the basis of these findings, it can be underlined that DS is a viable methodology to improve confidence in technology literacy skills and to help learners become more positive towards such technology-based practices. Considering that holding favorable attitude and positive expectancy beliefs is a precursor to adoption and use of technology continuously (Mikusa, 2015), the conclusions of this study can help those who would like to open up a new channel enabling learners to overcome the internal barriers by navigating technology tools effectively and transferring their technology knowledge to education environments. Having regard to the close link between language and technology, especially the educators in the language-education context need to develop their learners' competencies in technology skills and promote positive views on these skills in education settings (Eaton, 2010) and for these purposes, DS seems to be a promising way to enable language learners to deal with technology tools effectively to gain multiple literacy skills.

However, teachers who are willing to benefit from DS should be cautious in some points. First, it should not be expected to integrate technology at every phase of teaching. That is, because DS requires a long duration to be implemented, for each course it may not be feasible to integrate this technology into the instruction. Moreover, before implementing such a tool, a careful planning should be made predetermining the needed time, sufficient

materials, applicability of the tool in the relevant context and the match of DS-integrated instruction with the curricular objects. Otherwise, the process can be overwhelming both for educators and for students. However, all in all, with a careful design of the process, DS can be effectively applied in classroom settings where students will gain vital skills and competencies needed in this millennium (Miller, 2009; Sweeney-Burt, 2014).

#### **ENDNOTE**

\*This text reports partial findings of the author's PhD dissertation entitled "*The impact of digital storytelling on English as a foreign language learners' writing skills*".

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