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IMPROVING PROFESSIONAL PRACTICES OF IN-SERVICE TEACHERS IN DELHI

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Abstract

Innovations are changing everything from school culture to student assessment. Changing educational needs of the student and advancement in technology has widened the area of responsibilities of teachers. Pre-service and in-service teachers training became crucial in this aspect. However, studies in field of teacher education point towards various lacunas in pre-service as well as in-service teacher education. In a bid to robust education system in national Capital, the Government of Delhi, began reforming school education in Delhi in 2015 by designing and successfully implementing large scale programs. Placement of Teacher Development Coordinator (TDC) in each school is one of such initiative introduced by Delhi Government through SCERT in July, 2017 as part of the flagship programme of Mentor Teachers. The vision of this programme is to create a collaborative network of teacher-educators for professional development of all teachers teaching in DoE (Directorate of Education) schools for creating 'An education system where everyone learns together'. This programme was started with a view to strengthen the culture of sharing teachers' best teaching practice in the school system, and to identify and work on the specific needs of teachers in particular school to further strengthen the learning of all students. This paper presents a comprehensive understanding of Teacher Development Programme- an innovative project stated by Delhi Government.

Keywords: Professional Practices, In-service Teachers, Teacher Development Coordinator, Innovative Project.

1. Introduction

If you have a burning desire to change the world for the better, consider making educational innovation. There has been intensity of interest in revolutionizing education, starting from online learning; peer learning platforms; adaptive games to learning channels. Innovations are changing everything from school culture to student assessment. These days standard rhetoric teaching-learning methods (if not practice) in education systems around the world are considered to be- Inquiry-oriented, child-centered and interactive. The host of these innovative approaches to education are new information and communication technologies which promise a huge impact on educational access and quality. Innovations are exploring a huge range of possible improvement in education to shape the world for the foreseeable future. Latest researches in brain science enforce teachers to adapt and refine their methods for better professional developments.

Hence, in this face of rapid technological developments there have been increasing pressure on schools to prepare students who are adaptable to change and empowered to change their environments, who are creative and innovative, and able to apply knowledge to solve problems with confidence. As a result, the role of teachers has become more complex. In addition to classroom teaching, teachers are required to take up more demanding role of a knowledge broker

and a mediator in order to provide guidance, support, and assistance to pupils at all levels of their learning.

The challenge is then for the teacher education institutions (TEIs) to prepare teachers who are competent enough to use information and communication technologies (ICT) to learn, unlearn and re-learn new ideas and practices. Pre-service and in-service teachers training became crucial in this aspect. Training as a lifelong process of the professional development of teachers became necessary to equip them with the necessary subject knowledge, professional skills and attitudes for effective teaching.

But on the other hand one could easily argue that the teacher training systems is the most conservative, the least innovative, and most difficult to change system. Their staff members (teacher-educators) often have little practical experience in the levels of schooling for which they train their trainees; their curricula often lag behind the curriculum changes mandated for the nation's classrooms.

Studies in the field of teacher education points towards various lacunas in pre-service as well as in-service teacher education. Kamath (2011) mentioned that though the syllabus and the textbooks based on National Curriculum Framework; 2005 are already in the school system and they are being followed by the existing teachers still there is a need to bring changes in pre-service the teacher education system keeping NCF; 2005 in mind. In a study conducted by Yadav in 2012 for assessing the in-service training (INSET) packages used by different states, in terms of quality and relevance to the school curriculum, especially NCF-2005, it was found that constructivist approach to teaching as advocated in NCF-2005 was not addressed in the training packages. Sen Sharma & Sharma (2009) also found in-service training to be less effective in enabling teachers for constructivist teaching-learning.

Yadav (2012) examined the status of implementation of pre-service teacher education curriculum at elementary stage in various States and union territories in India and reported that the integration of theory and practice, and use of ICT in teaching learning process were not reflected clearly in teacher training courses. Jena (2015) found that in-service teacher education lacks in updated curriculum; lack of orientation/ training on new teaching methods and no importance on application of ICT in learning.

Many other studies conducted time to time also reflected various other shortcoming in pre-service and in-service teacher training including- small time period provided for teacher's training (Chand; 2015), pre-service teacher training curriculum does not allocate enough room for the practical aspects (Karunakaran & Bhatta; 2013), pre-service teacher education programs are insufficient to provide the required quality education (Seferoğlu ;2004), methods of teaching lacks innovation and inadequate time duration of in-service teacher education (Richard; 2016), size of enrollment in in-service teacher education is often too large to allow for any meaningful instruction (Imogie;1992) etc.

Even after these lacunas, regular training and structured support for teachers cannot be undermined. It is believed that teachers usually require an environment of mutual trust, learning and support for their development, where every teacher seeks to pursue excellence for themselves and for their students. In a bid to robust education system in national Capital, the Government of Delhi, began reforming school education in 2015 by designing and successfully implementing large scale programs. Placement of Teacher Development Coordinator (TDC) in each school is one of such initiatives introduced by Delhi Goverment through SCERT in July, 2017 as part of the

flagship programme of Mentor Teacher. The vision of this programme is to create a collaborative network of teacher-educators for professional development of all teachers teaching in DoE (Directorate of Education) schools for creating 'An education system where everyone learns together'.

1.1.Teacher Development Coordinator (TDC) Programme

Keeping in view the challenges faced by teachers in present day school environment, a need was felt to create a community of professionals possessing special mindsets and skills to work together to identify shared challenges that they are facing and to share and create solutions to these challenges. Teacher Development coordinator (TDC) is an in-school support staff who facilitate the sharing of classroom practices and co-create a holistic academic vision of school to provide the best possible education for all students by unleashing the collective passion, knowledge and creativity. It is an on-going practice through whom all teachers of the school can tangibly improve their classroom practice and children's learning.

This program was started with a view to create a platform for peer learning among teachers to explore new ideas and processes of learning. It is believed that the solution from outside school is of less value for the contextual issues of school. So in order to strengthen the culture of sharing teachers' best teaching practice in the school system, and to identify and work on the specific needs of teachers in particular school, Teacher development coordinators (TDCs) are placed in all 1,047 schools of Directorate of education with the prime responsibilities of –a) Facilitating teachers to share learning and experience of classroom practice, b) providing developmental; focused feedback following classroom observations, and c) to focus on improving teaching across the school. The main role of a TDC is of supporting teachers in creating 'school as a learning organization' by developing a consistent and cohesive academic environment in school where everyone can learn. For carrying out such responsibilities effectively TDCs are required to attend capacity development sessions designed for them by SCERT, once in every three months. Beside these one-on-one sessions, faculty meetings, classroom observations, ninety minutes meeting once in every month are also planned.

1.2.Vision of the programme

The vision of the program is to create 'An education system where everyone learns' with priorities to-

- Improve students' foundational skills (Literacy and Numeracy levels) as well as the overall student learning outcome.
- Improving teachers' classroom practice to be more engaging and support learning with understanding
- Teacher's collective and individual capacity and career development

(Source - TDC handbook; 2017)

1.3.Selection of TDCs

For such an initiative, teachers were encouraged to apply for the role of TDC to their respective Head of School (HoS). All the HoS were asked to identify and select a dynamic, creative and active teacher for the role of TDC of school with the consultation and support from mentor teachers (MT) who were oriented beforehand to support HoS in the selection process.

Once a TDC is selected, the principal/vice-principal of schools have been told to reduce the number of classes he/she takes. This is done in order to give TDCs sufficient time to observe the classroom of other teachers, interact with them during their free periods and plan the activities for improved teaching-learning practice. The number of classes taken by TDCs in schools is reduced to not more than 24 periods per week.

TDCs have to facilitate in-school teacher training activities as well as meetings to share learning and experience of classroom practice. Daily half-hour slot is made available to teachers for academic discussion through academic enrichment sessions.

Further, to enhance the world view of TDCs apart from regular thematic trainings, Delhi Government has also organized national and international level exposure to all TDCs. In the current academic year, 300 TDCs have been planned to visit NIE, Singapore for academic enhancement programmer.

1.4.Present Status of TDCs in School

The TDC program has successfully reached out to all 13 districts in the state of Delhi, covering 1029 schools. The District Institute of Education and Training (DIET) is the academic lead of the TDC program. All the Nine Government DIETs' (District Institute of Education Research and Training) of Delhi play a central role in the operation and facilitation of the programme with 24 facilitators including DIETs' Principals, DIET's lecturers and BRPs. Alongside DIET staff - 200 Mentor Teachers (MTs) also provide regular school level support to the TDCs, along with 9 Program Managers from STIR (one in each DIET). As per the requirements of the programme - various avenues and platforms of engagement are created time to time aiming at professional development of teachers. 30 minutes' sessions on a daily basis, along with one-on-one sessions, monthly meetings, etc. are held in school on a regular basis.

1.5.Academic Resource Team

To support TDCs in school, an Academic Resource Team (ART) has been developed in each school consisting of a diverse group of a secondary teacher (10 % of total teachers with minimum 5 teachers) having intrinsic motivation to implement classroom strategies based on the theme and to be the role model for other school teachers. TDC identify and lead the Academic Resource Team in her/his school with the support of Mentor Teacher (MT), Head of School (HOS) and District Officials. All ART members work with TDC and build a culture of academic discussions within the schools. They attend monthly ART meeting with TDC and Implement Classroom Strategies based on the current theme discussed in these meetings. ART members support TDCs in effective facilitation of 30 minutes sessions (Subject wise discussions, classwise discussions, student's specific discussions) and creating a weekly/monthly plan.

1.6.Roles and Responsibilities of different stakeholders in TDC programme

TDC programme includes a number of stakeholders at various levels including teachers, ART members, Mentor Teachers, Head of the School, DIET facilitator, etc. Figure-1 shows the roles and responsibilities of these stakeholders in TDC programme.

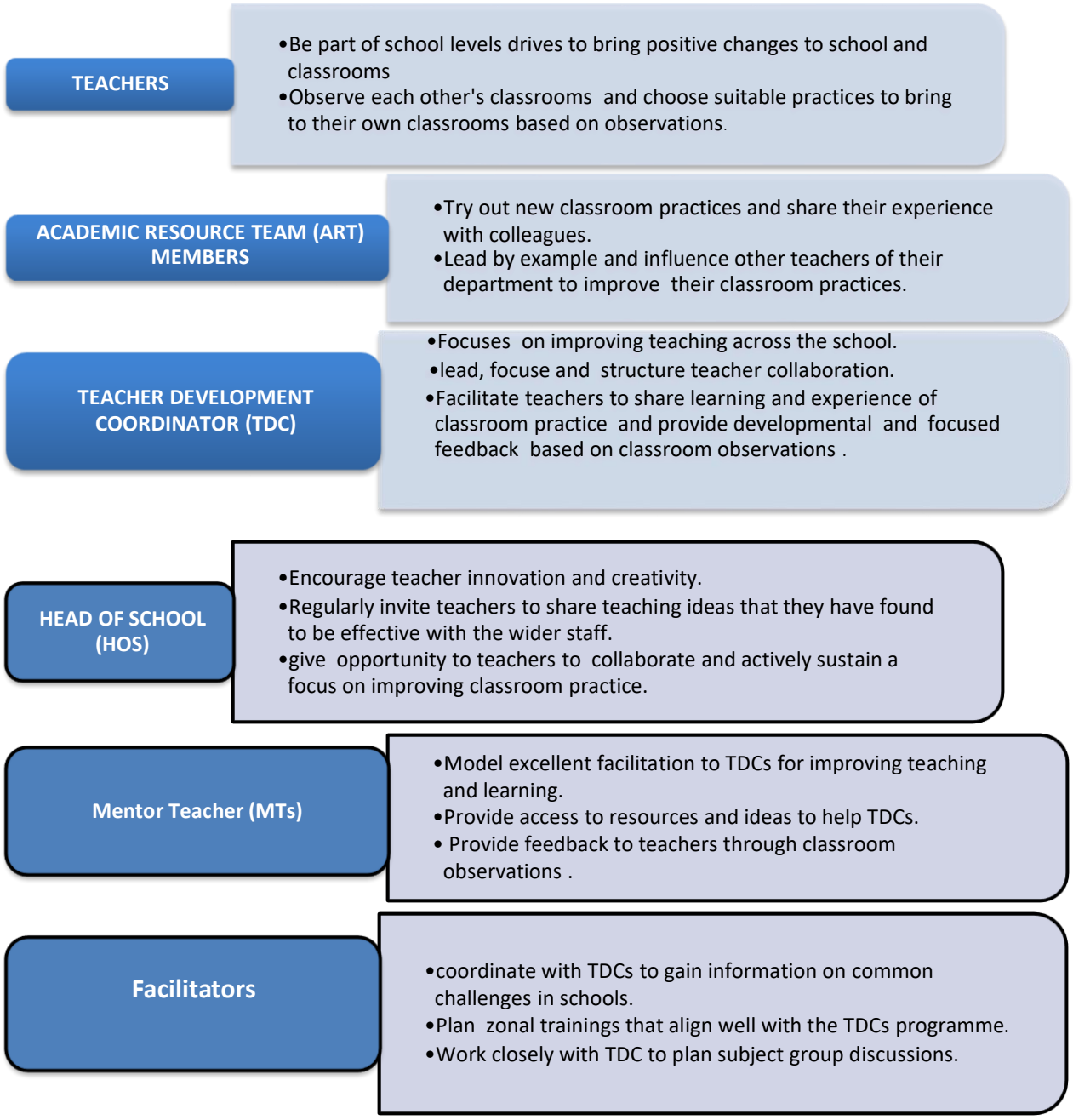

Figure 1. Roles and Responsibilities of different stakeholders in TDC programme

Forums of Engagements of TDCs

TDCs have to facilitate various activities and meetings in school in order to create an environment of sharing and collaboration among teachers. Figure-2 represent forum of engagement of TDC in different activities of the school.

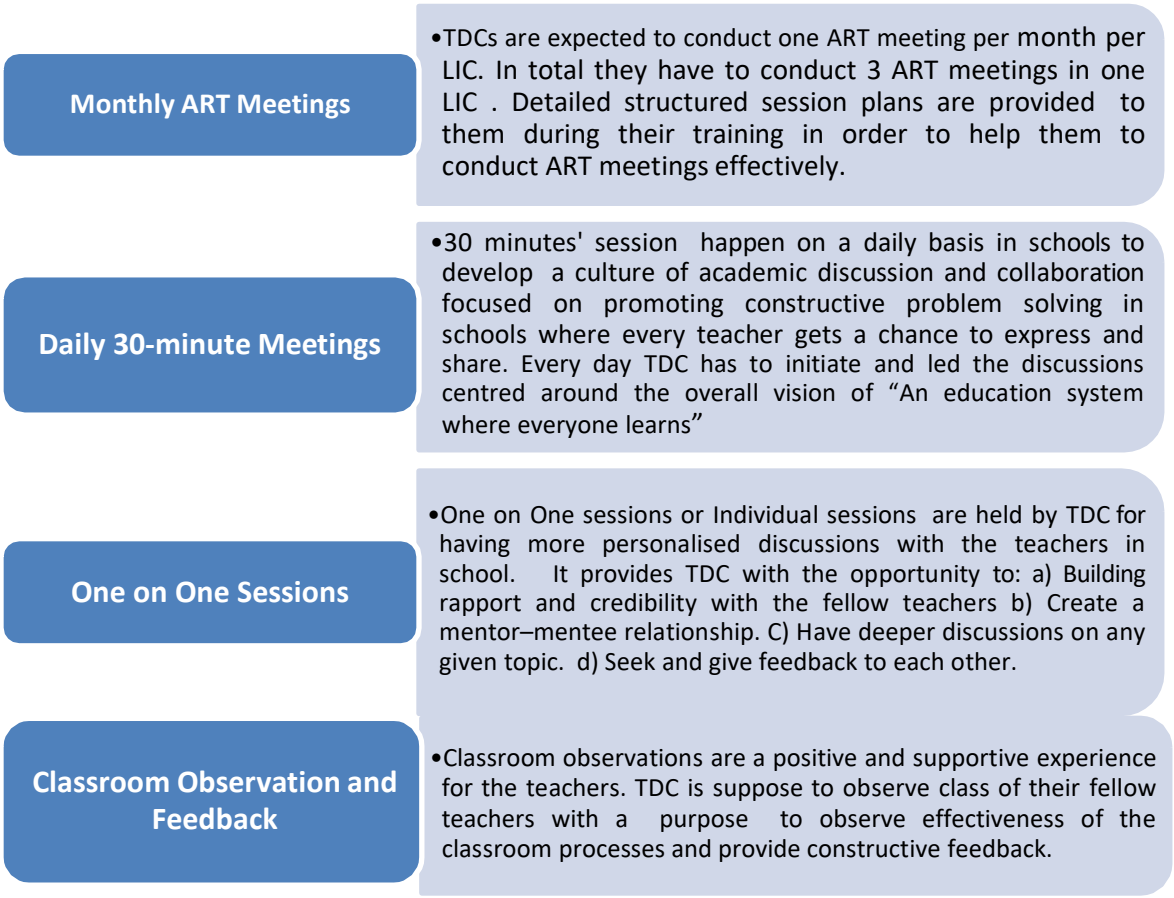

Figure2. Forums of Engagements of TDCs

1.7. Program Support Structure to TDCs

For performing their duties efficiently TDCs are supported by-

- Three co-learning sessions led by Facilitator Group with the support of Mentor Teachers are held in each LIC (Learning Improvement Cycle) to empower TDCs. So that in turn they can lead effective teacher professional development sessions in their respective schools and bring a shift in classroom practice through effective classroom observations and feedback.
- Two Support visits by Mentor Teacher per school per LIC (Learning Improvement Cycle) to observe network meetings and reflection meetings.
- Two support visit by Mentor Teacher per school per LIC (Learning Improvement Cycle) during various other forms of engagement like- 30min daily meetings, faculty meetings, etc.
- One meeting of Mentor teacher with DDEs and DIET officials per month as a district level representation to share learning based on data.

Beside these TDCs and ART members share their feedback on completion of each ART meeting in form of Google forms (3per LIC).

1.8. The Learning Improvement Cycle (LIC)

The Learning Improvement Cycle is a specially designed process to support actual change in classroom practice by providing teachers with opportunities to see progress, create something together and work towards a shared goal. It develops teacher professional mindsets and behaviors by including all the ingredients required to build motivation and support behavior change.

The Learning Improvement Cycle (LIC) comprised of three stages:

1. IDEATE- it includes identification of a problem and selecting/adapting/creating a new strategy (micro-innovation) to address an identified problem.
2. REFLACT AND UPDATE- it includes reflection on selected/adapted/created routine and improving it/selecting another to complement the routine being implemented.
3. SHARE AND EVALUATE- it includes evaluation of the change in the classroom and learning.

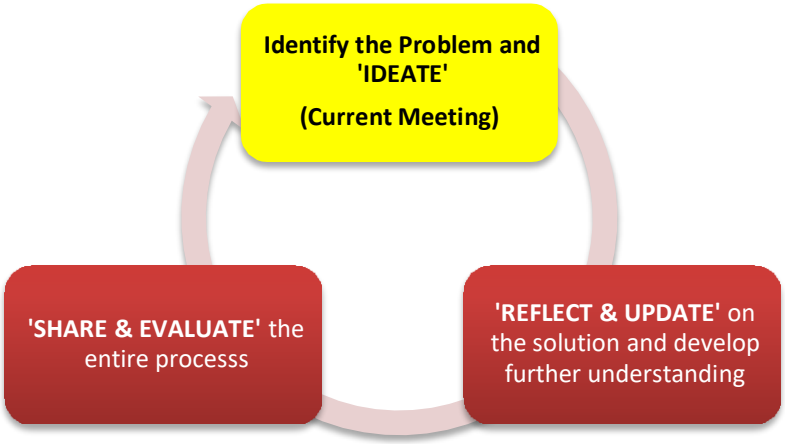

Figure 3. Learning Improvement Cycle (Source- TDC handbook, 2017)

1.9.Various Themes of Learning Improvement Cycle (LIC)

Each Learning Improvement Cycle (LIC) undertakes a particular theme or topic to improve the overall classroom practice. The program has already completed three Learning Improvement Cycles (LIC) and a pre- LIC cycle with different themes. Theme for LIC-4 has been decided and going to be implemented in December 2018- February 2019. Figure 4 shows themes and implementation period of various LICs.

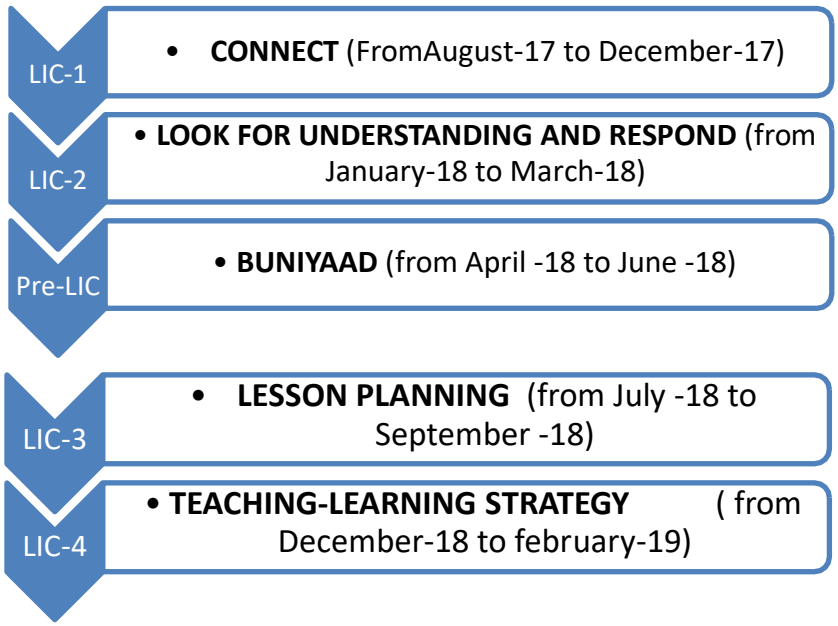

Figure 4. Themes and implementation period of various LICs.

LIC-1 Theme: Building a 'Connect' with students

The first step in building an Education system where everyone learns is by creating classrooms where children feel connected to the teachers and feel comfortable with them to express and share their thoughts without any fear. It can be done by making a conscious effort to make children feel valued and safe in the classroom with the aim to build an environment where -Children feel a strong personal connection with the teacher, talk to them frequently, trust them and receive more constructive guidance and praise. LIC -1 focused on building such an environment in the classroom where children feel seen, heard, encouraged and praised.

LIC-2 Theme: 'Look for understanding and respond'

Considering January to March as the assessment time of the year, the second theme explores classroom strategies around 'Look for Understanding and respond' which focused on using assessments as a tool for identifying gaps between teaching and learning and respond to these gaps by modifying teaching strategies. This theme builds an understanding of 'WHY' of assessment and how to implement classroom strategies to gauge children's understanding among teachers.

Pre-LIC Theme : Buniyaad

The theme of this cycle was "Buniyaad" to align with the DOE efforts under "Mission Buniyaad". The design of Pre-LIC primarily focused to strengthen the efforts of the department for improving the foundation skills of children in all government schools. The content of the theme focused on enriching the understanding of teachers on Language Acquisition and how a teacher through a combination of various methods, can facilitate the process of language acquisition.

LIC-3 Theme: Lesson planning

LIC-3 was based on 'Lesson Planning' which aimed at equipping teachers with the importance of lesson planning and exhibiting how effective lesson planning can help to deliver lessons more qualitatively. LIC-3 kept the teaching-learning process as the main focus of lesson planning during which teacher and students together construct the knowledge and learn through each other

experiences. Teachers were made to practice lesson planning continuously in fixing the format and taking feedback from colleges for development of same.

LIC-4 theme: Teaching-Learning Strategies

Teaching Learning Strategies plays an important role in activating prior knowledge of students. They are the fuel for effective and efficient classroom interaction to drive students on their journey of discovering a learning experience. The upcoming LIC-4 focuses on the realization of importance of Teaching Learning Strategies by teachers in facilitating the process of remembering things by students in ways that they can be easily understood. The main objective of this theme is to help teachers understand that drill cannot substitute for understanding. LIC-4 has planned to use 'Elaborative questioning' and 'Retrieval practice' as classroom strategies to improve classroom practices.

2. Conclusion

Since, the launch of programme in July 2017 to the successful completion of three LICs, one pre-LIC and starting of fourth LIC, this programme has achieved major milestones. Insight from TDC google form for LIC2, 3 and Pre-LIC shows that till now 5,967 ART Meetings have been held in DoE schools all over Delhi which are attended by 5,924 ART members with an average time of 80 minutes. The success of this programme is revealed from the sharings of TDCs in their google forms where 31 percent TDCs have shared that after this programme students have started coming regularly to schools and started asking questions in the state of doubt (shared by 61 percent TDCs). Teachers become more observant of student's need (35 percent TDCs) and themes of LICs were relevant to classroom and teachers were able to use the strategies suggested in the LIC handbook (60 percent TDCs). The Environment of schools has become more conducive to academic discourse. There are instances where some MTs have shared that teachers of different schools discuss academic issues even beyond school hours (Source – TDC Handbook LIC-4).

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RECAST SEEN THROUGH MULTIPLE INTELLIGENCES' LENS

Research Article

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RECAST SEEN THROUGH MULTIPLE INTELLIGENCES' LENS

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Abstract

There has been a host of research on recast so far, despite which it is still controversial if it is any effective. The main argument against recasts is that they often go unnoticed by students due to their implicit nature. It is hypothesized in the light of the theory of Multiple Intelligences (MI) that certain intelligences might affect the noticeability of recasts. Therefore, this paper aimed to find if certain intelligence help learners notice recasts. To fulfill this, 121 pre-intermediate EFL learners in 9 different classes were selected using convenience sampling. A questionnaire was used to measure their MI. Moreover, they were observed for 104 hours for the occurrence of recast and uptake using a checklist. For data analysis, multiple regression was used to find out if any components of MI were significant predictors of recasts' success in leading to uptake. The results indicated that musical, visual, and verbal intelligence significantly predicted whether recasts will be perceived by students as corrective feedback. Therefore, it was concluded that it is essential to build MI into the picture when evaluating the efficacy of recasts on the grounds that students with certain dominant intelligence benefit from subtle clues which in turn help them notice recasts.

Keywords: recast, multiple intelligences, uptake, corrective feedback

1. Introduction

One of the issues English teachers are concerned with is how they ought to react to students' errors. Some tend to ignore them, especially the ones not hindering communication, while others opt to respond to them in one way or another. Corrective feedback (CF) is such a reaction to students' errors, which can take many forms. There are basically two broad CF categories each of which encompasses different CF: (a) reformulations: recasts and explicit correction, (b) prompts elicitation, metalinguistic clues, clarification requests, and repetition (Lyster & Ranta, 1997; Lyster, Saito, & Sato, 2013). The most common CF has been found to be recast (Havranek, 1999; Lyster & Ranta, 1997; Sheen, 2006).

Lyster and Ranta (1997) defined recast as "the teacher's reformulation of all or part of a student's utterance, minus the error" (p. 46). Some researchers argue that recasts are useful in showing learners how their current interlanguage is different from the target (Long & Robinson, 1998), while others contend that recasts are ineffective since they, being implicit in nature, are ambiguous and thereby may not be perceived by learner as CF on form but only as confirmation of meaning (Lyster, 1998). In other words, although recast is categorized as implicit negative feedback in typical taxonomies of various types of feedback (e.g., Long, 2007; Long & Robinson, 1998), it includes positive (i.e., the provision of target-like input) as well as negative evidence. The probability of recasts to be perceived as positive evidence is even more in classes where the focus is on meaning rather than form (Carroll, 1997; Lyster, 1998).

Consider an example of recast which is taken from Nicholas, Lightbown, and Spada (2001):

S: The boy has many flowers in the basket.

T: Yes, the boy has many flowers in the basket.

As seen in this scenario, the recast serves two main functions: (1) interactionally, it verifies the content of the previous turn and thus attempts to increase or maintain positive affect, and (2) as CF, it provides an alternative (target-like) model of the attempted utterance (Nicholas et al., 2001). As argued earlier, the learner might understand the first function only and thereby fail to notice the gap in his or her interlanguage.

A related concept discussed in CF literature is uptake. Lyster and Ranta (1997) defined uptake as "a student's utterance that immediately follows the teacher's feedback and that constitutes a reaction in some way to the teacher's intention to draw attention to some aspect of the student's initial utterance" (p. 49). Uptake includes a range of learner responses, from a simple "yes", verifying that the learner has heard the teacher's utterance to a repetition of what the teacher utters, and "self-repair," in which the student produces a more accurate utterance on his or her own. Lyster and Ranta (1997) demonstrated that the most frequent corrective feedback type, i.e., recast, led to the least uptake; only 31% of recasts resulted in uptake. Other studies have also indicated similar results substantiating the patterns observed by Lyster and Ranta. Panova (1999) found that a low percentage of recasts led to learner uptake in adult ESL classes. Lochtman (2000) investigated the preference for recast in German foreign language classes in Belgium finding that only little uptake occurred.

Li (2015) investigated if the efficacy of recasts was mediated by individual differences variables. The results indicated that the effectiveness of recasts is constrained by cognitive factors such as language analytic ability and working memory. Furthermore, Rassaei (2017) compared the impact of face-to-face recasts and computer-mediated recasts during video-conferencing on learners' second language development. The study also explored the accuracy of the learners' interpretations of recasts in the face-to-face and computer-mediated scenarios. The results demonstrated that there were not any significant differences between the two conditions in terms of the effectiveness of recasts as well as the accuracy of learners' interpretations of recasts.

This issue is used to argue against recasts by some researchers (e.g., see Goo & Mackey, 2013). Apart from the cases raised by Goo and Mackey to cast doubt on those criticisms, the success of recasts is also expected to depend on learner characteristics on the grounds that after all it is the learners who receive and process CF, so it is important to consider them as defining variables among others. One of such variables is multiple intelligences (MI) which can enable practitioners to teach for greater and enhanced understanding of important topics and themes for students (Chan, 2000). MI is a perspective of human intellectual competence put forth by Gardner (1983), which embodied seven intelligence: logical-mathematical, linguistic, musical, spatial, bodily-kinesthetic, interpersonal, and intrapersonal (Gardner, 2004). Gardner's theory of MI appeals not only to psychologists but also to educators seeking to put it to practice in their classes (e.g., Armstrong, 1994; Blythe & Gardner, 1990; Campbell, 1991; Gardner & Hatch, 1989; Lazear, 1994, 2000). In fact, there is a growing body of research delving into potential relationships between MI and CF (Biedron & Pawlak, 2016; Hashemian, Mirzaei, & Mostaghasi, 2016; Havranek & Cesnik, 2001).

According to MI, the same learning task might not be appropriate for all students on account of being 'differently' intelligent. For instance, whereas people with a strong logical intelligence may learn a complex grammar explanation more effectively, his or her peer may do well with diagrams and physical demonstrations in case their visual area is stronger. Similarly, students

having a high interpersonal intelligence might require a more interactive learning environment if their learning is to be effective (Harmer, 2001, p. 47).

In one of the recent studies, for example, Hashemian, Mirzaei, and Mostaghasi (2016) probed the relationship between oral CF preference of English learners and their interpersonal and intrapersonal intelligence. According to the results, there was a strong positive correlation between intrapersonal intelligence and explicit types of CF. On the other hand, repetition, paralinguistic signs, clarification requests, and translation were highly correlated with interpersonal students. Biedron and Pawlak (2016) aimed to identify the interface between the findings of research on cognitive variables such as intelligence in L2 and classroom practice. The authors suggested that teachers "try to build upon the dominant intelligence or hone those that are somewhat lacking" (p.412). Employing multiple intelligences based instruction, Bas and Beyhan (2010) studied its effects on L2 development and learners' attitude toward English lessons. The results revealed that the treatment improved students' attitude to a larger extent than the traditional approach. In addition, learning gains of the students instructed by multiple intelligences were significantly greater than those in the control group.

2. Purpose and Research Question of the Study

Recasts are the most frequent CF type employed by teachers to correct students' mistakes (Sheen, 2006). In spite of their frequent use, it has been alleged that recasts do not actually amount to much on account of not being perceived as CF by learners. Nevertheless, there exist many factors influencing the efficacy of recasts including language and class setting, type of task, and teacher (Goo & Mackey, 2013). It was also argued in this paper that learner factors can also impact the effectiveness of recasts. MI, a learner feature, is hypothesized to be an important variable which may determine to some extent whether recasts will be perceived as CF by the learner and thereby lead to uptake.

Given that, the present study was an attempt to examine the success of recasts in leading to uptake through the lens of MI. More specifically, it was examined whether students with certain strong intelligence would be more likely to perceive recasts as CF and thus utter uptake. Inspired by this hypothesis, the following research question guided this study:

Are there any components of MI which can predict the success of recasts in leading to uptake?

3. Method

3.1. Design

This study was correlational research in which multiple regression was used to predict the success of recasts in leading to uptake by considering different dimensions of MI. More specifically, seven components of MI, namely, verbal/linguistics, logical/mathematical, visual/spatial, musical, bodily/kinesthetic, intrapersonal, and interpersonal, were the independent variables (predictors), whereas uptake resulting from recast was the sole dependent variable. It was sought to find out whether there are any MI components predicting the success of recast in leading to uptake.

3.2. Participants

The participants consisted of 121 pre-intermediate Iranian EFL learners. They were 48 male and 73 female students with the age range of 17 to 33. They were studying English at an institute called Safir English Academy, Tehran, who were selected based on convenience sampling. The participants were in 14 classes in 9 different branches at the time of data collection.

3.3. Instrumentation

For collecting the data, the Multiple Intelligences Inventory for Adults questionnaire by Armstrong (1994) was used. The questionnaire is comprised of 70 items using a 5-point Likert scale, with 1 representing ‘strongly disagree' to 5 ‘strongly agree.' The reliability of this instrument was established through 46 similar students in a different institute in Tehran as calculated by Cronbach's alpha. The internal consistency of all the components of MI, as well as MI as a whole, were computed using this statistical test. As it turned out, the reliability of verbal, logical, spatial, musical, kinesthetic, intrapersonal, and interpersonal components and MI as a whole was .75, .81, .86, .74, .70, .87, .68, and .79, respectively.

As for recast and uptake, the authors used a checklist to register recasts given by the teachers as well as uptake produced by the students. The checklist consisted of the name of the students in each class, the number of recasts provided by the teacher, and the number of uptake occurrences (and non-occurrences) as expressed by the students. For instance, when the teacher provided a student with a recast, it was noted whom the recast was given to and if the student uttered uptake. The checklist was chosen to be the only instrument for recording the occurrences of recast and uptake for the simple reason that we could not get the permit for audio- or video-recording of the classes, which would be more reliable.

3.4. Procedure

At the outset of the course, the Multiple Intelligences Inventory for Adults questionnaire was completed by the students. The courses lasted 16 sessions and the authors took part as non-participant in 5 sessions which aggregated 104 hours for all the classes. The sessions that we participated in were chosen randomly but were consistent for all the 14 classes. The classes were conducted as usual with a difference that we were also present there with a checklist. During the sessions, we were careful to take notice of recast and uptake occurrences. As the only thing that had to be done was a check mark on the checklist, it was virtually impossible to miss any recast or uptake. However, in order to ensure the reliability of the checklist results, we both took part in a session across classes aggregating 14 sessions altogether so that we could check the inter-rater reliability. As expected, the inter-reliability was quite high (r=98.8).

3.5. Data Analysis

SPSS version 22 was the only software used for analyzing the data. For inter-rater reliability, Cohen’s kappa was calculated. The mean, standard deviation, normality, skewness, and kurtosis of the data MI were checked using descriptive statistics. Finally, to answer the research question, multiple regression analysis was computed.

4. Results

The current study was an attempt to predict the probability of recast in leading to uptake through MI. Table 1 shows the descriptive statistics for MI components and uptake. As mentioned earlier, responses in MI components had a range of 1 to 5. As for uptake, the percentage of its occurrence was calculated after recasts were provided by the teacher. For example, for a student uttering uptake half the times he or she was provided with a recast, 50 was inserted on SPSS data sheets.

Table 1. *Means and Standard Deviations of Uptake and MI Components*

	Mean	Std. Deviation	N
UPTAKE	49.84	18.78	121
kinesthetic	3.18	.79	121
intrapersonal	3.26	.81	121
interpersonal	2.91	.91	121
visual	3.30	.78	121
verbal	3.15	.82	121
logical	3.14	.77	121
musical	3.02	.99	121

In order to answer the research question, multiple regression was run using stepwise as a method. This method is used to find the best predictors of a dependent variable instead of forcing all the independent variables into the model. For doing so, first, the assumptions of multiple regression were checked. The linearity was checked through scatterplots, multicollinearity through correlation and coefficient tables in SPSS, homoscedasticity by checking the scatterplot of the residuals, and finally the normal distribution of the dependent variable via the Kolmogorov-Smirnov normality test. For saving space, these tables and figures are not included in this paper; however, they will be sent to interested readers online upon request. Having observed these assumptions, multiple regression was run.

Multiple regression analysis yielded the following results as shown in Table 2. It turned out that 3 components of MI were the best predictors of recast success in being perceived as CF by the learners. The predictive power of the other 4 MI components was not strong enough to be included in the model. R signifies the correlation of the 3 predictors, namely musical, visual, and verbal, with the dependent variable, i.e. uptake (r = .51). The next column is R Square, which shows the amount of variance in the dependent variable as explained by the predictors. That is, the 3 MI components of musical, visual, and verbal account for 26% of the variance in uptake.

Table 2. *Results of Multiple Regression for MI Components and Uptake as the Dependent Variable*

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.51	.26	.23	16.38

Predictors: (Constant), musical, visual, verbal
Dependent Variable: UPTAKE

The results of the ANOVA test are included in Table 3, which provides the F value as well as its level of significance. According to Table 3, the model is statistically significant in its power to predict the dependent variable (df = 3, F = 13.55, p = .00).

Table 3. *Result of ANOVA for the Regression Model*

Model		Sum of Squares	df	Mean Square	F	Sig.
3	Regression	10916.08	3	3638.69	13.55	.00
	Residual	31419.92	117	268.54		
	Total	42336.01	120			

Dependent Variable: UPTAKE
Predictors: (Constant), musical, visual, verbal

Yet, Table 2 and 3 provide only a general picture of the model and do not offer any detailed information about each of the predictors. For such information, the coefficients table is also included here as Table 4. Standardized Beta enables us to compare the predictive values across independent variables. As seen in Table 4, musical intelligence is the best predictor of uptake occurrence following recast (Beta = .42, p = .000) followed by visual (Beta = .23, p = .005), and finally verbal (Beta = .18, p = .028). Note that all these p values are significant at the alpha level of .05. Collinearity statistics column indicates the extent to which the independent variable is correlated among themselves, which is one of the assumptions of multiple regression. Tolerance ranges from 0 to 1, with 0 signifying perfect correlation and 1 no correlation at all. A tolerance value of .2 or above is acceptable, which in this case the tolerance values are well above .2 indicating a minimal correlation among the predictors (Larson-Hall, 2015, p. 194).

Table 4. *Predictive Power of the Independent Variables*

		Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
Model		B	Std. Error	Beta	t	Sig.	Tolerance	VIF
1	(Constant)				-.51	.61		
	musical	7.87	1.52	.42	5.15	.00	.97	1.02
	visual	5.51	1.91	.23	2.87	.00	.97	1.02
	verbal	4.10	1.84	.18	2.23	.02	.95	1.04

5. Discussion

The answer to the research question raised in this study in the light of the results is that some of the components of MI were found to mediate the extent to which recasts lead to uptake. More specifically, that whether recasts will be perceived as CF by learners can be to some degree at the mercy of musical, visual, and verbal intelligence. It's thus noteworthy to delve into these intelligence in relation to recasts one by one to explore how they do it.

Musical Intelligence and Recasts

Musical intelligence refers to the capacity to recognize and use the non-verbal sound: pitch, rhythms, and tonal patterns. In other words, it is the ability to recognize and use rhythmic and tonal patterns and the sensitivity to sounds from the environment, the human voice, and musical instruments (Gouws, 2007).

Moreover, musical intelligence has been proved to have a significant relationship with foreign language learning (Saricaoglu & Arikan, 2009). This is also confirmed by Fonesca-Mora, Toscano-Fuentes, and Wermke's (2011) observation that the ability to perceive rhythm, pitch and melody is critical in the language learning process. Furthermore, musically intelligent second language learners claim not find learning an L2 a really hard task, while language

learning seems difficult, particularly its phonetics/phonology, for learners with less musical intelligence (Zybert & Stępień, 2009).

As such, in the context of the present study, when teachers give their students feedback in the form of recasts, they might utter words in a way that is different from when they produce them for communicational purposes only. There might be only subtle differences between the two scenarios, which makes it difficult to distinguish between them. Musically intelligent students, however, might have such a prowess to 'hear' them apart.

This does not have to be a conscious process. In fact, such a capacity has most probably been with them since they were born, and thus they can use them so naturally and automatically that they might not even notice that gift. In addition to this special ability that musical intelligence equips individuals with, Gardner (1983) suggests that it is closely tied with visual and verbal intelligence (p.130). Referring to poets, who are endowed with musical intelligence to a great degree, Gardner (1983) states:

> … one sees at work with special clarity the core operations of language. A sensitivity to the meaning of words, whereby an individual appreciates the subtle shades of difference between spilling ink "intentionally," "deliberately," or "on purpose." A sensitivity to the order among words—the capacity to follow rules of grammar, and, on carefully selected occasions, to violate them. At a somewhat more sensory level—a sensitivity to the sounds, rhythms, inflections, and meters of words—that ability which can make even poetry in a foreign tongue beautiful to hear. And a sensitivity to the different functions of language—its potential to excite, convince, stimulate, convey information, or simply to please. (1983, p. 81)

This piece of finding is in part substantiated by some other investigations. Slevc (2006) sought to explore if there was any relationship between musical intelligence and language learning. The results of regression analysis showed that musical ability predicted ability with perceiving and producing L2 phonology even when other factors were controlled for. As a consequence, he concluded that learners who are better able to analyze, distinguish, and recall simple musical stimuli can better handle receptive and productive L2 sounds, too. These findings are also confirmed by the study by Zybert and Stępień (2009), the results of which indicated that a relationship exists between musical intelligence and the ability to perceive and produce some aspects of phonetic features in the second language.

In conclusion, students gifted with higher musical intelligence can consciously or subconsciously better perceive if the teacher's utterance is communicational or in fact CF in the form of a recast. They are likely to do this by recognizing the tonal and rhythmic subtleties embedded in the utterance produced by the teacher. Moreover, as musical intelligence is interlinked with visual and verbal intelligence, musically intelligent learners have more cognitive resources at their disposal, mostly because visual and verbal intelligence are also found as predictors of recasts' success in leading to uptake (Gardner, 1983; Gunter & Friederici, 2001).

Visual Intelligence and Recasts

Simply put, visual intelligence is the ability to perceive the visual-spatial world accurately. As a result, visually intelligent people tend to see things that other people probably miss. Just as we use our eyes to perceive the world, students too view the environment of the classroom, their peers, and their teacher. Hence, visually intelligent people are expected to notice some subtle moves by the teacher other less visually intelligent students might fail to perceive. These moves can range from the movement of the hands, eyebrows, or head to the way he or she looks at the students.

Similarly, when recasts are given, they might be accompanied by some subtle movements of the hands, eyes, and so forth on the part of the teacher. These nuanced moves might be one of the differences distinguishing them from communicational utterances. For instance, one teacher may decide to slightly raise his eyebrow as a clue to indicate that he is providing CF. The teacher might do this deliberately or unintentionally, just as the students may perceive them consciously or without giving it any thought. What matters most here is the privilege of the visually intelligent learners to perceive those clues and thereby produce uptake.

Verbal Intelligence and Recasts

The third and last predictor of the occurrence of uptake following recasts, verbal or linguistic intelligence is "the ability to use language to reflect upon language, to engage in meta-linguistic analysis" (Gardner, 1983, p.83). To elaborate on this, verbal intelligence involves sensitivity to spoken and written language, the ability to learn languages, and the capacity to use language to achieve certain goals. This intelligence is the ability to use language effectively in rhetorical or poetical expression and language as a means of remembering information (Chau, 2005).

Following these lines, students who are verbally intelligent tend to tinker around with their interlanguage, and thus are more attentive to what they produce and what feedback they receive so that they can move their linguistic proficiency one step further. Therefore, it is likely that students with rather low verbal intelligence do not notice recasts since they are not linguistically sensitive enough to perceive recasts as opportunities by which they can modify their interlanguage. Verbally intelligent students, on the other hand, might juxtapose their utterance with teacher feedback spontaneously and decide if the teacher feedback was positive (communicational) or negative (recast).

6. Conclusion

This study sought to find out if there are any components of MI which impact the efficacy of recasts. The findings indicated the odds that recasts will be noticed by students might be at the mercy, at least partly, of certain components of MI. That is, musically, visually, and verbally intelligent students are more likely to perceive recasts as negative evidence. The pedagogical implications of these findings may be negligible, as it might not be practical for teachers to provide individualized feedback in class most importantly because it would be too demanding a task for the teacher to tailor the feedback type to the style of the students on the spur of the moment. Another possibility is to group students who have certain intelligence in common in order for the teacher to give recasts or more explicit types of CF to the respective group. There are, however, two problems with this method. First, there are so many variables based on which to group students, such as proficiency level, gender, age, intensiveness of the class and so forth that it will most probably be unrealistic to expect the decision makers to group students based on their MI in the hope that it will make recasts more effective. The second problem concerns practicality. Grouping students based on their MI requires a rather large number of students in each proficiency level, which is not the case in most language institutes and schools. Grouping students in this manner might result in a class that consists only of one or two students.

The contribution of this study is for the most part on the theoretical level. As stated earlier, there has been a constant tug-of-war between proponents and opponents of the use of recasts in class. The main battlefield concerns whether recasts can be noticed by students. The findings of the present study shed light in this respect by introducing MI into the equation. As seen, MI proved to be a strong mediator in that the likelihood of recasts' success in leading to uptake depended on the MI of the students. Simply put, the higher musical, visual, and verbal intelligence, the more likely that students will notice the intended function of recasts, i.e. CF.

There are at least two limitations to this study, which makes a word of caution in place. The first problem concerns uptake, which was the only benchmark for recasts' efficacy. Uptake is often criticized for being an inadequate measure of recasts' effectiveness (Goo & Mackey, 2013; Mackey & Philp, 1998). These authors suggest that pre-test-to-post-test effects are more reliable evidence. As stated earlier, we were not given the authority to do experiments nor to videotape the classes. However, future researchers could carry out such experimental studies to provide stronger proof as to whether recasts are more effective when given to musically, visually, and verbally intelligent students compared to students with other dominant intelligence. Second, how musical, visual, and verbal intelligence might have helped the students notice recasts was explained to some extent. Nonetheless, no matter how much detailed these explanations are, they only mirror the authors' viewpoints and the sources used for this research. Qualitative studies are needed to delve into the matter by eliciting data from the learners to explore how *they* notice recasts. For instance, this could be done through stimulated recalls where the researchers show video-taped recast scenarios to the students who have produced uptake and ask them how they noticed them.

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GAMIFICATION BASED ASSESSMENT: A TEST ANXIETY REDUCTION THROUGH GAME ELEMENTS IN QUIZIZZ PLATFORM

Research Article

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Abstract

Test anxiety always makes students afraid of doing the test because they probably think that they will fail. To overcome the problem, the teacher then used gamification based assessment. Furthermore, the study investigates the category of students test anxiety, students' attitudes toward Quizizz and the students' preference toward the elements of game in Quizizz. This study is a case study which the data were collected by using observation, interview, and questionnaires. The participants of this study were 14 students in an English course in Solo. The sampling used by the researcher was purposive sampling. The results of this study showed the category of students test anxiety considered moderately high, the students' attitude toward Quizizz in reducing test anxiety also considered high (M= 3.94) and the kinds of elements of game which students prefer most were Points (M= 4.357), Test report (M= 3.929), Leader board (M=3.714), Time restriction (M=3.357), Profile (M= 3.429) and Meme (M= 3.357). The implication of this study is Quizizz successfully reduce test anxiety because of the use of game elements in that application. Thus, it is a good option for teachers to use Quizizz on the exam.

Keywords: Assessment, Gamification, Elements of game, Test anxiety.

1. Introduction

Test anxiety becomes a concern as it is believed to be detrimental to the school success owing to the effect on performance evaluation and self-esteem. Test anxiety is defined to be an individual emotional state. The individual feeling before or throughout a particular assessment in relation to the act of completing the assessment, the risk and fear of failing and anything related to undesirable moments (Bonaccio & Reeve, 2010). Test anxiety is a serious problem for many students (Ergene, 2003) because it will be the obstacles to achieve their goals. Moreover, the examination is definitely becoming harder and more anxiety-provoking (Putwain, 2014). Generally, university students suffer more anxiety because in that educational level they think about future and career and it is affected by the score of the test they take or get in university or institution. College is an important time of life for many people and much scholastic testing occurs during that time (Guay, 2005).

There are many ways to overcome the problems, to reduce the anxiety as students on the exam. The teachers can take the benefits of technology by using gamification in education world such as for assessment. There were many researchers conducting an investigation of game and technology in test anxiety reduction. Smits and Charlier (2011) conducted a study entitled Game-based assessment and the effect on test anxiety. The result of the study was concluded that games' integration in assessment results in positive psychological well-being as the result of less test anxiety of students. They assumed based on the literature that it would increase academic achievement. Pless (2010) also concluded from his study that the use of computerized treatment for test anxiety was successful. Both studies are the evidence of the use of technology and game in reducing students' test anxiety. However, the researcher

was interested to investigate gamification for reducing test anxiety which was employed in some English course.

Gamification is non-game contexts in using game design element (Zichermann & Cunningham in Marcos et.al., 2014). Thus, it is not like a pure game. It only uses the elements of the game to create something like game. The game elements which can be included are Badges, Achievements, Avatars Content Unlocking, Leader Board, Points, Virtual Goods, Teams and Levels (Werbach and Hunter in Cheong, 2014). That element will be designed for enhancing engagement, motivation and instruction (Kim, 2015).

Gamification is applicable for many aspects in education such as for teaching and assessment. However, the focus of this study is on the way teacher use gamification based assessment as the way to reduce students' test anxiety. As generally known that most of the students like to play a game and they play it most of the time in their lives. One of the most popular online game in Indonesia is Mobile Legend. It is MOBA (Massive Online Battle Arena), 5 players VS 5 Players. The statistical data obtained by the game company that there are 43 million players who are monthly active in Southeast Asia and Indonesian players are almost 50 percent of the total (Sunarto, et. al, 2019). It indicated that most of the people are engaged with something game-like. Furthermore, it is able to be adapted into assessment as students will probably feel like happy to have it.

Based on the background of the study, the researcher to investigate (1) the students' anxiety as facing examination, (2) the students' attitude toward Quizizz employment in examination and (3) game elements in Quizizz which students are engaged most. The significance of this study will be for the innovation of conducting an assessment in school or education world. It gives teachers options to include technology and game into completing purposes because this is the era of industry 4.0. However, to face the industrial revolution 4.0, teachers are supposed to be able to use ICT in teaching and learning in which it is also in the line with the demand of the 21st-century learning (Dwiono et.al, 2018).

2. Literature Rewiew

2.1.Assesment

One of the important things in education which support the successful teaching-learning process is assessment. It is admittedly to be a source of data which will be utilized to create anticipation. It means teachers will be able to reflect their teaching process including the students learning process to achieve the learning goals. Assessment appeared in an educational issue in the 20th century. There was various literature discussed assessment and there were lots of experts interested in the case. They agreed that assessment is the part of the educational system which is not separable as it becomes the main component of education to conduct effective learning (Bransford et.al., 2000).

Teachers should understand the progress of students' learning progress from an early moment until the end of teaching-learning process in some academic year. Hereby, Assessment is the way to monitor students' learning progress. Assessment is used by the teacher to collect more information about students' learning progress systematically. The information is able to be collected by many ways in the form of written and oral test such as extended performance of an authentic task, responses (essays), traditional paper and pencil tests, and student self-report. In additions, teachers can also observe their students during teaching-learning process and they can also assess their students incidentally or intendedly. A good teacher will never ignore his students because assessment becomes an integral part of the instructional process and the way to help students learn (Guskey, 2003).

There are two types of common assessment in education namely formative and summative assessment. Both types of assessment are used to evaluate students' learning

progress. Nevertheless, the way to obtain progress is different. Formative assessment is an ongoing process of evaluating students' competencies and skills. Thus, the assessment is considered longer depends on the academic period given. According to Brown (2004, p.6), Formative assessment is an evaluation of developing students' competencies and skills process in the form of aid to enhance students' growth and progress of learning.

While the summative assessment is evaluation of students' competencies and skills at the end of a unit of instruction or course. Thus, the evaluation is not ongoing like formative assessment. According to Brown (2004) Summative assessment is the way to measure what students have learned during some period given and usually conducted at the end of the unit of instruction.

There are basic principles of assessment which are theorized by Brown (2004) as follows:

(1) Appropriate assessments serve in strengthening and retention of information.
(2) Assessments can identify areas of strength areas which need treatment.
(3) Assessments can offer a sense of a constant approach to elements within a curriculum.
(4) Assessments can promote student autonomy by encouraging students' self-evaluation of their progress.
(5) Assessments can motivate learners to have goals.
(6) Assessments can evaluate teaching effectiveness.

2.2. Test anxiety

Test anxiety is something common happening among students as the test will determine their future such as their career. They will think about how to achieve the best performance for the test. They think over and cause some anxiety which disturbs their performance. Test anxiety is a serious problem for many students (Ergene, 2003). Definitely, the examination is becoming harder and more anxiety-provoking (Putwain, 2008). The result of the anxiety is a negative affective state occurring in evaluative conditions. The negative affective is due to worry, tension, and over-stimulation of the central nervous system (Ergene, 2003).

There are two fundamental elements to investigate students' test anxiety and those two become the general focus. Both elements are the cognitive component and physiological component (McDonald, 2001). Cognitive component refers to worry. Cognitive interference diverts attention to self-deprecating thoughts (Orbach et al., 2007). Henceforth, the children have negative beliefs about the ability of problem-solving although they actually are capable to solve the problem and generate some solutions. On the other hand, Physiological component refers to emotionality or autonomic arousal manifested in bodily indications such as sweaty palms, heart rate increase, and trembling arising from being in an evaluative situation (McDonald, 2001)

Regarding the investigation of students' test anxiety, Richard Driscoll (2007) created an instrument with several criteria as the reference of the test anxiety category. It was called The Westside Test Anxiety Scale. It combines six items assessing impairment, four items on worry and dread. The ten items in the instrument are designed to identify the anxiety impairments form students. It hopefully helps teachers for conducting an intervention to reduce students test anxiety. The scale items cover self-assessed anxiety impairment and cognitions which can impair performance. There six categories of students' test anxiety which is determined with the mean score.

Table 1. Westside Test Anxiety Scale
Richard Driscoll (2007)

Mean score	Category of test anxiety
1.0—1.9	Comfortably low test anxiety
2.0—2.5	Normal or average test anxiety
2.5—2.9	High normal test anxiety
3.0—3.4	Moderately high (some items rated 4=high
3.5—3.9	High test anxiety (half or more of the items rated 4=high)
4.0—5.0	Extremely high anxiety (items rated 4=high and 5=extreme)

2.3. Gamification in assessment

Gamification is the term which came popularly in 2010 and there are many experts discuss the use of gamification in education such as the use of gamification to engage students learning motivation. According to de Byl (2013) the popularity of gamification is indicated in 2010 by Google search tool. Gamification is like the derivation from the game in which the core is the same. Game and gamification are like using the term of *play to get engagement*. Thus, both are based on entertaining principles. However, gamification and game are different in this context of education.

Landers and Callan (2011) give a definition on gamification as the use of elements associated with the game such as game mechanics to educational purposes to create more learning engagement. Additionally, Gamification is able to enhance students' engagement, motivation, and instruction (Kim, 2015). The elements of the game are various and those all elements will support the idea of gamification.

As gamification is utilized to be assessment, there should be any design which associate game elements, game mechanic and game dynamic into one constituent. They are the core of the successful gamification based assessment. One of the examples the design came from Werbach and Hunter Hunter in Cheong, 2014. They explained to design gamification based assessment into three steps. The first process is to select the dynamics of the test and the second process is to select the appropriate mechanic of the test. It needs to take into account that both dynamics and mechanics of the test should be matched. The last is to select the components which fit the mechanics. Dynamics, mechanics, and components of the game utilized in the gamification based assessment are summarized in Table.

Table 2. *Design of gamified assessment by Werbach and Hunter Hunter in Cheong (2014)*

Dynamics	Mechanics	Components
Constraints	Challenge	Content unlocking
Emotions	Challenge	Content unlocking
	Reward	Badges, Achievements, Avatars Content Unlocking
	Competition	Badges, Leader Board
	Competition	Teams
	Resource Acquisition	Points, Virtual Goods

	Feedback	Points, Content Unlocking, Badges Leader Board, Levels
Progression	Reward	Badges, Achievements, Content Unlocking
	Resource Acquisition	Points, Virtual Goods
	Feedback	Points, Badges, Leader Board, Levels
Relationship	Cooperation	Teams

(1) Components, components are the smallest parts which directly affect the design of gamification. To integrate the dynamics and mechanics selected in this research, the following components were used: avatars, levels, content unlocking, the leader board, achievements, virtual goods, points, teams, and badges.
(2) Mechanics, a gamified environment consists of mechanics, which are used to create player engagement and involve essential processes. To highlight the dynamics selected for this design, the mechanics of challenge, rewards, feedback, resource acquisition, cooperation, and competition.
(3) Dynamics, a gamified environment consists of dynamics, which are not directly included in the process, yet make it possible to look at the design from a broader perspective. Among the dynamics, constraints, emotions, progression and relationships were used in this study.

2.4. Quizizz

Quizizz is a website that provides teachers to conduct **formative assessments** by giving quiz for **the student** of all ages. According to Reece (2016); Yoshida (1985), the quiz is a test of knowledge which has been gained in advance, especially as competition in the form of a game. Although it is like competition, the test is entertaining. The quiz is an entertaining and easy way to investigate students' understanding of some topics (Sue, 2006). She added that quiz would prize a reward for some who accomplished some achievement. Thus, it will minimize students' anxiety during doing the test with a quiz (Barbara, 2009). A quiz is usually used multiple choice question which is quickly and easily to score students answer (Tabata et. al., 2009); (Zane & Lin, 2013) and quiz provides questions at various levels of difficulty (William, 2011). Furthermore, the students' report of their answers (feedback) will be given directly, automatically.

Quizizz provides a multiplayer activity that students possibly can practice together. The total player who will do the quiz is determined by the teacher. Students will be given a code to join a quiz and the teacher will ensure the students who join the quiz with the students' attendance list to avoid intruders. Thus, not everyone can join the quiz. Quizizz supports on all devices such as computers, smartphones and tablet, and quizizz also has iOS, Chrome apps and Android. Consequently, it is reachable in this era which technology development is very impressive. Most students have a smartphone or laptop with a good internet connection and it is accessible for them to do the quiz. However, students need to have their own device in the other word one student, one device. The main features of Quizizz include:

(1) **Student-paced: the** teacher will give a time limit for each question and students need to answer before the time given for each answer is up.
(2) **BYOD:** quizizz can be played in various devices with a browser, including PCs, smartphones, laptops, tablets, and.

(3) **Thousands of public quizzes:** a great number of teacher around the globe create their own quiz and it can be shared, thus everyone can do the quiz as long as they are a member of quizizz. It is really helpful for the teacher to get some inspiration from another teacher in designing the quiz.
(4) **Quiz Editor:** quizizz allows the teachers to pluck questions from any quiz, easily add images from the internet, auto-save teachers' progress and tons of other features.
(5) **Reports:** this feature is the one which can give teachers detailed information about student-level understanding and class-level for each quiz that teachers conduct. The teacher can also download the report in the form of a spreadsheet in Microsoft Excel.
(6) **Quiz Customization:** Teachers can customize their quiz session in multiple options to consider the level of competition, speed, and other factors

There are also settings including question and game which teachers can use to create a quiz that they want or represent teachers' goal.

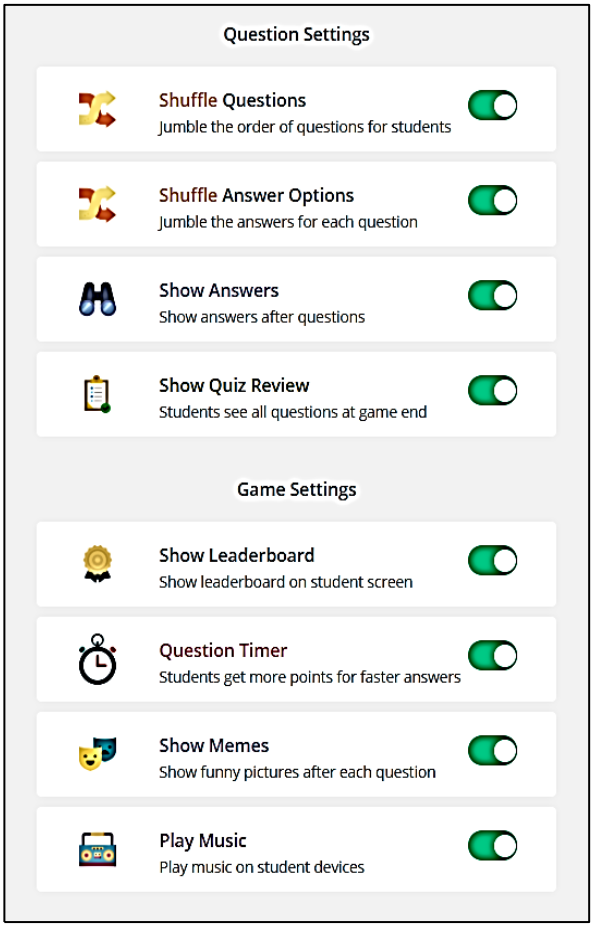

Figure 1. Questions settings of Quizizz

2.5. Attitude

According to Sharma (2013), attitude is defined as a complex mental state including beliefs, values, feelings, and personalities to act in certain ways. It is kind of a hypothetical construct representing an individual's degree of dislike or like for something. There are two kinds of attitudes namely positive or negative views of a person, place, thing, or event. Attitude also involves biases, prejudices, appreciation, and the state of readiness in acting and reacting. It is kinds of the variable inferred from behaviors both nonverbal and verbal responses. The concept of attitudes always relates to how individuals think, act and behave. There should be strong implications for the students, teachers, the groups with which individual relates and the whole school system. Attitude is created as the result of learning experiences such as parents', teachers, and friends' opinion.

Eagly and Chaiken in Karr (2011) defined that attitude as the representative of the psychological tendency expressed by evaluating a specific entity of favor and disfavor. Similar to Rokeach in Karr (2011) stating that the concept of attitude is essential to the psychology of personality. The attitude was theorized as comprising of three components such as a cognitive, affective and behavioral component.

Furthermore, Jain (2015) stated that attitude is an important factor in the teaching-learning process. Attitude is a characteristic of a set of conditions that are symptomatic to the individual capacity to obtain with some knowledge or skill or a set of response, specific training in a given field (Bingam in Jain, 2015). Henceforth, it is really useful for the teacher to understand students' attitude to create a good teaching-learning process.

To conclude, attitude is a complex mental state including affective, cognitive, and behavioral aspects of an individual toward another place, person, thing or event. According to Eagly and Chaiken in Jain (2015), affective component is in the relation with to what the participant feels concerning the attitudinal object. There are several components of affective namely likeness, confidence, anxiety, and motivation. Cognitive aspect regards the individual's opinion (belief/disbelief) on the attitudinal object. It includes beliefs, thoughts, and evaluation. The behavioral aspect of attitude regards with a verbal/non-verbal behavioral tendency by an individual comprising of actions or noticeable responses to attitudinal objects. The attitude is able to be either positive or negative.

3. Method

This research aimed at exploring the students' attitude toward Quizizz for assessing whether or not it would reduce the students' test anxiety. This study was conducted in an English course and the subject grammar structure. The respondents of this research were university students. There were 14 students participated in this research. Furthermore, the sample selected based on some criteria which are it is called purposive sampling. According to Arikunto in Suryabrata (2003), purposive sampling is the method of choosing a sample by taking subject not based on the level or area, but based on the particular purpose. The sample of the study was the students who got a good score in English structure subject.

The empirical data were gained through observation, in-depth interview and questionnaire. The observation showed the condition of the class during teaching-learning process and the questionnaire showed students' opinion about the use of Quizizz for assessment. Additionally, in-depth interview showed detail opinion of the respondents about the use of Quizizz for assessment. It was used to be a verbal justification for the respondents for what the researcher missed as conducting observation in the classroom (Widodo in Sumardi, 2017). The data were analyzed qualitatively as followed with the interpretative enterprise.

4. Finding and discussion

4.1. Students' test anxiety Category

The test is probably affectionate to students' psychological aspect namely anxiety. The students' test anxiety is able to investigate by using questionnaires adopted from Richard Driscoll which is proved valid by several experts. Thus, the researcher decided using this questionnaire. The test anxiety scales are categorized into 6 categories namely Comfortably low test anxiety, Normal or average test anxiety, High normal test anxiety, Moderately high, High test anxiety, and Extremely high anxiety. There are 10 items which the researcher gave to the participants to know the category of students' test anxiety. From those 10 items deployed, there are two item aspects namely Incapacity and Worry. The items indicated with Incapacity (poor cognitive processing and memory loss) are the items number 1, 4, 5, 6, 8 & 10 and the items indicated with Worry (catastrophizing) are the items 2, 7, 3, 9.

From the data collected by the researcher with the questionnaire, the researchers could categorize the students' test anxiety. The data is as follows.

From the data collected, the mean score of all items is 3.05. To know the meaning of the score, the researcher uses the theory from Richard Driscoll (2007).

Table 3. the score of students' test anxiety

No.	Items	Mean
1.	The closer I am to a major exam, the harder it is for me to concentrate on the material.	3.214
2.	When I study, I worry that I will not remember the material on the exam.	2.857
3.	During important exams, I think that I am doing awful or that I may fail.	3
4.	I lose focus on important exams, and I cannot remember material that I knew before the exam.	2.714
5.	I finally remember the answer to exam questions after the exam is already over.	3.214
6.	I worry so much before a major exam that I am too worn out to do my best on the exam.	3.214
7.	I feel out of sorts or not really myself when I take important exams.	2.857
8.	I find that my mind sometimes wanders when I am taking important exams.	3
9.	After an exam, I worry about whether I did well enough.	3.214
10.	I struggle with writing assignments, or avoid them as long as I can. I feel that whatever I do will not be good enough.	3.214
	TOTAL	**3.05**

Table 4. *The meaning of students' test anxiety score*
Richard Driscoll (2007)

Mean score	Category of test anxiety
1.0—1.9	Comfortably low test anxiety
2.0—2.5	Normal or average test anxiety
2.5—2.9	High normal test anxiety
3.0—3.4	Moderately high (some items rated 4=high
3.5—3.9	High test anxiety (half or more of the items rated 4=high)
4.0—5.0	Extremely high anxiety (items rated 4=high and 5=extreme)

The score of students' test anxiety obtained 3.05 and as it was reflected to the category of test anxiety from Richard Driscoll (2007), it was categorized into Moderately high test anxiety because the score was in the range of 3.0—3.4. It means students still had any anxiety as they faced examination or test. Furthermore, the researcher would elaborate on the score to be more meaningful.

Students felt that they could not get a better understanding in answering questions in a test and they assumed that they had a bad memory in recalling what they have learned as facing a test or examination. It can be analyzed from questionnaires. Several students would lose concentration as the examination was closer (M=3.214) and they would remember as some answers to questions in a test after they completed the test (M=3.214). It caused them disappointed. Additionally, students' mind would wander as they took an important examination (M=3). Regarded with writing an assignment, students would lovely avoid as long as they could because they assumed that they felt whatever they did would not be good enough (M=3.214) and more students were worried so much before a major exam that they were too worn out to do their best on the exam (M=3.214). In addition, Students would not dominantly lose focus on the exam and would remember what they have learned before (M=2.714).

Furthermore, students tended to be a worry after facing examinations because they thought whether or not they did well enough on the exam (M=3.214). They also felt out of sorts or not really themselves when they took important exams (M=2.857). However, it was not dominant as well as when students studied, they would worry that they would not remember the material on the exam (M=2.857). At last, students thought that they were doing awful or that they might fail during the exam (M=3).

4.2. Students' attitudes toward Quizizz employment in the test

There are 7 items for the questionnaires including tree aspects (Affective, Cognitive and Behavior) to know whether students have positive or negative attitudes toward the Quizizz employment in a test.

Table 5. Students' attitude toward game elements to reduce test anxiety

Items	**Mean**
Students are interested in doing the test due to Quizizz employment	4.286

Students are confident in doing the test due to Quizizz employment	3.429
Students get more motivation in doing the test due to Quizizz	4.071
Students can improve their skills due to Quizizz employment in a test	4.429
Students believe that Quizizz employment is good to reduce test anxiety	3.786
Quizizz employment helps students to overcome the test anxiety	3.929
Students tend to do a test with Quizizz	3.643
TOTAL	3.94

The mean sore of the collected items is (M=3.94) and it is considered high. It means that students have positive attitudes toward Quizizz employment. In other words, Quizizz could reduce test anxiety in which the students had, moderately high test anxiety. Most of the students were interested in doing a test with Quizizz (M=4.286), because they could enjoy the test. A student said,

Quizizz was a good thing in a test because they would be able to enjoy the test. Many people would like it including children.

Students also felt that they had high motivations in doing the test well (M=4.071). It happens because of the element games which are available in the application. It is in line with Kim (2015) stated that gamification is able to enhance students' engagement, motivation and instruction.The game elements which motivate them are Time restriction/limit and meme. Time restriction is some task or challenge have specific time lime (Groh, 2012) and Meme is a concept or catchphrase or image that spread viral over the internet which sometimes contains joke (Miller, 2014; Joyce, 2010).

The elements of game are good because we are like playing game but in fact we are on the exam. As we answered the questions, we will compete with time. The faster we answer and correct, the better the score we will get. Additionally, there are memes with funny pictures and writings showing right after we answer the question and it makes us motivated.

As a result of high motivation, it influences the students' confidence in doing the test or exam. Avtgis (2001) stated that there is a relationship between students' motivation and students' confidence. They were confident (M= 3.429) due to the points which will be obtained directly after they answer the questions. The points will be dynamic depending on how fast the answer. Thus, higher points will make students more confident. It makes students try to encourage to do (Groh, 2012).

We are able to be confident to answer the questions as we can get points as we answer correctly. It can make us challenged to compete with our friends who are among us achieving more points in a test or exam.

Because students had positive confidence toward the test with Quizizz, it automatically reduces students anxiety (M= 3.786). They assumed that the test is like game thus they enjoyed doing the test as if they play game. Desrochers et.al. (2017) stated that a game approach is a kind of assessment which may students' motivation compared to traditional testing. Most of the Indonesian students like playing the game. It is indicated that Indonesian players of Mobile legends are almost 50 percent of 4 million players all over the world (Sunarto, et. al, 2019).

We are not anxious enough in doing the test because the test looks like a game. So, we like to do it as if playing a game.

Besides enhancing students' motivation and confidence, the Quizizz also helps students improving their skills related to the subject tested (M=4.429). They took the advantages of test report which they would get it shortly after the test was over. The system of Quizizz will record and analyze students answer really fast in detail including the time taken to answer the test, the points and showing the incorrect answer students had. Students learnt from the mistake and try to get over it. Thus, in another test they can answer the same questions correctly. Elmahdi et.al. (2018) stated that immediate feedback leads to improve learning process as the immediate assessment improve students' participation; guarantee equal participation opportunities, save the learning time and create exciting learning process.

We can improve my skill by using a test port which is available. We learn from our mistakes because the test report shows our mistakes in answering the questions in details.

From all results in the form of score and arguments from students related the items in questionnaires, the most of the students tend to use Quizizz (M=3.643) because it has lots of advantages as mentioned in advance. Furthermore, the test with Quizizz is flexible to do. It means the students can do the test wherever they are at in same time. Karaman (2011) said that the convenience of the test came from the place and time flexibility, self-control and less anxiety. In addition, all assessment should be valid, fair, reliable and flexible (Booth et al., 2003). It is not like paper-based test Students need to be in the class to do the test.

It is flexible for us to do the test because we can do the test as we like. It is not like the test with paper. We should be in the class to do the test.

4.3. Game elements preference

The items of game elements above are about the students' preference toward game elements in Quizizz whether or not they are engaged with the test. There are six game elements which researcher use for the questionnaires because these six game elements are integrated in Quizizz. Thus, what were not in the Quizizz was not employed. The six-game elements could be seen in the following table.

Table 6. Students' preference toward game elements in test engagement

Game elements	Mean

Leader board	3.714
Time restriction	3.357
Meme	3.357
Profile	3.429
Test report	3.929
Points	4.357
TOTAL	3.69

From the data above mean score of collected items is 3.69. It means the six elements contributed in test engagement. Rama (2017) stated that game design elements had specific psychological effects such as enriching the experience, increasing intrinsic motivation and improving player engagement. To break down, the highest mean score for the game elements is Points which obtained (4.357). Furthermore, it is followed with Test report (3.929), Leader Board (3.714), Profile (3.49) and the last rank were Meme and Time restriction which both obtained same score (3.357). Those are the rank for students game element preference in Quizizz.

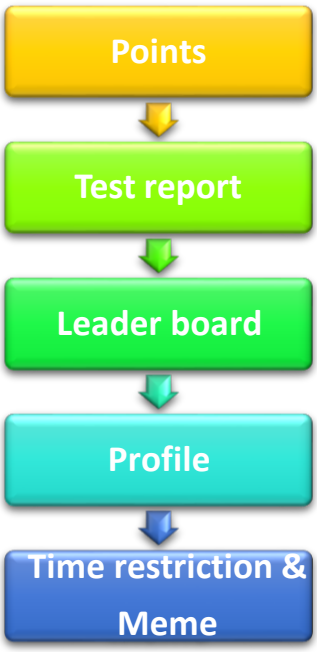

Figure 2. Game elements/game components ranking.

The above game elements ranking was ordered based on the function of each element contributing to the test engagement which students felt during the test. To be more understandable, it could be referred to the students' opinions on students' attitude towards Quizizz in reducing test anxiety.

5. Conclusion

The result of the study is that test caused students having moderately high test anxiety. The symptoms of the anxiety are able to see as lose focus and concentration in doing the exam. They used to feel that they would fail the test. However, the teacher had a strategy to reduce the test anxiety by using gamification based assessment and the application used was Quizizz. From the data analyzed that students preferred to do the test with Quizizz because they could enjoy the test like playing game. Furthermore, the elements of game are really important in this context because it made the test look like game with the all the dynamic and mechanic of the gamification. It can be drawn the inference that students will engage with what they like and love to do. Consequently, the teachers' duty is to create something related to educational purposes for students with what they are interested in. Thus, the chance to achieve purposes will be high.

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COGNITIVE LEVEL PROFILE AT THE TENTH GRADE OF SENIOR HIGH SCHOOL STUDENTS IN MATHEMATICS PROBLEM SOLVING ON THREE VARIABLES OF LINEAR EQUATION SYSTEM MATERIAL

Research Article

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Abstract

Problem-solving is a significant skill in facing the 21st century. Students have different levels of problem-solving. The levels that explain individual abilities in solving mathematics problems are called as cognitive level. It consists of three levels; cognition, metacognition, and epistemic cognition. The cognitive level influences the individual in understanding the problem and deciding the right strategies to solve it. The material used to obtain the data is three variables linear equation system, by involving two high ability students at the tenth grade from one of the state senior high schools in Pati. This research employs a qualitative method in which the data are collected through task-based interview and time triangulation is applied to validate the data. The results reveal that at the cognition level, students with high ability have an understanding related to conceptual and procedural knowledge, but the ability of students in factual knowledge is low, especially in terminology skill; at the metacognition level, the students are able to write down each strategy in each method, but it is not detailed; while at the epistemic cognition level, they are able to explain the weaknesses of a method, but they have not been able to provide a solution to overcome its weaknesses.

Keywords: cognition, metacognition, epistemic cognition, problem-solving, mathematics.

1. Introduction

The development of the 21st century emphasizes the use of communication and information technology in all aspects of life, including in the learning process. According to Kamaleswaran, Rohaida and Rose (2014), in the 21st century, workers must master several fields, such as scientific skill, mathematics, creativity, ability in mastering information technology and communication, and the ability to solve problems. It encourages students to have several skills in facing the 21st century, including communication, collaboration, critical thinking and problem solving, and creativity and innovation or commonly referred as 4C skills. So, problem-solving is one of the crucial skills to deal with life in the 21st century. Students need to exercise solving real problems that require reasoning, clarification, argument or other mathematical skills because it associates in the future that they will be able to contribute improvements in society (OECD, 2010). Problem-solving in learning mathematics can improve students' reasoning. In addition, it can also develop students' tenacity and perseverance. (Sullivan, Borcek, Walker, & Mick, 2016).

Referring to the phenomenon above, the contextual issue must be given to the students in order to meet the demands of the 21st century. In addition, in the 21st century, complex

society requires people who are capable of analyzing responding to issues in a constantly expanding knowledge-based world. It needs people who are able to analyze and respond to real-life problems quickly and accurately (Baimba, Brown, & Hardimah, 2008). Presenting a problem to the students meant giving them the opportunity to learn to take risks, to adopt a new understanding, to apply the knowledge, to work in context and enjoy the sensation of being the discoverer (Ali, Hukamdad, Akhter, & Khan, 2010).

According to Polya (1973), the problem is classified into two types, namely (1) problem to find and (2) problem to prove. The set of questions in the form of story is a form of problem to find, namely finding, determining, or obtaining certain values or objects that the information is not known in the problem and fulfilling the conditions that are appropriate to the problem (National Education Department, 2003). The set of questions in the form of story which is used in this study is problem-solving type. Problem-solving type for learning purpose consists of several characteristics, such as the following: (i) challenging (required basic mathematical concepts and knowledge that can be accessed by any mathematician, irrespective of the field of specialization); (ii) the character of the problem would produce a variety of pathways solution, thus giving rise to a variety of cognitive and metacognition behaviors, also prolonged engagement during the solution process; and (iii) a fairly complex problem led to stop and gain strong affective responses (Carlson & Bloom, 2005).

Each student has different abilities in problem-solving. It gives an impact on the cognitive levels of students (Setianingrum, Sujadi, & Pramudya, 2017). Kitchener (1983) stated that students' cognitive level in mathematics problem solving is individual ability level in solving mathematics problems. The definition of cognitive level in this article refers to Kitchener's theory which states that at the first level of cognition (level 1), individual enters into cognitive tasks such as computing, memorizing, reading, perceiving, acquiring language, etc. These are the pre-monitored cognitive processes on which knowledge of the world is built. The second level (level 2), metacognition is defined as the processes which are invoked to monitor cognitive progress when an individual is engaged in level 1, cognitive tasks or goals such as the list above. The third level (level 3) epistemic cognition is characterized as the processes and individuals invoke to monitor the epistemic nature of problems and the truth value of alternative solutions (Kitchener, 1983).

In addition, the researchers also complete the definition of cognitive level with the theory of Anderson & Karthwohl (2001), because the three characteristics of the cognitive level conveyed by Kitchener have in common with the characteristics of the knowledge dimension proposed by Anderson & Karthwohl. According to Anderson & Karthwohl (2001).The dimension of knowledge is divided into four categories, including; first, factual knowledge is knowledge about the basic elements that students must know to learn a discipline or to solve problems in the discipline. Second, conceptual knowledge is the knowledge of the relationship between basic elements in a large structure that enables the elements to function together. Third, procedural knowledge is knowledge about how to do things, practice research methods, and criteria for using skills, algorithms, techniques, and methods. Fourth, metacognitive knowledge is knowledge about cognitive in general and knowledge of self-cognition.

In this study, the cognitive level is described as follows; first, cognition level consists of factual knowledge; conceptual knowledge; and procedural knowledge. For factual knowledge, it includes terminology knowledge and specific element detail knowledge. Conceptual knowledge consists of classification and category knowledge, principle knowledge and generalization, theory, model and structural knowledge. Procedural knowledge includes expertise knowledge and algorithms, knowledge of techniques and

specific methods of a subject, and knowledge of criteria to determine the use of appropriate procedures; second, metacognition level consists of strategic and cognitive tasks knowledge; third, the epistemic cognition level includes knowing about the limits of knowledge; belief in knowledge; and criteria for knowing a thing. At the Epistemic cognition level, students are able to explain the sources and problems of knowledge (Knight & Littleton, 2017). In addition, Cognitive level has a lower level than metacognitive level because students have carried out the monitoring and regulating process at the metacognitive level (Kim, Park, More, & Sasha, 2013).

The researchers conduct pre-survey related to cognitive level of a student by taking the material of a three-variable linear equation system, because it enables the researcher to explore the cognitive level at the tenth grade of Senior High School Students. The results of pre-survey show that at the cognition level, students understand conceptual knowledge, but factual and procedural knowledge is still low; at the metacognition level, students have not been able to know the limits of their knowledge in doing a set of questions; and at the epistemic cognition level, students have not been able to provide a way to overcome their weaknesses, and they have not been able to account for the answer scientifically. In the pre-survey conducted by researchers, the chosen subject is students with medium mathematics ability. Then, to get the maximum result about students' cognitive level, the researcher is interested in conducting further research on students' cognitive level in solving mathematics problems for high or low ability students. On this occasion, the researchers focus more on highly capable students in order to find out whether they can fulfill the characteristics of the three cognitive levels that have been mentioned by the researcher or not.

2. Cognitive Level of Mathematics and Theoretical Framework

Data analysis at each level refers to Kitchener's theory and it is completed by Anderson & Karthwohl's theory that has been combined by researchers and it will be explained in Table 1, Table 2, and Table 3.

Table 1. *Indicators for each Type and Subtype of Cognition Level in Mathematics Problem Solving*

A. Factual Knowledge
1. Indicators of terminology knowledge
a. The students are able to write down a replacement symbol of a number which the value is not yet clearly known. Usually, it is symbolized by lowercase letters a, b, c, ... z.
b. The students are able to differentiate the symbol of equations and inequality correctly, such as =, ≤, ≥, etc.
c. The students are able to distinguish equation, inequality, similarity, and dissimilarity correctly.
d. The students are able to identify variables, coefficients, and constants.
e. The students are able to distinguish between linear and non-linear.
2. Indicators of specific elements and details knowledge
a. The students explain correctly the known information contained in the set of tasks. (By identifying the information on the set of tasks whether it is enough to answer or not).
b. The students are capable to write down the asked information in the set of tasks. (by understanding the materials and steps to answer the given set of tasks).
c. The students are able to write down other information (hidden information) needed to answer the set of tasks.
B. Conceptual Knowledge
1. Indicators of category and classifications knowledge
The students are able to classify linear equation and systems of a linear equation.

2. Indicators of generalization and principles knowledge
a. The students are able to explain correctly regarding the criteria (characteristics) of an equation which can be considered as a system of equation. b. The students are capable to write down the general form of linear equation.
3. Indicators of structure, model, and theory knowledge
a. The students are capable to describe a system of linear equations of three variables (by categorizing between linear equation of three variables and not linear equations of three variables). b. The students are able to write down the general form of a three-variable linear equation system.
C. Procedural Knowledge
1. Indicators of algorithms and expertise knowledge
The students are able to mention various methods (substitution method, elimination method, and combination method) used to solve the problem of three-variable linear equation system.
2. Indicators of specific methods of a subject and technique knowledge
a. The students are able to explain and write down the operation technique of a number correctly, including addition, subtraction, multiplication, and division. b. The students are able to explain and write down substitution, and elimination techniques, etc.
3. Indicators of criteria to determine the use of appropriate procedures knowledge
The students are capable to choose the most appropriate method to solve the problem of three-variable linear equation system, and the subjects are also able to provide a reason scientifically.

The characteristics at the cognition level which is described in Table 1 are reinforced by the opinion of other researchers, including; According to Reed (2004), cognition is the acquisition of knowledge. Benjafield (1992) states that cognition is learning to understand knowledge. Sternberg (2006) views that cognition is an understanding of knowledge or the ability to acquire knowledge. According to Berger & Luckmann (2005), cognition is an individual's belief about something that is obtained from the process of thinking. The process is intended to acquire knowledge and manipulate knowledge through the activity of remembering, analyzing, assessing, reasoning, and imagining. Meanwhile, the indicators of problem-solving at the metacognition level will be explained in Table 2.

Table 2. *Indicators for each Type of Metacognition Level in Mathematics Problem Solving.*

1. Indicators of strategic knowledge
The students are capable to provide concrete reasons or considerations when choosing a combination method, or substitution method, or elimination method.
2. Indicators of cognitive tasks knowledge
a. The students are capable to explain well the time usage and the reason in using the strategy of combination method. b. The students are able to explain well the time usage and the reason in using the strategy of substitution method. c. The students are able to explain well the time usage and the reason in using the strategy of elimination method.

Table 2 explains indicators at the epistemic level adopted from Kitchener, Anderson, and Karthwohl's concept. The indicators are in line with the statement of Kuhn & Dean (2004) explained that metacognition caused learners who have been taught with a certain strategy and in the context of particular problems would be able to obtain and use a new strategy for the same context. Metacognition also concerned with knowing how to reflect, to make conclusions on the analysis, and to apply in practice. In other words, metacognition also how to have cognitive tasks were important as remembering, learning, and problem-solving (Downing, 2009). Furthermore, indicators of problem-solving at the epistemic cognition level are explained in Table 3.

Table 3. *Indicators for each Type of Epistemic Cognition Level in Mathematics Problem Solving*

1. Indicators of knowing about the limits of knowledge
a. The students are able to describe well the steps in each method that they have been chosen, such as the effectiveness of the method, etc.
b. The students understand the advantages and disadvantages of the method.
2. Indicators of confidence in knowledge
The students are confident in working on a question. (By providing concrete reasons about the answer).
3. Indicators of criteria to know
a. The students are able to explain scientifically the reason in choosing the used strategy.
b. The students understand the strategy and solution to overcome the faced problems.

Table 3 explains indicators at epistemic level adopted from Kitchener, Anderson, and Karthwohl's concept. The indicators are in line with the statement of Chinn, Buckland, & Samarapungavan (2011), research on individual cognition on epistemic problems has become a major topic in the world of education and psychological development, cognition on topics which related to knowledge, sources of knowledge, belief in knowledge, and evidence underlying these beliefs.

Epistemic cognition is the way in which the individual understands the certainty, simplicity, source, and justification concepts of knowledge (Mason, Boldrin, & Ariasi, 2009). According to Hofer & Pintrich (1997) in Ferguson, Brathen, & Stromso (2012), epistemic cognition is a form of personal epistemology that relates to the opinion and understanding of individuals about knowledge and the process of gaining knowledge.

3. Method

This study employs a qualitative method. The main data in this study are written words and interview results related to students' ability in solving mathematics problems. The research subjects are taken from two high-ability students at the tenth grade of one of the State Senior High School in Pati, who are given the initial of Subject A and Subject B. In collecting the data, the researchers use task-based interviews. The supporting instruments used in this study are a set of tasks related to the linear equations system of three-variable and interview guidelines. Budiyono (2003) states that the interview is a way of collecting data through conversations between researchers and students or data sources. The set of tasks about linear equations system of three-variable are used to identify students' cognitive level in solving mathematics problems. Then, time triangulation is applied to validate the data. According to Patton in (Moleong, 2007), time triangulation is comparing and re-examining the trust degree of information obtained through different times. Data analysis technique is Miles and Huberman’s technique, which include data reduction, data presentation, and

conclusions or verification. Data analysis is carried out by analyzing the results of interview based on the set of tasks in solving the problem of three-variable linear equation system.

4. Finding and Discussion

Based on the results of written work, the first and second interviews, then the researchers analyze and compare it in order to find the valid data. After that, the data is intended to find out the cognitive level of students in solving mathematics problems.

4.1. Cognition Level

In this study, cognition level is defined by three knowledge, including; factual knowledge; conceptual knowledge; and procedural knowledge. The explanation of the three-knowledge is presented in Table 4, Table 5, and Table 6.

Table 4. *Factual Knowledge Type of Cognition Level*

Valid Data of Subject A	Valid Data of Subject B
1. He is able to write down a substitute symbol of a number which the value is not yet clearly known.	1. He is able to write down a substitute symbol of a number which the value is not yet clearly known.
Example: Subject A and Subject B write down the symbol x = the price of children's jacket, the symbol y = the price of teenager's jacket, and symbol z = the price of adult's jacket.	
2. He understands the differences between symbols of equality and inequality.	2. He understands the differences between symbols of equality and inequality.
Example: Both subjects explain the differences between the symbols of equation and inequality correctly	
3. In the first and second data collection of Subject A, he is able to write down the differences between equation, inequality, similarity, and dissimilarity. However, there are deficiencies in defining inequality and dissimilarity.	3. In the first data collection, he is wrong in writing the differences between equation, inequality, similarity, and dissimilarity. Then, in the second data collection, he has been able to differentiate, but there are deficiencies in defining inequality and dissimilarity.
Example: Both subjects write down the differences between equation, inequality, similarity, and dissimilarity. However, there are deficiencies in defining inequality and dissimilarity. Inequality uses the sign ($>$, $\geq$, $\leq$, $<$) while dissimilarity only uses the sign ($\neq$).	
4. He can identify variables, coefficients, and constants correctly.	4. He can identify variables, coefficients, and constants correctly.
Example: There is an equation system $10x + 40y = 4{,}700{,}000$. Subject A and Subject B mention that number 10 and 40 are coefficients, letter x and y are variables, and number 4,700,000 is constants.	
5. He is able to distinguish between linear and non-linear correctly.	5. He is able to distinguish between linear and non-linear correctly.
Example: The answer of subject A is linear when the equation contains of a variable with one squared or if it is drawn graphically, it will form a straight line. Non-linear means that it is not a requirement of the linear equation. Subject B gives a wrong definition of linear and non-linear, then subject B spontaneously justifies it correctly in line with the answer of subject A.	
6. He is able to explain correctly the known	6. He is able to explain correctly the known

Valid Data of Subject A	Valid Data of Subject B
information presented in the set of tasks.	information presented in the set of tasks.
Example: Subject A mentions the information in the set of tasks in a coherent way, and the information can solve the problem. Subject B explains all of the known information in the set of tasks, and he proposes that the known information in the set of tasks has not been able to answer the tasks because there is still the unknown value of the tasks, namely the rest of the jacket	
7. He is able to search for the hidden information in the set of tasks, and he is able to answer correctly when there is no hidden information.	7. He is able to search for hidden information in the set of tasks, and she is able to answer correctly when there is no hidden information.
Example: Subject A and subject B answer that the remaining jacket is the hidden information on the task	

Based on Table 4 which explain the factual knowledge type of cognition level in detail between subject A and Subject B, it can be concluded that students with high ability master the knowledge of terminology, detailed knowledge and specific elements in the problem of three-variable linear equation system. However, they still do not understand the symbol used to distinguish between inequality and dissimilarity.

Table 5. *Conceptual Knowledge Type of Cognition Level*

Valid Data of Subject A	Valid Data of Subject B
In the first data collection, subject A does not know the characteristics of three variable linear equation system. However, in the second data collection, he is able to explain it correctly.	He is able to classify and convey the characteristics of a linear equation and the systems of linear equations correctly.
Example: Subject A and subject B are able to describe characteristics, definitions, and general forms of linear equations and linear equation systems correctly	

Based on Table 5 above, related to the conceptual knowledge of cognition level type, it can be concluded that students with high ability are able to describe characteristics, definitions, and general forms of linear equations and linear equations systems correctly. But there are interesting things in collecting data on subject A. There is differentiation in the first and second data collection. The differentiation can be seen when subject A is asked to classify and describe characteristics between linear equations and systems of linear equations. In the first data collection, subject A has not been able to answer correctly. Meanwhile, in the second data collection, she is able to answer correctly. It is caused by the enthusiasm possessed by the subject A. He is trying to find an answer that makes him satisfied or answers that are in accordance with the truth when the subject A felt less satisfied in answering the question. This is in agreement with research conducted by Cleopatra (2015) which shows that the results of learning motivation influence mathematics learning achievement significantly up to 93.1%. Students who have high math skills will also have high learning motivation. Meanwhile, subject B is able to provide answers that are close to the truth.

Table 6. *Procedural Knowledge of Cognition Level*

	Valid Data of Subject A	Valid Data of Subject B
1	He is able to mention and solve problems of three-variable linear equation systems using three methods, namely; combination method; elimination; and substitution.	1. He is able to mention and solve problems of three-variable linear equation system using three methods, namely; combination method; elimination; and substitution.
	Example: Subject A and subject B solve the given problem using three methods, including; combination method; elimination; and substitution.	
2	He has a good understanding of the operation techniques of a number.	2. He has a good understanding of the operation techniques of a number
	Example: Both subjects are able to write down and explain the operation technique of a number, including, multiplication, division, addition, and subtraction.	
3	He is able to give reasons for choosing a combination method as the most appropriate method. In the first data collection, the reasons given are non-scientific, then in the second the data collection, the reasons are given are scientific.	3. He is able to give reasons in choosing a combination method as the most appropriate method. In the first data collection, the reasons given are non-scientific, then in the second the data collection, the reasons are given are scientific.
	Example: The most appropriate method according to subject A is combination method, because he prefers to apply the combination method rather elimination and substitution method. Meanwhile, subject B is in line with subject A, he states that combination method is the most appropriate method since it is easy to apply, it is less complicated, and it does not require a long time.	

Based on Table 6 above, the conclusion can be drawn that on procedural knowledge, Subject A and B are able to mention and complete the problem of three-variable linear equation systems with several methods. They also have a good understanding of the operation techniques of a number. However, there is something important when they choose a combination method as the most appropriate method. In the first data collection, the reasons given in choosing the method are non-scientific, then in the second data collection, the reasons given are scientific, so it can be concluded that they are able to provide the right reasons in choosing combination method. This is in accordance with the theory, that the higher the student achievement motivation, the better their academic performance will be (Sugiyanto, 2009). Furthermore, achievement motivation is considered as a preference for high standards of performance or as the willingness to work hard and persistently to rich these standards (Sciefele & Csikszentmihalyit, 1995).

4.2. Metacognition Level

Metacognition level is characterized by two knowledge including; strategic knowledge; and knowledge of cognitive tasks. The explanation is summarized in Table 7.

Table 7. *Metacognition Level*

Valid Data of Subject A	Valid Data of Subject B
He is able to write down a strategy for each method, but it is still not specific. So the reason for choosing a particular method is also less specific.	He is able to write down each strategy for elimination, substitution, and combination method. However, the details are lacking, so the reason for choosing a particular method is also lacking in detail.
Example: The strategy used in the combination method of subject A is eliminating one by one variable until it finds one of the variable values, then the value is substituted into the other equation. Meanwhile, the strategy employed in the elimination method is eliminating one by one variable. For Substitution method, subject A applies one of the variables value into another linear equation to find out the value of another variable. The strategy employed by Subject B in the elimination method is removing one of the variables in the linear equation system to find out the value of other variables. In the substitution Method, subject B enters the value of one variable in a linear equation. For the combination method, he combines the elimination method and the substitution method.	

Based on Table 7 which explains in detail about metacognition level between subject A and Subject B, it can be drawn a conclusion that Subjects with high ability are able to write down each strategy on elimination, substitution, and combination method. However, the details are lacking, so the reason for choosing a particular method is also lacking in detail. Because the students only work according to the way the teacher does, without understanding the strategy for what method are like. This is in accordance with Bandura's theory. Previous studies confirmed that at least partly of many behaviors can be learned through modeling. Some examples that can be cited on this regards are, students can watch parents read, students can watch the demonstrations of mathematics problems, or seen someone acting bravely and fearful situation (Bandura, 2006).

4.3. Epistemic Cognition Level

In this study, epistemic cognition level is characterized by three indicators including; knowing about the limits of knowledge; belief in knowledge; and criteria for knowing. The three indicators were explained in Table 8 below.

Table 8. *Epistemic Cognition Level*

Valid Data of Subject A	Valid Data of Subject B
1 He is able to explain the steps in the chosen method, and he is able to explain the weaknesses of the methods that are less-controlled by him.	1. He is able to explain the steps in the method he chooses and be able to explain the weaknesses of the methods that are less controlled by him.
Example: Subject A answers the substitution and elimination method is not appropriate because the equation made in the substitution method has a lot of numbers, such as x = 470.000 - 4y and z = 570,000 - 4y; in my opinion, it is too complicated. Meanwhile, in the elimination method, subject B answers it in complicated and many ways, in this way we have to find some more equations then we will find one of the variables. Therefore, I consider this method is ineffective and require a long time. In my opinion, subject B should eliminate one of the variables in order to produce a new equation, and then he	

	Valid Data of Subject A	Valid Data of Subject B
	eliminates it again with another equation. The accuracy is needed.	
2	The solution provided to overcome its weaknesses is still unscientific.	2. The solution provided to overcome its weaknesses is still less unscientific.
	Example: Subject A overcomes weaknesses through researching another answer sheet by recalculating the questions given. Subject B answer that he had to study diligently to understand, get used to working on the system of three-variable linear equation system with methods that he did not master yet. It needs more concentration and needs more accuracy when working on a three-variable linear equation system.	
3	He is able to explain scientifically the use of each method. However, the first and second data collection has different substances. In the first data collection, all the reasons given in choosing the method are still unscientific. In the second data collection, the reason given is scientific.	3. He is able to explain scientifically the use of each method.
	Example: Subject A answers that each method can be used; combination method on complex numbers (which are difficult or it cannot even be simplified), elimination method is used when there are the same coefficients in the same variable, the substitution method is in a number that has a simpler value and one variable value is known. Meanwhile, subject B answers that elimination method can be used when there are two equations to eliminate one variable. The substitution method is used when there is a known value of the variable then substitutes it into another equation. The combination method is used when the variables don't provide the information in the two linear equations, so we must eliminate two equations until we get the value of one of the variables and then substitute it into other equations.	

Based on Table 8 which describes in detail the epistemic cognition level between subject A and Subject B, it can be concluded:

1. Subjects with high mathematical abilities are able to explain the steps in the method they choose, and they are able to explain the weaknesses of the methods.
2. Subjects with high mathematical abilities have not been able to provide solutions in overcoming their weaknesses in the method that they do not mastered yet.
3. In explaining the use of each method, there are differences in the first and second data collection of subject A. In the first data collection, subject A has not been able to provide answer scientifically. Meanwhile, in the second data collection, he has been able to provide answer scientifically. This is an evidence of enthusiasm possessed by the subject A. When the subject A feels less satisfied in answering the question, he tries to find an answer that makes him satisfied or answer that is in accordance with the truth. This is consistent with research conducted by Ameliah, Munawaroh, and Muchyidin (2016) which states that students' curiosity has an influence on the ability of their learning outcomes with a significance of 0.009 <0.05. Students who have high learning ability will have a high curiosity. So, it can be concluded that subject A and subject B are able to provide a scientific answer.

5. Conclusion

Based on the results and discussion, it can be concluded that the cognitive level of students with high mathematics abilities in solving problems as follows; at the cognition level, the subjects master terminology skills, but they have not been able to distinguish the marks between inequality and dissimilarity. At this level, the subjects also master conceptual knowledge and procedural knowledge well; at the level of metacognition, the subjects are able to write down each strategy in each method, but they could not explain it in detail form. As a consequence, the reason for choosing a particular method is also less detailed, because students rarely explain the strategies on their work; at the epistemic cognition level, the subjects are able to explain the weaknesses of the method that they have not mastered yet, but they have not been able to provide the right solution related to its weaknesses. Related to the use of each method, the subjects are able to provide answers scientifically.

The interesting thing in this study is the high-ability subjects have a high curiosity and motivation. It can be seen in several instances in the first and second data collection. In the first data collection, the results are different from the second data collection. Subjects answer incorrectly in the first data collection, but they are able to answer correctly in the second data collection. Furthermore, Students who have high abilities will also have a high curiosity. This is consistent with research conducted by Ameliah, Munawaroh, and Muchyidin (2016) which states that students' curiosity has an influence on the ability of their learning outcomes with a significance of 0.009 <0.05. Students who have high learning ability will have a high curiosity.

There are several suggestions for the readers, including; students should be given a treatment to remember the definition and scope of the material that they have learnt, so that they can understand well the small points that exist in the material, such as symbols of equation, similarity, inequality, and dissimilarity. Anderson & Karthwohl (2001) state that initial knowledge such as terminology knowledge is very useful and specific, so the experts expect that the students master it; students must be accustomed to working with various methods, so that they will be easier in finding various solutions to solve a problem; students must recognize strategies in solving a problem, so that they were able to solve a problem coherently; students also always be motivated to overcome their weaknesses or weaknesses in dealing with a problem. This research is conducted by researchers focusing on high-ability students and in pre-survey with medium-ability student with three-variable linear equations system material. Therefore, it is necessary to conduct further research on students' cognitive levels with other criteria.

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EXPECTATIONS OF PRE-SERVICE PRIMARY TEACHERS TOWARDS A BOOK ABOUT TEACHING OF MATHEMATICS ON PRIMARY EDUCATION

Research Article

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Abstract

The purpose of this research is to determine the expectation of pre-service primary teachers for teaching of mathematics book. The study was conducted with 41 pre-service teachers. The research was defined as a case study from descriptive qualitative research designs. Pre-service teachers were asked about the qualities they thought of a book of teaching of mathematics to be prepared for primary school 1th-4th grades should have, and a text expressing their thoughts was made them write. The collected data were analyzed by the content analysis method. According to the results, pre-service teachers expect that teaching of mathematics book meets the needs both during their undergraduate education and throughout their teaching life. They stated that the language of the book should be removed as far as possible from the academic language. Also, regarding the mathematical content of the book, it is stated that the practices must be rich in terms of activities, instead of complicated mathematical notations, there should be expressions that can be easily understood, the clearest explanation of mathematical concepts should be included in the book. They also pointed out the book including what might be the misconceptions about mathematical concepts or what might be the misconceptions about the topic would be useful for them in the point of what they should pay attention to when teaching them. They also stated that there should be a lot of material samples for teaching each subject about mathematical content.

Keywords: pre-service primary teachers, teaching of mathematics book, expectation

1. Introduction

The course book is a printed teaching material prepared in accordance with the objectives, content, learning-teaching process and measurement and evaluation dimensions in the curriculum and used for learning purposes (Demirel & Kiroglu, 2005). Course books are a basic tool for studying and explaining the information of the subjects in the curriculum in a planned and regular manner and as a source of information to guide and educate the student in the direction of the course objectives (Unsal & Gunes, 2004). The oldest and most common learning technologies used in education are based on written materials. Among them, course books with a special position are an integral part of the "book-teacher-board" trio, which is called a magical triangle in education. A well-prepared course book provides great benefits to both teachers and students and guides teachers and students in educational and learning activities. In this sense, the course books have a separate place in the lives of

both teachers and students (Rowntree, 1992; Sahin, 2010). Course books are the basic tools that are used in the course play a role in developing the course in process and in expanding on practices and knowledge, life orientation.

They are products with a high level of labor and functional value in terms of the continuous supervisory nature of their preparation and organization and experiencing many periods in the process of maturation and development, rigorous and careful work-related qualities (Guclu, Topses, Yel, Korkmaz, Çakmak, Koksal & Albayrak, 2001).

Although there are many technological materials that replace the textbook, a qualified textbook is a guiding course material. For this reason, researches should be made possible to increase the quality of textbooks and these researches should be increased (Bircan, 2018). Educational experts view course books as the best source and primary material in delivering information to students (Gokkaya, 2003, 11). Research shows that even the expert teachers in a field do not have as much knowledge and material as the textbooks in the field. In this respect, textbooks are important for providing students with satisfactory access to the basic knowledge they need in their learning process (Ellis, 2015). Course books allow teachers to use their power better in teaching (Kaptan, 1999). Also, course books have a significant effect on decisions about in-class learning-teaching activities as well as having an ability to be a resource that determines what students will learn and what teachers will teach during teaching. For this reason, it is possible to say that course books are the most used teaching tool to guide the learning experiences of students in order to realize their educational aims (Epcacan & Okcu, 2010). The researches carried out with various traditional and modern tools suggested for use in the classroom show that the place of the book in the classroom is very important nowadays and teachers begin with a book and proceed with the book in many activities (Ceyhan & Yigit, 2004, 18). According to researches, it was determined that 70% and more of the course books were utilized as educational material and the students spent about three-quarters of the time with activities related course books in the classroom (Karamustafaoglu, Yaman & Karamustafaoglu, 2005). There is no doubt that books are very useful materials when viewed from the perspective of the students. Thanks to the book, the student will have the opportunity to review the teacher's talks and other information whenever he wants, where he wants to, and at what speed he wants for a number of times, and to study independently (Kucukahmet, 2000; Ataman et al., 2001). Referring to other developed or developing countries as well as in Turkey, course books are an important educational tool and is always the main source of information (Kaya, 2002; Tertemiz, Ercan & Kayabasi, 2004; Demirel & Kiroglu, 2005). The main purpose of preparing the textbooks is; books contain the activities that will give the students the cognitive, emotional and psychomotor behaviors determined in the curriculum and they are the guiding qualities of these activities (Kanli & Yagbasan, 2004; Unsal & Gunes, 2003). The use of course books as one of the most important resources in teaching requires carrying out various functions. Access to knowledge, ability to group and associate information in a logical whole within the mind, to create a basis for self-learning, to contribute to the permanence of correct behaviors, and to personality development can be counted among these functions (TUGIAD, 1993; Demir, Maskan, Cevik & Baran, 2009). At the beginning of the subject or unit in the course books, to draw the attention and the interest of the students to those subjects, to prepare them to make them willingly, to present the learning experiences in the stage of acquiring targeted behaviors while unit subjects are being processed and the opportunities of observations, experiments and researches and reaching certain results on their own for the purpose of providing control and reinforcement at the end of the unit should be given to students (Altun, Arslan & Yazgan, 2004; Kaptan,1999). The fact that the course books to be prepared are based on structurally active curriculums and that they are prepared by taking into

consideration the needs of the individual and the society, the proposed activities are compatible with the theory, the center of the teaching is equipped with activities taking place individually, the establishment of interdisciplinary relations in the activities will contribute to making the book more functional (Epcacan & Okcu, 2010).

From past to present, the issue of course books in Turkey has continued to be relevant. Questions such as how course books should be, what is the place and the importance of it in teaching and how to choose? are addressed in National Education Committees, party, and government programs and progress plans (Kilic, 2005). However, it is seen that the course books are not often included in the studies that reflect the viewpoint of the students about the contents of the course books in the literature.

There are many courses taught in different disciplines in Primary School Teacher Education undergraduate programs of Faculty of Education. Among these courses, there are Teaching of Mathematics I and II courses aimed at improving the knowledge and skills that would benefit pre-service primary teachers in teaching of mathematics studies for primary school students in their teaching experience. There are several course books in our country written for Teaching of Mathematics courses. Nevertheless, when the literature was searched, there was no study about the expectation for teaching of mathematics book that pre-service primary teachers could use in Teaching of Mathematics I and II. In this respect, the aim of this study is to determine the expectations of the pre-service primary teachers from teaching of mathematics book. This work was also conducted as a preliminary study of the process of building the content of teaching of mathematics book that is planned to be developed at the primary school level.

2. Method

2.1. Research Design

The case study of qualitative research designs was used. According to Stake (1995) and Yin (2009, 2012), a case study is a research design in which researchers analyze a particular situation, often a program, event, action, process, one or more individuals in depth (as cited in Patton, 2014). In this study, a case study is determined by the reason of examining the pre-service primary teachers' expectations for primary teaching of the mathematics course book and of trying to get more details related to the issue from pre-service primary teachers as much as possible during this process.

2.2. Participants

The study was conducted with 41 pre-service teachers studying at a state university in Istanbul, sophomores in the department of primary school teaching. The reason for conducting the study with sophomores in the undergraduate program of primary school teaching is that these students have not yet taken the courses of Mathematics I and II in the curriculum of undergraduate programs. In this respect, it was aimed to determine the most natural state of their own thinking, thinking that they had not been able to examine in detail the contents of any teaching of mathematics book until now.

2.3. Data Collection Tool and Application

Pre-service teachers were asked about the qualities they thought of a book of teaching of mathematics to be prepared for primary school grades from 1th to 4th should have and made them write their thoughts related to the topics. In the process of writing this text, pre-service teachers were given 30 minutes. It is stated that it is not necessary to write their names on the papers and the collected data will be kept in accordance with the confidentiality principle.

2.4. Analysis of Data

The texts in which the pre-service teachers express their thoughts were read in detail and analyzed by content analysis method. Content analysis is a scientific approach that enables to examine verbal, written and other materials in an objective and systematic way (Tavsancil & Aslan, 2001). The main goal of content analysis is to reach concepts and associations that can explain the collected data (Yildirim & Simsek, 2008). In this direction, the data collected in this research were arranged in accordance with the emerging concepts and the themes were formed.

3. Findings

When the answers given by pre-service teachers were analyzed, it was seen that a wide variety of expressions were used in relation to the characteristics of the book. By analyzing the content, the expected features of the book are covered under the general heading, general purpose and mathematical content.

3.1. Findings about the general appearance of the book

Pre-service teachers expressed their thoughts about the writings, images and physical status subheadings of the book under this heading (Table 1).

Table 1. *Subheadings of the heading "General view of the book"*

Heading	Subheadings
General view of the book	Text in the book
	Visuals in the book
	Physical State of the book

Pre-service teachers indicated that text in the book is an important circumstance for them to be as far as possible from the intensive academic. It was stated that the language should be a simple language. It is emphasized that the simplicity of the language is important in terms of understanding more easily. Besides, it is stated that it is a negative situation if the texts are intertwined or in a complex structure.

Regarding the visuals, they stated that it would be more beneficial for them to have as many visuals as possible. However, it is stated that the visuals contained in the book should be created in such a way that primary school students can easily understand and recognize them. Thus, the visuals should be suitable for children's levels. It is stated that the benefits taken from the book will increase more in case the drawings are more obvious and quality. Besides, it is stated that the presence of more visuals in the book will increase the quality of the book.

For the physical condition of the book, it is stated that the use of quality paper and the materials used should have a longer life. They stated that it would be more appropriate for them to have a small number of pages. Similarly, it is considered that the book is composed of modules will increase its usefulness. They have stated that it is important of the text and visuals in the book are suitable for design, free of complexity and should be simplified and suitable for the age of the students. In addition to these, it is stated that the physical condition of the book should not be monotonous and interesting content and formats should be used in order not to be boring.

3.2. General objectives of the book

Pre-service teachers expressed their thoughts under this heading for contribution to mathematics learning, positive attitude development, supported theory, personality effect and usage subheadings (Table 2).

Table 2. *Subheadings of the heading "General objectives of the book"*

Heading	Subheadings
General objectives of the book	Contribution to learning mathematics
	Positive attitude development
	Theory-based
	Influence on personality
	The use

It is stated that one of the most important features of the book is to provide information on how to teach mathematics to primary school students more easily. Because, teachers have theoretical knowledge about the subjects in the curriculum, but they stated that they have not got enough knowledge of how to teach students by lowering it to the primary school level. Another feature expected is that the books extend of a description of how to teach the subjects within the scope of values education. Because the values that need to be given have been specified, however, when mathematics lesson is an issue, they stated that they have a lack of resources on how to deal with these mathematical topics. One of the biggest problems of education in the countries is the lack of mathematics education. Therefore, it is expected that teaching of mathematics book will become a guideline for pre-service teachers and teachers to deal with these problems. Yet another expectation is that the book needs to be found in concrete directions on how mathematics can be conveyed in the most accurate and appropriate way. The book is among the most expressed expectations that the pre-service teachers or teachers who use the book should contribute to being better equipped.

It is considered that one of the most important negativities related to mathematics lesson is the negative attitude towards mathematics. T10 coded pre-service teacher stated his view of the issue as ‘First of all, most people are afraid of mathematics and fail in mathematics. In my opinion, this is because of the methods of teaching the course and the boredom of resources. Resources should be fun. As the classes we teach are 1 to 4th grades, resources should be educational and entertaining. Because children in these grades are still in play age. The books should be colorful and must draw attention'. Accordingly, pre-service teachers stated that books require to touch on this situation and to have content that enables students to develop a positive attitude towards mathematics. In connection with this, the fact that the book is fun is thought to be an effective factor. Thus, the book should contribute to love mathematics. At the same time, it should be a well-prepared book that can help to break the prejudices about mathematics. It is stated to be important that the book should have content helping mathematics teachers to motivate their students.

Pre-service teachers have different opinions about the theories that the book should be based on. Some of the pre-service teachers addressed that book requires to be designed based on the constructivist teaching theory and to guide students in order to save them from memorizing. It is stated that the content should not be in a way that formula is given and then the answer is requested to be solved. It is emphasized that the book must have permanent

learning and content to enable students to participate actively in the education process. The expressions of the T3 coded pre-service teacher in this regard are that ‘Books, activities, practice can be predominant. The application is more effective than the theoretical as we learn the information based on how we will teach. Students will have trouble listening to the course only theoretically. Because they are loaded with energy.' Some pre-service teachers stated that the contents of the book should be shaped in accordance with the 5E model, which includes steps such as introduction, exploration, explanation, deepening, and evaluation. Another opinion on this issue is that the differences in individual learning should be taken into account. It is stated that the book should contain different content for individual differences as much as possible and that teachers should be able to find different activities for different types of students from the book. Some pre-service teachers who think that the contents of the book have a duty to influence the students' personalities also stated that the book should contain parts that will improve the students' intelligence and creativity. At the same time, there should be Information about how math teaching can be carried out in a way that opens the horizon for students. Teachers should guide pre-service teachers and teachers on these issues. When the opinions on the use of the book are examined, it is seen that the book should not restrict the teacher. T7 coded pre-service teacher in this regard stated that " I'm not in favor of the book's teacher restriction. I'm in favor of the teachers showing his talents." In addition, it is expected that the book will provide benefits to pre-service teachers in both student and teacher's lives. In this case, T2-coded pre-service teacher said, "the book we will use should be such a book that I would like to use it even when I'm teaching it, in other words, when I'm teaching it in the future." In addition, the book should be interactive, both in writing and practical use should be among the expectations. In this regard the statements of the T3 coded pre-service teacher, "The book must be interactive because we cannot understand anything just by reading it. Even if we understand, it will not be permanent."

3.3. Mathematical content

Pre-service teachers expressed their thoughts under this heading on the topics such as subject expression, teaching methods, activities, material examples, sample questions, interesting contents, evaluation, attitude, stress, useful information (Table 3).

Table 3. *Subheadings of the heading "General objectives of the book"*

Heading	Subheadings
Mathematical content	Teaching
	Activities
	Teaching Methods
	Material Samples
	Sample questions and evaluation
	Interesting contents
	Attitude
	Points
	Useful information

It is stated that the book should include both the theoretical content and information on how to provide the content. It is believed that it is important to specify how these topics are described, the boundaries of the content of the subject at the primary school level, and how it should be taught. The T5-coded pre-service teacher states that "Mathematics is often a course that contains abstract topics, and because it is difficult for the pupils to learn, there must be methods to help the teachers to express these matters in concrete terms in the primary school teaching of mathematics book. I think that the content of the book should be more "How can the mathematics be explained in concrete terms?" However, it is necessary to emphasize the subjects that are the continuation of each other, that is, to include prerequisite learning. In relation to the teaching part, it is seen that another important situation is to have the content that is appropriate to the level of primary school. Similarly, a wide variety of teaching methods are expected to be mentioned in relation to teaching subjects.

When the expectations for the qualifications of the activities to be included in the book are examined, it is stated that these activities are related to how to teach the subjects and there has to a lot of activity samples. While it is stated that there should be plenty of activities, it is also meant that there should be a wide variety of activities. They also consider it important to have detailed explanations on how these activities can be performed, what tools can be used, and even where some materials can be supplied. Pre-service teachers stated that the use of materials in the teaching of mathematics process is very important, and they also stated that there must be many and varied examples of materials in the book. In addition to material examples, they also stated that there should be information on how these materials can be used in the most effective and correct forms in the lessons. In this regard, the views of the pre-service teacher T38 code stated, "I think it should be the activities and materials that we can apply both in our university life and in our teaching life. I think these events should be explained in detail. I think it's important to have a book that can be used again and again. " They think that mathematics courses should be given as much as in the book, with sample questions and practice. They stated that it would be more useful to create these examples and exercises using visuals in a way that appeals to children. At the same time, it is stated that it is necessary to have information about how the solutions to the questions in the book should be explained to the students. They also stated that the fact that these examples and exercises were constructed and arranged according to various levels of difficulty would increase the usefulness of the book. As part of the evaluation process, it is stated that what kind of homework and study leaves can be given on the basis of the subjects/gains should be explained and exemplified.

Pre-service teachers who think that students' interests should be taken into consideration to be effective in teaching mathematics, find it important that the book has interesting content in general. In this respect, they stated that one of the steps of the lesson plan should include examples of how to make the " drawing attention " step on the subject.

In this respect, they stated that there should be examples of how the “draw attention” step, which is one of the steps of the course plan, can be realized on the basis of the subjects. Similarly, having the contents that teaching while entertaining such as educational games, level games, game-like applications, puzzle-joke and having the contents entertaining while teaching such as interesting funny stories, photos, maps, schemas, concepts maps, graphics will be useful for this purpose. In addition to this, T39 coded pre-service teacher also points out to give place toys in teaching of mathematics process and this might be beneficial for her own opinion with these sentences: ‘Teaching some of the subjects of Mathematics with the help of various toys will attract the attention of the students. For example, teaching fractions with legos, etc.’

In addition to the attitudes and expectations expressed in the title of the book's general objectives, pre-service teachers stated that mathematical content also should be created in a way that positively affects the students ' attitude. In mathematics classes, they stated that there should be content to answer questions about how to love mathematics, how to pass the fear of Mathematics, and how to make mathematics more enjoyable. T16 coded pre-service teacher reflected his opinions in this way: 'The easier we teach and make students love mathematics the easier we provide the fact of mathematics in their minds. Mathematics was my only fear as it was everyone else, and this was due to my inability to understand and love mathematics in primary school years. It should help us understand how to make the math easier for the child. They should have information about what level of mathematics will be taught and what to look for when starting." For the same purpose, they also think that it would be useful to have contact with children in primary school by referring to the physical, emotional and psychological development of primary school students in terms of age groups at the introduction of the book. The statements of the pre-service teacher with the code T4 are that: "At the introduction of the book, the age group we are responsible for is physically, psychologically, etc. should be mentioned. How we will treat them ... " Some pre-service teachers indicated that the book should contain certain emphasizes. It is worthwhile to emphasize the points about the teaching of subjects, what are the points to be taken into consideration when teaching them, what are the possible mistakes in teaching or learning them, what are the misconceptions that may arise during the teaching of the topics and which are more important in the teaching process. In this regard, the T22-coded pre-service teacher's statements are as follows: "there can be information about what kind of way I can follow as I begin to explain a topic. What else should I pay attention when explaining a topic, what mistakes I can make, and what they should give information about."

It is stated that it may be useful to include some unusual sections in the classical academic book content. For example, it is stated that examples, shapes, visuals from everyday life should be found in relation to mathematical subjects or concepts. For pre-service teachers or teachers to reach resources that may be useful to them should be indicated, and they think that there should be suggestions for more resources. In addition, they stated that it would be useful to include diary-memories containing positive or negative experiences of teachers in teaching of mathematics processes.

4. Discussion and Suggestions

In a study conducted by Findley in 1979 on which qualities the students were more successful, the students reported that the course materials prepared in consideration of individual interests and needs during preparation process make their understanding easier and influence deterministically (as cited in Yalcin, 1994). When the expectations of teaching of mathematics book that could be used for the primary school level were asked, it appears that the answers of the pre-service teachers are based on the negative attitude towards mathematics in general. In fact, while some pre-service teachers expressed their views on this issue, they expressed their views on the negative experiences of teaching of mathematics in their own student life. Eliminating the negative attitudes of students towards mathematics if any, in addition to this, contributing to developing a positive attitude of students, drawing the attention of children and providing opportunities for children to learn while having fun are the biggest and most important duties of the book at issue are pointed out. The pre-service teachers do not want their students experience the same negativities related to mathematics which pre-service teachers experienced before in their years of study. They stated to hope that a book of teaching of mathematics could be provided with the qualifications they mentioned.

The language and statement feature of the book is also very important for the learners to use the textbook effectively and efficiently (Tas, 2007). Almost all pre-service teachers stated that the language of the book should be as simple and easy as possible to understand. Particularly, it is understood from the expressions used in this issue that pre-service teachers do not find books with academic language useful. They think that these books are not very helpful for them. Because they think that when they become teachers, their real needs will be concrete activities and material examples about how to conceptualize subjects well and concepts in the course. Tertemiz and the others (2001) emphasize that the language to be used in course books is necessary to be simple, fluent in text, understandable, short and core Turkish consisting of the concepts which students know and use, and that it is important to use language and statements appropriate to the levels of students in consideration of their learning and development stages. Similarly, Çotuksoken (2018) stated that correct and clean Turkish should be used in books. In addition, he emphasized the need to pay attention to the use of a correct, clear, simple language and narration in the application of the subjects in the book.

Pre-service teachers expect the teaching of mathematics book to meet their needs both during their undergraduate education and throughout their teaching lives. They stated that the language of the book should be removed as far as possible from the academic language, and it is necessary to use a language which can be understood more easily. Regarding the mathematical content of the book, they addressed that the book needs to be rich in terms of practices and activities, to include statements which can be easily understood instead of complex mathematical notations and to involve the clearest explanation of mathematical concepts should be included in the book. The major shortcomings of pre-service teachers at the point of teaching of mathematics are that they do not know how to teach conceptual errors and the theoretical knowledge they receive in accordance with the level of primary school students. For this reason, pre-service teachers stated that both theoretical and practical content should be found in the book. In particular, with regard to practical content, they stated that by giving place to all kinds of details in the book, it is necessary not to remain question marks in the mind of the pre-service teacher about how to teach the basic concepts about the subjects. In this respect, Baloglu (1994) states that printed materials should teach students how to create information instead of transferring mold information for them, and that they should be prepared in such a way as to be able to conduct collaborative work, oral and written communication, as well as to understand basic concepts, to interpret and apply them.

They pointed out that if the book also includes what might be misconceptions or possible learning errors about mathematics, it will be useful for them to what they would pay attention when teaching them. Because those who read books in this way will benefit from the experiences of teachers who were gained in many years or in different settings and practices. They also stated that there should be a need to include a lot of material samples for teaching each subject about mathematical content. This is because primary school students who are in the process of concrete transactions think that learning by using the concepts of materials will lead to more permanent learning. At the same time, they think that the material plays an important role in points such as attracting students and raising their curiosity. For this reason, they have stated that it is important to find materials in a wide variety of subjects as subject-based included in the book. It has been stated that explanations about how to use these materials in the most effective manner should definitely be included.

Regarding the visuals in the book, they stated that it would be more useful to have as many visuals as possible and drawings for primary school children. In general, they pointed out that the whole content of the mathematics book prepared to relate to everyday life and to

be loved mathematics by all children would be useful for both themselves and for the students. Dogan and Dogan (2018) stated that in the research they conducted with pre-service teachers, how to teach the subjects and concepts should be used in a simple language with plenty of suitable visual content in the book content. Besides, in the study carried out in Ors and Simsek (2018), the brightness of the images in the book, their vividness, their attention to the focus of photography, their appeal, the quality of the visuals, the diversity of the visuals, the use of the visuals as a whole, the relationship between the visuals and daily life are considered to be very important in attracting students to the book.

Ozil and Tapan (1991) in their research on course books which are the basic material of teaching process, regarding of the majority of course books in Turkey deduce that they are lack of content integrity in subjects and they are arranged not to take in consideration of students' developmental features; they have failed to contribute to the critical thinking skills' development due to the lack of examples of reflecting different perspectives on the subject and the inadequacy of books in terms of form and design led to students' negative attitudes which have affected the students' success negatively. As a result of this study, when the findings obtained from this study are evaluated, it is concluded that pre-service primary teachers need a resource book about teaching of mathematics prepared in accordance with the expectations of the pre-service teachers, which will contribute for them both during their undergraduate education and in their teaching experiences. It matters the book that is needed to be prepared as the printed materials mentioned in the literature by taking into consideration the general characteristics that should be carried and by evaluating the views of academicians, teachers and other educational experts who are other potential beneficiaries of the book together with the expectations of the pre-service teachers of this book.

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CRITICAL READING IN EFL COURSES: THE FACILE AND CHALLENGE CONFRONTED

Research Article

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Abstract

Although critical thinking has been on the agenda for the past few decades, there is a serious gap in the field of foreign language teaching especially for quantitative research carried out regarding the teaching of this process as a skill. When the case is the teaching of critical thinking in EFL courses more specifically, teaching critical reading skills shares the same problem as one of its sub-skills. Yet, it is of utmost necessity to proliferate this kind of research to reach beyond epistemological deductions to delineate the borders of such a significant skill. Thus, the current study is designed as quantitative research that aims to contribute to foreign language teaching literature utilizing the procedures of both descriptive and inferential statistics. In this sense, a specifically developed critical reading scale was chosen and distributed to the third-year EFL students of a state university in Turkey to obtain the required clear data to detect any probable connection between their age and attitudes and to assess their evaluation concerning the easiest and hardest sides of the critical reading process. The results indicated beneficial findings for the interests of EFL literature.

Keywords: critical reading, foreign language teaching, quantitative study, student attitudes

1. Introduction

As a 21st century skill, many disciplines whether it is engineering, physics, sociology or music education today pay strong attention to improving the critical thinking skills of students in some way, which makes it one of the most substantial objectives for teaching cycles (Grauerholz & Bouma-Holtrop, 2003; Shaw, 2014; Holmes, Wieman & Bonn, 2015). Indeed, educations being the case, critical thinking skills have always been on the agenda with different labels since ancient days of human history (Siegel, 2010). Yet, a reasonable success of delineating the borders of this concept, if any, has not been achieved since the earlier teachings of Socrates ("Stanford University", 2003). Critical thinking, in this sense, resembles a piece of successful art that can be noticed at first glance and that can even be taught to others without any tangible means of evaluation per se (Grauerholz & Bouma-Holtrop, 2003). Recently, critical thinking skill has been included in all phases of education and gained utmost importance since it is regarded as one the key skills necessary to equip the millennials in order to compete in the modern global world (OECD, 2018).

2. Literature Review

There have been also multifarious academic definition attempts for the concept of critical thinking (Ennis, 1962, 1987, 1997, 2011; Kurfiss, 1988; Siegel, 1988; Facione, 1990; Paul & Binker, 1990; Lipman, 1991; Watson & Glaser, 1994; Scriven & Paul, 1996; Halpern, 1997;

Facione & Facione, 1996, 2007; Facione, Facione & Giancarlo, 2000; Vaughn, 2005; Scriven, & Paul, 2008; Siegel, 2010; Facione, 2015) though all of these accommodate contradictory contents. There is, however, one exception above all, which is widely accepted among academic circles in the face of a minority of oppositions that find it so extensive in content and impractical in use. As the outcome of 46 experts' group study realized in a Delphi Panel held by the American Philosophical Association in 1990 the manifesto defines critical thinking as follows:

We understand critical thinking to be purposeful, self-regulatory judgment which results in interpretation, analysis, evaluation, and inference, as well as explanation of the evidential, conceptual, methodological and contextual considerations upon which that judgment is based. CT is essential as a tool of inquiry. As such, CT is a liberating force in education and a powerful resource in one's personal and civic life. While not synonymous with good thinking, CT is a pervasive and self-rectifying human phenomenon. The ideal critical thinker is habitually inquisitive, well-informed, trustful of reason, open-minded, flexible, fair-minded in evaluation, honest in facing personal biases, prudent in making judgments, willing to reconsider, clear about issues, orderly in complex matters, diligent in seeking relevant information, reasonable in the selection of criteria, focused in inquiry, and persistent in seeking results which are as precise as the subject and the circumstances of inquiry permit. Thus, educating good critical thinkers means working toward this ideal. It combines developing CT skills with nurturing those dispositions which consistently yield useful insights, and which are the basis of a rational and democratic society. (Facione, 1990, p.2)

Mostly, critical thinking is attributed to the Frankfurt school of critical theory as a challenge to constructs; namely, rationalism, neutrality, naturalism. The critical theory claims that people's ideas, language, desires, interactions, learning contexts are not objective and natural. On the contrary, they are shaped by the inequalities introduced by the powerholders in the system (Hawkins & Norton, 2009; Redmond, 2010). When Critical theory is shed light in the context of higher education and specifically pre-service teacher education, it is a tool to question many of de-facto assumptions and build a bridge between the prospective teachers' past experience as a learner and their 'future', emancipatory teaching experience. Although this connection may not guarantee being without conflict or dispute, it may lead to a continual challenge in teachers' course materials, classroom instruction and the sources in their agenda.

The arguments regarding the length and the practicality of its definition put aside, another problem faces critical thinking is the measurement issue. As the concept stands on the intersection of two discrete disciplines such as psychology or philosophy, it becomes literally hard to decide what kind of a solution to be devised when dealing with such an enigma. More overtly, it appears to be an arduous task to determine whether an epistemological or a psychological scale would be more proper when dealing with the measurement problem of the concept. Yet, notwithstanding the question, whether the case is the concern of psychology or philosophy, there are already 13 standardized famous scales that have been developed by academics for various teaching environments (Bernard et al., 2008). Among these, the Watson–Glaser CT Appraisal (WGCTA), the Cornell CT Test (CCTT), the California CT Skill Test (CCTST), and the Test of Critical Thinking-Form G, are the most renowned ones, and above all, WGCTA is reported to be 'the oldest and most widely used and studied CT measure' (Bernard et al., 2008, p.15). All the same, none of these tests focus on consolidating teaching critical thinking skills with a specific language skill, unfortunately. After all, there seems to be a serious gap regarding empirical studies on teaching critical thinking skills focusing on four skills of language teaching separately.

3. Purpose of the Study

The present study aims to make a contribution to the field literature focusing specifically on teaching critical reading skills in foreign language classes. With this intention, a well-developed critical reading scale was specifically chosen to apply to the students at the end of the course in order to screen which constituents of the process are easy and hard for the participants most.

Ultimately, the present study tries to find an answer to the following research questions:

1. Is there a statistically significant relationship between students' attitudes and their age?

2. What are the easiest sides of the critical reading process?

3. What are the hardest sides of the critical reading process?

4. Method

4.1. Setting and Participants

The current study was designed as a quantitative one applied within the limits of solely one segment of a course entitled "Literature and Language Teaching II" during the spring season of a 2018-2019 education year. Both descriptive and inferential statistics were used during the study. It embraced 93 participants (f=93) all of which were the third- year students of English Language Teaching Department of a state university in Turkey. Different from a usual foreign language teaching course, the students were exposed to great attention regarding the development of their critical thinking skills within the usual limits of the course. They were dreadfully encouraged to make inferences and criticism both about the text they went through and the course they attended in a constructivist teaching environment so most of the time they were due to contribute to the course at an utmost level. Additionally, the course was endorsed with a course book that involved critical reading activities, videos, and group work of the students. Having attended a 14-week Literature and Language Teaching II course, a questionnaire that investigates the students' attitudes towards the critical reading process was distributed to the third-year students of the English Language Teaching Department. The data obtained from the students were investigated through statistical procedures to determine the hard and easy sides of the critical reading process.

This present study was conducted at the English Language Teaching Department of a state university in Turkey. The participants consisted of 93 third year students of the above mentioned department. 79 of this number were females and 14 were a male which is because the majority of the foreign language departments usually comprise female students. The undergraduate program of the English Language Teaching Department accepts the students after a placement test that validates them to be proficient in English. Therefore, the participants of the current study were acknowledged to be proficient in English albeit their label of non-native speakers. Accordingly, all the participants of the study were supposed to be almost at the same proficiency level.

4.2. Data Collection Procedures

The data collection of the current study was executed by means of quantitative methods. The quantitative data were secured using a 33-item Likert-type scale (1 = Strongly Agree; 6 = Strongly Disagree). Consistent with the aim of the study a specifically well-developed scale pertaining to Dr. Abdulkerim Karadeniz was selected by the researcher. The questionnaire consisted of 33 questions. The participants answered these questions as:

1. Strongly Disagree 2. Disagree 3. Not Decided 4. Agree 5. Strongly Agree in terms of their stance towards the case investigated. The statistics were measured by means of the Statistical Package for Social Sciences (SPSS) 22.0.

4.3. Data Analysis Procedures

The Statistical Package for Social Sciences (SPSS) 22.0 was used for the quantitative analysis of the present study. Having been calculated through statistical procedures, the results given to the 33 questionnaire items, the students' age, and the hardest sides of critical reading process were all submitted in the tables with the abbreviations: number of participants with (N), mean with (Mean), mean difference with (Mean Diff.), standard deviation with (Std. D.), standard error with (Std. Err.), standard error mean with (Std. Err. Mean), standard error difference with (Std. Err. Diff.), F statistics with (F), degrees of freedom with (df), significance (p) value of Levene's Test (Sig.), 95% Confidence Interval of the Difference with (95% Con. Inter. Diff.), the two-tailed p-value associated with the t-test with (Sig. (2-tailed)).

5. Results

5.1. Is there a statistically significant relationship between students' age and attitudes?

Table 1 reveals that age groups and attitudes do not possess any correlation (m=3.49 for age group 22 and below; m=3.43 for age group 23 and above). The similar mean values represent no difference between the two age groups, which means there is no significant correlation between the students' age and attitudes in general.

Table 1. *Descriptive statistics for age and attitudes*

Age groups	N	Mean	SD	Std.Er.Mean
22 and below	81	3.49	0.23	0.02
Attitudes mean				
23 and above	9	3.43	0.15	0.05

Levene's Test for Equality of Variances in Table 2 shows no diversity between the variances of the two age groups, which enables t-test for Equality of Means to be considered. Therefore, the H0 –null hypothesis- that assumes no relation between the students' age and attitudes is tested. Since the Sig. (2-tailed) value (0.43) is greater than p value=0.05, the H0 hypothesis may not be rejected. This result signifies that there is no significant correlation between the students' age and attitudes as far as the critical reading process is concerned.

Table 2. *T-test for two independent samples in terms of age*

Levene's test for equality of variances			**t-test for equality of means**					
Attitutes mean	**F**	**Sig.**	**t**	**df**	**Sig. (2-tailed)**	**Mean diff.**	**Std.Err. diff.**	**95% Con. Inter. Diff.**
								Lower / Upper
Equal variances assumed	1.15	0.28	0.78	88	0.43	0.06	0.08	-.09 / 0.22
Equal variances not assumed			1.08	12.36	0.30	0.06	0.05	-.06 / 0.19

5.2. What are the easiest sides of the critical reading process?

A careful analysis of Table 3 reveals that the majority of the participants (39) evaluate the easiest sides of the critical reading process to be item 11 which emphasizes finding the general meaning of a text the students read. The second easiest frequency belongs to item 7 which highlights determining the behaviors of a character the students read in a story or a novel. The third highest frequency pertains to item 27 with a frequency of 23 that reflects the ability of the students to connect the events taking part in the story or the novel they read in terms of cause-effect relationship while the closest frequency (21) in the fourth place belongs to item 32 that reveals the students' competency in detecting the contradictory or complementary expressions in the text they read. As for the fifth highest frequency 18, it belongs to item 25 that signifies the students' ability to find the intention of the text they go through. Another high frequency (16) that belongs to item 21 points to the students' ability to find the supporting ideas of the text they read. Finally, the last highest frequency 15 belongs to item 16 which indicates the students' aptitude to evaluate the text they read in different angles. Other 25 frequencies that seem relatively not so important are not listed on Table 3.

Table 3. *Students' views on the easiest and hardest sides of the critical reading process*

Categories	**f**
Item 11: I always find it hard to understand the general meaning of a text I read.	39
Item7: I always find it hard to question the behaviors of a character I read in a story or novel.	31
Item 27: I always find it hard to make connections of the events taking part in the story or novel I read in terms of cause-effect relationship.	23
Item 32: I always find it hard to detect the contradictory or complementary expressions in a text.	21
Item 25: I always find it hard to make inferences about the intention of the text through reading it.	18
Item 21: I always find it hard to detect the supporting ideas of the text.	16
Item 16: I always find it hard to evaluate a text from different angles.	15
Item 6: I can find the contradictions in a text which I read, or which is narrated.	15

5.3. What are the hardest sides of the critical reading process?

The result of the research question 3 is also submitted in Table 3. As it is instantly noticed in table 3, item 6 in the eighth place with a frequency of 15 at the same frequency level with item 16 points to the students' ability to easily detect the contradictions in a text, whether the text is narrated to them or they read it on their own. Since the rest of the scale items appeared to have considerably minor frequency levels when compared to the 8 items listed in Table 3, item 6 inevitably becomes by far the hardest side of the critical reading process as far as students' views are taken into consideration. This situation also explains why it was essential that the rest of the scale items be discarded from Table 3.

6. Discussion

In light of the quantitative data processed, the findings of the present study revealed no existent correlation between students' attitudes towards critical reading process and their ages, which turned out to be in compliance with the previous hypothesis the researcher had predicted. To be more precise, the result showed no correlation between the age groups that represent third-year university education (either 22 and below or 23 and above at university level) and their attitudes toward the critical reading process. These findings are in conformity with the field literature in that the previously fulfilled multifarious university-level studies (Soku, Simpeh, & Osafo-Adu, 2011; Charkins, O'Toole, & Wetzel, 1985; Wetzel, James, & O'Toole, 1982) report no correlation between students' attitudes towards any instruction technique and age.

In view of the data obtained from the respondents, it is clear that the students are successful in the processes that are similar to those which they refer to in their native language. In other words, what they find as the easiest sides of the critical reading process in foreign language teaching classes constitute the fundamentals of conscious reading activities actually. Therefore, the development of critical reading skill seems to begin with the students' primary school education since what they assert they are already capable of doing is gained through a learned process, or rather repetition. This may be the reason why students

find higher order skills such as finding the general meaning or connecting the plot with the cause-effect relationship as the easiest sides of critical reading process.

Similarly, the students oppose to the item 6 and item 32 at the same time as a result of their success in a learned process. Yet, as it is overt in their content these two items possess contradictory expressions so the students are to decline at least one of them while accepting the other. Otherwise, the two items would be mutually exclusive. The answers, nonetheless, oppose each other making the slight difference in the two expressions important. The expression ‘or which is narrated' taking part in item 6 stands the case on its head and leads the students to decline both items at the same time. In this sense, although the two items seem to involve the same expression, indeed, they ascribe to entirely different skills especially when the case is critical reading process.

7. Limitations and Conclusion

It is necessary that the present study be evaluated in two certain limitations;

First and foremost, this study rests on Likert Scales, and Likert Scales are in need of further projection for their statistical identification. To amplify the case, it would be more proper to stress there is no consensus in the statistics literature as to which kind of scale type Likert Scales belong to. With a quick glance to the literature, one would instantly notice that there is research either sides that evaluate Likert Scales as ordinal or interval (Brown, 2011). Hence, such vagueness makes it hard for the researcher to determine which the test type to use depending on the scales of measurement.

As a second limitation, the element in which the current study has been implemented is EFL environment, which is why the same study is supposed to reveal different results when it is applied in the inner circle as far as ELT is concerned. Critical thinking skills develop subject to language use, and the circumstance in which the language is instructed would therefore certainly play an important role in such a different environment.

Ultimately, the present study within the aforementioned limitations would provide new benefits for critical thinking literature, especially regarding teaching critical reading skills during EFL courses. Besides, the study would have implications for further quantitative studies to be carried out in different courses such as content-based courses or with different target groups such as high school students.

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DETERMINATION OF EDUCATIONAL NEEDS OF TECHNOLOGY AND DESIGN COURSES IN SECONDARY SCHOOL STUDENTS

Research Article

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DETERMINATION OF EDUCATIONAL NEEDS OF TECHNOLOGY AND DESIGN COURSES IN SECONDARY SCHOOL STUDENTS[1]

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Abstract

Parallel to the overwhelming development of information and technology in today's world, changing work and living conditions have caused changes in the educational needs of both society and the individuals. This study aimed at determining the educational needs for technology and design courses of today's students who grow with technology and the digital world. The participants in this study in which a mixed method was used were the 7th year students studying in state secondary schools of TRNC (Turkish Republic of North Cyprus) in the 2016-2017 academic year. In the qualitative dimension, the students were assigned to write a composition and in the quantitative dimension, a needs analysis questionnaire was implemented. The data were analyzed through content analysis, arithmetic averages, and standard deviation. The priority in this research was to determine the students' expectations towards technology and design course and according to these expectations, their educational needs were categorized. At the end of the research, the needs for technology and design course were determined in three different categories: general needs, needs for design, and needs for information technologies.

Keywords: education, technology, design, coding, needs analysis

1. Introduction

Rapid developments in information and technology have affected individuals' learning, expectations, and needs for learning to a very great extent. At this point, countries all around the world need to overview their educational programs and adopt new approaches in order to raise the individuals of the future. In this regard, changes in the community, have urged the involved to develop formal education programs (Kiani, Ghazanfarpour, Yazdanparast & Saeidi, 2019).

In order to prepare a course content that can meet the expectations of economic, social and technological change and innovation, it is important that the programs start with the needs analysis first. In the process of implementation of educational programs, it is expected that the demands and expectations of the society, business world, various working groups, and other stakeholders involved are met. Among these, specifying particularly students' educational needs is an important step (Demirel, 2015).

Needs analysis is a crucial stage in developing programs to determine any shortages (Long, 2005). There are various definitions of "needs analysis" in literature. For Berwick (1989) and Şahin (2006), needs are the gap between the current situation and future expectations. Pratt (1980) and Stufflebeam, McCormick, Brinkerhoff and Nelson (1985)

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define "needs analysis" as a set of procedures specifying and evaluation needs, and determining the most important ones among them. Specifying needs helps to collect information necessary for learning experiences and to determine the level of program targets in meeting actual needs. In this respect, Demirel (2015) emphasizes the importance of specifying individual, social, and the subject related needs before design educational programs.

Needs analysis is carried out through different methods and forms the basis of educational programs for the learners (Brown, 1995). In a "needs analysis" process, one or more than one techniques such as questionnaires, interviews, writing compositions as well as examining previous reports and the current program can be used (Koç, Demirbilek & Yılmaz İnce, 2015; Demirel, 2015). Witkins (1994) stressed that "needs analysis" should firstly be conducted with the people who have already experienced the changes and then with the second and third parties. In this regard, the analysis should be started first with the learners so that it may help to reach the targets specified in the programs

Needs analysis for program development helps to specify both learner and teacher readiness, defining changing educational needs parallel to the paradigm in the community, collecting information about how to shape educational services, understanding learners, and what they need to know (Doğanay, Demircioğlu & Yeşilpınar, 2014). The first particular point to be considered when design educational program is to be sure about the need for a new program or the need for a revision of the current program. In order to specify this, as Demirel (2015) suggests, the current program should be overviewed in detail so as to determine how much it responds to the needs of the individuals and the community.

Taba stated that in the process of program development, educational needs should be studied before all (Demirel, 2015). In other words, Taba emphasizes the necessity of a needs analysis at the beginning of program development. Similarly, as in Taba's model, Demirel, Dick and Carey argue say that needs analysis should be the starting point in the program development process (Läänemets & Kalamees-Raubel, 2013; Demirel, 2015; Leonard, Hasbullah & Nurani, 2016).

Needs analysis done to specify the needs for learning becomes the target and helps form the necessary infrastructure of learning-teaching experiences, teaching material, and evaluation of educational programs (Acar Erdol & Gözütok, 2017; Koçer, 2013). Needs analysis helps revise learning processes to reach targets and becomes a reference source for policymakers, program developers, experts, and others involved (Gürler, 2018). The needs analysis should be an ongoing process to provide a motivating learning environment to respond to learners' changing individual and social needs and expectations (Hoang Oanh, 2007). Following a needs analysis during program development, targets, content, learning conditions, and evaluation are determined according to the needs of individuals and the community. Technology and design teaching program is one of the educational programs that requires needs analysis.

Different teaching programs are used in technology and design courses across the world. Many countries (England, Finland, Australia, Greece, Germany, Spain, South Korea, Hong Kong, USA) across the globe now require that educators teaching computing, coding, integrating with other courses from the earliest years students enter school (Rich, Browning, Perkins, et al. 2018; Toikkanen & Leinonen 2017). Akbaş (2003), Karaağaçlı and Mahiroğlu (2005) stated in their studies that technology education programs, designed to meet the needs of the communities and individuals, aim to develop learners' scientific thinking skills, and for this reason technology programs should develop with constructivism. In addition, as Karaağaçlı and Mahiroğlu (2005) state technology teaching should be a "learning - by doing"

process for higher level outcomes. In this respect, according to Tulukçu (2017) technology and design education should include: Applied programs should be designed to develop students' metacognitive thinking skills, students should have the opportunity to use technology for their own good in their daily lives, the programs should be open to adapt current technologies for sustainability, the programs should be designed in an interdisciplinary approach and should be a pathway between technology and design courses and others to transfer information and skills, the programs should provide a link between old learned and new learned, the programs should guide students in the process of developing a product or a project, due to ongoing technological developments, students should be made aware of lifelong learning, teachers should always update themselves.

Students called the "Z" and "Alpha" generation, starting from early ages, grow up familiar with the digital world such as computers, smartphones, and i-pads. Considering this viewpoint, educational programs need to be designed to meet students' needs. On the other hand, the contents of technology and design courses cannot be ignored particularly in the economical productions. One of the most crucial aims of education is to address to every individual. Therefore, programs should be designed to guide students in their future jobs and careers. In order to provide harmony between individual learning needs and community's expectations and creating a competitive business market, technology and educational contents should go hand-in-hand.

This period, which is defined as the digital technology age, has changed dramatically the known parameters, routines and practices related to educational needs and the process of teaching and learning. Parallel to the improvement of technology, meaningful and permanent learning channels have enriched. This situation has been effective in highlighting the interdisciplinary approaches that necessitate the integration of education and technology. On the other hand, one of the implications of this integration has been also to enable teachers to use the current technology effectively in educational environments (Harris, Mishra, & Koehler, 2009). This development went beyond the concept of the program in which technology integration was limited to technology courses only. Especially in the production, service and industry sectors, software and coding have differentiated the expectations about the education programs and teacher competencies. In this context, instead of programs where technology integration is only limited to technology courses; there is evidence supporting the technological pedagogical content knowledge (TPACK) model that supports technology knowledge, content knowledge and pedagogical methodology together (Mishra & Koehler, 2006).

The TPACK approach aims to teach with the appropriate technology, rather than just focusing on teaching technology. Koehler and Mishra (2005) consider TPACK's approach as a presentation of new concepts and subjects with technology in different forms of teaching rather than simply adding technology to the content to be taught. For school organizations, this means the integration of different course contents with technology and necessitates the development of teachers' competencies in using computer technologies. However, this integration cannot be achieved at the same level and speed in countries where teaching is based on traditional teaching methods and away from innovative technologies. In fact, the European Commission (2013) emphasizes that the use of technology in schools does not meet the expectations of many students in the research report on the use of information communication technologies in schools.

The competence of the technology and design course to create knowledge workers of the future in TRNC, where course contents mostly focus on developing skills in a traditional way, should be reconsidered with 21. century skills. In this regard, the contribution of the

current programs and applications to students' expectations and motivation is a big concern. There is evidence that digital technologies are a big factor in educating the new generations (Ağca & Özdemir, 2013; Calao, Correa, Leon & Robles, 2015; Lopez, Gonzales & Cano, 2016; Pilli & Aksu, 2013; Sanjanaashree, Anand & Somaa, 2014; Şeker & Erdoğan, 2017). Considering that the learning needs, approaches and learning tools of the technology generation students are differentiated, it is important to make a needs analysis which is a sub-step of programme implementation. On the other hand, a study in students' needs in technology and design courses has not been observed in the literature. In order to involve students in active learning processes, their needs and expectations should be considered. Through this perspective, students' adaptation and inclination towards the development in information technology were taken up in this study and it was aimed to specify rapport between students' expectations and the current technology and design program. In this regard, it is hoped that this research will fill the gap in the literature and will add contributions to the programme development process positively.

1.1. The Aim of the Study

This study aimed to determine the educational needs of the 7th year students in state secondary schools in TRNC in Technology and Design courses. The following research questions were directed;

i. What do the 7th year students expect from Technology and Design courses?

ii. What are the students' educational needs in Technology and Design courses?

1.2. Research Method

The research was conducted in the mixed model and the exploratory combined ordered method. Through this method, firstly qualitative data are collected then the quantitative dimensions of the research are shaped (Creswell, 2014). This study was carried out in the 2016-2017 academic year. The students who are directly affected by the changes in educational programs were assigned to write compositions in qualitative dimensions of the study for reflecting their common expectations about technology and design courses. The findings obtained from the qualitative data and in the light of literatüre, a needs analysis questionnaire was done in parallel with the expectations. In the process of setting the questionnaire items, determining the expectations of the participants, Delphi-questionnaire and literature scan techniques were applied. The Research model is as in figure 1.

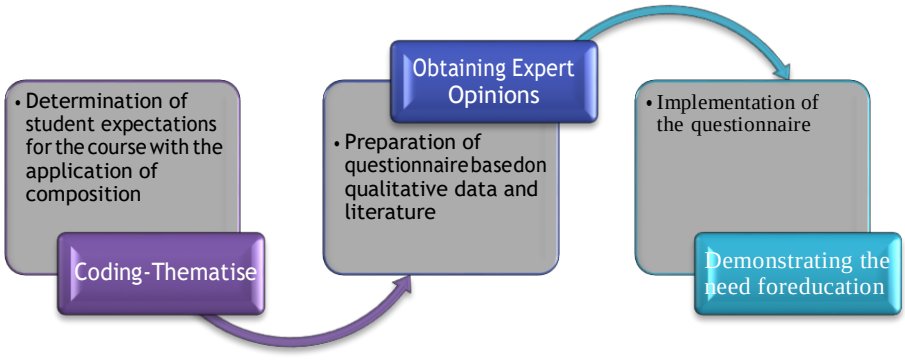

Figure 1. Research Model.

1.3. Study Group

97 randomly picked volunteer students studying in state secondary schools in Lefkoşa in 2016-2017 academic year composed the study group. The number of participants is not a

determining factor as long as the sought data are obtained in qualitative studies. Therefore, the number of participants in this research and the composition contents provided the criterion. The questionnaire was given to 702 students in state schools, TRNC, in the 2016-2017 academic year picked through stratified simple random sampling method. In such a method, every participant unit relates to a category without any exceptions, the change in categories is as small as possible and the change among categories is as big as possible, divided into sub-groups and the samplings picked separately from every category and independently (Büyüköztürk et al., 2016). 53 of the questionnaires were returned without feedback, 36 were exempted from the analysis because they were either not answered or marked inappropriate. Thus, 613 questionnaires were evaluated, which meant that more than %10 of the 3116 seventh year students (%19,6) were reached. In descriptive researches, %10 sampling is assumed as the lowest rate to be considered (Özen & Gül, 2007). In this respect, the %19,6 rate in this research is a sufficient sampling rate. The participants were represented as P^1, P^2, P^3,..., P^{97}.

1.4. Data Collection Tools and Analysis

97 seventh year students picked randomly were assigned a composition titled "What is an ideal technology and design course for you?" to express their expectations. Every single sub-theme forming the basis of this research was supported by direct quotations. The statements in the compositions were subjected to content analysis and the students' expectations were put into categories and themes. The data obtained were overviewed by two experts and were themed and categorized according to common coding. These data formed the items of a "needs analysis" to be carried out with the seventh year students in all state schools in TRNC. While forming the questionnaire items, the most expected needs were given the priority in evaluation. The coding-categorizing processes went through NVIV0 10 package program.

In the process of collecting quantitative data, a 58-item bank, based on the students' views about technology and design courses, was formed. In the following stage, in the light of Delphi technique in questionnaire developing, five experts in curriculum development, one expert in educational administration, two experts in information technologies, and two experts in technology and design were consulted for their views. On shaping the needs analysis questionnaire, the experts were consulted once more after 15 days and a 38-item needs analysis questionnaire was created and implemented for a pre-test study with 162 randomly picked students. With the data collected, a 38-item and three-dimensionally finalized needs analysis questionnaire were prepared. The statements in the questionnaire were written and evaluated in the light of two linguists' guidance clearly and comprehensively incorrect Turkish language structure. The content validity of the questionnaire was approved by the experts' views. The analysis of the 613 secondary school students from 702 students who were randomly selected by stratified sampling method was analyzed in the main application.

In naming the questionnaire dimensions, experts were consulted. The first dimension of the questionnaire consisted of a 12- items "general needs" dimension in technology and designing courses. The second is a 13-items "design needs" dimension and the third is a 13-items "information technologies needs" dimension. The questionnaire was prepared in 5-Likert type. The statements were ordered as (5) "I extremely need it"(scores between 4,20-5,00); (4) "I need it quite a lot" (scores between 3,40-4,19); (3) "I need it" (scores between 2,60-3,39); (2) "I need less" (scores between 1,80-2,59); and (1) "I don't need any" (scores between 1,00-1,79). The reliability of the "needs analysis" questionnaire was calculated through Cronbach' alpha and was found as 0,91 according to Büyüköztürk et al., (2016), the reliability of this questionnaire is high.

2. Findings

The distribution of the data obtained from students' views reflected in compositions and their frequencies in terms of the number of participants are as in Table 1.

Table 1. *Students' expectations from technology and design courses*

Themes	Categories	*n*	*f*
General Requirements for the Course	Produce a project	47	56
	Developing imagination	86	114
	Teamwork	92	129
	Express ideas	57	63
	Transfer what is learned	64	71
	Making inventions	74	117
Design Needs	Design of a desirable product	84	93
	Expansions of three-dimensional geometric shapes	61	87
	Robot, drone making	94	134
	Mechanical design	53	92
	Three-dimensional drawing	49	58
Information Technologies Needs	Code writing	83	128
	Moving a robot by coding	91	146
	Moving the character with coding	89	135
	Writing algorithms	59	72
	Sharing codes	76	103
	Drawing three-dimensional shapes on the computer	92	139
	Drawing animation with coding	83	94

**n* refers to the number of participants expressing views about the item. "Frequency", on the other hand, indicates the number of views expressed for each item.

As it can be observed in Table 1, after the coding procedure, students' views are shown under three main themes. Although students' expectations are commonly expressed in all three themes, they mostly appeared under the " information technologies needs" theme. The other common expectations appeared under "developing imagination", "teamwork", "design of a desirable product", "robot making", and "mechanical design" sections.

The most common frequency themes in terms of the general needs in the subject are under the headings of "developing imagination", "teamwork", and "making inventions". The students expressed their expectations saying they wished to have social, interactive environments where they could express themselves without any worries.

"It is better to do the design with classmates" expressed P[25]. "I'd like to invent something in class and share it with my friends" P[14]. "We can transfer our learnings in this course to other courses" P[90]. "...our power of imagination develops in class" P[15]. "We should be able to invent something new" P[29]. "Studying without a break can cause stress. We can think freely in this course" P[17]. "This course sounds like developing the power of imagination" P[18]. "We should invent something" P[65]. "A special effect in this course may be helpful in arts and drawing courses" P[46].

In the "design needs" theme the most frequently mentioned themes were "making robots, drones, mechanical design, and design of a desirable product".

P[3] expressed, "We should design three-dimensional drawings to meet human needs", "Three-dimensional drawings are related to arts and drawing" P[40]. "I think of mechanical inventions and robots" P[86]. "Design robots and make them speak would be fun" P[6], "We can make rockets or planes" P[39]. "We can invent something new, like new drones" P[62].

The most frequently mentioned themes in the "information technologies needs" are "moving a robot/character by coding", "drawing three-dimensional shapes on the computer", and "code writing".

P[44] said, "Coding is so popular in the world. We can do it", "Technology course refers to using computers" P[70]. "I prefer to have this course on the computer, because everything applied can be remembered easily" P[52], "This course reminds me of code writing" P[10]. "We should write codes on the computer" P[15], "We can do drawings and animate them to make films" P[92].

In the second sub-problems, students' needs in technology and design course program were examined. The results are given as arithmetic averages and standard deviations in Tables below.

Table 2. *Students' general needs in technology and design courses*

	General Requirements for the Course	Mean	SD
M1	To give an example of the connection between design and technology	2,91	1,27
M2	To explain the basic design process	2,86	1,26
M3	Establish a cause-effect relationship in a design project	2,92	1,33
M4	Express ideas on the project	3,40	1,39
M5	Presenting creative design ideas for project work	3,05	1,32
M6	Making group work while producing the project	3,43	1,34
M7	Planning the construction stages of the project	3,07	1,29
M8	Using the internet in project research	3,13	1,34
M9	Technical drawing of the project	3,41	1,33
M10	To prepare the necessary materials for the design	3,13	1,34
M11	Building design	3,13	1,36
M12	Use resources economically when producing projects	2,88	1,38

As it can be noted in Table 2, the most frequently mentioned general needs in this dimension ($\bar{x}$=3,43) was "Making group work while producing project" and the least mentioned ($\bar{x}$=2,86) was "To explain the basic design process". The arithmetic averages of the other items were close to each other. In this regard, it can be assumed that the seventh year students in schools in TRNC agreed on common needs. The indication of the general distribution of arithmetic average is that there is average and high-level needs, "I need it" (scores between 2,60-3,39). Table 3 below shows students' needs for the design.

Table 3. *Students' design needs in technology and design courses*

	Design Needs	Mean	SD
M13	design appropriate inventions	3,41	1,35
M14	To produce parts suitable for the invention to be designed	3,13	1,30
M15	To make moving mechanical designs	3,47	1,37
M16	To produce designs on the computer	3,47	1,36
M17	Use width, length, and depth in shapes	3,40	1,32
M18	To use the relation between shape and ground in objects	3,25	1,25
M19	To place an object on the surface according to the distance length	3,11	1,32
M20	To imagine the three dimensions of an object	3,12	1,38
M21	Drawing an open shape of a geometrical item with depth	2,92	1,34
M22	Thinking the image of geometric shapes from another angle	2,92	1,32
M23	To draw the image of geometric shapes from another angle	3,41	1,36
M24	Position the object in the coordinate plane	3,03	1,36
M25	To present design projects with computerized animation	3,49	1,43

As it can be noted in Table 3 "To present design projects with computerized animation" was the most needed item in design ($\bar{x}$=3,49). This finding indicates that students most need to use information technologies in design courses. Items 15 and 16 ($\bar{x}$=3,47) show that "To produce designs on the computer" and "To make moving the mechanical designs" are needed the most. The smallest needs ($\bar{x}$=2,92) are in "Drawing an open shape of the geometrical item with depth" and "Thinking the image of geometric shapes from another angle". These findings indicate that students do not have sound experience and knowledge in making the design. On the other hand obviously, students are willing to produce animations on the computer, making mechanical designs, producing designs on the computer, using width-length and depth in shapes, and design new products. In this dimension "I need it" (scores between 2,60-3,39) refers to an average and high-level need. Students' needs for using information technologies are presented in Table 4 below.

Table 4. *Students' needs in Information Technologies in Technology and design courses*

	Information Technologies Needs	Mean	SD
M26	Writing Algorithms	3,41	1,42
M27	To distinguish between the algorithmic sequence in the coding and the mathematical sequence of operations	3,43	1,30

M28	To draw shapes with width, length and depth with program coding	3,51	1,29
M29	To produce designs in which the shape and the floor are compatible by coding	3,46	1,27
M30	Positioning an object in a coordinate plane by coding	3,67	1,35
M31	Drawing an object from different angles by coding	3,41	1,30
M32	To imagine the unfolding of three-dimensional geometric shapes how to draw by coding	3,45	1,32
M33	To draw the unfolding of three-dimensional geometric shapes by coding	3,48	1,26
M34	To change the angle of the depth image of shapes with programming	3,52	1,29
M35	Drawing an object according to the distance length by coding	3,46	1,32
M36	Giving motion to a picture with coding	3,68	1,35
M37	To draw the imagined animation three-dimensional with program coding	3,59	1,33
M38	To share the program prepared with the coding on the Internet	3,29	1,46

As it can be noted in Table 4, "Giving motion to a picture with coding" item is the most needed activity to be done using information technologies in technology and design courses ($\bar{x}$=3,68). The least needed item ($\bar{x}$3,29) is "To share the program prepared with the coding on the Internet". These needs-based on application are the ones that are expressed as "I need it quite a lot" with scores between 3,40-4,19. This indicates that students mostly need "Information Technologies" that can be used in different courses.

When all the dimensions are considered together, it can be seen that students are most interested in producing projects/products in a social learning environment, doing activities in logical and spatial thinking and skills, and making projects/products in a digital environment.

3. Conclusion and Discussion

The findings in this research are grouped into three dimensions. In the first dimension, it was observed that the level of students' educational needs are very close to each other. In this dimension the students expressed their willingness in teamwork, developing imagination, creativity, express themselves, In this regard, it can be suggested that educational programs should be designed in which group work in learning environments to develop skills are done and students should be provided with the opportunity to express themselves, and design their own products. In the second dimension, it was observed that students wish to do more, inventing something, moving mechanical design products, using width, length, and depth in shapes, three-dimensional designs. This indicates that students are interested in adopting today's technologies to produce something. At this point, it can be concluded that new content and applications appropriate to the interests and wishes of the students should be included in the technology and design course programs. In the third dimension, drawing three-dimensional shapes with coding, code writing, giving motion to a picture with coding, drawing animation with coding and positioning an object in a coordinate plane by coding are the most needed items. This indicates that students are in great need of producing an algorithm and making three-dimensional designs, drawings and animations with coding.

These findings indicate the need for information technologies supported coding applications in technology and design curriculum.

The findings in Kocabatmaz's study (2011) using information technologies in class, technical drawings, students' will in making designs as they wish, and using technological tools are similar to the findings in this research. In a study by Tulukçu (2017) the findings show that technology and design teachers had positive attitudes towards computer supported teaching styles, developing social skills, renewing teaching programs parallel to technological developments, and developing transfer skills. The findings in this research related to students' needs match well with the ones mentioned above. In a study by Leonard et al., (2016), master degree students, whose needs were analyzed and was designed a course program for their needs, produced more technical and practical thesis after receiving courses on research methods. Cheruvu (2014) stressed that teachers could raise everlasting success by collecting systematic information to specify students' perceptions and needs.

It is thought that the results of this research aiming to determine the student needs of technology and design courses may have some improvements in program development studies and policy makers in education. First of all, it can be said that the current curriculum is far from meeting the expectations of today's students and the environment. On the other hand, it can be said that the students gave clues about the content of an education which could contribute to the increase in the motivation of the students. Finally, it can shed light on the identification of educational content for policymakers in education and guide studies that take into account student needs that are often overlooked in determining needs for researchers. Additionally, to use information technology in education environments teachers should be educated by technological pedagogical content knowledge model. The model can make teachers more flexible and professional in using technology in pedagogical techniques.

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THE IMPACT OF ANGER MANAGEMENT TRAINING ON ANGER, AGGRESSION AND PROBLEM-SOLVING SKILLS OF PRIMARY SCHOOL STUDENTS

Research Article

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Abstract

The purpose of this study was to determine the effect of the group anger management training program on the anger, aggression and problem-solving skills of adolescents. The research is a semi-experimental study based on a pre-test-post-test model with a control group. The study consisted of a total of 36 students, 18 of which were in the experimental group and 18 of which were in the control group. "Anger Inventory for Children", "Aggression Scale" and "Problem Solving Inventory for Children" were used as data collection tools. In terms of the data analysis, the suitability of the data for normal distributions was determined by the one-sample Kolmogorov-Smirnov test, "t-test" was used for the significance of the difference between the score points of the groups and As a result of the research, the students learnt the appropriate expression methods by better understanding the concept of anger. It has been observed that the cognitive-behavioral approach used in the implemented curriculum reduces the anger and aggressive behaviors in favor of male students.

Keywords: Anger Management Training, Anger, Aggression, Problem Solving, Primary school students

1. Introduction

It has been observed that the anger and violence issues in the school are frequently examined both in the scientific literature and in the media. It is known that many children experience anger and this causes problems. According to Marion (1997), physical attacks, verbal conflicts, rejections and complaints have an effect on children's anger at school. Children who do not know how to deal with feelings of anger can suffer from weak and bad relationships such as losing their self-esteem and losing the respect of others (Canbuldu, 2006). The suppression or outburst of emotions depends on various individuals and cultures. For example, children expressing their feelings of anger or love are not accepted by some societies or family members Depressed feelings cannot be completely destroyed. They are expressed in indirect ways by changing the form (Ankay, 1992).

The sensation of anger is actually a natural mood, resulting in an impairment of personal functions as a result of the anger. Anger poses a problem if it is long, intense and excessive and is expressed inappropriately (Hagiliassis, 2005). The direct expression of anger clearly may lead to negative evaluations of others, a negative self-perception, low self-esteem and conflicts in other interpersonal relationships (Balkaya, 2001). Individuals experiencing feelings of anger express behavioural early warning signals. These are changes in voice tone, excitement in the body, intervention in someone else's body, steps up and down (Blum, 2001). In addition, other stimulus signals can also appear in the form of a feeling of firing

everywhere, acceleration of heartbeat, and bending of hands in the form of a punch (Özmen, 2006). Behavioral symptoms such as increasing voice tone, emphasizing certain words, being cut or tongued, repetitive and crying speech can also be seen in the individuals experiencing anger (Kısaç, 1997).

In the conducted research, it was found that violence behaviours that children highly involved beating and student fights (Solak, 2007). According to Gökdaş (2007), the main reasons for the increase in violence in the schools are "deprivation in social values, excessive domestic violence and parental insecurity". A continuous and uncontrolled population movement towards North Cyprus affects the social-cultural structure of the society in a negative way. Particularly after 1974, the economic gap created by the war increases the tension and violence in society (Gürsoy, 2009). Studies conducted to manage anger have proven that anger management techniques help to reduce anger and aggression (Harvey, 2004, Sharp, 2003, Şahin, 2005; Arslan & Adıgüzel, 2018). It has been seen that these studies are mostly carried out by researchers abroad and that there are few studies in our country, especially concerning the anger during the primary school stage. The preparation and implementation of programs for anger management are preventive studies designed to protect the mental health of individuals and society (Şahin, 2005). It is expressed that the prepared anger management programs have general consequences such as conflict resolution, awareness of language use, helping to express anger, emotions and thoughts in language and learning to be aware of verbal and physical anger reactions and their consequences (Korkut, 2004). Anger control or anger management focuses on provocation, physical response to provocation, and proper expression of anger (Şahin, 2005). Various mental health problems such as attention deficit hyperactivity disorder, behavioural disorder, motor depression disorder, and anxiety disorders may occur due to an inadequacy of anger management (Farmer, Compton, Bums & Robertson, 2002). Beck and Fernandez (1998), Cognitive-behavioural techniques and interventions are widely used in studies conducted for anger management (Türk & Hamamcı, 2016). The aggression and empathic tendency levels of the participants were compared in terms of their genders and whether they were doing sports or not (Kırımoğlu, Gezer, Deveci, & Gülle, 2016).

In the studies conducted on anger management, it is seen that anger management is based on many factors and different intervention approaches are used in accordance with perspectives. Kellner & Bry (1999) state that anger management training generally involves three stages. The first is to provide information about the cognitive and behavioral components of anger, the second is to teach cognitive and behavioral techniques in anger management, the third is to facilitate the implementation of newly acquired skills such as relaxation exercises, role play and problem-solving. There are some studies in the literature that emphasize the effectiveness of the cognitive behavioural approach in anger management training (Genç 2007; Deffenbacher & Stark, 1992; Smith, Adelman, Nelson, Taylor & Phares,1994; Kellner & Tutin, 1995; Bilge,1996; Aytek, 1999; Akgül, 2000; Willner, Jones, Tams. & Green, 2002; Cenkseven, 2003; Bradbury & Clarke, 2005; Howells, Day, Williamson, Bubner, Jauncey, Parker & Heseltıne, 2005; Williams, Waymouth, Lipman, Mills & Evans,2004; Hagiliassis, Gülbenkoğlu, Marco,Young & Hodson, 2005; Kaplan, 2007; Serin & Genç,2011; Yılmaz 2004; Şen & Aykara, 2018;Yavuzer, (2017). The most important point among the characteristics of anger that researchers emphasize is that it is possible to learn about anger expressions and it is possible to learn the anger expression style which is more appropriate, positive and avoiding aggressive elements instead of having negative anger expressions containing aggressive elements (Balkaya, 2001). Problems that arise from the random release of emotional energy may be encountered. However, the release of the energy of our emotions in a controlled manner, that is to say, education, does not prevent them from being

experienced (Karayörük, 2004). Deffenbacher (2004) found that anger-prone pre-adolescent students were more likely to have decreased the negative anger expressions and to have increased the anger expression management after being taught both the cognitive coping skills and the social skills.İbrahim (2018), the anger subscales of university students were assessed by variables such as age, sex, findings were reached.Bedir (2016), the problems they encountered were assumed to be resulted from lacking in metacognitive knowledge.

It is important to pay attention to the development of aggression as both physical and social development and maturation of children. Aggressive behaviour is first seen in infancy and is mostly instrumental, aggression is different from ruthless and destructive games that begin to develop during this age and continue throughout adolescence (Harvey, 2004). These children, who are more prone to aggression, begin to experience negative emotional behaviours and adaptation problems (Berkowitz, 1993). Another important social context in the development of children is the peer group (Harvey, 2004). Anger is a common feeling associated with aggressive behaviour. Beck has defined anger as a different feeling from aggressive behaviour. Beck argues that the severity of the anger response is determined by means of many cognitive factors such as value judgments, self-esteem and expectations (Lopez & Thurman, 1986). According to Berkowitz, anger as experience does not promote aggression. Rubin (1986) defines anger as the emergence of one or more aggressive schemes through a combination of processes of assessing and coping with danger. According to Kassinove and Tafrate (2002), anger and aggression are not synonyms. Some people may carry out physical or verbal aggression reactions when they are angry. According to Anderson (1992), anger is a temporary emotional state and aggression is an attempt to harm another person or object (Şahin, 2005).

Problem-solving is learnt in childhood and problem-solving skills are acquired during school years (Miller & Nunn, 2003). It has been determined that those who perceived themselves as being sufficient in problem-solving had a more enthusiastic, more positive self-perception in terms of interpersonal relationships and exhibited more appropriate working methods and behaviors in terms of the academic perspective (Şahin, Şahin and Heppner, 1993). According to Heppner (1982), problem-solving is synonymous with the concept of coping with problems. In real life, it is expressed as a personal problem solving, carrying out behavioural reactions in line with internal or external aspirations or to adapt to appeals and directing cognitive and emotional processes to a goal. According to Bonner and Rich (1988), an individual's assessment of problem-solving skills influences the individual's problem-solving performance and the process of coping with problems as a cognitive variable. Spence (2003) stated that individuals with effective problem-solving skills are individuals who think independently and creatively, have social competencies and self-confidence, and can tolerate uncertainties (Dow & Mayer, 2004). Before performing problem-solving, individual must accept the problem. The "I did not do anything" thought of the individual delays the resolution of the problem (Raphel, 2003). Since education is considered as a problem-solving process, it is expected that students will be good problem solvers in primary school years. Although problem-solving skills are important, it is not enough to possess the problem-solving skills only (Çelikkaleli & Gündüz, 2010). Academics in Turkey and abroad have stated that schools can eliminate violence and juvenile delinquency and identify risk factors and prepare prevention programs accordingly. Crime prevention programs focus more on the attitudes, beliefs and behaviours of suicidal or criminal children.

Scientific studies in the field of anger management at primary school level in Turkey and the TRNC are considered to be limited. When studies conducted in Turkey and abroad are examined, it is seen that the studies are mostly on adolescents and adults. Very few studies were found at the primary school level. As a result, this study was designed taking

into consideration the significance of the measures to be taken in the first years of primary education and the skills to be gained due to the increasing trends in violence in schools and the lower ages in which these cases are observed. In this context, there was a need for programs to improve the effective coping skills of primary school children in the classroom in relation to anger management.

2.Purpose of the Research

This research has two purposes. The primary purpose of the research is to develop a "Cognitive-Behavioural Education Program" on the cognitive-behaviourism basis for the constructive management of anger and aggression and problem-solving skills seen in the 4th and 5th grades in primary schools of the TRNC Ministry of Education. The second purpose of this research is as follows: It is to measure the effects of the "Anger Management Education Program" on the level of anger, aggression, problem-solving skills of the students in the 4th and 5th grade in primary schools.

2.1. Problem Sentence

Does the "Anger Management Training Program" affect the level of anger, aggression, problem-solving skills of 4th and 5th-grade students in primary school?

2.2. Research Design

1. There is no significant difference between the test and control group anger, aggression, problem-solving, pre-test scores.

2. After the implementation of the "Anger Management Training Program" prepared according to the cognitive behavioural approach, there is a meaningful difference between the experimental group and the control group and the pre-test and post-test scores in the anger, problem-solving levels in favor of the experimental group.

3. After the implementation of the "Anger Management Training Program" prepared according to the cognitive behavioural approach, there is a meaningful difference between the anger, aggression and problem-solving scores of the experimental group in favour of the experimental group.

4. There is a significant difference in the level of anger, aggression, problem-solving of the male and female students who receive the "Anger Management Training Program" prepared according to the cognitive behavioural approach in favour of male students.

3. Methodology

3.1. Research Model

This research is an empirical study based on a split-plot model, based on a model for reducing the anger levels of students (control group, pre-test post-test, follow-up test). A randomized pretest-post-test control group design will be used in this study. As Büyüköztürk (2006) stated, randomized pretest-post-test control group design widely used mixed pattern in which participants are assessed before and after the experimental process in relation to the dependent variable. The independent variable of the study is the "Anger Management Education Program" which is prepared in the cognitive-behavioral sub-structure in order to reduce the level of anger in children and the dependent variables are the anger, aggression and problem-solving scores of the subjects.

3.2. Study Group

Since the study was a practical study, the study group was selected instead of the sample selection. This is because the suitability of sampling in experimental research should be considered as stated by Büyüköztürk (2006). A public primary school in Kyrenia chosen by unselected sampling method from different socio-economic levels, that is to say, lower, middle and upper, was included in the study. The "Children's Inventory of Anger" was applied on the 4th and 5th-grade students study at a primary school within the scope of the research and 36 students were identified with high anger levels. A study group consisting of 1 experimental group and 1 control group consisting of students with anger level was formed (A total of 36 students, 18 students in each of the experimental and control groups). During the formation of the groups, the subjects were matched according to gender, the level of education of the parents, and these subjects were randomly assigned to both groups.

3.3. Data Collection Tools

Children's Inventory of Anger**:** Children's Inventory of Anger with a Cronbach alpha reliability coefficient of 0.92 developed by Bulut Serin ve Serin (2011) was used. The scale consists of 23 items and aims to determine the anger level of primary school students in 4th, 5th, 6th, 7th and 8th grades.

Aggression Scale: The Aggression Scale was developed by Şahin (2001). The scale consists of 18 items and it aims to determine the level of aggression of the students at the first stage of primary education between the ages of 10-11.

Problem Solving Inventory for Children (PSIC)**:** "Problem Solving Inventory for Children" developed by Serin, Bulut Serin ve Saygılı (2010) is a five-point Likert-type scale consisting of 24 items with three subs-sales and a Cronbach alpha reliability coefficient of 0.83. Problem Solving Inventory for Children is a self-assessment scale that measures the self-perception of an individual's problem-solving skills. The score range is between 24-120. The high level of total scores on the scale indicates that individuals find themselves adequate in problem-solving.

3.4.Data Collection

"Anger management training program in group" was conducted on the experimental group for 8 weeks (2 months) once a week. Sessions lasted were held approximately for 60 minutes and no action was taken on the control group. The implementation of the anger management training program in group was started after the pre-test practice. Individuals in the experimental (9 females, 9 males) and control (8 females, 10 males) groups were balanced according to gender. In addition, it was paid attention to avoid the interaction between the individuals in the experimental and control groups. At the end of the anger management training in group conducted for 8 weeks, the "Anger, Aggression, Problem Solving Inventory" was conducted on the experimental and control groups on the same date.

3.5.Anger Management Training Program:

Purpose of the Programme: The purpose of the Anger Management Training Program is to allow the students define the feelings of anger, have knowledge about the concepts, reasons and results of the statements of this awareness, learn the strategies of coping, develop the anger control skills, and apply the developed skills in daily life.

Content of the Programme: The prepared program contains the topics of the developmental characteristics of the 4th and 5th grade primary school students, communication with the environment and independence, recognition and comprehension of emotions, definition of anger, recognition and comprehension of emotions, asking various

questions about feelings of anger and acquiring detailed information about this feeling by associating with the group, physiological, mental, behavioural reactions of the anger, reasons of anger, understanding the irrational thinking effective in the formation of anger, finding alternative expressions to help us in anger management, communication, information about mistakes made in communication, communication barriers, activities that help to improve communication skills, I-language, the concept of you-language, the comprehension of sociable, aggressive and timid behaviours, comprehension of the difference between sociable, aggressive and timid behaviours,group activities to help develop aggressive behaviours, the importance of problem-solving skills, the sharing of experiences about sessions, sharing of achievements related to anger control and the distribution of certificates. In the program, priority was given to group counselling activities. Attempts have been made to link the homework given to the students with the sessions. "Cognitive Behavioural Approach", "Behavioural Approach", "Rational Emotional Therapy" were used predominantly. The "Anger Management Training Program" is a social skills training that uses cognitive and predominantly behavioural techniques. Within the scope of the training program, techniques such as modelling, behavioural tests, self-monitoring, reinforcement, homework, group guidance activities and training were used. The studies of Erkan (2000), Altınay (2001), Acar (2004), Güloğlu (2006) and Bozdoğan (2004), Genç (2007) and Kaplan (2007) were used in the formation of the anger management training program, in which the effect was researched in the research. First of all, a pilot study was carried out in order to obtain information about the functioning of the program and to make up for its deficiencies in the research. The "Anger Management Training Program" was then formed in its final form.

The anger management training program used in this study is largely based on the cognitive-behavioural approach. Techniques such as relaxation exercises, breathing exercises, homework and feedback were used in the program and it was aimed to reduce the aggressive behaviour by exerting anger management to the experimental group. Programs based on cognitive-behavioural approach are known to be effective in gaining anger management skills.

3.6. Data Analysis

Since the experimental and control group students participated in the study, firstly the equivalence of these groups in terms of dependent variables was investigated and the relationships between pre-test total scores were examined. For this purpose, we use the t-test for unrelated samples on a single factor. The t-test (paired-sample t-test) was used for the related samples in the two groups of the dependent averages in order to determine whether there was any difference between the pre-test and post-test averages of the experimental and control groups (Büyüköztürk, 2006). The level of significance in the study was accepted as 0.05.

4. Findings and Discussion

In the first test of the study, it was expressed as "There is no significant difference between the experimental and control groups in terms of anger, aggression, problem-solving pre-test scores".

The t-test results of the anger, aggression, problem-solving pre-test scores of the experimental and control groups are given in Table 1.

Table 1.*T-test Results of the Experimental and Control Groups Regarding Anger, Aggression, Problem Solving Pre-test Score Averages*

Measurements	**Group**	**N**	**Average**	**St. Deviation**	**sd**	**t**	**p**
Anger	**Experimental**	18	49,166	5,659	34	1,948	0,060
	Control	18	45,444	5,802			
Aggression	**Experimental**	18	29,000	4,158	34	1,312	0,198
	Control	18	31,611	7,349			
PSI	**Experimental**	18	84,111	15,285	34	1,867	0,201
	Control	18	76,166	9,611			

As shown in Table 1, there was no statistically significant difference between the pre-test score averages of the experimental and control groups. According to this result, it can be said that there is no significant difference between the experimental and control group "Anger, Aggression, Problem Solving Inventory" mean scores. In this case, it can be assumed that the levels of anger, aggression, and problem-solving skills of the experimental and control groups were equal before the experiment.

After the second test of the research "Implementation of the Anger Management Training Program prepared according to the cognitive behavioural approach", there was a significant difference between the pre-test and post-test scores of the experimental group and the control group in the level of anger, aggression and problem-solving skills in favour of the experimental group.

Table 2. *T-test Results of the Experimental and Control Groups Regarding Anger, Aggression, Problem Solving Post-test Score Averages*

Measurements	Group	N	Average	St. Deviation	sd	t	p
Anger	**Experimental**	18	46.388	7.187	34	0.133	0.895
	Control	18	46.777	10.166			
Aggression	**Experimental**	18	29.388	5.007	34	1.165	0.252
	Control	18	31.444	5.564			
PSI	**Experimental**	18	83.333	15.243	34	1.846	0.074
	Control	18	75.055	11.378			

*p<0,05

As shown in Table 2, no statistically significant difference was found between the post-test mean scores of the experimental and control groups. According to this result, it was determined that there was no significant difference between the "Anger, Aggression, Problem Solving Inventory" post-test mean scores of the experiment and control groups at the level of 0.05.

The third test of the study was expressed as "There is a significant difference between the anger, aggression and problem-solving skills scores of the experimental group after the implementation of the Anger Management Training Program prepared according to the cognitive behavioural approach in favour of the experimental group".

Table 3. *T-test Results of the Experimental Group Regarding Anger, Aggression, Problem Solving Pre-test and Post-test Score Averages of the Anger Management Training Program*

Measurements		**N**	**Average**	**St. Deviation**	**sd**	**t**	**p**
Anger	**Pre-test**	18	49,166	5,659	17	2,193	**0,043***
	Post-test	18	46,388	7,187			
Aggression	**Pre-test**	18	29,000	4.158	17	0.398	0.696
	Post-test	18	29.388	5.007			
PSI	**Pre-test**	18	84.111	15.285	17	0.143	0.888
	Post-test	18	83.333	15.243			

*p<0,05

As shown in Table 3, it was found that there was a statistically significant decrease in anger levels of the experimental group students after the implementation of the "Anger Management Training Program prepared according to cognitive behavioural approach ($t_{(17)}$=2,193 p<0,05). The average scores of the students were =49,166 before the training while that of the group decreased to =46,388 after the anger management training practices. This finding demonstrates that the anger management training program with a group has a significant effect in decreasing the students' levels of anger. It was found out that the anger management training program in group did not have a significant effect on the aggression or problem-solving skills of the students.

Table 4. *T-test Results of the Control Group Regarding Anger, Aggression, Problem Solving Pre-test and Post-test Score Averages of the Anger Management Training Program*

Measurements		**N**	**Average**	**St. Deviation**	**sd**	**t**	**p**
Anger	**Pre-test**	18	45.444	5.802	17	0.646	0.527
	Post-test	18	46.777	10.166			
Aggression	**Pre-test**	18	31.611	7.349	17	0.142	0.889
	Post-test	18	31.444	5.564			
PSI	**Pre-test**	18	76.166	9.611	17	0.381	0.708
	Post-test	18	75.055	11.378			

*p<0,05

As shown in Table 4, there was no statistically significant difference between the average scores of pretest-post-test anger, aggression and problem-solving skill scores of control group students who did not receive anger management training.

The fourth test of the study was expressed as "There is a significant difference in favour of the male students in terms of anger, aggression, problem-solving skills of the male and female students who received the Anger Management Training Program prepared according to the cognitive behavioural approach.

Table 5. *T-test Results of the Experimental Female Group Regarding Anger, Aggression, Problem Solving Pre-test and Post-test Score Averages of the Anger Management Training Program*

Measurements		**N**	**Average**	**St. Deviation**	**sd**	**t**	**p**
Anger	**Pre-test**	9	50.000	5.873	8	1.161	0.279
	Post-test	9	47.333	8.573			
Aggressio	**Pre-test**	9	27.888	3.756	8	0.090	0.931
	Post-test	9	28.000	3.000			
PSI	**Pre-test**	9	87.222	16.887	8	1.024	0.336
	Post-test	9	79.444	15.289			

*p<0,05

As shown in Table 5, there was no statistically significant difference between the pretest-post-test anger, aggression and problem-solving skills average scores of the female students in the experimental group who received the Anger Management Training Program prepared according to the cognitive behavioural approach.

Table 6. *T-test Results of the Experimental Male Group Regarding Anger, Aggression, Problem Solving Pre-test and Post-test Score Averages of the Anger Management Training Program*

Measurements		N	Average	St. Deviation	sd	t	p
Anger	**Pre-test**	9	48.333	5.656	8	2.328	**0,048***
	Post-test	9	45.444	5.854			
Aggression	**Pre-test**	9	30.111	4.456	8	0.422	0.684
	Post-test	9	30.777	6.320			
PSI	**Pre-test**	9	81.000	13.765	8	0.835	0.428
	Post-test	9	87.222	15.031			

*p<0,05

As can be seen from Table 6, it was found that male students of the experimental group who received the Anger Management Training Program prepared according to the cognitive behavioral approach had a statistically significant decrease in anger levels (t (8) = 2,328 p <0,05). The average anger score average of the male students was =48,333 while it decreased to =45,444 after the anger management training practices.

5. Conclusion

When the research findings were evaluated in general, the first test of the research was expressed as "there is no significant difference in the anger, aggression and problem-solving pre-test scores between the experimental and control groups". There was no significant difference in the "Anger, Aggression, Problem Solving Scale" mean scores between the experimental and control groups (See Table 1). In this case, it can be assumed that the levels of anger, aggression, and problem-solving skills of the experimental and control groups were equal before the experiment. This result is important in terms of considering that the experimental and control groups are equal to each other in terms of pre-test scores and that there is a minimum of interaction danger due to the selection of the sample group in studies using semi-experimental design (Bulduk, 2003; Genç, 2007; Bulut Serin & Genç, 2011).

The second test of the research was stated as "There is a significant difference in the pre-test and post-test average scores of the experimental and control groups in terms of anger, aggression, problem-solving skills in favour of the experimental group after the Anger

Management Training Program prepared according to the cognitive behavioural approach." After the implementation of the anger management program, there was no statistically significant difference between the post-test score averages of the experimental and control groups (See Table 2). Kaplan (2007) suggests that anger management training programs are effective in reducing students' aggression in the study conducted "anger management skills program impact on aggression and self-esteem levels of 5th-grade students in primary school" (Genç, 2007). According to the results of the study titled "Effects of Anger Management Training in Group on the Continuous Anger Management Levels of 9th Grade High School Students" by Bulut Serin & Genç (2011), the study results of the effect of anger management training on adolescents' anger management skills demonstrated that there was a significant difference in the scores obtained from the continuous anger, internal anger, external anger sub-scales and there was a significant increase the scores of the anger-management sub-scale when the experimental group and the control group were compared at the end of the implemented anger control training program. The results of this study are different.

Williams, Waymouth, Lipman, Mills, & Evans (2004) aimed to evaluate the effectiveness of cognitive-behavioural group therapy in reducing anger and aggression in children in their study. At the end of the study, it was seen that the children stated that their anger intensity was decreased according to the last measurements and that the parents reported that their children had a decrease in the frequency of aggression and hostility behaviours. Sütçü (2006) aimed to evaluate the effectiveness of a cognitive-behavioural intervention program in reducing anger and aggression in adolescents in their study. According to the obtained results, the scores obtained from the sub-scales of continuous anger, outward anger, tendency of children to move and the aggression the by the adolescents in the experimental group from the Continuous Anger and Anger Style Scale and the scores obtained from the Novaco Anger Inventory decreased statistically significantly compared to the control group and the scores of the Continuous Anger and Anger Style Scale anger control sub-scale increased significantly. Şahin (2006) aimed to reveal the effectiveness of anger control program to reduce the aggressive behaviours of the primary school students who are 10-11 years of age. The findings obtained in the research showed that the aggression scores of the students decreased significantly after the training of the experimental group in anger management compared to the control group. The results of this study are different.

The third test of the study stated that there was a significant difference in the anger, aggression, problem-solving skill level scores of the experimental group in favour of the experimental group after receiving the Anger Management Training Program prepared according to the cognitive behavioural approach. It was found that there was a statistically significant decrease in anger levels after the implementation of the Anger Management Training Program (See Table 3). In the experimental study conducted by Cenkseven (2003), significant differences were found between experimental and control groups in terms of continuous anger, outward anger, anger control and aggression scores in favour of the experimental group, with the exception of pre-test and post-test inward anger. Williams et al. (2004) stated at the end of their study that a decrease in the intensity of anger of the children according to the latest measurements. Kaplan (2007) and Genç (2007) found similar results in the study conducted on 5th-grade primary school students. Herrmann (2003) conducted an anger management program for pre-adolescent students. At the end of the program, individual expressions were taken and there was a significant decrease in anger and

aggression and a slight increase in anger management. These findings are parallel to the obtained data. It has been found out that the anger management training program did not have an effect on the aggression and problem-solving ability of the experimental group. There was no statistically significant difference between the average scores of pretest-post-test anger, aggression and problem-solving skill scores of the control group students who did not receive anger management training (See Table 4).

The fourth test of the study stated the there is a significant difference in favour of the male students who received the program in terms of the level of anger, aggression, problem-solving skills after the female and male students received the Anger Management Training Program prepared according to the cognitive behavioural approach. There was no statistically significant difference between pretest-post-test anger, aggression and problem-solving skills average scores of female students in the experimental group in which anger management training was implemented (See Table 5). It has been found out that the implementation of anger management training did not have a significant effect on the aggression, problem-solving ability and focus of control of the girls. This study is parallel to the studies of Genç, 2007; Serin, 2006; Bulut Serin and Genç,2011; Williams et al.,(2004). According to the research results, problem-solving skills did not differ between girls and boys (Şeb & Bulut Serin,(2017). The results yield that the creative drama implementation had a substantially positive effect on the students' anger level. Nonetheless(Çapacıoğlu, & Demirtaş, 2017.Anger management training was found to have a statistically significant reduction in anger levels of the male students in the experimental group after the anger management training program (See Table 6). This finding suggests that the implementation of anger management training in group has an important effect in reducing the anger levels of male students. However, it has been determined that the anger management training program does not have a significant effect on the aggression, problem-solving ability and focus of control of male students.

Consequently, students have learned appropriate expression methods by better understanding the concept of anger. These students had cognitive restructuring related to the concept of anger and at the same time, the program changed the behaviours of the students. It has been observed that the cognitive-behavioural approach used in the curriculum implemented reduces the anger and aggressive behaviours in favour of the male students.

The following recommendations can be made considering the results of the research.

1. This research was conducted in a public primary school in Kyrenia in North Cyprus with a limited number of students. It is possible to generalize research data to larger samples by working with different levels of schools and with more students.

2. The scope of the implemented program can be expanded by making the sessions more detailed and increasing the number of activities. In this way, the school can become a guidance study that can be used throughout a semester or a year.

3. The anger management training program used in this study can be applied to students and adults at different levels with a low level of anger management skills or a high level of aggression with some changes that can be made in the context of the program.

4. Monitoring studies can be carried out periodically in order to determine whether the effect of the anger management is permanent.

5. This study was focused on the 4th and 5th-grade students in a primary school. Having considered that the age of primary education is still a game age, it can be assumed

that the activities in the implemented program are both game-based activities and more visual tools are used, the effectiveness of the programs will increase in the group studies at this age .

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THE EFFECTS OF LEARNING MODEL AND COGNITIVE STYLE ON STUDENTS' ENGLISH LISTENING SKILL

Research Article

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Abstract

Listening is one of the most basic language skills in second language learning. The various obstacles in language learning can be overcome through the use of learning models and cognitive styles that are appropriate with the characteristics of the students. The objective of this research is to find the effect of learning models and cognitive style toward the students' English listening skill. This research is an experimental study with treatment by level design and analyzed using two-way ANOVA at a significance level of 0.05. The participant of the study consisted of 32 students who were divided into two groups, namely the experimental group and the control group. The data were obtained through listening tests and cognitive style tests. The results showed that the students who were taught with integrative learning models were better than those taught with experiential learning models. There is an influence of interaction between learning models and cognitive styles on listening skills. The listening skills of the student who have the cognitive style of field independent that is taught with integrative learning models are higher than those taught with experimental learning models.

Keywords: Learning Models, Cognitive Style, Listening Skills.

1. Introducation

In various literature, it is found that listening skills are sometimes ignored; whereas listening is one of the skills that has a very important role (Khalili Sabet, 2012). Listening is a process to listen to the oral symbols with full attention, understanding, appreciation, and interpretation to obtain the information, capture content, or messages and understand the meaning of communication that has been conveyed by the speaker through speech or spoken language. Teaching is an attempt to help, guide, and explain to someone to acquire of positive skills, attitudes, ideas and knowledge (Bozorgian & Pillay, 2013; Renukadevi, 2014; Ur, 1995). Teachers can interact with students during the learning process to create a conducive atmosphere. Teaching listening in the classroom is different from the existing listening activities in the community or real life. Ur (1995) mentions that listening in social life must meet several elements are as follows: 1) listening for the purpose of obtaining certain information, 2) reviewing what has been heard, 3) paying attention to people who are listening, 4) paying attention some environmental and visual information about the meaning

heard, including stretches of discourse heard in short monologues, 5) most discourse is spontaneous and distinct from oral discourse including with the character of the listener. Various studies show that listening skills have a very significant role in language learning. Because without practice, listening skills cannot be developed and practiced (Campbell, 2011; Drood & Asl, 2016; (Keaton & Bodie, 2013; Shang, 2008;).

Listening has an important role in improving students' language skills. One of the learning activities in school is to listen to the information, after following the learning activities of listening information, students are expected to speak and convey information. The material in listening skills and speaking skills has a prominent place in language learning around the world today. The need for fluency in English around the world is due to the role of English as an international language that has given priority to find more effective ways of teaching English (Qodratillah, 2008; Richards, 2008). Purdy et al (2017) demonstrated that listening is a major component of language teaching and learning which was the first spotlight in the late 1970s by James Asher working on Total Physical Response. In TPR, learners are given sufficient understanding to listen or listen before they are encouraged to respond verbally (Brown, 2007; Acat et al., 2016; Hindun, 2014; Oduolowu & Oluwakemi, 2014).

Listening is a complex activity. Coordinate sounds, vocabulary, grammar structures, and background of knowledge that involves many mental processes on the part of listeners (Bozorgian & Pillay, 2013; Shang, 2008; Wahyuni and Ibrahim, 2014; Zohrabi and Esfandyari, 2014). Listening or listening skills are essential for reading comprehension because it only consists of "38" to "51" entities that the government incorporates into listening skills as part of the standard of English art ((Beall et all., 2008; Campbell, 2011; Kotzman et al., 2008). Listening is a complex process - an integral part of all communication processes. This listening process includes the process of receiving, attending, understanding, responding, remembering (Kline, 1996).

Effective listening is a key component of communicating, as it allows us to gather the information necessary to understand others, and in this way, we can respond as we have heard, convey our insights and views. Raise awareness of how the process works, and the ability to listen carefully and empathy is key to managing conflict effectively (Grognet et al., 2005; Heaton, 1987; Nautiyal, 2016; Sajjadi & Zamaniyan, 2015). The purpose of listening is to help students understand discourse, that is, to understand the sample of authentic oral texts. To achieve this, of course, listening should be gradually done based on sentence-listening, to help understand the text. This often involves learners from outside for up-and-down top management, since listening can exceed sentence levels using knowledge of the context, topics, settings, participants and objectives (Richards, 2010). Therefore, this study was conducted to know the effect of learning models and cognitive style toward the English listening skill.

According to (Campbell; 2011; Hsu et al., 2013) Limited listening skills will hinder the communication process directly. While adequate listening skills will have a positive impact on students in providing feedback or feedback in the form of speech sound signals. This listening and reciprocal or interaction assignment have been ignored in the language class causing the failure of a second language or foreign language learning process.

Kotzman et al (2008) mention that listening has different characteristics by talking or communicating with others where we involve two main tools as a compliment, i.e a simultaneous process that takes place continuously when: a). Speaking and expressing yourself, b). Listening and responding to others. Speaking involves sending messages. While listening involves both recipients of messages from others and responding to them. Regardless of how we listen, send the same message back to the speaker. Effective listening

and responding can produce and convey our understanding (or sometimes misunderstanding) of the speaker's message.

In the listening courses, there are many factors that can cause the students difficult to achieve adequate of language skills. The factors such as curriculum, lecture, teaching methods, student self, facilities and infrastructure also become obstacles in achieving optimal results. Each lecturer is required to master the various abilities as a professional lecturer in his field especially with regard to methods or learning strategies. The lecture has a very significant role in the learning process of listening and provide the best support for the success of students in the listening learning (Izadi, 2012; Badi, 2012; Yusnida, Muslem & Manan, 2017).

Weger et al (2014) explained that effective listening is very important. That's easy: most of what we do or do not do (the way we act and respond to others) is based on an understanding of the message delivered. In practical terms, misunderstandings can spend time, money, credibility, and even relationships. Conversely, accurate messages received create comfort, confidence, and deep appreciation. There are three different modes and four different levels of Effective Listening Skills. Three modes, or manners, listening is Attention, Responsiveness, and Active. The four listening levels are factual, Perceptive, Emotional, and Mixed.

Until now, the teaching of English, especially listening skills, was still provided. However, in the learning process there are still weaknesses experienced by students. This weakness is seen mainly in writing and from the results of listening to them. Some of the causes of students' lack of success in listening to the possibilities were due to the lack of interesting material presentation, students thought that language courses were too easy to learn. To improve and develop their listening skills, it is necessary to make the improvements in the presentation of material, selection of materials, teaching model and cognitive style as well as the assessment system.

Design and engineering of the learning process can be applied well by the teachers or lecturers tailored to the level of intellectual understanding of students. Ideally, teachers or lecturers should understand well the characteristics, learning styles and cognitive style of the students in order not to be mistaken in choosing the appropriate learning model. One of the learning models for 4 (four) language skills is the integrative learning model and experimental learning model.

In addition to the learning model, the learning style (cognitive style) of students also influences the listening skill. The cognitive style is the way a person learns something. Learners will be able to learn well and have good skill results if he understands his cognitive style. This allows learners to apply learning techniques easily and appropriately. Skill is a description of the level of student mastery of the learning objectives on the topic of the experimented discussion, as measured by the number of scores the correct answer questions prepared in accordance with the objectives of learning. The cognitive style that people have can be grouped independent and field independent fields. (Lohman, 2002; Zeng, 2018).

According to (Grognet et al., 2005; İpek, H, 2018; Weger et al., 2014) that listening is the most important element in language and language learning, because it is the key to speaking, and more than that, reading and writing. Here are presented some research results related to the topic of the article. (Acat et al., 2016; Oduolowu & Oluwakemi, 2014; Sajjadi & Zamaniyan, 2015) stated that listening is the first language skill to acquire someone in his or her life and one of the skills that requires some of its potentials. According to Papalia in (Hindun, 2014) mention that the most easily recognizable human language activity is spoken language, verbal communication, and speaking is the most effective and efficient communication. However, a new person is said to be a speaker if there is a listener, and conversely, someone can be a listener if there is a speaker. A person who remembers

information is a person who has stored the information in IJPa (Long Term Memory) and may also bring up the information when necessary. The process of sieving is defined as the process of searching the essence of a message and combining it until there is a unified understanding. It is basically that a sentence captured by the sense of hearing is not heard entirely and is not processed at once. The sentence is received in a fragmented, searched meaning and connected as the whole sentence is finished. According to Qodratillah (2008), listening, as a verb "v" is: 1) listen (pay attention) well what people say or read: he is ~ reading Qur'an from radio; 2) review (examine, study) thoroughly: ~ back the governor's report.

Meanwhile, (Khuziakhmetov & Porchesku, 2016; Wahyuni and Ibrahim, 2014;) explore that listening is an ability that allows a language user to understand the language orally. Erhamwenmwonyi and Asemota (2015) undertook research to observe and analyze four practices of linguistic activity. Listening can help students to gain a detailed understanding of the information. To understand complex foreign languages, it can be done through small group activities in listening that can stimulate his imagination, train to think and speak. Listening and vocabulary have a close relationship. Equally important is to listen to the overall meaning. The results show that in listening Students learn better and faster and have a clearer assessment of what is heard. Listening and speaking are the two most important forms of communication skills. These skills can be taught through a direct, integrated, incidental, eclectic and dialogue approach. Listening comprehension is an active and conscious process which carried out by listeners to build the meaning by using cues from contextual information through existing knowledge (Saputra, 2014).

Theoretically, listening comprehension is considered an active activity in which students focus on internal and external aspects as well as their relationship to previous knowledge. Coakley and Wolvin (1986) quoted in (Milasari, 2008; Huerta et al., 2010) explore the understanding of listening to a second language as a process of acceptance, focusing on attention and aural stimuli. It also includes listener, cognitive knowledge and process related to listening, aural text, and interaction between the two. Furthermore, Farris (1995) quoted in Osada (2004) that the understanding of listening students can form a positive mental in accordance with knowledge about the information and topics contained in the text of the monologue.

According to (Early, 1960; Heaton, 1987; Hutchby, 2015; Janusik, 2012; Levitt, 2002; Purdy, et al, 2016; Weger, et al, 2016) an effective way to develop the listening skills is through the provision of carefully selected training materials. This material is in many ways similar that used for understanding the listening tests. Although listening skills are closely related to oral skills in normal speech situations, sometimes it is also useful for teaching and testing. While (Hogan et al., 2014) described that listening comprehension can be conceptualized more broadly as a person's ability to understand what someone is hearing, not only in the service of reading comprehension but also for others to understand the story told at the dining table for example or build a mental model that is appropriate to the situation at that time.

Moreover, some research had been conducted to analyze the effect of learning model and cognitive style toward students' (speaking, reading or writing) skills, but only few research had been analyzed the effect toward students' listening skill. A study by Kurniati (2017) to determine the relationship between the habits of students in listening conversations in English and mastery of vocabulary students of the second semester (two) of English Education Program FKIP University Batanghari academic year 2015/2016. This type of research is descriptive quantitative. The sample of this research is a student of the second semester (two) of English Education Study Program FKIP, University of Batanghari 2015/2016 academic year taken whole that amounted to 59 students. Researchers found that

the lowest score on English conversational listening habits is two hours per week and the highest is up to 5 hours per week. The percentage of students' vocabulary skills included in the good category is 16% or as many as 10 students, medium of 81% or as many as 48 people and low 1% or only one student. After finding the score of each variable, the researcher found that the calculation of correlation between variable X and Y by using Spearman Rank formula with R value of 0.075 or can be categorized into very low correlation so it is found that there is no significant correlation relationship which the value of Z_{count} = 0.570 because Z_{tabel} = 1.96 with 5% significant level, meaning $Z_{hitung} < Z_{tabe}$l, then Ho accepted and Ha rejected.

According to (Arono, 2014; Janusik, 2012; Nautiyal, 2016; Salimi & Ahmadpour, 2015; Zohrabi et al., 2014) conducted a study to find out the innovative learning methods used in improving critical listening skills and student activities by using interactive multimedia and to measure the effectiveness of multimedia in improving the students' critical listening skills. The results showed that (1) the students created and developed an active, creative, and effective listening learning process independently (2) Improve students' critical listening skills through interactive multimedia. Critical listening methods in the PMAI Model can improve students 'critical listening skills so that this model is better to be applied as a reference application in a listening learning model and instructional media with interactive multimedia can improve students' critical listening skills rather than audio-learning media because it listens not only aspects aural but also the visual aspect that is integrated with multimedia.

Moreover, (Renukadevi, 2014; Guan, n.d.; Sajjadi & Zamaniyan, 2015; Shang, 2008) want to know the use of listening strategies on different linguistic patterns for different levels of proficiency. There are three main questions that are used in relation to the English listener of Taiwan as a foreign language (EFL): (1) For different levels of proficiency, the listener uses which pattern corresponds to a higher listening comprehension level when negative, functional, and contradictory statements facts used? (2) Is there a significant difference between the type of goods and the level of proficiency? (3) What are the differences and frequencies in the use of listening strategies reported by individual listeners? To explore the above issues, quantitative research methods are applied, including self-perceived surveys, t-test techniques, and variance analysis.

The results of this study suggest that high scores and initial listeners produce higher scores on statements that are contrary to facts, followed by functional expressions and negative expressions. The listener skills at this level tend to use strategies when listening to statements that are contrary to facts, while beginner level listeners always use memory strategies when listening to negative expressions. The implications for EFL educators to recognize the direction of learning practice to improve listening comprehension are presented.

1.1. Assessment of Listening Skill

In listening skills test, awareness is very important because it is different from with the written of language skills. For example, the language used is much more complex than language written in a particular way, as a result, contains a large element of 'redundancy' (Akhadiah, 1988). Wahyuni and Ibrahim (2014) cited that listening is more directed at the ability to understand the meaning of a form the language used orally.

According to (Hogan et al., 2014), the assessment of listening skills can be carried out together with the purpose designed of learning activities. Therefore, disclosure of listening skills can be done using the exercises of certain tasks. Listening assessments are carried out by listening to oral discourse as assessment material. The discourse can be heard directly by a speaker, as far as possible native speakers of the language who are the target of the test or just

through the tape or video recordings. The discourse that has been played is accompanied by a task that must be done, and questions must be answered.

The assessment process in the learning listening is carried out during the process by looking at the development of test resulted in several stages of learning. It is becoming very important, meaning that is by examining, reviewing, giving the direction and input to students, and using an assessment instrument as a benchmark for the achievement of abilities (Sailah, 2014).

To understand the nature of the listening process, we need to consider some characteristics of oral discourse and the problems specifically related to listening. It was also stated that discourse has characteristics that are very different from those written in the discourse, and these differences can add a number of dimensions to understanding how we process the speech. For example, speaking discourse is usually instantaneous. Listeners must process it "online" and often there is no chance to hear it (Campbell, 2011). According to Akhadiah (1988, p. 25) listening ability is receptive. In the Valette classification, this ability includes communication skills: students understand messages communicated orally. This ability is basically cognitive. At a higher level, it can be described as the ability to analyze a message delivered orally in the target language, concluding a number of messages communicated through recording in the target language. Acat et al (2016, p. 212) stated that measurement and assessment of listening skills must be carried out between other measurement and assessment activities.

1.2. Model

According to Majid (2015) in general, the term "model" is defined as a conceptual framework used as a guide in conducting an activity. In another sense, the model is also defined as an object or an artificial object of the real thing, like the "globe" which is the model of the earth in which we live. In the next term, the term model is used to denote the first sense as a conceptual framework. On the basis of such thinking, the "teaching and learning model" is a systematic conceptual and systematic concept of organizing learning experiences to achieve specific learning goals, functioning as a guide for teaching designers, as well as teachers in planning and carrying out teaching and learning activities. Thus, teaching and learning activities are truly a systematically organized objective activity.

A model is not the same as the theory. Roberts (1978) notes a model in the planning program, "A model of instructional design is the result of a component-testing or building-theory process, in which case the design of the model is built on a weak theory or no theory at all" (p. 7). Brady (1985) also illustrates that the model is a guide to the preparation and execution of learning, and does not lie in the advanced theory "(p.11) So it can be said that it is not enough for a teacher to know only one or two instructional models, so many different types of approaches and contexts A thorough knowledge of a number of models can lead to great flexibility, efficiency for teachers. Some models can facilitate the ability to adapt to the model or to combine it with others, and offer valuable approaches that enrich the repertoire teacher (Zhang & Collis, 1995).

Sunhaji (2014) stated that the thematic-integrative learning model is very helpful in facilitating the teaching and learning process of the students because the problems faced in the real world could not always be explained fractionally into the field of study or subjects, but there are interrelationships between fields or subjects. Many of these issues require an assessment from multiple perspectives using concepts or principles that come from different fields of study or subjects.

Another element that is an aspect of the importance of integrated learning is to encourage learners to work together with their classmates and learners more empowered as learners, in addition to providing more opportunities for them to tailor learning activities with their own interests and to be more involved in the assessment topics discussed in class. From

that, it will bring up other benefits as well. First, it can lead learners with a frame of mind to conduct self-assessment or self-investigation. Second, it helps learners how to develop a plan for finding something by using a wide variety of sources. Third, encourage learners to share ideas and knowledge. Integrative learning is a model approach in learning that deliberately links some aspects of integrated learning interfaces (Barber, 2012; Erlina, 2016; Fogarty, 1991) with this integrative model, then students will acquire knowledge and skills intact, so that learning becomes meaningful for students. Meaningful in this case implies the students indirectly learn and understand the concepts which learn through the direct and tangible experience that connects with inter-concepts between subjects that are integrated.

This model is far more effective in efforts to increase understanding and practice of values, rather than conventional approaches that are monolithic (Nanik et al., 2010). Integrative learning puts more emphasis on active student involvement in learning. This is in accordance with the expectations of constructivism learning theory that requires of the students learned according to their experience. Learning according to this theory is very personal hard work, the teacher acts as a facilitator who convinces students to discover their own principles and construct knowledge by solving realistic problems. The previous researchers found that traditional learning models can increase the student learning interest (Canfield, 2002) in order to be able to think effectively and apply the knowledge to return to less optimal life situations (Lane, 2008; Uopasai1, Bunterm, Muchimapura and Tang, 2018).

Based on the concept of integrative learning, Fogarty (1991, p. 2) states that there are 10 models of learning integration, ie fragmented, connected, nested, sequenced, shared, webbed, threaded, integrated, immersed, and networked. The model ranges from the simplest to the most complex, ranging from the separated-subject to the exploration of the integration of aspects in one field of study (model fragmented, connected, nested), models that align across different fields of study (sequenced, shared, webbed, threaded, integrated), to integrate within the learner itself and across the learner (immersed and networked model). The 10 of integrated learning models, there are several classification types namely; (1) the connected type (ie the connected model) ie the inter-discipline model of the field of study, eg subjects Physics, Chemistry, Biology (cognate of science subjects); (2) webbed type (model of spider web) that is thematic learning model with theme approach in inter subjects; and (3) integrated type (model integrated among subjects.

Moreover, (Huerta et al., 2010; Kolb, et al., 2000) mention that experiential learning theory (ELT) which later became the basis of experiential learning model developed by David Kolb around the early 1980s. This model emphasizes a holistic learning model in the learning process. In experimental learning, experience has a major role in the learning process. It is this emphasis that distinguishes ELT from other learning theories. The experiential term here is to distinguish between cognitive learning theories that tend to emphasize the cognitive rather than affective side, and the theory of learning behavior that eliminates the role of subjective experience in the learning process.

Meanwhile, according to Majid (2015) experiential learning is a model of teaching and learning process that enables learners to build knowledge and skills through experience directly. In this case, experimental learning uses experience as a catalyst to help learners develop their capacities and abilities in the learning process.

Ronchetto and Diego (1993) give the opinion that cognitive style is one of the variable learning conditions that become one of the considerations in designing learning. Jeng divides the human cognitive dimension into two parts, namely 1) perception (information gathering) and 2) assumption (information processing). During information gathering, a person is usually happy to create sensation or intuition. Is thought or feeling, a presumption in processing information.

Lohman et al (2002) stated that cognitive styles include constructs such as the field of articulation, the effectiveness of the skill, cognitive versus impulsive complexity, automation versus restructuring, and convergent versus divergent. Knowledge of cognitive style is needed to design or modify learning materials, learning objectives, and learning methods. Expected by the interaction of cognitive style factors, objectives, materials, and learning methods, student learning outcomes can be achieved as much as possible. This is in accordance with the opinion of some experts who claim that certain types of learning strategies require a particular learning style.

Ronchetto and Diego (1993, p. 93) indicated that one of the characteristics of the student is the cognitive style. This cognitive style is one of the typical students in learning, both in terms of how the reception and management of information, attitudes toward information, and habits related to the learning environment. The cognitive style refers to the manner in which people tend to with information about the natural surroundings.

2. Methodology

2.1. Participants

The setting of this study was at the fifth semester of English Education Study Program of Khairun University, Indonesia on academic years 2016/2017 for one semester (September 2017 – February 2018) who contracted the listening subject. All 32 students voluntary participated in the study. The two classes with 32 students could be accessed for the study. All participants have the same position for being the sample of this current study as the department has the policy to randomly redistribute the students every academic year, which is aimed at avoiding superior classes. Those two classes were taught by the same lectures. Regarding this condition, non-probability sampling was used in this study. Based on the coordination with the department management that and the English lecturers, it was decided that the sample of this current 2 x 2 factorial design.

Before entering the study, determine the sample members for each group that was taken from 27% of the top group and 27% from the bottom group based on the rating. Based on the ranking, 27% of the top group was declared as a group of students who were field independent and 27% of the lower group was declared as a group of students who were field dependent. Thus, it produced four groups which consisting of eight samples, namely the experimental group that had a cognitive style of field independent, the experimental group that had a cognitive style of field dependent, the control group that had a cognitive style of field independent, the control group that had a cognitive style of field dependent.

This means that A_1B_1 consists of eight students, A_2B_1 consists of eight students, A_1B_2 consists of eight students, and A_2B_2 consists of eight students. (See table 1).

Tabel 1. *Sample on Each Group*

Variabels	Free Learning Models		Total
	Integrative Model (A_1)	Experimental Model (A_2)	
FI (B_1)	8	8	16
FD (B_2)	8	8	16
Total	16	16	32

Emzir (2015:106).

2.2. Procedures

A factorial design of 2 x 2 (see table 2) with control and experimental groups was used in this study (Emzir, 2015). It was relevant that the writer intended to examine the cause and effect of the independent variables and dependent variables. In this study, the data was

analyzed using ANOVA and Tukey's test for the two independent variables, namely: learning model (integrative and experiential and cognitive style. (table 2).

Table 2. *Treatment by Level 2 x 2 Design*

Variabels	Free Learning Models	
	Integrative Model (A_1)	Experiential Model (A_2)
FI (B_1)	A_1B_1	A_2B_1
FD (B_2)	A_2B_1	A_2A_2

2.3. Instrument

In this study, the sample consisted of 32 students that divided into two groups, namely the experimental group and the control group. The data obtained through the listening tests and cognitive style tests. The first instrument comprises of 40 questions that divided into two parts. The first part consisted of 30 essays questions and the second parts of 10 multiple choice question. The second instrument comprises of 25 cognitive style questions. The Kuder-Richardson formula (KR-20) is used to determine the reliability of the coefficient.

2.4. Data Collection and Data Analyses

The instrument was administered lastly. The data was analyzed through several steps. The requirements of the analysis test that used is the normality test of Liliefors test and Homogeneity of population test using F test and Bartlett test at significance level $\alpha = 0{,}05$. If it meets these two requirements, the research data was analyzed again through two-way variance analysis (ANOVA) at the significance level $\alpha = 0.05$. The Tukey Test was used for post-hoc analysis of significant results.

3. Results and Data Analysis

Hypothesis 1: The overall, are there differences in English listening skills between students who study with the integrative learning models and students who studying with the experiential learning models?

Based on the analysis of variance at a significant level $\alpha = 0.05$, obtained $F_{count} = 4.628$ and $F_{table} = 4.20$ (see table 3 line 1 for test scores below). The resulted F_{count} is greater than F_{table}, it means that H_0 is rejected and H_i is accepted, so there is a significant difference between the group of students who take the lessons with the integrative learning models and with group of students who take the lessons with the experiential learning models of students' of English listening skills. Thus, it can be concluded that the integrative learning model is better than the experiential learning model. This means the research hypothesis which states that the overall of integrative learning model is better than the experiential learning model can be accepted. (table 3).

Table 3. *Summary of Two-Path ANOVA*

Source of variance	JK	db	RJK	FO	Ftab $\alpha = 0.05$
Between A	344.531	1	344.53125	4.628	4.20
Between B	4875.781	1	4875.78125	65.498	4.20
Interaction AB	569.531	1	569.53125	7.651	4.20
In	2084.38	28	74.442		
Total	7874.21875	31			

Hypothesis 2: The Interaction between Learning Models and Cognitive Style toward students' English listening skills.

Based on the analysis of variance about the interaction between learning model and cognitive style of the students' of English listening skills seen in the ANOVA calculation (see table 3 line 3 for test scores above), that the price at a significant level of $\alpha = 0.05$, obtained $F_{count} = 7.651$ and $F_{table} = 4.20$. Because F_{count} is greater than F_{table}, it means that H_0 is rejected and H_i is accepted, so there is a significant interaction between learning models (integrative and experiential) of the students' of English listening skills.

After the interaction has been tested, then, the next step is doing the further test. The further test was used to find out about: a) the difference scores of the students' of English listening skills who were treated with the integrative learning model and who were treated with the experiential learning models for groups of students which has the cognitive styles of Field Independent (A_1B_1 - A_2B_1); and the difference scores of English listening skills groups of students who were treated with integrative learning models and who were treated with experiential learning models for groups of students which has the cognitive styles of Field Independent (A_1B_2 - A_2B_2).

Table 4 below displays the frequency of distribution and percentage the data of English listening skill of the student's which is given the experiential learning model and has the cognitive style of field independent (A_2B_1). From the frequency of distribution table, the list of students' skill scores of the experiential learning model and has the cognitive style of field independent (A_2B_1), there are 2 respondents in number 1 of interval 81 - 83 (25.0%) the absolute of frequency is 2 respondents that got the average reached score, at number 2 interval 84 - 88 (37,50%) student got the average value above by reaching the absolute of frequency is 3 respondent. While the score at number 3 interval 89 - 91 (12.50%) as in low score with the absolute of frequency is 1 respondent. Then the score on number 4 interval 92 - 96 (25.0%) with the absolute of frequency is 2 respondents. (See table 4).

Table 4. *The distribution of frequency skill test score of English students which is given the experiential model of learning and has the cognitive styles of field independent (A_2B_1).*

No	Interval Class	Lower limit	Upper limit	F. Absolute	F. Cumulative	F. Relative
1	81 - 83	80.5	83.5	2	25	25.0%
2	84 - 88	83.5	88.5	3	37.5	37.5%
3	89 - 91	88.5	91.5	1	12.5	12.5%
4	92 - 96	91.5	96.5	2	25	25.0%
				8		**100%**

Table 5 below displays the frequency of distribution and percentage the data of listening skill of English students which is given the treatment with the integrative learning model and has the cognitive styles of field dependent (A_1B_2). From the frequency of distribution score of listening skill variable of English students which is given the integrative learning model and has the cognitive styles of field dependent (A_1B_2) as many as 8 respondents in number 2 interval 83 - 85 (50,0%), the average score by reaching the absolute of frequency is 4 respondents, at number 3 interval 86 - 87 (25,0%) student get value above average by reaching the absolute of frequency is 2 respondent. While the score at number 1 interval 54 - 82 (12,5%) and number 4 interval 88 - 89 (12,5%) as in low value with the absolute of frequency is 1 respondent. (See table 5).

Table 5. *The distribution of frequency skill test of English students' scores which are given the Integrative learning model and has the cognitive styles of field dependent ($A_1 B_2$).*

No.	Interval Class	Lower limit	Upper limit	F. Absolute	F. Cumulative	F. Relative
1	54 - 82	53.5	82.5	1	12.5	12.5%
2	82 - 85	81.5	85.5	4	50	50.0%
3	86 - 87	85.5	87.5	2	25	25.0%
4	88 - 89	87.5	89.5	1	12.5	12.5%
				8		**100%**

In this study, the formula that used to test the hypothesis of free variables and the dependent variable or criterion and main effect is the two-way of Variance Analysis (ANOVA) formula (see table 1 for test scores). The independent variables are; (1) learning model (integrative and experiential) and (2) cognitive style (field independent and field dependent). While the dependent variable or criteria is the listening skill of English students. After all hypothesis test requirements are met, if there is an interaction effect between the learning model and cognitive style on the students' listening skill score, then a further test is performed using the Tuckey test (t-test).

The score of students' English listening skills which is given the integrative learning model and has the cognitive styles of field independent (A_1B_1) compared with the students' listening skills score of the students group which is given the experiential learning model and has the cognitive styles of field independent (A_2B_1), Q_{count} = 6,091 Q_{table} = 4.53 (see table 6 for test scores).. Thus, Q_{count} is greater than Q_{table}, so H_0 is rejected, therefore it can be assumed that there is a significant difference score of English students' listening skills which has the cognitive styles of field independent between the integrative learning model and the experiential learning model. In other words, the students who have the cognitive style of field independent and got the treatment with integrative learning model more precisely than those who received the treatment with the experiential learning model to the score of English listening students. (See table 6).

Tabel 6. *Summary of Tukey Test Calculations*

No	**Compared groups**	**Q_{count}**	**Q_{table} (α = 0.05)**	**Comparison**	**Conclusion**
1	A_1B_1 - A_2B_1	6.091	4.53	$Q_{hitung} > Q_{table}$	Significant
2	A_1B_2 - A_2B_2	6.645	4.53	$Q_{hitung} > Q_{table}$	Significant

Thus, the research hypothesis stated that students which have a cognitive style of field independent which is given the treatment with integrative learning model is more appropriate compared with the students which is given the treatment with experiential learning model to the score of English listening student skills are acceptable. Such findings support the previous result (Azari et al., 2013; Bowman et al., 2007; Boettger & Lam, 2013; Chabbi et al., 2017;

Chabbi et al., 2017; Farooq, 2013; Flynn & Beasley, 2009; Kumar et al., 2016; Syuhida, et al, 2017) the listening skill could be integrated with the learning models and cognitive style or other in teaching and learning of a language.

The findings showed that there is an interaction between *integrative learning models* and *experiential learning models* with the cognitive style on English listening skills and the difference between the cognitive style (FI) of the students were studied with *integrative* and *experiential* learning model and who has the cognitive style (FD) were studied with *integrative* and *experiential* learning model. Therefore, the result of this research is expected that this method can be applied by teachers and lecturers in the learning process in improving the listening skill.

H_I accepted means there is a very significant interaction effect between factor A (*Learning Model*) and factor B (*Cognitive Style*) or the influence of learning model on English listening skill depends on the cognitive style of the students.

4. Discussion and Conclusion

This study was conducted to determine the effect of learning models and cognitive styles on students' listening skills in English and focus on the identification, description and classification of listening learning models. The findings of this study indicate that the language learning model and cognitive style can explain the effects of the differences among the students in listening comprehension skills. The results of this study supported the findings of Omid, Omid & Behzad (2015), and Shintani & Wallace (2014), and Zanjani & Izadpanah (2016), and Khodadady & Zeynali (2012). Omid, Omid & Behzad (2015) in their study showed that cognitive styles of field independent of students had a positive and significant relationship with their translation achievement. The cognitive style of field independent is higher than the field dependents in their translation assignments and the translation performance could increase significantly. Shintani & Wallace (2014) in her study explained that (1) listening support can improve the listening skills; and (2) contextually, linguistic support has a better effect than contextual support. Zanjani & Izadpanah (2016) in their study also stated that listening strategies can be done to improve the students' listening skills. Khodadady & Zeynali (2012) mention that the results of his study show that listening skills can be influenced by cognitive styles of the students.

By comparing the results of the four studies, it can be understood that learning models and cognitive styles can not only improve the listening skills but also could help to provide an understanding of their listening. These studies explain that in order to achieve the successful in the learning process, students can do various ways to motivate themselves. Although this study has contributed and new insights to students of English in Indonesia, especially in listening material, there are also some of weaknesses. First, the purpose of this study was to examine the learning models and cognitive styles to improve English listening skills in Indonesia. Further research needs to be done to determine whether the findings of this study can be applied to English language material. Second, this research was carried out only in a limited context in Indonesia. Further research needs to be done in other contexts in Indonesia to determine the extent to which the findings of this study can be applied to other Indonesian EFL students. Third, our goal in conducting this research is not only to answer our research questions, but also to begin the process where teaching understanding of EFL students in Indonesia can be improved.

5. Conflict of Interest

There is no conflict of interest in this research

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THE SCALES FOR ACCEPTANCE, USABILITY, AND SATISFACTION FOR WEB-BASED MONITORING AND SUPPORT SYSTEMS

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Abstract

The purpose of this study is to develop three scales to assess some features of a web-based monitoring and support system for internship processes of trainees which was named Monitoring and Support System (SIDES). These scales are: "SIDES Satisfaction Scale", "SIDES Acceptance Scale", and "SIDES Usability Scale". We developed these scales as an assessment model within the scope of a project. In development phases, the scopes and the names of the scales were formed by results of the literature review. Satisfaction, acceptance and usability scales have item pools with 6, 17 and 27 questions respectively. The scales were submitted to 10 field experts for taking opinions for validity. After taking expert opinions, the scales were applied to 56 senior students who used the SIDES in an experimental condition in an academic term within the scope of the teaching practice classes in Sakarya University Computer and Instructional Technologies Teaching Bachelor Program. To examine the construct validity of the scales, the Exploratory Factor Analyses was used. Cronbach's Alpha internal consistency coefficients were calculated for internal consistency reliabilities. As a result of the analyses, one-factor, 6-item "SIDES Satisfaction Scale"; 3-factor, 14-item "SIDES Acceptance Scale" and 3-factor, 19-item "SIDES Usability Scale" were developed. These scales may be used or considered as examples for examining the effectiveness of web-based monitoring and support systems.

Keywords: web-based monitoring and support system, TAM, scale; satisfaction; acceptance, usability, trainees, teacher training.

1. Introduction

Teacher training policies are constantly improving across the globe. According to reports published by unions such as American Federation of Teachers (2008) and European Commission (2013) underlined the importance of teaching profession and teacher education. According to Organization for Economic Cooperation and Development (OECD), many countries agree that teachers have a crucial role on students' success. Therefore, teacher education policy is rising rapidly towards the top of the educational agenda (OECD, 2005). Şişman (2003) states that a qualified internship process is needed for training qualified teachers.

Although teacher training policies vary, there are similarities regarding internship application processes throughout the world. In Germany, for example, students upon their graduation become teacher trainees for two-years (Terhart, 2003). In Japan, similarly, having teaching certificate is not sufficient to become a teacher. Upon their graduation, students go through an internship process. In order to become a teacher in Finland, it is necessary to be successful in a test known as "matriculation" similar to the one used in Turkey and succeed in the three-stage acceptance test (book examination, interview, and sample lecture) (Malaty, 2006). In the USA, although differences exist in teacher training policies among states, it is essential to complete a four-year higher education program in order to be employed as a teacher at any level (Abazoğlu, 2014). In order to be a teacher in Turkey, it is necessary to sit and succeed in a high stakes national test, upon completion of a four-year undergraduate program in education. If they succeed, only then prospective teachers start working as teachers in public schools.

Teaching practice process is considered as an important action taken for professional development above and beyond supporting new knowledge and skills for teachers (Vescio, Ross, & Adams, 2008), and it is one of the important pre-service experiences that teacher candidates have. Teacher candidates can exhibit the ability to use theoretical information they acquire in this module (Özkılıç, Bilgin, & Kartal, 2008). However, higher education institutions have different applications concerning the Teaching Practice module. Moreover, practice teachers, teacher candidates and instructors experience managerial, pedagogical and professional drawbacks during the practice process (Aydın & Akgun, 2014; Aytaçlı, 2012; Cansaran, Idil, & Kalkan, 2006; Gömleksiz, Mercin, Bulut, & Atan, 2006; Koç & Yıldız; 2012; Rıza & Hamurcu, 2000; Sarıçoban, 2008; Seçer, Çeliköz, & Kayılı, 2010). According to Paker (2008), sufficient feedback cannot be provided for students, appropriate guidance is not in place and the course is not well-planned in the teaching practice module. Besides, teacher candidates cannot receive adequate guidance about material choice, class management, course planning, and instruction model during the teaching practice process (Kiraz, 2002). Gökçe and Demirhan (2005) highlight the lack of communication within the triangle of teacher candidate, practice teacher and instructor. Kırksekiz, Uysal, Isbulan, Akgun, Kıyıcı, and Horzum (2015) categorize the problems teaching practice with respect to teacher candidate, practice teacher, instructor and the general process. In addition to emphasizing serious problems in communication experienced by all stakeholders, teacher candidates are not sufficiently assisted by instructors, there is inadequate guidance by instructors and practice teacher, and they cannot spare enough time for each student in the activities. Different applications within the context of universities in Turkey also show that there are no standards for the teaching practice module (Akgun, Kıyıcı, Horzum, Hamutoğlu, Güngören, & Duman, 2015a). McGee (2019) underlines the importance of mentorship in the student teaching internship experience that helps them to improve their practice, and not only teaching experience, but also supporting, guiding, and giving quality feedback to them. Accordingly, considering qualified teachers in teaching practice course, it is important for

institutions to surround their internship applications via technology. With technology support, the process of the course might have been more effective and productive.

There are many studies on the use of technology in teacher education (Fisher, 1996; Jung, 2005; Hixon & So, 2009; Sourdot, Smith, Anderson, & Whitworth, 2017). However, the fact is that technology has a supportive and/or spectator role in teacher education, and fills or diminish supervisory, psychological, pedagogical, and communicative gap in the literature. It is also thought that technology plays an important role in eliminating the drawbacks that occur during the teaching practices lesson. Considering the gap in the literature, measuring the views towards the "Internship Monitoring and Support System (SIDES)" within the scope of developed instruments are important. SIDES web application developed under cooperation of faculty-institution is thought to be providing teacher candidates with interactive assistance during their internship, and creating a standard may diminish the communicative gap between faculty-institution by supporting supervisory and participatory pedagogical support for the attainments of the teaching practice module.

1.1. SIDES

SIDES is a project being conducted under TUBITAK-1001 program. The starting point of this project is that the lack of standard attainments on the national basis within the scope of teaching practice lesson causes several drawbacks experienced by teacher candidates at their practice schools (Aydin, & Akgun, 2014). The attainments of the teaching practice lesson were created with a comprehensive literature review (Akgun, Gökmen, Özer, Kaymak, Horzum, & Kıyıcı, 2015b) and the SIDES web application was developed so that teacher candidates can put these attainments into practice and be assisted. It is aimed by this application that the teaching practice process is completed effectively and in a planned way within the cooperation of teacher candidates, practice teachers and instructors. Dallmer (2004) stated that cooperation is an important factor that affects achievement during teacher training. Teacher candidates will be able to be informed of where their internship schools are; their practice teachers' details and make contact with all people related to the internship over the system. It is therefore thought that the communication-oriented problems experienced by teacher candidates in the beginning of the term could be solved to some extent by the cooperation of teacher candidate, practice teacher and instructor.

SIDES enables teacher candidates to upload the papers which they are responsible for preparing for the teaching practice lesson onto the web environment and receive related feedbacks. By this means, instructors can assess the papers without the limitation of space and time and provide teacher candidates with the necessary feedback. Feedback is a vital element that will enhance teacher candidate's professional skills during the process (YOK, 1998). With SIDES developed within the framework of faculty-institution cooperation, it is planned to prevent problems such as the fact that instructors cannot spare enough time for assessing teacher candidates' activities, the communication between students, instructors and practice teachers, insufficient assistance, late feedback and guidance problems.

It is thought that SIDES facilitates the internship process under the teaching practice lesson by the support services it provides the teacher candidates, the practice teacher at the school and the instructor at the university. The usability of support services websites affects the confidence, satisfaction and loyalty of users (Flavián, Guinalíu, & Gurrea, 2006). Users acceptance on the use of system affects their beliefs and attitudes to the system. This may

effect the quality of system (Wixom & Todd, 2005). Ease of use is an important factor affecting the behavior of the system for users and system acceptance (Venkatesh & Davis, 2000). To reveal the effectiveness of SIDES within the scope of this study, "SIDES General Satisfaction Scale (SGSS)", "SIDES Acceptance Scale (SACS)", and "SIDES Usability Scale (SUSS)" were developed. The SIDES General Satisfaction Scale developed is deemed important for determining the service quality of SIDES. On the other hand, it is important whether the newly-developed SIDES was accepted by users as an effective, efficient and useful system. Perceived ease of use, perceived usefulness, attitude towards using and behavioral intention to use structures in the Technology Acceptance Model are important factors in determining teacher candidates' levels of accepting SIDES. In addition, it is also aimed by the research that SIDES is used relevantly and effectively. Hence, usability is an important concept that should be taken into consideration for the efficient use of websites and users' satisfaction (Çakmak, Güneş, & Tahsin, 2011; Nielsen, 2000; Pearrow, 2000; Shneiderman, 2004). It is thought that the SIDES Usability Scale will provide significant findings on the usability in terms of the access and the interface of the system. In this respect, it is believed that measuring students' acceptance on use of such systems will help to identify the factors that students influenced internally e.g. attitude, behavioral intention, etc. In addition to this, usability of the systems also may impact the students' future usage behaviors, externally. These provisions are claimed by Ertmer, Ottenbreit-Leftwich, Sadik, Sendurur, & Sendurur, (2012) and Sánchez-Prieto, Hernández-García, García-Peñalvo, Chaparro-Peláez, & Olmos-Migueláñez (2019) that internal and external factors have effects on attitudes towards using systems and behavioral intention to use. Moreover, satisfaction is also related to internal constructs, and measuring this construct would emerge some hints for system developers, trainers, administrators, teachers, and teacher educators. Scales developed for measuring those variables all have different scope and structures, but they can be used together as parts of a measurement model for considering obtained results with a holistic perspective about students, teachers, system developers, and administrators. Based on this, measuring acceptance of students toward systems could provide a contribution to teachers and system developers, and identifying usability of systems may give a chance to improve interface of the systems as well. Finally, examining satisfaction of students will be a lens for administrators and teachers, in order to see the weakness and strengths of the teacher training system. Therefore, it is important since these developed scales will shed light on the effectiveness of a product to be created as a result of similar studies. It is also aimed by this research to examine the validity and reliability of the results obtained from the pilot schemes applied to the teacher candidates.

2. Methods

2.1. Research design

This research is composed of three separate scale development studies in which necessary data collection tools were prepared to examine the effectiveness of SIDES. The purpose and the method of the study is scale development. In order to serve this aim, a comprehensive literature search was made, and the theoretical framework of the scale was determined. After that, an item pool was created, and revised by an expert group. An initial form was created and applied to participants. The results of this study reached by analyzing the data collected from these participants.

2.2. Participants

The participants of this research were 56 senior students who study in Sakarya University, Computer and Instructional Technologies Teacher Education Program and also, they took a necessary place in experimental phases in SIDES. The number of participants was naturally limited to 56 because these participants were subjects of the experiment and their number was 56.

2.3. Measurement Tools

To assess the effectiveness of SIDES, "SIDES General Satisfaction Scale (SGSS)", "SIDES Acceptance Scale (SACS)", and "SIDES Usability Scale (SUSS)" were developed. SGSS is a 6-item scale composed of one factor. SACS is composed of 14 items and three factors (usage attitude-intention, perceived ease of use, perceived usefulness. SUSS has a structure of 19 items and three factors (Usability of SIDES, [Unproblematic] Access to SIDES, Face of SIDES). While developing the scales, an item pool was created after a literature review with appropriate items that could be included in the scales. The participation level for the items in the item pool for each scale was chosen to be 5-Likert type scoring and the scoring was determined to be (5) Strongly Agree, (4) Agree, (3) Neutral, (2) Disagree, (1) Strongly Disagree; and next, the validity-reliability studies were conducted.

In addition, it was aimed to measure the service quality of SIDES with the item "SIDES provides the assistance I need for the internship practices." The participants were asked to answer this item by choosing one of the scores from (1) Strongly Disagree to (10) Strongly Agree.

2.3.1. Procedures

In the purpose of developing scale, firstly literature was comprehensively searched, and studies with similar purpose and background were determined. Through this, an item pool (53 items for SUSS, 6 items for SGSS, 17 items for SACS) was created. We took expert views for content validity of these scales. 10 experts were consulted for the content validity and necessary adjustments were made to finalize the scales consequently. Experts are involving 5 field experts, 2 assessment and evaluation expert, 2 language expert and 1 Psychological Counselling and Guidance expert, and in light of their opinions some revisions (26 of items omitted from the SUSS, 3 of items omitted from the SACS) were made, and content validity was provided. Hence, the scale was administered for the pilot study. A similar group to target consisting of 8 students were invited for a focus group interview in terms of identifying whether items are clear and comprehensible for the target group.

These procedures were followed by studies of construct and structure validity. Exploratory factor analysis (EFA) was performed to reveal the structure validity of the scale. It is aimed with the EFA to come up with the significant structure explained by multiple interrelated items which are defined by the scale (Buyukozturk, 2011). The reliability of the scale was examined by internal consistency coefficients, Cronbach Alpha.

2.4. Data analysis

For analyzing the data, Statistical Package for the Social Sciences-*SPSS* was used for EFA and correlations. Confirmatory factor analysis (CFA), and divergent and convergent validity analysis were also performed to test whether the scales have construct validity. The results of this analysis have an accordance with EFA results. But the CFA and related results were not given in this study because of the data collected from the same participants whom their data also used for EFA analysis. According to the results, it can be said that the scales factor structures were approved by CFA and have a valid structure.

3. Findings

The findings of scales were presented separately as general satisfaction, acceptance and usability in the paper. The findings of the scales were listed as preparing the items, content validity, construct validity and reliability successively.

The prerequisites for the analysis such as normality, extreme values, multicollinearity and singularity assumptions were controlled to meet the assumptions. VIF and tolerance values and Cook's distance and Leverage values were computed as well. Accordingly, the data showed normal distribution ($p>.05$), and skewness - kurtosis values are ranging between -2.5 and +2.5 (Mertler & Vannatta, 2005; Tabachnick & Fidell, 2007). Extreme values were investigated via Mahalanobis Distance in the dataset ($p<0.01$) (Büyüköztürk, 2011; Hair, Black, Babin, Anderson & Tahtam, 2006), VIF and tolerance values were found smaller than 10 and higher than zero, respectively. Addition to this, in the results while Cook's distance value was found smaller than 1, Leverage value was smaller than 0.02. Finally, multicollinearity and singularity values were tested and the result showed that they were at a moderate level (see table 6) (Akbulut, 210, p.158). According to findings, the dataset was meet the assumptions and therefore it is possible to perform construct validity analysis.

3.1. SIDES General Satisfaction Scale (SGSS)

3.1.1. Preparing the Items

The SIDES General Satisfaction Scale (SGSS) was developed to reveal the general satisfaction levels of teacher candidates concerning the "Internship Monitoring and Support System (SIDES)". After the literature review, the general satisfaction scale was determined to be 6 items by benefiting from the literature (Aladwani & Palvia, 2002; Parasuraman, Zeithaml & Malhotra, 2005; Şimşek, 1998; Yang, Chai, Zhou & Zhou, 2005).

3.1.1.1. Content Validity

10 field experts were consulted for the item pool in terms of scale's content validity. Necessary adjustments were made in accordance with the expert opinions and the trial form of SGSS which is composed of 6 items was obtained for the pilot scheme.

3.1.1.2. Construct Validity

In the validity studies of the SIDES General Satisfaction Scale, the exploratory factor analysis (EFA) was applied to look at the construct validity. It was aimed that the SGSS created with the exploratory factor analysis (EFA) would reveal the factor structure over the teacher candidates that formed the study group. With Kaiser Meyer Olkin (KMO) and Barlett's Sphericity test, the sampling adequacy was tested to determine sample's conformity to the factory analysis. The KMO sample adequacy coefficient which was found to be .86 and Barlett's Sphericity test's value which was found to be ($\chi 2=216.837$, $N=56$, $p=0.00$) that the scale is suitable for factor analysis (Buyukozturk, 2011).

3.1.1.2.1. Exploratory Factor Analysis

It was shown with the exploratory factor analysis that SGSS has a one-factor structure composed of 6 items.

SGSS having a one-factor structure with an eigenvalue higher than 1 explains 68.007% of total variance. While the items were included in the scale it should be noted that the eigenvalues of the factors constituting were 1 and above, and the factor loadings were 0.30 and above, and between the factor loadings of the items there is at least a 0.10 difference (Buyukozturk, 2011).

The load values of items in the scale vary between .72 and .90. The shared factor variance and the factor load values obtained from the exploratory factor analysis are reported in Table 1.

Table 1. *Exploratory Factor Analysis Results of SIDES General Satisfaction Scale*

Item	Common Factor Variances (h^2)	Extracted Factor Loadings
s3	.82	.90
s4	.76	.87
s2	.74	.86
s5	.64	.80
s6	.58	.76
s1	.52	.72
Eigenvalue % (Total = 4.08)		
Explained Variance % (Total = 68.01)		

3.1.1.3. Reliability

The data obtained from 56 teacher candidates with the SGSS trial form in the pilot scheme was applied with validity and reliability studies. Cronbach's Alpha internal consistency coefficients were used to determine the reliability of the scale. The internal consistency coefficient value was found to be .90 for the whole scale. All internal consistency values being above .70 (Field, 2013) shows that scale's reliability values are high; in other words, it produces consistent data.

3.2. SIDES Acceptance Scale (SACS)

3.2.1. Preparing the Items

The theoretical basis of the SIDES Acceptance Scale (SACS) was formed with a comprehensive literature review. Examining the studies by Davis, Bagozzi, and Warshaw (1989) based on TAM (Davis et al., 1989; Venkatesh & Davis, 2000; Venkatesh, Davis, & Davis, 2003; Lee, Kozar & Larsen, 2003; Canan-Güngören, Bektaş, Öztürk, & Horzum, 2014), an item pool of 17 items was created.

3.2.1.1. Content Validity

10 field experts were consulted for the item pool in terms of scale's scope validity. Necessary adjustments were made in accordance with the expert opinions and the trial form of SACS which is composed of 14 items was obtained for the pilot scheme.

3.2.1.2. Construct Validity

Exploratory factor analysis (EFA) was performed to reveal the construct validity in the validity studies of SACS. It was aimed that the SACS created with the exploratory factor analysis (EFA) would reveal the factor structure over the teacher candidates that formed the study group. It is necessary to test the sample adequacy to determine scale's conformity to the factor analysis. Kaiser Meyer Olkin (KMO) and Barlett's Sphericity test analyses were carried out to this end. The KMO sample adequacy coefficient which was found to be .89 and Barlett's Sphericity test's $\chi 2$ value which was found to be ($\chi 2$=1000.287, N=56, p=0.00) that the scale is suitable for factor analysis (Buyukozturk, 2011).

3.2.1.2.1. Exploratory Factor Analysis

The EFA results show that SACS has a three-factor structure (Buyukozturk, 2011). Accordingly, the scale has the factors of ease of use, perceived usefulness and usage attitude-intention and is composed of 14 items. Items 1, 2, 3, and 4 in the scale serve to the perceived ease of use. One of the items that serves to this factor is “It is quite easy for me to use

SIDES." Another factor in the scale is the perceived usefulness. Items 5, 6, and 7 are studied under the perceived usefulness factor in the scale. One of the scale items that serves to this factor is "Using SIDES has increased my effectiveness in the lesson." The items that serve to the usage attitude and intention are items 8, 9, 10, 11, 12, 13, and 14; the item "I would like SIDES to be used in the coming terms too" is an example of the items under the before mentioned factor.

SGSS having a 3-factor structure with an eigenvalue higher than 1 explains 88.36% of total variance. The load values of items in the scale vary between .70 and .92. The shared factor variance and the factor load values obtained from the exploratory factor analysis are reported in Table 2.

Table 2. *SACS Exploratory Factor Analysis Results*

Item	**Common Factor Variances (h^2)**	**Extracted Factor Loadings**		
		***UAI**	****PEU**	*****PB**
M2	.93		.93	
M1	.90		.92	
M3	.89		.89	
M4	.89		.84	
M6	.92			.91
M5	.86			.89
M7	.84			.78
M13	.87	.88		
M12	.92	.85		
M14	.86	.83		
M9	.79	.80		
M11	.89	.77		
M8	.84	.74		
M10	.90	.70		
Eigenvalue % (Total=12.35)		**7.53**	**9.17**	**213**
Explained Variance % (Total=88.36)		**1.05**	**65.56**	**15.26**

*Usage Attitude and Intention (UAI), **Perceived Ease of Use (PEU), *** Perceived Usefulness (PU) Value lower than .30 were not shown

3.2.1.3. Reliability

The data obtained from 56 teacher candidates with the SACS trial form in the pilot scheme was applied with validity and reliability studies. Cronbach's Alpha internal consistency coefficients were used to determine the reliability of the scale. The internal consistency coefficient for the three-factor structure of the scale was found for ease of use, perceived usefulness, attitude towards using and behavioral intention to use respectively: .96, .92, and .97. All internal consistency values being above .70 shows that scale's reliability values are high; in other words, it produces consistent data.

3.3. SIDES Usability Scale (SUSS)

3.3.1. Preparing the Items

The literature was reviewed for the SIDES Usability Scale (SUSS) and related sources (Aladwani & Palvia, 2002; Green & Pearson, 2006; Parasuraman, Zeithaml & Malhotra, 2005; Wang, Wang & Shee, 2007; Yang, Cai, Zhou & Zhou, 2005) were utilized and the scale items were created. A scale form with 27 items was obtained.

3.3.1.1. Content Validity

10 field experts were consulted for the item pool in terms of scale's scope validity. Necessary adjustments were made in accordance with the expert opinions and the trial form of IUSS which is composed of 27 items was obtained for the pilot scheme.

3.3.1.2. Construct Validity

Explanatory factor analysis (EFA) was performed to examine the construct validity in the validity studies of IUSS. It was aimed that the IUSS created with the exploratory factor analysis (EFA) would reveal the factor structure over the teacher candidates that formed the study group. Kaiser Meyer Olkin (KMO) and Barlett's Sphericity test analyses were used to determine scale's conformity to the factor analysis and test the sample adequacy. The KMO sample adequacy coefficient which was found to be .89 and Barlett's Sphericity test's $\chi 2$ value which was found to be ($\chi 2$=1092.990, N=56, p=0.00) that the scale is suitable for factor analysis (Buyukozturk, 2011).

3.3.1.2.1. Exploratory Factor Analysis

8 items were excluded from IUSS, which was composed of 27 items in the beginning, and the scale was decreased to 19 items. The EFA results show that IUSS has a three-factor structure (Buyukozturk, 2011). Accordingly, scale's structure includes three factors—usefulness (U), unproblematic access (UA) and face (F)—and is composed of 19 items. Items 1, 6, 7, 8, 10, 11, 12, 13, 14, 15, 16, and 17 serve to the usefulness factor. Another factor in the scale is unproblematic access. Items 2, 3, 4, 9, and 20 are studied under the unproblematic access factor in the scale. Items 26 and 27 serve to the face factor of the scale (Kline, 1998).

IUSS having a 3-factor structure with an eigenvalue higher than 1 explains 74.78% of total variance. The load values of items in the scale vary between .60 and .85. The shared factor variance and the factor load values obtained from the exploratory factor analysis are given in Table 3.

Table 3. *IUSS Exploratory Factor Analysis Results*

Item	**Common Factor Variances (h^2)**	**Extracted Factor Loadings**		
		*U	**UA	***F
U1	.82	.85		
U15	.86	.79		
U14	.81	.78		
U11	.79	.78		
U16	.78	.75		
U17	.52	.75		
U8	.81	.75		

U10	.67	.73			
U13	.71	.70			
U12	.73	.68			
U7	.66	.68			
U6	.72	.64			
U3	.67		.78		
U4	.71		.77		
U2	.61		.73		
U20	.89		.71		
U9	.65		.63		
U27	.86			.85	
U26	.88			.83	
Eigenvalue % (Total=14.19)	**1.02**		**11.25**	**1.92**	
Explained Variance % (Total=88.36)	**10.12**	**5.40**		**59.25**	

*Usefulness (U), ** [Unproblematic] Access (UA), *** Face (F)

3.3.1.3. Reliability

The data obtained from 56 teacher candidates with the IUSS trial form in the pilot scheme was applied with validity and reliability studies. Cronbach's Alpha internal consistency coefficients were used to determine the reliability of the scale. The internal consistency coefficient for the three-factor structure of the scale was found for U, UA, and F respectively: .96, .85, and .94. All internal consistency values being above .70 show that scale's reliability values are high; in other words, it produces consistent data.

3.4. Correlations

The relationship between the general satisfaction of the teacher candidates concerning the SIDES, their usage attitudes and intentions, the perceived ease of use, perceived usefulness, usefulness and face of SIDES, [unproblematic] access to SIDES and SIDES's service quality was investigated with the correlation analysis. The relationship between the variables is given in Table 4.

Table 4. Correlation Results

	*GS	UAI	PEU	PB	U	UA	F	**SQ
*GS	1							
UAI	.496	1						
PEU	.385	.336	1					
PU	.581	.664	.637	1				
U	.640	**.849**	.487	**.859**	1			
UA	.530	.420	.328	.539	.643	1		
F	.412	.579	.462	**.708**	.672	.437	1	
**SQ	.641	.604	.586	**.703**	**.758**	.692	.664	1

*General satisfaction (GS), Usage Attitude and Intention (UAI), Perceived Ease of Use (PEU), Perceived Usefulness (PU), Usefulness (U), [Unproblematic] Access (UA), Face (F), **Service Quality (SQ).

Correlation coefficients being between 0-.30, .30 and .70, and .70 and 1 indicate low-level, mid-level and high-level relationships respectively (Buyukozturk, 2011). As for the correlation results, it can be seen that there are is a high-level relationship between

Usefulness and Perceived usefulness, Usefulness and Usage attitude and intention, Face and Perceived usefulness, Service quality and Perceived usefulness, and Service quality and Usefulness while the correlation between other variables is on a medium level.

4. Discussion

Considering the importance of teaching practice course in teacher education, supporting candidate teachers in during their internship process is emerging as a necessity in higher education institutions. Accordingly, this core course of education faculties needs to be more attention than ever. This issue was also be felt by the Ministry of National Education (MEB) of Turkey, which is called "Evaluating Candidate Teacher" web application has developed and the necessity of evaluating the candidate teachers' performance during the internship training process has been put forward (MEB, 2018a). According to this practice, both the practice teacher and instructors of the course are asked to evaluate the performance of the trainee during the internship on developed system. It is clearly understood that policymakers and administrators trying to surround their internship process via technology. In addition to this, within the scope of the coordination and cooperation between the Ministry of National Education and the Higher Education Council for the training of teachers, the feedback on the implementation of the process in order to carry out the successful implementation of the Teaching Practice and Guidance Practices in the education and training institutions affiliated to the Ministry of National Education is needs to be attention in the design of the process (MEB, 2018b). This policy showed the importance of coordination and cooperation in the process of internship. However, considering the recent policies, it is possible to say technology is still not going beyond to use it, and internship process is not evaluating within the framework of integration of technology. During internship process lack of technology integration may damage candidates' internal beliefs considering lack of interaction between instructor of the course and practice teacher, and technology would only stay as a tool which is not used effective and productive to support candidates' improvement. Well, to overcome this situation the system developed and called SIDES, conducted underTUBITAK-1001 program, to support candidates' attainments into practice, be monitored, be informed about details of schools and tasks, be interacted, be communicated and be assisted as claimed in Dallmer's (2004) study the importance of cooperation, and underlined by YOK (1998c) that feedback is a vital element of the process.

Hence, it is thought that developed facilitates by SIDES and under the teaching practice lesson will support teacher candidates, the practice teacher at the school and the instructor at the university, and developed measurement tools within the framework of the usability of support services which affects candidates' internal beliefs (Flavián, Guinalíu & Gurrea, 2006), acceptance on the use of system which affects beliefs and attitudes to the use of system by candidates (Ertmer et al., 2012; Venkatesh, & Davis, 2000), quality of system (Wixom & Todd, 2005) could shed a light to be enhanced the learning and teaching activities in internship process. Accordingly, it is thought that the developed system and valid and reliable scales may be useful for teachers, instructors, policy-makers, administrators, teacher educators, candidate teachers, and benefit from developed tools to evaluate their any teaching and learning processes which is used technology. Based on the results, users may improve their weakness and save their strength facilities by using these developed scales.

5. Conclusion

The scales developed with validity and reliability studies conducted in the pilot scheme of the SIDES project which is carried out under TUBITAK-1001 program are designed to be

used in the final application. By this means, it should be revealed whether teacher candidates are satisfied with SIDES, accept SIDES, find SIDES as usable while using it; in other words, SIDES's service quality, or SIDES's effectiveness. In addition, these scales serve as an example for researchers who develop similar support systems.

To reveal the effectiveness of the "Internship Monitoring and Support System (SIDES)" which was developed in a project being conducted under TUBITAK-1001 program, "SIDES General Satisfaction Scale (SGSS)", "SIDES Acceptance Scale (SACS)", and "SIDES Usability Scale (SUSS)" were developed in this research. While performing the validity and reliability studies of the scales, the results of construct validity and reliability analyses were also provided.

The content validity studies were conducted with expert opinions to develop "SIDES General Satisfaction Scale (SGSS)", "SIDES Acceptance Scale (SACS)", and "SIDES Usability Scale (SUSS)" for the "Internship Monitoring and Support System (SIDES)". According to the results of the EFA which explored scales' structure, and it can be said that the scales have the construct validity. Cronbach's Alpha internal consistency coefficients obtained from the reliability studies show that the scales are reliable. High scores obtained from the scales show that the situation related to the measured feature is positive.

The correlation results were utilized to reveal to what extent the scales predicted general satisfaction and service quality and the relationship between the variables. The correlation results indicate that there is a high-level relationship between the variables U and PU, U and UAI, F and PU, SQ and PU and SQ and U.

6. Limitations and Recommendations

The scales can be used for coming up with some findings for newly developed web-based monitoring and support systems with considering to determine users' opinions on the usability of the system, and individual acceptance levels, users' general satisfaction. Therefore, the system can be improved to be more effective. These scales can form a basis for the development of more generic scales in future.

Although construct validity, divergent and convergent validities and composed reliability were analyzed via using CFA, the results were not reported because of the same data used for EFA analyzes, which collected from the same participants. Due to this limitation, future studies could focus on testing the results of CFA with new and widen samples. Furthermore, divergent and convergent validities and composed reliability can also be tested. Moreover, future studies may also investigate the effects of developed scales on general satisfaction level of system users based on multiple linear regression. The developed scales may shed a light to administrators, educators, teachers, and candidate teachers in terms of evaluating experiences on system users, and help to rehabilitate and monitor their systems, and support system users' internal beliefs.

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Appendix A. SIDES Overall Satisfaction Scale Items

1. I did not have any difficulties while using the SIDES.
2. I like using the SIDES.
3. I got information about my tasks using SIDES.
4. I managed to easily follow my tasks on the SIDES.
5. Students, lecturers and teachers can communicate easily using SIDES.
6. SIDES calendar add-on can notify me with reminders.

Appendix B. SIDES Acceptance Scale Items

1. It is very easy to learn using SIDES for me.
2. I can easily perform what I want to do with SIDES.
3. I can easily learn the skills necessary to use the SIDES.
4. It is easy to use SIDES
5. Using SIDES has improved my productivity in the course
6. Using SIDES has increased my effectiveness in the course
7. I think it is beneficial to use the SIDES
8. It is a good idea to use the SIDES.
9. Using SIDES makes the internship enjoyable
10. Using SIDES is suitable for internship applications
11. SIDES should be used in internship applications
12. I want SIDES to be used in upcoming semesters.
13. I suggest that SIDES should be used in other departments
14. SIDES is necessary for internship application

Appendix C. SIDES Usability Scale Items

1. SIDES can be used to support internship applications
2. When I login to SIDES runs error-free
3. I did not have any system crashes while using the SIDES.
4. There are not any system freezes when surfing on the SIDES
5. SIDES makes it easy for me to reach information I needed for teaching application
6. SIDES makes easy all tasks which are necessary for the course
7. I can quickly complete a task using SIDES.
8. SIDES is a well-organized system.
9. Using SIDES is not complicated
10. I have enough skills to use SIDES
11. After learning to use a section of SIDES, it is easy to learn other parts.
12. I can fix whenever I make an erroneous on SIDES
13. Completing a task using SIDES was beneficial for me
14. I have easily completed a task using SIDES
15. I have completed all my duties in the context of teaching practice course with SIDES.
16. SIDES facilitated to achieve goals of teaching practice course
17. SIDES links work correctly
18. Fonts used on SIDES are suitable.
19. Colours used on SIDES are suitable.

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DETERMINING REFLECTIVITY LEVELS OF PROSPECTIVE TEACHERS THROUGH BLOGS

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Abstract

In this study, it was aimed to determine the reflective thinking levels of prospective teachers and the change of their reflectivity levels within the teaching practicum process. For this purpose, the blog postings, which written by the prospective teachers at different themes, were analyzed. Within the scope of the study, reflective thinking levels were discussed based on the six different criteria with the following titles: Attending to feeling, sharing personal experience, analysis and meaning-making, depth of reflection, language use and writing quality, use of textual evidence and historical context, and transfer of knowledge. In this study, the document analysis method was used as a data collection technique. The study was carried out with 37 prospective teachers, attending Teaching Practicum in the Department of Computer Education and Instructional Technology (CEIT) of a state university in Ankara, Turkey. Prospective teachers wrote about their teaching experiences throughout teaching practicum on their blogs. Blogs were evaluated with the help of the reflection level rubric, which prepared by the researchers. It was concluded that the lowest reflection level emerged with regard to the use of textual evidence and historical context criteria and that less reflective blogs were, in almost all criteria, with respect to the overall evaluation of the course (Theme-5). In the last section, further results and related recommendations are mentioned.

Keywords: reflective thinking, prospective teachers, teaching practicum, blog

1. Introduction

Reflection refers to taking the experiences, obtained through observations into a conceptual frame. Dewey (1993) points out that reflection ensures critical thinking on the experiences as well as making sense of observations and that learning consists of reflections, which are carried out based on experiences. Dewey (1993: cited in Kozan, 2007) emphasized the impact of reflection on learning and pointed out that reflection is an active and conscious

cognitive process regarding main ideas. Four criteria, determined by Dewey (1993: cited in Kozan, 2007) as regards reflective thinking can be described as follows:

1. Reflective thinking is the process of making meaning that transfers an experience to the learner, which requires a deeper understanding regarding/related to other thoughts and experiences of an individual.
2. Reflective thinking is a systematic, careful and well-disciplined way of thinking that has become established with scientific needs.
3. Reflective thinking requires keeping in touch with other individuals in a community.
4. Reflective thinking requires attitudes that appreciate personal and intellectual growth of the others and the individual itself.

Creating learning environments with real life and/or business life, many disciplines prepare individuals for future, the society they live in and the business world today. The students are supposed to reflect the academic information learned into practice and thus reflective thinking skills come to the forefront (Rivers, Richardson & Price, 2014). Since reflective thinking skills include some kind of self-assessment skill, which require an individual to make planning so that the individual could determine and develop his weak and strong aspects in thinking and learning processes in addition to his/her awareness regarding such processes, reflective thinking is of capital importance in terms of the development of anybody, having specialized in a certain field. Furthermore, it is expected that students are well-equipped with skills such as problem-solving, making investigation, questioning, thinking, being aware of what and how they learn in the 21st century. These requirements also bring the importance of reflective thinking into question.

Reflective learning and thus reflective teaching are of capital importance in training individuals, who have reflective thinking skills and that can solve the problems, encountered thereof. Reflective learning is described as the assessment of performed applications, taking lessons from teaching experiences, problem-solving and making professional life meaningful by making use of the knowledge and experiences, acquired for future education (Gür, 2008). Reflective teaching is identified as the creative problem-solving activities and an approach of questioning, which features the feelings of others and that cares about constructivism in teaching (Yorulmaz, 2006). Reflective teaching is based on research and that starts with systematical questioning of experiences. And thus, it continues with active thinking of teachers as regards this process in consideration of the environment and working conditions in learning-teaching process and taking essential decisions therewith (Pollard, et al., 2008). The teacher has a great role and responsibility to apply reflective thinking and bring in these skills. That the teachers provide extensive, accurate, proper and on time feedbacks, especially in written, has a positive impact on students' reflection capacity (Quiton & Smalbone, 2010). The teachers with reflective teaching skills, are those who keep their practices under constant surveillance, that are foresighted, that consider themselves responsible for the personal, educational and emotional needs of the students, that are sensitive to the problems, experienced in this respect and that try to improve themselves and their professional knowledge and skills all the time (Norton, 1994; Ünver, 2003). Reflective teachers evaluate their practices, which are carried out based on a schedule, in line with the data gathered; performs reflections and inquiries regarding their studies and enhances such practices. It is essential that even the teachers, who are able to arrange learning environments likely to gain students with reflective thinking skills, should also have these sills.

Reflective teachers are those, who can analyze teaching condition, that can consider the situation critically and that can ensure their professional development all the time thereby evaluating teaching-learning conditions. In view of Pollard, Anderson, Maddock, Swaffield,

Warin, & Warwick (2008) several basic characteristics of reflective teaching to improve reflective thinking skills of teachers are outlined as follows:

- It requires drawing attention to the objective and results as well as technical sufficiency of the application, it takes shape in a circular process and requires teachers to monitor, evaluate and correct their own practices all the time.
- It requires being sufficient in research methods based on evidence in order to support high standards and continuous development in teaching.
- It requires open-mindedness, responsibility and sincerity.
- It increases continuous learning, communication and cooperation with colleagues in order to ensure professional development.
- It requires the teachers to organize learning and teaching activities in a creative manner.

1.1. Evaluating the reflective thinking process

It is seen that the reflective thinking process is evaluated in various forms in various studies. Choy and Oo (2012) asserted reflective thinking is a precursor to stimulate critical thinking and they identified three categories of reflection: introductory, intermediate and advanced level. These levels indicate how deeply a teacher's reflection of his/her teaching practices. They found that teachers who participated in the research did not deeply reflect the teaching process. The teachers participated in the study were more interested in how they were assessed by their students and superiors, so they were not willing to reflect on their own teaching processes. Jay and Johnson (2002) examined the reflective thinking in three dimensions: descriptive reflection is to describe the matter of reflection, comparative reflection is to reframe the matter for reflection in the light of alternative views, others' perspectives, research, etc., and critical reflection is having considered the implications of the matter, establish a renewed perspective. These dimensions have also shown the complexity of reflective thinking process. For assessing the reflection process of written assignments, Kember, McKay, Sinclair and Wong (2008) stated a four-category scheme: habitual action/non-reflection, understanding, reflection, and critical reflection. The reflection level scheme offers not a precise measurement but guidance in making judgments. Andersen and Matkins (2011) used the same reflection scheme and assessed the quality of prospective teachers' reflections. They also examined the blog usage on prospective teacher's reflective practice. The study revealed lower reflection levels of prospective teachers during observations and higher reflection levels when a prospective teacher analyzing their own performances. Researchers suggested more pedagogical guidance for teaching practicum should be provided by the cooperated teacher.

1.2. Reflective practice in prospective teacher education

School Experience and Teaching Practicum ensure that the prospective teacher, who observe the class environment and teaching activities, think as a teacher and reflect their ideas thanks to reflective thinking. Reflections are of capital importance in that they transfer their experiences and what they experience in the process. Thanks to such reflections, prospective teachers will have the opportunity to transfer their own thoughts and knowledge and combine theory and practice (Dyment & O'Connell, 2011). Reflective thinking skill has an important place in teacher training in that it ensures prospective teachers learn to "think and act as a teacher" with different ways and reflect such. While the prospective teachers acquire reflective thinking skills in this process on the one side, they also experience how learning environments that gain these skills to their prospective students on the other. Several activities can be used in order to make prospective teachers gain reflective thinking skills.

Keeping diary or blogs, taking video records and the portfolios can be given as an example of these activities.

Web 2.0 instruments ensure individuals to transfer their knowledge and thoughts and share them with others. With the communication and cooperation performed in social networks, self-expression and reflective thinking skills of prospective teachers are also improved (Reich, Levinson, & Johnston, 2011). In his study, Wright (2010) reveals that communication at certain intervals in social networks, sharing feelings and reflections reduce isolation feeling and affect reflective thinking skills in a positive manner. Using blogs in teacher training, it is possible to create virtual communities in which prospective teachers get feedback. That these blogs are open to others for reading promotes prospective teachers in terms of writing more effectively (Hernández–Ramos, 2004). Ray and Coulter (2008) have stated that blogs are an authentic example of utilization of technology by the teachers to communicate with each other and share their experiences. Studies indicate that the use of blogs in teaching practice support reflective thinking (Deng & Yuen, 2011; Jones & Ryan, 2014). The blogs help prospective teachers to ask questions regarding learning process, develop hypothesis (Lee, 2008), think in detail about the problems, encountered in classroom environment (Ekiz, 2006) and express themselves as a teacher. Writing an efficient reflective blog is not only related to the fact that a prospective teacher tells what is happening in the learning environment but also to the perspective in the teacher's expression as well as making self-assessment with respect to the events (Andersen & Matkins, 2011; Schön, 1987).

Blogs recover learning process from time and space limitations, and learning continues in any environment where it is possible to access internet. The blogs sustain learning activities outside the classroom in this context. Studies performed in this respect reveal that students also take on the responsibility of learning while using the blogs, express their opinions more conveniently, express themselves better in the blogs, and they are able to improve their learning skills in time thereby performing an active interaction with the onlookers thanks to the comments made for what they write (Jacklinga, Natolia, Siddiquea, & Sciullia, 2014; Kang, Bonk, & Kim, 2011; Meredith, 2010; Yeo & Lee, 2014). It is further possible to develop reflective thinking skills by creating blogs in which students can reflect their own thoughts, performances and roles about a subject learnt in classroom environment or a discussion participated in that respect. Any student can be promoted to realize reflective thinking process through the assessment of their own development processes by every student about the activities, carried out in their own blogs. Taking part actively in learning environments, students obtain new information using their own experiences. Thus, it is ensured that students can make use of what they have learned in new conditions. Such recent knowledge is shared through interactions in the later periods, and reflective thinking skills start to improve once recent interactions are performed. With reflective thinking, which is one of the high-level of thinking skills, learners will have the skills to use the information, solve the problems encountered in this respect and learn by apprehension rather than learning by heart. Teachers and the trainings of the prospective teachers are very important while preparing learning environments to bring students in reflective thinking skills. A teacher with reflective thinking skill can determine the problems likely to arise in learning-teaching process and produce solutions in order to overcome such problems (Shoffner, 2006).

Arrangement of learning environments in a way to introduce prospective teachers with reflective thinking skills in their training process will result in the fact that these teachers will also organize these kinds of learning environments when they, themselves, become a teacher. Keeping diaries, video records, student improvement files and reflective blogs are the most commonly used practices to bring in reflective thinking skills. Reflective blogs in particular ensure improvement of thinking skills and active participation in the process just as they help

students see their own development by monitoring and recording improvement in learning. Preparing activities and arranging learning environments to bring in reflective thinking skills especially in the courses regarding Teaching Practicum will also contribute to the professional competences of prospective teachers just as they are likely to help prospective teachers use their knowledge and skills during practice and solve the problems, encountered in this respect.

When it is considered that Teaching Practicum is a process of gaining and sharing experience, it is concluded based on the opinions of prospective teachers that blogs are a proper instrument for this process. Deng and Yuen (2011) state that prospective teachers making use of blogs express that reading the blogs of their friends make positive contributions to their learning and that they receive emotional support from their friends. Killeavy and Moloney (2010) revealed that recently appointed teachers developed a reflective practice on teaching experiences and that an application community was created in which these teachers receive support from their colleagues thanks to the blogs.

It is essential that first, the teachers should have these qualifications in order that the type of people needed by the societies of the present day could be trained. And the introduction of these qualifications depends on the training received by the teachers before the service. Pre-service training which is the first stage of teacher training, has two components. First of these is the theoretical information required by teaching profession; and the second one is application lessons in which students are enabled to implement theoretical courses learnt in universities. This process, executed in practice schools consists of School Experience and Teaching Practicum. School Experience is a course based on observations and interviews, designed in an attempt to introduce prospective teachers with school environment, students, etc. in general. As for Teacher Training, prospective teachers find the opportunity to implement their skills and professional knowledge, learnt during their training. In this process, students have the opportunity to develop their professional competences, consolidate their knowledge about their fields, evaluate students and plan teaching in the practice schools they are sent to.

Within the context of this study, it is thought that blog application performed in teaching practicum contribute to prospective teachers in reflection of their experiences as well as their learning together by interacting with each other within the process.

1.3. Objective of the Study

In this study, it is aimed to determine the reflective thinking levels of prospective teachers and the change of such levels within the process thereby analyzing the blogs written by the prospective teachers in different themes during a semester. In line with this objective, it was focused on the aspects and depth of reflective thinking, and several suggestions were produced on the use of reflective blogs in teaching practicum. Within the scope of the study, level of reflective thinking is discussed in six different aspects under the following titles; i.e., attending to feeling, sharing personal experience, analysis and meaning-making, depth of reflection, language use and writing quality, use of textual evidence and historical context, and transfer of knowledge.

2. Method

The study was conducted with a case study and the document analysis method was used as data collection techniques. In the case study, one or more than one event or case included in a limited environment, are analyzed, a great variety of data collection techniques are used (Creswell, 2007). The document analysis is one of these techniques. In this study, blog

postings of the prospective teachers were analyzed by the document analysis method and they were evaluated in terms of their reflective thinking levels.

2.1. Participants

The study was carried out with 37 prospective teachers attending the Teaching Practicum in the CEIT department of a state university in Turkey. All of the prospective teachers were at the 4th-grade level. They attended classes for 6 hours in the middle schools and high schools within the scope of the course and found the opportunity to make observation and practice. In the faculty, they had 2-hours theoretical lessons and they discussed their observations and practices with the lecturer and each other. They used face to face and blogs for discussion medium.

2.2. Instrumentation

Reflection Level Rubric: In this study, in order to evaluate the reflective thinking levels of prospective teachers, Reflection Level Rubric (in Appendix) was created. Several rubrics, which were available in the literature and that focus on reflective thinking skills, were reviewed during the creation of the rubric (Burton, 1999; Sparacinoo, 2006; Wetmore, Boyd, Bowen & Pattillo, 2010; Wald, Borkan, Taylor, Anthony & Reis, 2012). Then, six different criteria in compliance with the context of the research were gathered and were edited for this study. The criteria were as follows; attending to feeling; sharing personal experience, analysis and meaning-making, depth of reflection, language use and writing quality, use of textual evidence and historical context and transfer of knowledge. In order to determine the reflective thinking level, each of the criteria was scored between 0 and 3 using a 4-stage grading key of Kember, McKay, Sinclair, and Wong (2008). According to the grading key, the level of reflective thinking was graded in four ways, being habitual action (0), understanding (1), reflection (2) and critical reflection (3).

Habitual action refers to the level in which the individual only writes routine events without reflecting his/her feelings and thoughts (Kember, McKay, Sinclair, & Wong, 2008). In *understanding* level, the individual creates his/her own meaning about the issue. The understanding level is related to deep learning whereas habitual action points out a superficial learning approach (Kember, McKay, Sinclair, & Wong, 2008). While the individual associates the matter with personal experiences in *reflection* level, the individual offers synthesis and a new perspective by reviewing prior learning and the previous results regarding the issue in *critical reflection* level, which is the highest level of reflection (Kember, McKay, Sinclair, & Wong, 2008).

2.3. The Research Process

During a term, the prospective teachers made observations at the public schools and performed several practices in which they can experience their teaching skills. At the same time, they took weekly theoretical lessons for 2 hours in the faculty and they were informed about reflective thinking. During the theoretical lessons, prospective teachers were asked to create a blog, called "Teaching Practicum Blog" and they asked to write their own reflections. The blog topics were started in compliance with the themes, determined by the researchers. Prospective teachers had written blogs about the following themes:

Theme-1: How to be a good teacher?

Theme-2: Evaluate the support which you took during the process of Teaching Practicum.

Theme-3: What difficulties, you have been experienced during the process of Teaching Practicum?

Theme-4: What did you learn in Teaching Practicum?

Theme-5: Evaluate the process of Teaching Practicum in general.

The themes were delivered to the participants during the term respectively. Prospective teachers were asked to write about their experiences dealing with these specified themes in the aspects of communication types, classroom management, time management, and assessment practices, which they observed in the school environment. Prospective teachers wrote their blogs attending teaching practicum for a period of 15-weeks. At the end of this period, their blog writings were evaluated through the rubric.

2.4. Data Analysis

Blog posts of prospective teachers were examined through the content analysis method. The meanings in the blog writings were tried to reveal and they were matched with the levels of the rubric (Yıldırım & Şimşek, 2016). During the analysis, two of the researchers evaluated all of the blog posts and they rated blogs in accordance with the reflection levels of the rubric. At the end of the evaluation, the correlation between two raters was calculated as .83 level. This score shows the harmony between raters.

3. Findings

3.1. Reflective thinking level of participants' blog postings

Blog postings about the specified themes were scored in accordance with the rubric criteria. Each of the criteria was scored between 0 and 3 point in terms of reflective thinking level. Accordingly, blog postings have scored between 0 and 18 points in total from 6 criteria. Table 1 shows the frequency of blog postings in terms of themes.

Table 1. *Frequency of blog postings according to reflection level*

	Non-reflection	Understanding	Reflection	Critical reflection	Total number of Postings	Mean Reflection level	Reflection level name
Theme1	0	13	16	8	37	1,86	Reflection
Theme2	0	6	15	14	35	2,23	Reflection
Theme3	0	0	16	21	37	2,57	Critical reflection
Theme4	0	0	15	16	31	2,52	Critical reflection
Theme5	0	8	13	8	29	2	Reflection

As shown in Table-1, blog postings written in themes are at least *understanding* level. While the average reflectivity score of each theme is calculated, the number of postings at the relevant level is multiplied by the reflectivity level coefficient in the rubric, and the total obtained is divided by the total posting. When the calculated mean reflectivity scores are examined, it is seen that theme 1, theme 2 and theme 5 are in *reflection* level, and theme 3 and theme 4 are in *critical reflection* level. At the last theme, which they are expected to evaluate the process in general; reflectivity level is decreased as well as participation. Below, there are examples from blog postings of three reflection levels:

Theme-1: Reflection Level

"the teacher should measure the availability of each student when evaluating and, if necessary, students should take intermediate evaluations such as oral and quiz before the exam. In this respect, the attention and interest of the students is increasing more and more

towards the class. I have encountered many of these examples in my internship school and observed the reactions and behaviors of the students." (PT1 (PT: Prospective Teacher))

Theme-2: Understanding Level

"while observing the guide teacher, we learned how to react to the students , how to attract attention to subject if the distraction occurred during the course and we learned the strategies of teaching. In addition, the scenario solutions we have made within the Teaching Practicum course helped us during observations. We took decisions by putting ourselves in the place of the teachers in the scenario. I can say that many of these scenarios contribute a lot to us" (PT2)

Theme-4: Critical Reflection Level

"I have been hanging out many times and things I did not know what to do. I tried to find answers by gaining experience at the same time, as far as I could see from the guidance teacher. For example, I realized that it was wrong for students to help them while they were working in the lab. Students need to learn from the effort, rather than from the easy way. I learned that in such situations I had to intervene less." (PT3)

Theme-4: Critical Reflection Level

"in Teaching Practicum, I have learned many things from the children as much as I have learned from the guide teacher. As I recognized the children, I had an idea of how they learned as I learned their needs, their knowledge, their reactions. I discovered that the method of addressing learners and determine the teaching method according to student's need is important. For example, in the course of ICT, students were watching the teacher's way of computer use very carefully. For this reason, I can say that the demonstration method can be more productive in these students." (PT4)

Theme-4: Reflection Level

"In the course of Information Technologies, it is necessary to adjust the teaching time so as to teach the subject and then to make the activity. It is necessary to have an effective course. Our guide teacher was quite successful in this regard. It is also important not to expose students to too much narration, and to give them time to practice. The guide teacher was often good at scheduling." (PT5)

Theme-5: Understanding Level

"We can say that we found the opportunity to practice in real life with the teaching practicum lesson. In the internship, I had the opportunity to practice many things that I learned theoretically in the school and see my shortcomings" (PT6)

In order to analyse reflective thinking levels of the written blogs, average values were calculated by scoring the criteria in the rubric individually for five themes. Average points of each theme based on the criteria are included in Table 2.

Table 2. *Each theme's point averages of reflective thinking level based on the criteria*

Criteria	Theme 1	Theme 2	Theme 3	Theme 4	Theme 5
Attending to feeling; sharing personal experience	1,6	2,5	2,7	2,6	2,1
Analysis and meaning making	1,8	1,9	2,1	2,5	2,5
Depth of reflection	1,7	2	2,2	2,5	2,3
Language use and writing quality	1,9	2,3	2,3	3	2,9
Use of textual evidence and historical context	1,3	2,1	2,2	2	1,9
Transfer of knowledge	1,8	2	2,1	2,6	2,5

Attending to feeling; sharing a personal experience: In this sub-dimension, the participants transfer their feelings and personal experiences about the issue and associate these experiences with what they learnt. While the blogs written under Theme 1 are at the level of reflection in this sub-dimension, they have reached up to the level of critical reflection under Theme 2, Theme 3 and Theme 4. They fell back to the level of reflection again in Theme 5. **Analysis and meaning-making** aspect refer to analysis of the issue in an extensive manner and meaning-making. In this sub-dimension, blog postings reached up to the level of critical reflection in theme 4 and theme 5 whereas such were at the level of reflection in the first three themes. **Depth of reflection** indicates that the posts were understood deeply and that a conscious level of reflection is available. While the blogs written under Theme 1, Theme 2 and Theme 3 are at the level of reflection in this sub-dimension, they have reached up to the level of critical reflection under and Theme 4 and fell back to the level of reflection again in Theme 5. **Language use and writing quality** refer to compliance with spelling rules and the use of a strong language to express thoughts and point of view. While the blogs written in this sub-dimension are at the level of reflection in this sub-dimension, they have reached up to the level of critical reflection under Theme 4 and Theme 5. **Use of textual evidence and historical context** refers to the use of proper and persuasive samples in order to support what is written and make meaningful connections between them. While the blogs written in this sub-dimension are at the level of understanding in Theme 1, they have reached up to the level of reflection under Theme 2, Theme 3 and Theme 4. **Transfer of knowledge** aspect refers to the fact that learner understood the subject completely and that they use in the blogs what they have learnt in the classes. While the blogs written in this sub-dimension are at the level of understanding under the first three themes, they have approached the level of critical reflection under Theme 4 and Theme 5.

4. Conclusion, Discussion and Recommendations

Reflective thinking levels of blog posts showed an increase from Theme 1 through Theme 4 in the following sub-dimensions; "analysis and meaning making", "depth of reflection", "language use and writing quality" and "transfer of knowledge" however they decreased a little in Theme 5. Prospective teachers wrote more reflective articles from theme 1 through Theme 4 in terms of these criteria. As for theme 5, which is the final theme of the term, prospective teachers mainly repeated what they had written in the first four themes or made a brief outline of the semester. In this respect, it can be said that reflectivity levels of the evaluation of Teaching Practicum process with respect to the final theme have decreased. Prospective teachers wrote blogs, which are rather superficial and that do not have enough power of reflection regarding the overall evaluation of the process of teaching practicum. Hall (2017), in his work with teachers, has shown that the use of directions about how to write increases the reflectivity of blogging. Leijen et.al. (2014) also stated the guidance increases the quality of reflections during practicum. Foong, Nor and Nolan (2018) found that

the facilitation styles of the mentor and supervisor, such as collaborator or coach, influence the reflective thinking level and outcomes as demonstrated by the prospective teachers during the practicum dialogue. The weakness of direction in the final theme of this study may have led prospective teachers to disperse from the topic and hence to less reflective writing. On the other hand, Lee (2005) reported some other factors that affected development of student teachers' reflective thinking. Personal background, content of the reflection and placement context are among these factors. These factors can also influence the level of reflectivity.

As for the following sub-dimensions: "Attending to feeling; sharing personal experience" and "use of textual evidence and historical context", whereas the reflectivity level increased from Theme 1 until Theme 3, it decreased in Theme 4 and Theme 5. The reason for such a decrease can be considered to stem from the contents of the themes. While the first three themes focus on a certain subject, Theme 4 and Theme 5 require prospective teachers to handle the process of teaching practicum from a wide perspective. In the study conducted by Körkkö, Kyrö-Ämmälä and Turunen (2016), as the practicum sessions are going ahead towards more contextual and general, it was observed that student teachers' reflections were broadened and to be more critical. In this study, on the other hand, it is likely that making the overall evaluation of the Teaching Practicum process may have led the prospective teachers to stray off from the issue. They need to learn to make a more critical assessment of their personal experiences. It is also important for them to be able to establish links between the pedagogical lessons they have received in the past years and the situations they met in Teaching Practicum.

Based on "Use of textual evidence and historical context" criteria, teachers wrote less reflective in almost all themes. It may be set forth that the reasons regarding this dimension should be studied with new research. One of the reasons for this may be that prospective teachers failed to include enough evidential sampling for their blogs. It seems difficult for prospective teachers to present evidence-based examples to support their writing as long as they do not read enough scientific publications that examine classroom management, assessment, teaching methods and their impact on student achievement in schools. Contrary to Toom, Husu, and Patrikainen (2015), this result shows that prospective teachers have shortcomings in the connection between theory and practice. It may be useful to examine case studies and related scientific studies on the situations they can meet in their teaching career during the teacher training program. Thus as supported by the results of this study that, the teacher candidates addressed in this study are not sufficient in terms of mentioned criterion and that they have need to be supported during their program.

In this study reflective blogs of prospective teachers, who attend the course of Teaching Practicum for one semester and that write regular blogs, were analyzed. When reflective thinking levels of blog postings were reviewed, it is seen that most of them were written at the level of "reflection". Blogs written at the level of "critical reflection" also have a considerable amount. Blogs written in accordance with the themes, which were provided within the term every other month, consist of the letters in which participants discuss their teaching experiences in terms of communication types, classroom management, and time management, process of assessment and evaluation and professional development. It can be said that prospective teachers revealed more reflective products in comparison to their overall assessments in the blogs, written for more specific issues. This conclusion can be an indicator of there is need for the prospective teachers' more guidance during writing. It is clear that prospective teachers need to look at events from a broad perspective and write more critically. It is thought that it would be beneficial to improve their critical and reflective writing practices during teacher education, or include lessons to teacher training program for improving writing skills. Furthermore, this study, which was performed with prospective

teachers, may also be conducted with in-service teachers who had started their profession, and it may be investigated to what extent the theoretical information, learnt in the universities, and are reflected in their professional lives and classroom procedures.

5. Implications

In this study, using the blogs, prospective teachers were given the opportunity to reflect on their experiences. In teacher practicum, the use of digital media supports reflective thinking (Cook-Sather, 2017), also providing them with a discussion and learning environment (Osmanoğlu, 2016). In this way, we can say that the use of digital media as supportive in teacher education has helped prospective teachers to link theory and practice. Prospective teachers were encouraged to reflect on their experiences in various aspects of their teaching experience. In this study, the themes with more direction, prospective teachers wrote more reflective. This revealed that the guidance could be the critical factor that accelerated the reflective thinking in the teaching practicum. As suggested by Juklova (2015), more contact between the involved individuals and systematic sharing of knowledge contribute to the mutual improvement of stakeholders in teacher training. The sharing of knowledge and experience could be more efficient with the participation of guidance teachers and faculty members in the sharing of prospective teachers' blogs.

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APPENDIX: Reflection Level Rubric

Grade	**0**	**1**	**2**	**3**
Criteria	**Habitual Non-reflection**	**Understanding**	**Reflection**	**Critical reflection**
Attending to feeling; sharing personal experience	Blog has no reference to personal experience	Blog conveys a single personal feelings about experiences	Blog conveys some single personal feelings about experiences but doesn't relate to personal learning	Blog always conveys personal feelings as the student reflects relates them to future personal learning
Analysis and meaning making	No analysis or meaning making	Little or unclear analysis or meaning making	Some analysis or meaning making	Comprehensive analysis or meaning making
Depth of reflection	Demonstrate little or no understanding of the writing prompt and subject matter. This reflection needs revision.	Demonstrate a basic understanding of the writing prompt and the subject matter.	Demonstrate a thoughtful understanding of the writing prompt and the subject matter.	Demonstrate a conscious and thorough understanding of the writing prompt and the subject matter. This reflection can be used as an example for other students
Language use and writing quality	Considerable difficulty expressing ideas or descriptions clearly. Many grammatical, syntactical, and spelling errors	Writing style conveys meaning adequately. Some grammar, syntax and spelling errors	Good writing style with solid ability to convey meaning. Very good grammar, syntax, spelling, etc.	Strong writing style with clear ability to express thoughts and point of view. Excellent grammar, syntax, spelling, etc.
Use of textual evidence and historical context	No examples from the text are used and claims made in your own writing are unsupported and irrelevant to the topic at hand.	Use examples from the text to support most claims in your writing with some connections made between texts.	Use relevant examples from the texts studied to support claims in your own writing, making applicable connections between texts.	Use specific and Convincing examples from the texts studied to support claims in your own writing, making insightful and applicable connections between texts.
Transfer of knowledge	The responses don't demonstrate that the author fully understands and has applied concepts learned in the course	The responses demonstrate that the author, to a certain extent, understands and has applied concepts learned in the course	The responses demonstrate that the author, for the most part, understands and has applied concepts learned in the course	The responses demonstrate that the author fully understands and has applied concepts learned in the course

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PRE-SERVICE ELEMENTARY MATHEMATICS TEACHERS' VIEWS ON GEOMETRIC CONSTRUCTIONS: BUILDING ON PAPER OR INTERACTIVE WHITEBOARD?[1]

Research Article

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[1] This study was presented as a verbal presentation at the 1st International Congress on Social Sciences Humanities and Education held in İstanbul, Turkey on 22-32 December, 2017.

PRE-SERVICE ELEMENTARY MATHEMATICS TEACHERS' VIEWS ON GEOMETRIC CONSTRUCTIONS: BUILDING ON PAPER OR INTERACTIVE WHITEBOARD?[2]

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Abstract

This study examined pre-service teachers' views and experiences of building geometric constructions on paper and with the interactive whiteboard. The study group consisted of 26 pre-service elementary teachers in a state university in the Black Sea region of Turkey who took the Geometry Teaching course. The data were obtained from an opinion form consisting of open-ended questions and field notes. Findings revealed that almost all of the teachers had no experience with geometric constructions in their previous education and the majority of pre-service teachers' opinions about geometric construction activities are positive. They experienced more problems when building geometric constructions on the interactive whiteboard so their opinions about building geometric constructions on paper are more positive than building on the interactive whiteboard. Moreover, it was determined that pre-service teachers' views imply that building geometric constructions on the interactive whiteboard makes sense in the affective learning domain, whereas building on paper contributes more to the cognitive learning domain.

Keywords: geometric construction, compass and straightedge, interactive whiteboard

1. Introduction

The basis of the Euclidean geometry is constructions made by using the compass[3]-straightedge[4] that Euclid included in the Book of Elements about 2300 years ago (Martin, 2012). The constructions are at the center of the methodology of geometry (Kellison, Bickford & Constable, 2019) and they can also be called compass and straightedge constructions (Erduran & Yeşildere, 2010; Öçal & Şimşek, 2017), basic geometric constructions (Karakuş, 2014) or Euclid constructions. Schreck (2019) stated that in the development of geometry these constructions which were made with only straightedge and compass play a fundamental role. Because of not measuring angles and lengths while drawing geometric figures, construction has a specific meaning (Hartshorne, 2000). Because some geometric concepts are abstract for students, teaching geometric constructions well and linking them to physical constructions makes concepts more concrete in students' minds (Chikwere & Ayama, 2016). Nowadays, although different constructions can be made with

[2] This study was presented as a verbal presentation at the 1st International Congress on Social Sciences Humanities and Education held in İstanbul, Turkey on 22-32 December, 2017.

[3] This can be used to draw circles or arcs. The radius can be fixed by placing the pin at one special point and at another special point.

[4] This is a ruler without markings on it. It can be used to draw straight lines. It cannot be used for measuring.

various tools such as computer software, protractor, etc., constructions made with a compass and a straightedge are important because they force comprehension of the geometric constructions in the mind (Sezen, 2007). Geometric constructions also require the use of mathematical skills, because the uncertainty of how to start a drawing creates a problem situation (Erduran & Yeşildere, 2010). Moreover, as students draw geometric constructions, they gain crucial cognitive experience because they use the concepts and features contained in that construction and benefit from the relationships between them (Baki, 2018).

Duval (1998) suggested that geometrical reasoning involves three kinds of cognitive processes, including geometric construction, and illustrated the connections between them by using different kinds of arrows as below:

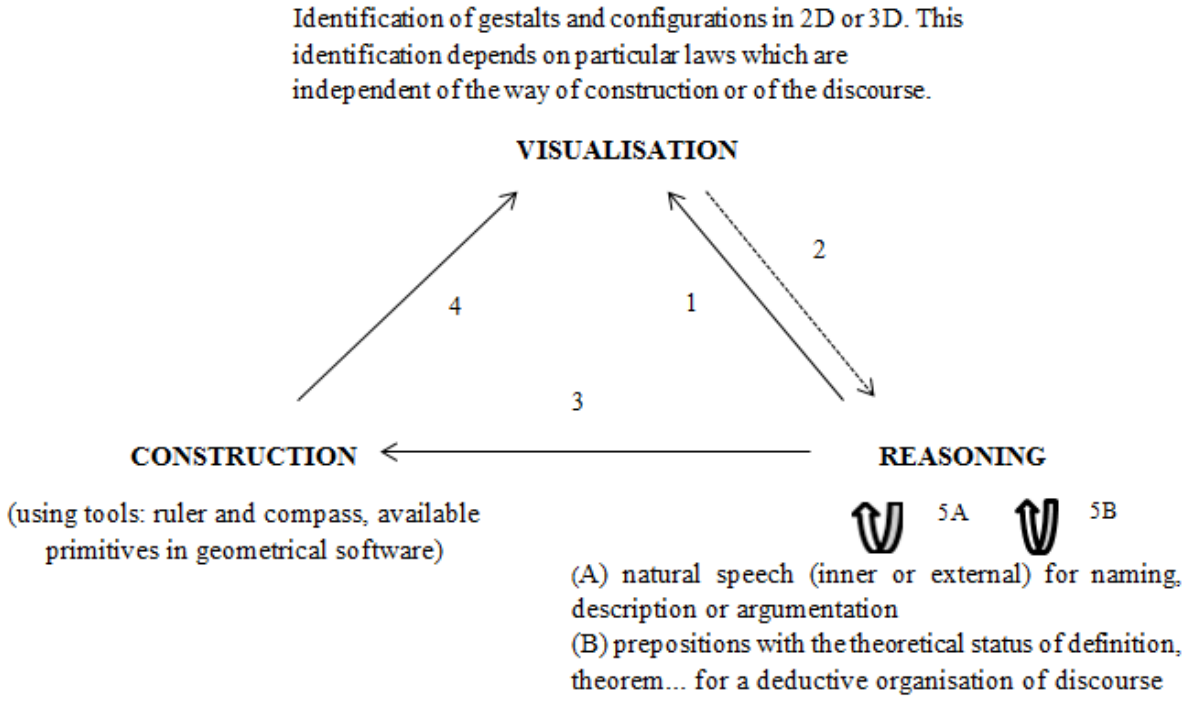

Figure 1. The underlying cognitive interactions involved in the geometrical activity (Duval,1998)

Arrows used in Figure 1 indicate that some kind of cognitive process supports another. Since visualization does not always help reasoning, Duval dashed arrow 2. On the other hand, arrows 5A and 5B show that reasoning can develop independently of the construction or visualization process. Duval (1998, pp.38) stated that "these three kinds of cognitive processes are closely connected and their synergy is cognitively necessary for proficiency in geometry". One of these processes, geometric construction, is important in helping to understand the geometry in a meaningful way (Martin, 2012) and analyzing the properties of the constructed structure (Cherowitzo, 2006). Although there are many studies on visualization and reasoning in these three processes, there are a limited number of studies about construction. Erduran and Yeşildere (2010) stated that although the geometric construction activities are included in the mathematics curriculum from primary school to high school in Turkey, major problems are experienced in the practical dimension of this process. Güven (2006) noted that many teachers manipulate the subject of geometric drawings because visualization and reasoning are so dominant in teaching but this situation causes one of the important building blocks of geometric thinking processes to be missed. In this context, Karakuş (2014) determined the views of pre-service elementary school

mathematics teachers about geometric construction activities. The results of this study show that prospective teachers are not very likely to encounter such building activities in their educational backgrounds. He also pointed out that pre-service teachers' thoughts on geometric construction activities were positive and that these activities helped students learn better, but they had difficulty in using the compass and the straightedge when deciding on the construction stages. Gür and Kobak-Demir (2017) examined the effect of basic geometric drawings on pre-service teachers' geometric thinking levels and attitudes towards mathematics. At the end of their study, they stated that constructing basic geometric drawings with ruler and compass improved prospective teachers' geometric thinking levels and attitudes towards mathematics.

With the recent developments in technology, computers, projection devices, interactive whiteboards and tablet computers have started to be used inevitably in the learning-teaching process (Dağhan, Kibar, Akkoyunlu & Atanur-Baskan, 2015). Interactive boards are one of the teaching tools that are widely used in the learning-teaching process (Yanpar Yelken, 2011). Turkey planned to equip all classrooms with interactive boards with the FATİH project (Movement to Enhance Opportunities and Improve Technology) whose goal is to adopt information technology-based education at preschool, primary and secondary education level since November 2010 (MEB, 2011). These interactive boards are equipped with Starboard Software, which provides a variety of tools for teachers and students to use the board efficiently. Some classroom accessories are provided as default functions Menu>Tools>Accessories. Using these tools, geometric drawings can be made on the interactive whiteboard.

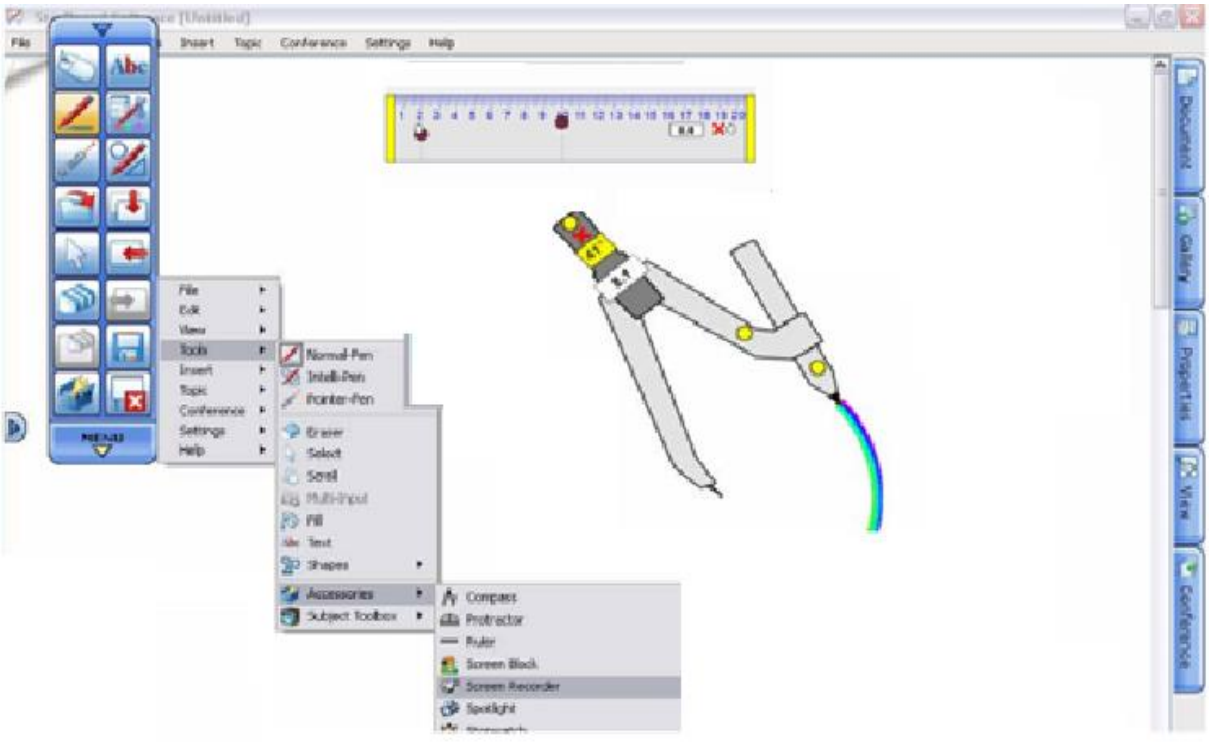

Figure 2. Accessories menu on the interactive whiteboard

The effective use of intelligent whiteboards by teachers in the learning environment will undoubtedly positively contribute to the learning-teaching process. Studies on the use of interactive whiteboards in learning-teaching environments show that, when used together

with materials and activities appropriate to the goals contained in the curriculum, the interactive whiteboard supports learning-teaching, increases student motivation and enables more effective and efficient use of time (Glover, Miller, Averis & Door, 2004; Lewin, Somekh & Steadman, 2008; Smith, Hardman & Higgins, 2006; Smith, Higgins, Wall & Miller, 2005). It is important that prospective teachers, who will be the teachers of the future, are trained in the use of these technologies.

This study focuses on the pre-service teachers' views and experiences of building geometric constructions on paper and with the interactive whiteboard. In this context, the aim is to determine how the pre-service elementary mathematics teachers' opinions about geometric construction activities change according to the tool (concrete material or interactive whiteboard) they use. Within this scope, answers to the following questions were sought:

1) What are the past experiences of pre-service teachers about geometric construction activities?
2) What are the opinions of the pre-service teachers regarding geometric construction activities on paper and with interactive boards?
3) What are the problems faced by pre-service teachers in the process of completing geometric construction activities on paper and with interactive whiteboard?

2. Method

In this study, which aimed to determine the views of pre-service elementary mathematics teachers about geometric constructions, the case study which is one of the qualitative research designs was used. The reason for the use of the case study method is that it gives the researcher the opportunity to describe in detail the particular cases studied by focusing on a very specific topic or situation and to explain the causal relationship between the variables (Patton, 2005; Yin, 2003).

2.1. Study Group

The study group consisted of 26 pre-service elementary teachers in a state university in the Black Sea region of Turkey who took the Geometry Teaching course in the last semester. Participants were purposely selected via criterion sampling. The criterion was taking the Geometry Teaching course.

2.2. Course Content and Process

A part of this elective course included the following basic constructions: congruent segment, segment bisector, congruent angle, angle bisector, a line perpendicular to a given line through a point not on the line, a line perpendicular to a given line through a point on the line, and a line parallel to a given line through a point not on the line. Then activities about construction triangles (Angle-Side-Angle (ASA), Side-Angle-Side (SAS; Figure 3), Side-Side-Side (SSS), Side-Side-Angle (SSA) and Angle-Angle-Side (AAS)) were completed.

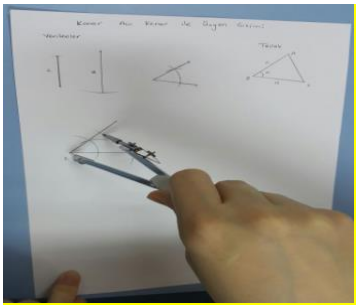

Figure 3. Construction of Side-Angle-Side (SAS) Triangle on paper

After that, the construction of triangles given with auxiliary elements was carried out. Additionally, some challenging problems were included such as inscribing a circle in a triangle and circumscribing a circle around a triangle (Figure 4).

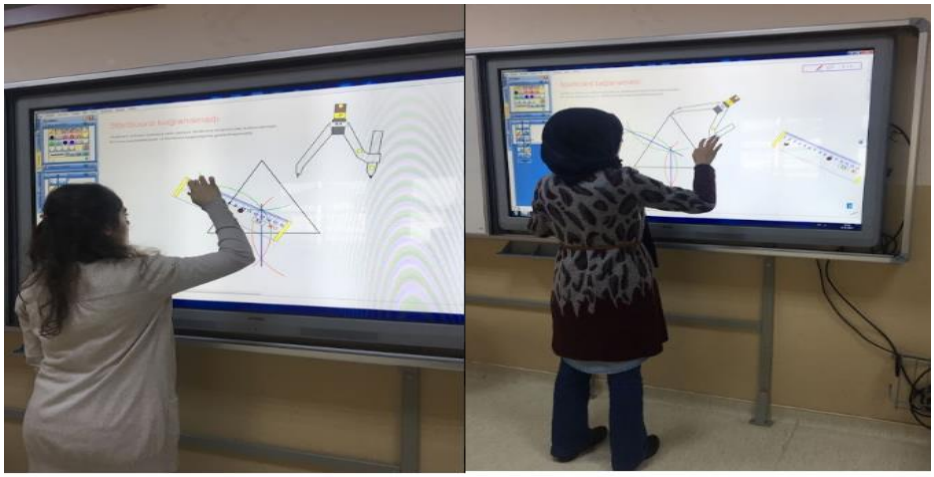

Figure 4. Construction of circumscribed circle on a triangle on the interactive whiteboard

2.3. Data Collection Tools

The data were collected with an opinion form consisting of open-ended questions after the completion of geometric construction activities covered in the Geometry Teaching course. In this form, pre-service teachers were asked about their previous experiences with geometric constructions, their views on building geometric constructions on paper and with the interactive whiteboard and the problems they encountered during the construction process. Pre-service teachers were observed while making the geometric constructions and field notes were kept during this process.

2.4. Data Analysis

The data were organized and interpreted according to the sub-problems of the research. In this context, firstly the answers of each pre-service teacher to each question in the opinion form were examined and the codes and themes were formed by placing the same or similar expressions together. Then the frequency and percentage values of the answers were calculated. The double-coding procedure was used for the reliability of data analysis. The data were re-coded by a mathematics educator who is an expert in qualitative research. The inter-coder reliability coefficient was computed by using the formula recommended by Miles and Huberman (1994) and the subject value was calculated as 83%.

3. Findings

In this section, the findings obtained in the research process are presented according to the sub-problems of the research.

3.1. Pre-service Teachers' Past Experiences of Geometric Construction Activities.

The data obtained from the research showed that almost all (96%) of the pre-service teachers had no experience with geometric construction activities.

I did not make any drawings with interactive whiteboard before this lesson. I did not have any experience with the compass and straightedge (PST-19)

I do not have experience in both. (PST-15)

3.2. Pre-service teachers' opinions regarding the geometric construction activities on paper and the interactive board

After examining elementary pre-service teachers' statements about geometric drawings, a classification was made about positive opinions, negative opinions, and conditional opinions. The codes created by using pre-service teachers' opinions about geometric construction activities formed the theme called *positive opinions* which is presented in Table 1.

Table 1 shows that pre-service teachers have more positive opinions about geometric constructions using concrete material (compass-straightedge) and building geometric constructions on paper. Twenty-nine (53.7%) of the positive opinions were related to the use of compass-straightedge on paper, and 25 (46.3%) to the use of the interactive whiteboard. Some examples of pre-service teachers' expressions are given below:

I think it is useful for students to use compass-straightedge as a concrete material instead of drawing by using the interactive whiteboard.

The use of compass-straightedge can better support learning by doing, rather than the interactive whiteboard.

Table 1. *Pre-service teachers' positive opinions about geometric construction activities*

	Positive opinions	On paper		On the interactive whiteboard		Total	
		f	%	f	%	f	%
Codes	Permanent learning	8	30.8	1	3.8	9	34.6
	Concrete learning	8	30.8	1	3.8	9	34.6
	Support for learning	7	26.9	1	3.8	8	30.8
	Enjoyable	-	-	5	19.2	5	19.2
	Saving time	-	-	4	15.4	4	15.4
	Smooth drawing	-	-	4	15.4	4	15.4
	Motivational	-	-	3	11.5	3	11.5
	Practical	-	-	3	11.5	3	11.5
	Helping to figure out where it originated	3	11.5	-	-	3	11.5
	Remarkable	1	3.8	2	7.7	3	11.5
	Useful	2	7.7	1	3.8	3	11.5
	Developing imagination	-	-	1	3.8	1	3.8
	Total	29	53.7	25	46.3	54	100

Pre-service teachers suggested that the constructions made by both the compass-straightedge and the interactive whiteboard are useful for grasping how the geometric drawings are made (30.8%) and contributing to the concretization of the geometric concepts (34.6%).

The phenomena that are abstract in both our and students' brains will be embodied, and students will understand the rationale of the subject.

More concrete drawings are made by touching and feeling, learning is provided in practice, not in theory.

There were more positive opinions which claimed that compass-straightedge construction activities contributed more to permanent learning (30.8%), more concrete learning (30.8%) and supported learning (26.7%) more than the interactive whiteboard. Some example views are as follows:

We can focus more on the shape we draw when drawing on paper, so we learn more permanently.

When we draw on paper it becomes more concrete, the drawing steps are better understood.

We can better understand the reason for the drawing steps, which also supports our learning.

On the other hand, the pre-service teachers said that the drawings made on the interactive whiteboard were more enjoyable (19.2%), smooth (15.4%), motivating (11.5%), and practical (11.5%) and also drawing in this way saved time (15.4%) and developed imagination (3.8%). Some sample opinions are as follows:

Drawing on the interactive whiteboard is more enjoyable, you can choose a color, you can get a bigger image when you zoom in, and so you can see the points where the arcs intersect better.

….The shapes that appear on the interactive whiteboard are smoother.

Drawing on the interactive whiteboard is more practical, just enough to choose the appropriate tool.

….It takes little time to draw on the interactive whiteboard.

It is more useful, we can go back, check the steps. We can click "undo" when we make the wrong drawing and try to correct it without using an eraser.

The codes created by using pre-service teachers' opinions about geometric construction activities forming the theme called *negative opinions* are presented in Table 2.

Table 2. *Pre-service teachers' negative opinions on geometric construction activities*

	On paper		On the interactive whiteboard		Total	
Codes	f	%	f	%	f	%
Time-consuming	2	7.7	2	7.7	4	15.4
Difficult	-	-	4	15.4	4	15.4
Total	2		6		8	30.8

Table 2 shows that some pre-service teachers stated it was time-consuming to make geometric drawings on both interactive whiteboard (7.7%) and paper (7.7%). In addition, some of the pre-service teachers used expressions such as it was difficult to draw on the interactive whiteboard (15.4%). Some of these views are given below:

Geometric constructions are time-consuming; we do not know how to get started.

It is very difficult to draw on the interactive whiteboard. It may feel like a different activity to the students but it is time-consuming…

It is difficult to make geometric constructions on the interactive whiteboard. We have difficulty while drawing, especially when holding and rotating the compass…

When drawing on paper, it is easier to cope with the compass; it does not slip from your hands…

The codes created by using pre-service teachers' opinions about geometric construction activities making the theme called *conditional opinions* are presented in Table 3.

Table 3. *Pre-service teachers' conditional opinions*

	On paper		On the interactive whiteboard		Total	
	f	%	f	%	f	%
Effective when practical	-	-	2	7.7	2	7.7
Loss of time if not used efficiently	-	-	1	3.8	1	3.8
Total	-	-	3	11.5	3	11.5

As seen in Table 3, some of the pre-service teachers indicated that drawing on the interactive whiteboard is more difficult and the inefficient use of the interactive whiteboard leads to a waste of time. A sample view is as follows:

I think it's a good practice. I think that when you draw geometric shapes for those who use the interactive whiteboard actively, you will save both time and form smoother shapes. But for teachers who cannot use it efficiently, it will be a waste of time.

3.3. Problems faced by pre-service teachers in the process of completing geometric construction activities

From the viewpoint of problems encountered, it was understood that the pre-service teachers stated they did not encounter too many problems when using concrete material (building geometric constructions on the paper). On the other hand, it was revealed that pre-service teachers had problems in locating the drawing tools on the board while they were making the same drawings on the interactive whiteboard. They also indicated that measuring the distance between two points using the compass and marking the cut-off points of the arcs (any part of a circle) is more difficult on the interactive whiteboard.

The interactive whiteboard is very sensitive. For example, when drawing an arc with a compass and marking that same arc from a particular point of the line segment, I usually have problems. I experienced no difficulties when I draw using the compass and straightedge.

I had a perception problem because of the interactive whiteboard touch.

When I used it (interactive whiteboard) *for the first time, I had difficulties in locating and changing the direction of the drawing tools.*

4. Discussion

Findings from the first sub-problem of the study show that almost all of the pre-service teachers have no experience with geometric drawings. This may be due to the fact that the teachers they met in past educational experiences did not attach importance to the purpose and meaning of geometric construction activities (Erduran & Yeşildere, 2010; Karakuş, 2014). This means that the construction process, which is an important component of the geometry learning process (Duval, 1998) is lacking and does not get the necessary attention in mathematics (Pandiscio, 2002). Although there are gains for geometric construction activities at various levels of the education system, it is necessary for teachers to recognize the role of these activities in learning geometry and to plan their lessons by taking the necessary and sufficient time for these activities.

It was determined that the majority of pre-service teachers' opinions about geometric construction activities are positive. This result is parallel to the results of some studies in the literature (Cheung, 2011; Erduran &Yeşildere, 2010; Karakuş, 2014; Napitupulu, 2001). On the other hand, pre-service teachers suggested that the construction using both methods is beneficial in understanding how geometric drawings are made and contributes to the concretization of geometric concepts. However, it was determined that the pre-service teachers have more positive opinions about the same activities on paper using concrete material. Yazgan-Sağ and Emre-Akdoğan (2016) stated that the use of compass and straightedge provides a more realistic environment for students to see cause-effect relations, reasoning and questioning.

Pre-service teachers suggested that geometric drawings made on the interactive whiteboard are both time-saving and time-consuming. This result is in agreement with the results of studies carried out with the teachers regarding interactive whiteboard usage (Birişçi & Çalık-Uzun, 2014; Kurt, Kuzu, Dursun, Güllüpınar & Gültekin, 2013). Pre-service teachers who evaluated the interactive whiteboard as a time-saver pointed out that shapes such as segment, triangle etc. used in geometric construction are readily available in the interactive whiteboard tools. They stated that the possibility of recording the stages of the drawing made on the interactive whiteboard gives them the flexibility to go back, recall and check the steps of the process. They also described the "undo" feature in the toolbar as a time-saver because of the possibility of being able to remove previous steps without using an eraser. So, we can say that some results of this study are similar to various studies indicating that the use of interactive board helps teachers to save time (Baydaş, Esgice, Kalafat and Göktaş, 2011; Pamuk, Çakır, Ergun, Yılmaz and Ayas, 2013). On the other hand, pre-service teachers stated that geometric drawings on the interactive whiteboard are time-consuming and difficult because of some problems such as locating the tools which are necessary to build constructions, holding and rotating the compass, measuring the distance between the points using the compass and marking the cut-off points of the arcs. We can say that this result is similar to the results of Birişçi and Çalık-Uzun (2014), who stated that teachers experienced difficulties in using the interactive board. This means that pre-service teachers experience more problems when building geometric constructions on the interactive whiteboard.

Türel and Johnson (2012) noted that teachers have the idea that interactive whiteboards enhance student motivation. Some pre-service teachers' views were determined to be similar in this study because they stated that building geometric constructions on the interactive whiteboard was motivating and enjoyable. It was understood that none of these features related to the affective domain were mentioned for drawing geometric constructions on paper. Therefore, we can say that pre-service teachers consider that drawings on the interactive whiteboard contribute to the affective domain of learning. On the other hand, building geometric construction activities on paper was found to contribute more to permanent learning and concrete learning by the pre-service teachers. In terms of the cognitive domain, it is understood that prospective teachers think that geometric constructions on paper are more effective. Erduran and Yeşildere (2010) also stated that compass and straightedge are tools that help students to discover the properties of geometric shapes and gain better insights about these geometric shapes. In this study, we can also say that the subjects mentioned by Erduran and Yeşildere (2010) were expressed by pre-service teachers.

Considering all these results, pre-service teachers believe in the importance of geometric construction activities even though they experienced some problems. Pre-service teachers who will become teachers in the future are advised to deal with more geometric drawing

studies during the undergraduate education process. In teaching mathematics, the integration of suitable tools and technologies is seen to be a very important theme (Kuzle, 2013). So it is thought that pre-service teachers should have experience in geometric constructing tasks with different tools. For example, in order to support the development of the students' geometric reasoning, it is suggested that both geometric software and classical geometric tools should be used in teaching environments (Köse, Tanışlı, Erdoğan & Ada, 2012). But while integrating the tools in mathematics teaching some dimensions such as the relation between the tool and learning, characteristics of technological tools have to be taken into account (Barzel, Drijvers, Maschietto & Trouche, 2005). We believe that geometric construction activities with different tools and dynamic software (Geogebra, Geometer's Sketchpad etc.) will provide a different view on the subject. Moreover, pre-service teachers should have the opportunity to discuss curricular and pedagogical issues before becoming in-service teachers (Kuzle, 2013). In order to minimize the problems encountered in practice, it is recommended necessary and sufficient information is learned and more practical applications are performed.

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THE RELATIONSHIP BETWEEN REFLECTIVE THINKING SKILLS AND ACADEMIC ACHIEVEMENT IN MATHEMATICS IN FOURTH-GRADE PRIMARY SCHOOL STUDENTS

Research Article

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THE RELATIONSHIP BETWEEN REFLECTIVE THINKING SKILLS AND ACADEMIC ACHIEVEMENT IN MATHEMATICS IN FOURTH-GRADE PRIMARY SCHOOL STUDENTS

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Abstract

This study was conducted with the aim of determining the relationship between reflective thinking skills and academic success in mathematics in fourth-grade primary school students. The data were collected using the "Reflective Thinking Skills Scale" developed by Demirbaş (2012), and the "Personal Information Form" developed by the researcher. The data that were collected in this study which was conducted as a screening model were analyzed with SPSS 16. In the study, it was found that the reflective thinking skills of the fourth-grade primary students were high, the female students had higher reflective thinking levels than the male students, and there was a positive relationship between the reflective thinking skills of the students and their success in mathematics and academics.

Keywords: Primary School Student, Reflective Thinking Skills, Mathematics Academic Achievement, General Academic Achievement

1. Introduction

Thinking is the most different characteristic of people that distinguishes them from other living being. Such that, it may even be argued that a person is a person due to their thinking power and talent. Although it appears that the act of thinking does not have a direct field of knowledge, when observed closely, it may be seen that all fields of education are fundamentally an education of teaching. Thinking education forms the foundation of all other educations with the contribution it makes on skills of making sense of processing, structuring and reproducing information. This way, the act of education and training is no longer a simple process of information transfer, and it is turned into a creative process that activates the skills and potential of the individual and increases their awareness (Curriculum for the Thought Education Course, 2016).

The constructivist education approach also sees having reflective thinking skills in addition to other thinking skills as one of the objectives of education (Baş & Kıvılcım, 2012; Başol & Evin Gencel, 2013). Thinking and inquiry activates the cognitive processes and operations of the individual and improves their problem-solving, decision-making and conceptualization skills. Therefore, higher-level skills like learning to learn, creative thinking, critical thinking and reflective thinking are improved faster. For this reason, developing students' thinking skills is highly focused on in recent years (Bayrak & Koçak-Usluel, 2011; Beydoğan, 2003; Güneş, 2012; Tok & Sevinç, 2010). The foundation of the concept of reflective thinking, which is among high-level skills as seen here, was set by John Dewey (Alp & Taşkın, 2008, 2012). Reflective thinking is 'a type of thinking which involves forming various hypotheses, working on and testing these hypotheses, collecting data by induction and reaching results by deduction' (Güneş, 2012, p.134). It makes it easier for the student to gain knowledge from the education environment that actively participate in with their own experiences, share this knowledge and use it in new situations (Güneş, 2012). Gür (2008) defined reflective thinking as students act

of assessing an implementation, deriving lessons from experiences, solving problems and making one's professional life meaningful by using the present knowledge and experiences that are collected for education in the future.

Reflective thinking is a comprehensive thinking skill which also covers skills of metacognitive thinking, problem-solving, creative thinking and critical thinking. An individual uses critical thinking skills while becoming aware of a problem, and critical thinking, problem-solving and metacognitive thinking skills while becoming aware of learning. As a result of all these processes, they may reveal creative ideas (Tican, 2013). Kızılkaya and Aşkar (2009, p. 90) explained reflective thinking as 'a skill that will help reveal implicit learning habits, develop high-level thinking skills like critical thinking, develop strategies for encountered problems and establish improvement processes for tasks.' According to Epstein (2003), reflective thinking covers problem-solving and encourages students to maintain their attention and check their surroundings at the same time. That is, in short, as problem-solving is also a scientific method, it also requires the use of critical thinking, creative and reflective thinking, and skills of analysis and synthesis (Soylu & Soylu, 2006). Gür and Kandemir (2006) expresses the development of reflective thinking is the centre of Mathematics education. Problem solving and reflective thinking skills are directly related to Mathematics course (Demirel et al., 2015). Therefore, in the mathematical sense, students' effective participation in the problem-solving process from the beginning to the end by thinking on the problems and bringing recommendations for solution may be considered to be a result of reflective thinking (Albayrak, Simsek, & Yazıcı, 2018).

Today's education programs in Turkey also prioritize development of thinking skills and emphasize that the main objective of education is development of analytical, creative, critical and reflective skills in the student. This way, they make the student active in the learning process and assign responsibility. In this context, teachers are expected to create opportunities for their students to express their opinions and enrich the class by their assessments and comments (Curriculum for the Thought Education Course, 2016). Development of reflective thinking skills is important in both increasing the academic achievement of students and achieving their personal development (Şahan & Kalkay, 2014).

When the national and international literature is examined, it is possible to find a lot of research examining the reflective thinking skills of preschool (Grossman & Williston, 2001), primary (Erbil & Kocabaş, 2015; Urhan & Erdem, 2018), secondary (Çakır & Ozan, 2018; Demirel et al., 2015; Erdoğan & Şengül, 2019; Eğmir & Ocak, 2018; Kaplan, Doruk, & Öztürk, 2017; Kahyaoğlu & Elçiçek, 2016; Keskinkılıç-Yumuşak, 2017; Kim, Grabowski, & Priya, 2004; Köseoğlu, et. al., 2017; Pusmaz & Tavşan, 2019; Sarıtepeci, 2017; Şahan & Kalkay, 2014), high school students (Baş & Kıvılcım, 2013; Rea, 2006, Roberts, Maor, & Herrington, 2016), and prospective teachers (Afshar & Farahani, 2015; Aras, Şiringül, & Park, 2019; Campoy, 2010; Çiftci, Çengel, & Paf, 2018; Elmalı & Kıyıcı, 2018, Griffin, 2003; Gözel & Toptaş, 2017; Kurtuluş & Eryılmaz, 2017; Ng & Tan, 2006; Özbek & Köse, 2019; Schaaf, et al., 2013; Sıvacı, 2017; Rebecca, 2011; Tekkol & Bozdemir, 2018; Yenilmez & Turgut, 2016; Yılmaz & Gökçek, 2016). However, as seen in recent years in research draws attention to the lack of those held at the primary school level. Especially when the studies in mathematics were examined, it was seen that these studies were done with middle school students (Çakır & Ozan, 2018; Demirel et al., 2015; Erdoğan & Şengül, 2019; Kaplan, Doruk, & Öztürk, 2017; Köseoğlu, et. al., 2017; Pusmaz & Tavşan, 2019). This study, which was conducted based on this idea, aimed to investigate the relationship between students' reflective thinking and their achievement in especially mathematics and academic achievement in general. The research questions that were determined based on this objective are the following:

1. What level are students on in terms of reflective thinking skills?
2. Do the reflective thinking skill levels of students vary based on gender?
3. Is there a relationship between students' creative thinking skills and their mathematics academic achievement and academic achievement?

2. Method

This is a quantitative study as a screening model towards comparing the reflective thinking skills of fourth-grade primary school students to their achievement in mathematics and academic achievement in general. A screening model, as stated by Karasar (2005), 'aims to describe a phenomenon that existed in the past or still exists as it is.'

2.1. Sample

The sample consisted of a total of 197 fourth-grade students who went to school in Istanbul, Turkey and were selected with the method of simple random sampling. The data were collected from eight classes of two public schools. The study group was selected from fourth grade. It is thought that they will be able to express their reflective thinking skills more clearly and clearly due to being the last year of primary school. The distribution of the participants based on their gender is described below.

100 (50.8%) of the participants were female students, while 97 (49.2%) were male students, constituting a total of 197 fourth-grade students.

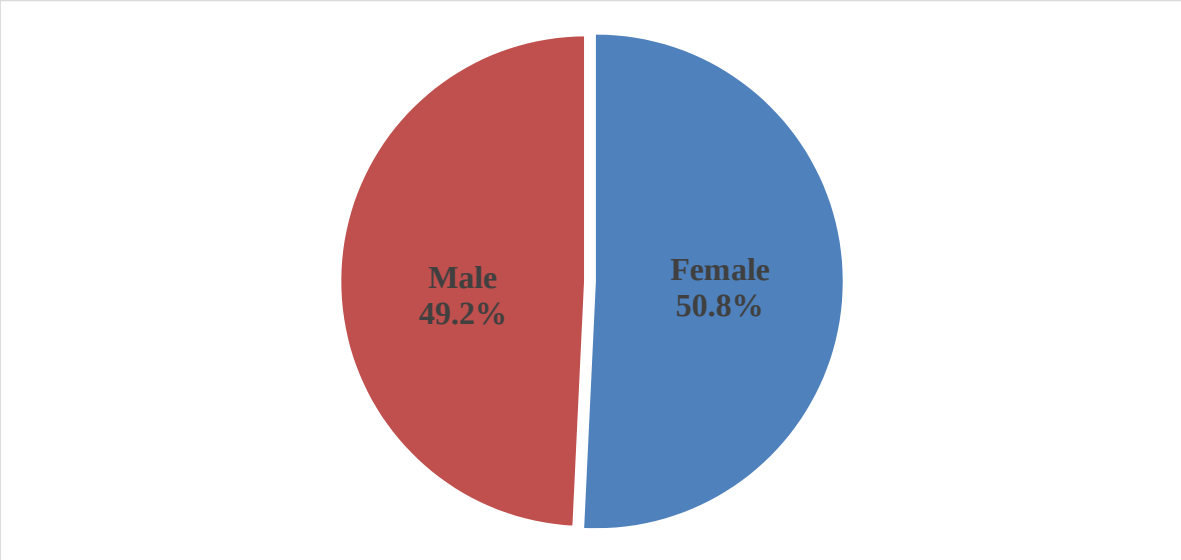

Figure 1. *Graphical representation of students according to their gender distribution (%)*

2.2. Data Collection Tools

The data were collected using the "Reflective Thinking Skills Scale" and the "Personal Information Form" developed by the researcher.

Personal Information Form: The first of the data collection tools was the "Personal Information Form" that was developed by the researcher. This form includes questions on the demographic information of the students, as well as questions on their mathematics academic achievement and general achievement statuses. The students were asked about the grades of mathematics and also the grades at the end of the semester.

Reflective Thinking Skills Scale: This scale, which was developed by Demirbaş (2012), consists of 20 items. Based on expert opinions, the scale was created as a 3-point Likert-type scale. It was thought that a 3-point Likert-type scoring would provide more valid and reliable results in comparison to other types of scoring in terms of reflecting the true state of 4th and 5th grade students. The scale is scored as "always (3)", "sometimes (2)" and "never (1)". The positive items in the scale are scored as 3-2-1, while the negative items are scored as 1-2-3. This is how reflective thinking levels are calculated for each sub-scale. While the minimum score that can be obtained in the final form of the scale is 20, the maximum possible score is 60. High scores indicate high reflective thinking skill levels. The Cronbach's alpha reliability coefficient of the scale was found as .76 in this study.

2.3. Data Analysis

Statistical solutions of measurement tools were conducted using SPSS 16.0. Before starting analyses, Kolmogorov-Smirnov test was conducted in normality testing of data distributions, at the same time, Skewness-Kurtosis values of scores were evaluated. Since significance value was found lower than .05 according to Kolmogorov-Smirnov test results, and skewness coefficient was between +2.0 and -2.0 according to George and Mallery (2010), it was observed that data showed normal distribution, and parametric tests were used. Accordingly, in data analysis, Independent Sample t-test, and Pearson Moment Correlation technique was applied and calculated.

3. Findings

The findings on the reflective thinking skills of fourth-grade primary school students based on the variables are presented below. The findings on the first research question are shown in Table 1.

Table 1. *The Mean Reflective Thinking Skill Scores of The Sample*

Scale	N	Mean	Sd
Reflective Thinking Skills Scale	197	2.65	.24

In order to determine the levels of the students based on their score in the scale, the ranges in the scores were calculated with the formula: "series range / number of groups" (2/3 = 0.66) (Tekin, 1993). The arithmetic mean ranges of the scale were determined as 0.33-0.99 'Very Low', 1.00-1.66 'Low', 1.67-2.33 'Medium' and 2.34-3.00 'High'. Accordingly, as seen in Table 2, the students had high levels of reflective thinking.

The findings on the second research question are shown in Table 2.

Table 2. *Results of the Independent-Samples t-Test for Reflective Thinking Skill Levels Based on Gender*

Scale	Gender	N	Mean	Sd	t	p
Reflective Thinking Skills Scale	Girl	100	2.71	.22	3.977	.000
	Boy	97	2.58	.24		

"There was a significant difference in the mean "Reflective Thinking Skills Scale" scores based on the students' gender ($t=3.977$; $p<.01$). Accordingly, the reflective thinking skills of the female students were higher than those of the male students (Table 2).

The finding on the third research question are shown in Table 3.

Table 3. *Results of the Pearson Product-Moment Correlation Test for Reflective Thinking Skill Levels Based on Mathematics Academic Achievement and General Academic Grades*

	N	r	p
Reflective Thinking Skill Mathematics Academic Achievement	197	.299	.000
Reflective Thinking Skill General Academic Achievement	197	.405	.000

As seen in Table 4, there were significant and positive relationships between the reflective thinking skills of the students and their mathematics academic achievement ($r=.299$; $p<.01$) and their general academic achievement at the end of the year ($r=.405$; $p<.01$). According to this, it can be said that if students' reflective thinking skills are high, their mathematics achievement and year-end grades may be high.

4. Discussion and Conclusion

In this study, which was conducted based on the idea that problem-solving skills are among important skills that should be in every individual and reflection is observed best in problem-solving processes (Kızılkaya & Aşkar, 2009), it was concluded that the reflective thinking skills of the fourth-grade primary school students were high. We can think that classroom teachers'development of students'reflective thinking skills is provided by both mathematics and other lessons. Saygılı and Atahan (2014), Kaplan, Doruk and Öztürk (2016), Güneş (2015) and Gözeten (2017) conducted studies to determine the problem-solving skill levels of highly intelligent children and found that highly intelligent or gifted children had high levels of reflective thinking towards solving problems.

Another result of the study was that the reflective thinking skill levels of the students differed based on their gender. The reflective thinking skills of the female students were higher than those of the male students. Other studies on reflective thinking skills also reached results that were in favor of girls (Bilgiç, 2017; Gözeten, 2017; Kızılkaya & Aşkar, 2009; Şen, 2013).

Being successful in problem-solving means critical thinking, decision-making, reflective thinking, asking questions and being able to conduct analyses-syntheses at the same time (Hacısalihlioğlu, Mirasyedioğlu, & Akpınar, 2003). It is known that reflective thinking skills towards problem-solving are a variable that explains achievement in mathematics (Albayrak, Simsek, & Yazıcı, 2018). This study also found significant and positive relationships between the reflective thinking skills of the students and their mathematics academic achievement and their general academic achievement at the end of the year. As seen here, it may be argued that the higher the reflective thinking skills of students are, the higher their achievement in mathematics and general academic achievement will be. Studies by Baş (2013) and Şen (2013) also found significant relationships between skill of primary and secondary school students in reflective thinking towards problem-solving and their academic achievement in mathematics. Several similar studies reached the conclusion that reflective thinking skills towards problem-solving explained achievement in mathematics (Aydın, 2015; Baş & Kıvılcım, 2013; King, 1991; Kızılkaya & Aşkar, 2009; Mason, 2003).

Reflective thinking is a cognitive characteristic that is developed, it is learned deliberately, and it is important to gain it in the school environment (Wilson & Jan, 1993, cited in Baş & Kıvılcım, 2013). Consequently, in reflective instruction, there is positive and effective communication between the student and the teacher. Lee (2005) emphasized that, in order to provide teachers with skills on how reflective thinking may be developed and how it may be measured, curricula should be prepared with these issues in mind. As a result, it can be said that it is beneficial to develop and implement activities aimed at developing students' reflective

thinking skills. It is considered useful to integrate the developed activities not only in mathematics courses but also in other lessons.

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PROFESSIONAL DEVELOPMENT OF PRE-SERVICE TEACHERS IN AN ENGLISH LANGUAGE TEACHER EDUCATION PROGRAM

Research Article

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Abstract

This case study aims to explore the professional development experiences of two fourth–year student teachers (mentees, hereafter) and their two cooperative school teachers (mentors, hereafter) in the practicum component of English language teacher education program in a state university. The participants of this study were doing their internship in their last year of pre- service education. In order to understand the mentorship process in terms of professional development practice for those involved, two mentees and their mentors were interviewed. The results indicated that the relationship between mentor and mentee is continuous, dynamic, and fruitful for both parties. Mentees reported that they developed a teacher identity and improved themselves particularly in classroom management. Mentors also stated that they felt refreshed and had the chance to update their knowledge with the help of mentees. Implications for the mentorship and practicum process are discussed based on the results of this study.

Keywords: English language teacher education, professional development, mentorship, practicum, pre-service teacher education

1. Introduction

With the wide acknowledgement of constructivism, practicum experience has become the topic of a larger number of studies (Johnston, 2009). It takes a considerable amount of attention since it includes many sources of social interaction such as peers, learners, supervisors, and administrative personnel in the cooperating schools (Maldarez, 2009). Mentors (classroom teachers) and mentees (preservice teachers) are two main enactors of practicum experience and the relationship between them has a more long-lasting influence on pre-service teachers' career choice and professional development (Leshem & Bar-Hama, 2007). Mentoring is a significant part of teacher education all over the world and it can be defined as knowledge and experience sharing between an experienced (mentor) and inexperienced teacher or teacher candidate (mentee). Tomlinson (1995) states that mentor teachers have two major roles: (1) the coach, challenging and stimulating students' motivation and commitment, and (2) the facilitator, supporting teaching skills, including

counseling. Mentee, on the other hand, is seen as a student who is expected to demonstrate what he has learnt by cooperatively working with his mentor in a reflective, supportive and constructivist atmosphere.

The inclusion of mentoring as a formal part of the teacher education programs dates back to 1980s (Hobson et al., 2009) and since then a considerable body of research has been conducted to investigate the practice of mentoring and mentored learning to obtain information on its nature, advantages, disadvantages, failures, roles of parties etc. (McIntyre, Hagger, & Wilkin, 1994). Recent research focuses on various themes within mentoring such as the need for critical reflection in mentorship (Jacobs, 2006), the leadership function of mentorship (Zepeda, 2012), and the complicated relationship between evaluation and mentorship (Burns & Badiali, 2015; Nolan & Hoover, 2010).

In today's world, the field of teacher education is witnessing a recent transition that requires more practice and experiential learning and reflection. This transition in teacher education is called "practicum turn" by Mattesson, Eilerston, & Rorrison (2012). With this transition, practicum experiences, the significance of mentorship, the role of school context and cooperating teachers have become critical topics to be discussed recently. Exploring (1) the interaction between pre-service teachers and mentor teachers, (2) how they build a relationship, (3) how experienced mentor teachers guide and assist inexperienced novice teachers has become quite significant. How pre-service teachers review the mentorship and in which ways the mentorship contributes to their professional development worth further investigation. Similarly, seeking for how mentor teachers get benefits through this mentorship relationship is also noteworthy. By exploring the first-hand experiences of mentors and mentees, a close examination of the mentorship process is vital to provide suggestions for the improvement of the practicum component of teacher education programs. In order to better understand the mentoring experience, the roles of the parties and the level of their cooperation should be clear.

In Turkey, clinical supervision model is employed to educate pre-service teachers in practicum. This model involves classroom practice, and it is closer to formative evaluation and based on mutual trust and reflective dialogue between all teachers (Glickman, Gordon & Ross-Gordon, 2010). It also aims at introducing pre-service teachers to the professional teacher community. Recent studies on mentorship in Turkey seem to acknowledge the value of mentorship in language teacher education and they report on common problems and failures as well as benefits and gains. Ekiz (2006), in his study on mentorship, for example, concluded that communication between mentor and mentee in the mentoring experience is of utmost importance. Isıkoglu, Ivrendi, and Sahin (2007) reported similar findings in their study that pre-service teachers had trouble in building professional and fruitful relationships with their mentors. Such findings are not limited to mentor teachers; dissatisfaction of pre-service teachers with their supervisors at their universities has been reported in many recent studies (Gömleksiz, Mercin, Bulut, & Atan, 2006; Kiraz & Yıldırım, 2007).

1.1. Research Questions

With the purpose of gaining a deep understanding of the mentorship process in the practicum for pre-service English as a foreign language teacher (EFL teachers) in Turkey, this qualitative case study aims to answer the following question:

1. How do pre-service EFL teachers and mentor teachers in the cooperating schools view mentorship experience in terms of benefits, drawbacks and the contribution to their professional development?

This study focusing on practicum experience with a social constructivist approach is believed to help teacher educators understand the dynamics of the mentorship at practice schools and contribute to improvement of practicum which is substantial part of the language teacher education.

1.2. Formal Mentorship for Pre-service EFL Teachers in Turkey

In order to familiarize the reader with the practicum experience that the pre-service teachers have in teacher education programs in Turkey, a brief description of the program will be provided. Those who want to work as a language teacher in state schools should receive a bachelor's degree in an English Language Teaching program offered by the faculties of education in Turkey. The universities are tied to the Counsel of Higher Education in Turkey. Thus, as a part of the higher education curriculum, all the faculties offer the same program and the practicum experience across the country. In the fourth year of the program, senior students (henceforth pre-service teachers) have to complete their practicum courses by going to schools appointed for the whole year. The level and type of schools could vary. Depending on the negations with schools and directorate of national education, pre-service teachers could go to a primary school, a secondary school or a high school

The practicum courses include two-hours of face to face course at the department and four hours of teaching and observation in the practice schools. Within the lectures, student teachers are provided with current theories about language learning and teaching as well as tasks to observe their mentors. These observation tasks focus on issues such as classroom management, use of first and second language, and use of instructional materials in the class etc. In the practicum schools, they are required to complete the assigned tasks and the other tasks assigned by the mentor such as preparing quizzes, invigilating the exams, helping students.

2. Method

This was a qualitative case study, which took its merit as social constructivism. Social constructivism focuses on socially and historically negotiated views of the participants, which are formed through never ending interaction with others (Creswell, 2013). In this sense, social constructivists focus on the interaction among the individuals and value the process paving the way for the construction of meaning. This study analyzes the reported perspectives of the mentors and mentees on their own professional development through the lens of social constructivism.

For the research purposes, the holistic, multiple case study design (single-unit of analysis) (Yin, 2009) was adopted. We collected the data from two schools, but we focused on the same aspect of the case "mentorship" as perceived by mentees and mentors. To learn their perceptions of this practice, we used interviews as data collection tool and the data were analyzed using content analysis which will be explained in detail later.

2.1. Context of the Study and Participants

The study involved four participants working at different sites. There were two different schools (High School A, High School B) and two teachers of English mentoring two pre-service teachers (mentees) as can be seen in Table 1.

Table 1. *Overview of multiple-case study participants*

Mentee	***Mentor***	***Supervisor***	***The School***
Esra (S)	Doğa (T)	İpek	High School (A)
Memedov (S)	Rüzgar (T)	İpek	High School (B)

S: student (pre-service teacher), T: mentor teacher at the high schools

The school A with one mentor and one mentee counted as one case, the school B with one mentor and one mentee counted as another case, which made the study a multiple case study. Since the main aim was to understand and explore the learning experiences and professional development process of each participant, this study adopted a holistic perspective across the cases based on single unit of analysis.

At the Department of Foreign Language Education (henceforth, FLE) the study was carried out, under the supervision of a faculty member who has a doctorate degree in foreign language teacher education, six pre-service teachers are assigned to one mentor teacher to take the school experience course in the first semester which is the first part of the practicum.

In the 2013-2014 academic year, among one hundred twelve pre-service teachers who had taken their School Experience course as a prerequisite of the practicum in the fall semester, only seven of them continued to work with the same school and the same mentor teacher in the spring semester for the Practice Teaching course. Some students changed their mentors but continued to work in the same school and others started to do their practicum in a different school. There were various reasons for these changes related to cooperating school, mentee, mentor or the university. Pre-service teachers might not want to continue their practicum for the logistic or time-schedule problems or they might want to work with a different student group to have a different experience or they might have problems with the mentors.

Considering the situation described above, only the participants who had been working with each other in the practicum for the two semesters were selected. In order to better represent a clearer picture of relationship between mentors and mentees, it is thought that the mentors, mentees and supervisors should work together for two academic semesters. Thus, only seven mentees met this criterion and could be recruited as a participant in the study. Among these seven mentees, only two of them and their mentors accepted to participate in this study. The researchers applied and received approval from the university's Human Subjects Ethics Committee. This study had a small number of participants; however, the number was enough to achieve the purpose of the study which is to discern themes concerning common views and experiences among homogeneous participants.

2.1. Data Collection and Analysis

In order to unearth the participants' perspectives and opinions, one-to-one and semi structured interviews were conducted with each mentee and mentor. The interview as data collection method was efficient as we wanted to like to hear participants' own voices. The interviews lasted 27 minutes to 59 minutes. They were conducted in Turkish, participants' native language. Interviews were audio-recorded, and interviewers took notes during the interview. The interviews were verbatim transcribed, and all the interview transcriptions were copied for three researchers.

As for the data analysis framework, the data analysis spiral suggested by Creswell (2013) was employed. The whole data were read to get the sense of it by each researcher. While reading, researchers reflected on them and wrote short notes. After reading all data, the descriptive coding process began. As Creswell (2013) suggests, researchers should be open to additional emerging codes during the analysis. Such a perspective was adopted by the researchers and new codes like being more productive, self-reflection, gaining confidence and positioning one-self as a teacher in a classroom came into being. First of all, all researchers did open coding; they tried to reduce the memoing notes to initial codes. Then they conducted axial coding, spent effort to find the connection among the initial codes and reach categories. Considering the codes, themes were identified for each case. At the end of the coding process, the analyses conducted by three researchers were compared in order to ensure reliability of the interpretations. The intercoder-agreement was calculated as around 90. Based on the analysis of mentors' professional development, the researchers came to an agreement that personal growth should be assigned as one of the major themes. In the final section of the analysis, each researcher compared the themes across the cases and different and common themes across cases were identified.

3. Results and Discussion

This section will provide readers with the results and discussion. First, we will depict the mentorship practice in each school, that is, case by case. Secondly, we will present the thorough analysis of the data under the categories of *benefits to mentees* and *benefits to mentors*. We will present discussion of the results linking it to the recent literature. As a validation strategy, we tried to provide rich and thick description to the readers. This strengthens the transferability of the research findings to the other settings as suggested by Creswell (2013).

3.1. Case 1: High School A

Esra (S) was a senior student in the department of foreign language education. She went to her practice school for one day every week during the fall and spring terms to do her practicum. Her mentor teacher was Doğa (T), who was teaching ninth graders in the same school. Thus, Esra (S) worked with ninth graders during these two terms. She had to go to the school with her peer (another pre-service teacher who was going to the same practicum school together and was assigned to the same mentor with Esra); however, it was not possible for them to stay together for four hours in the school due to clashes in their schedule. One of the biggest problems in practicum was to match mentees with mentors and find a suitable time for them.

Esra (S) and Doğa (T) met once a week in the school and they made a phone conversation before Esra's teaching sessions. The topics of their meetings were about the lesson plan and activities Esra (S) would conduct in the class. At the end of the first term, they also had dinner together. In the first term of the practicum, Esra (S) had some observation tasks such as observing teacher talk, teacher instructions, student behaviors, and school culture. In addition to these observations, she had three micro teachings and paired teachings. Furthermore, she once graded one of the questions in the exam that the mentor gave to her students. She stated that her mentor teacher never assigned her too much work:

"Unlike other mentors that my class mates worked with, my mentor never gave us too much work. Some of the mentors just left mentees in the classroom alone and gave them some work. My mentor teacher left us alone in the classroom for at most five minutes during the whole term."

Esra found her mentor very helpful and she thought that her mentor was continuously guiding her. She thought that she was lucky as other mentors did not welcome and respect mentees. For instance, in some practicum schools, mentors did not let mentees know about the extra-curricular activities such as picnics. Thus, mentees sometimes went to school, however; they could not teach or observe the class due to social activities held on that day. On the other hand, Doğa (T) always called Esra (S) in advance to let her know about the organizations or unplanned events. Thus, Esra (S) believed that Doğa (T) valued her. To her, in a good mentor-mentee relationship, a mentee should respect the mentor and the mentor should care for the mentees. Esra was quite satisfied with the feedback she received. Doğa (T) warned Esra (S) against the possible problems that she could face with in the future. As regard with the content of the feedback she received, Esra gave examples:

"For instance, I'm conducting an activity in the class and giving three minutes to students and get three learners to speak. My mentor says I wish you would get five learners to speak. As it is not my fault, she also accepts that she is giving feedback for the sake of giving it. She says she gives feedback in order to make me see different applications. She says she is aware of the time limitation I have. She says your future lessons will last longer so in the future you can involve more learners."

Doğa (T) had been working as an English teacher for twenty-four years and had been mentoring pre-service teachers for thirteen years. She had been working with the department for four years, so she was familiar with the mentees and supervisors working there. She also stated that she had worked with other universities and mentees in the past. Although she was quite experienced, Doğa (T) believed that enthusiasm for teaching was more important than experience. For her, even young teachers could be mentors if they had enough enthusiasm for teaching. In addition, she thought that a mentor teacher should share his/her professional experiences with mentees, show them how to cope with unexpected problems to develop their problem-solving skills and broaden their horizons in terms of teaching. She believed mentoring was so important that if a mentee happened to cooperate with a mentor not guiding well, the mentee might decide not to teach in the future. Thus, a mentor should be a role model in every aspect.

There were some factors hindering the practicum process according to Doğa (T). Although in terms of grading, mentor's evaluation made 30% of mentees' final grades, Doğa (T) believed that mentors do not have enough voice in the grading process. She remarked that "If needed, I criticize mentees harshly. I know I'm supposed to do this. However, I also know that the grade I give do not have a significant impact." In addition to this problem, Doğa (T) mentioned heavy course load of the mentees at university and limited time set for micro teachings. She stated the course load prevented mentees from coming to the practice school for extra activities which would help them to gain further experience at schools.

3.2. Case 2: High School B

Like Esra (S), Memedov (S) was also a fourth-year student in the department of FLE and had been visiting High School B for two academic semesters. He had been working with Rüzgar the mentor teacher; and observing and teaching the same preparation students for a year. He visited the school four hours a week, no more than officially required.

Memedov (S) and Rüzgar (T) met weekly and had a nice relationship. While Memedov (S) was in the school, they had face-to-face communication. During the breaks, they tried to catch up with their personal and academic lives. For instance, Rüzgar (T) had asked about Memedov's MA application. In addition, Memedov (S) also called Rüzgar (T) to ask about the materials he had prepared and the content of the lesson.

Since the beginning of the practicum, Memedov (S) conducted observations on how Rüzgar (T) controlled the class, "how he calms down a student when s/he speaks", how he made eye-contact as well as how he delivered instruction. Memedov (S) taught some courses and checked the calculation of exam scores. What he did as an extra work was teaching to another group of learners when their teachers were absent. Memedov (S) was quite happy with working with Rüzgar (T). He believed that Rüzgar (T) understood what the mentees experienced in the practicum process. For him, Rüzgar was a problem solver, supporter and an effective guide. Rüzhar (T) was such an open and extrovert person that he even led students made jokes on himself. Memedov (S) put overemphasis on Rüzgar's empathizing skills. He said:

"He gives examples from his own life starting like "when I first started to teach" …Once while my peer was teaching, he couldn't answer a question and simply said 'I don't know'. Upon this incident, Rüzgar (T) told us when he first started, he couldn't know, either; and he suggested us to say, 'I don't know' to learners, learn it later, and share it with them."

In addition to being able to empathize with the pre-service teachers, there was another positive characteristic that Memedov (S) mentioned about Rüzgar (T). Memedov (S) showed appreciation for the style and content of the feedback provided by Rüzgar (T). Rüzgar (T) gave motivating feedback which increased preservice teachers' self-confidence. He believed that detailed feedback was technical and what was technical could be performed better with experience. Memedov (S) received feedback when he asked for it in general and he particularly underlined that Rüzgar (T) mostly gave feedback on feeling comfortable in the class and all feedback he had received so far had motivated him.

Rüzgar was a very experienced teacher. He had been teaching English for 23 years and he worked in various teaching contexts, from primary schools to secondary schools, vocational schools to Anatolian high schools. As a mentor teacher he had already been in cooperation for four years with the department where mentees were students. Among other universities he had worked, Rüzgar (T) placed a particular importance to the department of FLE since he believed pre-service teachers from this department were very self-disciplined.

Unlike Doğa (T), Rüzgar (T) regarded teaching as a profession based on performance and experience. He believed that the more experienced a teacher became, the more comfortable he felt in a classroom in delivering instruction and managing learners. That is why, he believed a mentor teacher should be a role model for the inexperienced mentees who felt stressed while teaching because of learners, peers and mentor teachers watching them with a critical eye. Besides, the role modelling of mentor teachers became more significant to him since he believed preservice teachers take their first steps into the profession with mentor teachers. Mentor teachers should be modelling in various aspects: establishing rapport with learners, delivering instructions and maintaining relationship with parents and administration. Still, he stated that mentorship was not challenging; it was not beyond what a teacher could do in his daily life at school.

He further commented on how he regarded mentees and how mentees regarded him as a mentor teacher. He saw mentees as a colleague although they could not see themselves as a teacher:

"This is a guided relationship. Students are here for a course. As a result, the course is given through you. Naturally, the student-instructor relationship in the university goes on here. No matter how hard I try to treat them like a colleague, this student-instructor relationship is still existent, and it is hard for pre-service teachers to overcome it. … Pre-service teachers are still having trouble in adopting to this colleague role."

Having described different cases from high schools A and B, it is time to understand the contribution of the mentorship experience to mentees and mentors. From now on, the findings will be presented thematically under two main groups as benefits to mentees and benefits to mentors.

3.3. Benefits to Mentees

The main aim of this study was to explore and gain deeper understanding of the areas that mentees had development and improvement throughout the practicum. Based on the transcriptions, emerging themes from the data were as follows: *classroom management, self as a teacher and instructional process* (Table 2).

Table 2. *The Areas the Mentees Develop Throughout the Practicum*

classroom management	instructional processes	self as a teacher
monitoring students	planning: preparedness, flexibility in planning, material adaptation, curricular decisions	developing a teacher identity relationship between teacher and student
problem solving skills	Pedagogical content knowledge: grammar teaching, vocab teaching	positioning oneself as teacher
having eye contact	delivery: increasing learner motivation	gaining awareness of teaching as a profession
keeping students on task		gaining confidence as a teacher to be

It is understood from what mentees and mentors reported that all these areas lead to formation and development of teacher identity. In this sense, the mentorship process provided mentees with invaluable experience on the way of becoming a teacher. Each of these areas are further explained in the following sections of this article.

3.3.1. Classroom management

The most obvious benefit of mentorship was the development of classroom management skills. It included skills as monitoring students, problem solving, having eye contact and keeping students on task. Both mentors and mentees commented on classroom management issues as an improved area. For instance; Memedov (S) who worked with Rüzgar (T) for two semesters, particularly underlined the development of his classroom management skills. He claimed that as a result of his cooperation with his mentor he was now able to solve problems more easily compared to the beginning of the semester. He explained this as:

"When a problem occurs, I can provide better solutions. Previously, when a student asked a question and I didn't know the answer, I was panicked. Right now, I have learnt how to deal with such situations from the mentor teacher. For example, if a student asks what that word means, and I don't know the answer, I give them a task and I tell them at the end of the task, I will tell what it means. During the task, I look it up from the dictionary or ask the mentor teacher."

He further commented on how he improved to make eye-contact for classroom management as seen in this excerpt:

"I am better at classroom management. I can easily make eye-contact. While I was doing something on one side, I could realize what the students were doing on the other side. I can calm them down easily."

In the same vein, Rüzgar (T) strongly supported the idea that mentorship contributed to the professional development of mentees, especially in classroom management. However, before elaborating on how the mentees' managing skills developed so far, he emphasized that pre-service teachers from the department of FLE were quite competent in pedagogical content knowledge; therefore, the major area needed to be improved was classroom management. He stated that mentees improved in calming down the learners, attending to them, using voice appropriately and using teacher zone:

"What I noticed about pre-service teachers is that they gained significant experience in classroom management. I mean how to silence learners. In the beginning they asked learners to write their names on post-it notes. After a while, they realized this doesn't work. They see how important to directly address to them with their names. Or they realized how significant to use their voice effectively…if the board is here, when they first taught; you realize they use only the space in front of the board. However, as the time passes, they started to use all of the classroom space. They could easily move in the class… at first asking learners to remove their desks for group works was difficult for them to do but later on they could easily group learners."

Esra (S) who gave credit to the education she received at university, told that ELT program at the university enabled her to be already good at classroom management. While thanking to her education she received, she accepted that real classroom environment was different:

"When you enter a classroom, you enter into a completely different world. Your behaviors definitely change after you see this world. I do not suffer trauma thanks to my education, I don't have much problems. I try to improve myself by changing my methods if they don't meet my needs."

She further stated that building rapport with the students made her job easier. She addressed to them with their names and tried to talk to them which were the things that helped her build an intimate relationship with the students. When one student distracted the attention of the whole class, she warned him/her softly. She also mentioned that her mentor teacher appreciated her classroom management abilities such as monitoring students and keeping them on task.

All these remarks fit into Fullers' teacher development model (1969, 1970 as cited in McLaughlin & Hanifin, 1994). At the survival stage of this model, teachers who are new to the profession usually have concerns about classroom control and management, which drives them to take care of those issues. Since these mentees had their first professional experience, their (relatively) higher emphasis on contribution of mentorship to classroom management was welcomed. As Day (1990) also states classroom management is "a topic about which student teachers often know little and have a great deal of anxiety" (p. 53). Therefore, mentees' focusing on how mentors dealt with the class and mentor teachers' feedback on this issue naturally facilitated improvement in classroom management. Besides, as Hobson et al. (2009) suggest, it is widely acknowledged that the most notable benefit of mentorship to the mentees is the development of managing skills, which is also found in the present study.

3.3.2. Instructional processes

This second category included themes as 1) planning: preparedness, flexibility in planning, material adaptation, curricular decisions; 2) pedagogical content knowledge: grammar teaching, vocabulary teaching and 3) delivery: increasing learner motivation. In this area of teaching, Memedov (S) and his mentor noticed progress in planning lessons, delivering instructions and increasing pedagogical content knowledge. To begin with, Memedov (S) made progress on pedagogical content knowledge and gained flexibility in curricular decisions for planning. While he was dealing with an unexpected problem during the teaching task, he learnt a new grammar point from his mentor teacher and explained this as:

"I was teaching topic of reported-speech and telling them *can* changes to *could* and *will* to *would*. One student asked what *should* turned into. I was stuck. I told him that he could see it in the examples. However, there was not any examples. I asked it to the mentor teacher, and he gave me the explanation"

With regard to curricular decisions in planning, Memedov (S) expressed how Rüzgar (T) taught him to be flexible and go beyond the syllabus when needed. Rüzgar (T) was also quite cognizant about the improvements that mentees gained thanks to the mentorship. He particularly highlighted that pre-service teachers learnt to involve all learners during the lesson and motivate them:

"They gained experiences in how to involve learners, how to engage and motivate unwilling learners…last week while one mentee was teaching, three or for learners weren't engaged with the lesson and at first the mentee couldn't deal with them. I observed it and I told him to try something. S/he tried and engaged all the students. It was good."

Esra (S) appreciated her mentor's strategies to draw students' attention such as acting out and doing role-plays while lecturing. On the other hand, she had contradicting thoughts about the contribution of practicum on the pedagogical content knowledge. She found her courses at the university so effective and efficient that she believed practicum could not contribute to her pedagogical content knowledge. Here is an excerpt showing her discomfort about the competence of her mentor:

"I don't think I learn new things about content or methodology. I only observe my mentor teacher in order to see the management and monitoring. But I cannot say she teaches very well. Actually, I find some mistakes in her teaching… She has great problems in pronunciation even which ELF (English as a Lingua Franca) theories cannot explain. I cannot know how to say these things to her. … Her students need to respect her, and I try not to ruin the ecosystem of the classroom. So, I keep silent."

The analysis revealed that the contribution of practicum on instructional processes is limited yet quite valuable. Particularly, mentees' recognition of asking for help when needed and the possibility of becoming flexible during teaching is a crucial step for professional development. Similar results were also expressed by Lindgren (2007). However, very few instances were present in the accounts of mentees' regarding the improvements in instructional processes. As Hobson et al. (2009) brought to our attention, the presence of limited examples for developed teaching skills as a result of a successful mentorship process is quite common in research on mentorship. One of the reasons might be the fact that there is an overemphasis on mentorship as promoting affective and psychological support for mentees rather than academic knowledge-based support (Hobson et al., 2009).

3.3.3. Self as a teacher

As the last category *self as a teacher* area had sub-themes as 1) relationship between teacher and student, 2) positioning oneself as teacher, 3) gaining awareness of teaching as a profession, and 4) gaining confidence as a teacher to be.

To begin with, Esra (S) had positive comments on how mentor-mentee relationship developed her as a teacher to be. She talked about her becoming aware of her weaknesses and strengths. She stated that she chose high school as a practice school since she was anxious and scared to teach high school student. She had already experienced and enjoyed teaching young learners; however, she thought that she would have great problems in working with high school learners. Thus, she saw practicum as a chance to prepare herself for this learner group. In this respect, Esra learnt a lot from her mentor teacher during the practicum. She pointed out that:

"When I mention one of the student's misbehavior, my mentor teacher makes me see the student's psychological problems and makes me re-evaluate this student's misbehavior. She makes me consider different perspectives before I judge someone and look from different angles- like doing yoga. This will help me a lot when I become a teacher. Now, when I reflect on it, I realize how much I learnt from my mentor teacher."

Being aware of students' developmental and psychological characteristics was so crucial that it could save one teacher's career. Esra (S) put great emphasis on this issue:

"Teachers (referring to mentors) are aware that these students are adolescents and they ignore most of the things. This is the most important contribution of the practicum for me since it saved my career. Learning not to take students' behaviors personally saves my life. Sometimes, when one student says something, you just begin thinking about it. This is where you get out of your teacher identity and take it personally. Those who are not aware of this aspect have great problems. I'm very happy because I experienced this beforehand."

This shows how Esra (S) became aware of the fact that she developed an identity as a teacher. With the help of the practicum, she learnt to *position herself as a teacher* and *develop a teacher identity* in the classroom. Thanks to the practicum and mentorship experience, she observed how the teacher reacted to teenagers' behaviors. Esra (S) thought that with the help of practicum, she *builded up confidence* in herself as a teacher. The mentorship experience showed her that she could do this job as a professional. She chose teaching as a career because of a series of coincidences. She stated that before practicum experience, she did not believe in herself and she could not imagine herself as a teacher.

As for self as a teacher, Memedov (S) put special emphasis on feeling comfortable. He constantly underpinned that he became more comfortable thanks to the mentor teacher. He clearly and repetitively expressed the gained sense of comfort in the class. He also commented that he gained self-confidence as well. Overall, Memedov believed he had a fruitful mentorship process through which he made progress on classroom management, instructional processes and how he felt in the class. His final remark on the mentorship was quite critical to illustrate what kind of a transformation he had been through: "He (Rüzgar) could be the ideal teacher. In the past I was afraid of dealing with learners. Now I liked it (teaching) since it is easy." As for how pre-service teachers improved their 'self', Rüzgar underscored that they were no longer shy, and they got used to the real teaching context:

"You can recognize that in the first or second teaching, pre-service teachers were shy, but now they came out of their shelf…they already developed materials and used them. They are already doing all of them, but I realized that they gained substantial experience regarding

their presence as a teacher because it is a real context not a simulation. Real learners, a real class."

Doğa (T) also thought that mentees improved themselves in that they became more relaxed and confident. She described Esra's (S) final teaching as follows:

"She planned the lesson well. She knew what she was going to do. She was confident since she gave what she wanted to give to students. She finished the lesson like a teacher. Her friends (pairs) feel like this as well. She was patient. Normally, she is not a patient person."

Overall, the results of the study indicated that mentees frequently mentioned building up confidence in themselves as a teacher, being more comfortable with students and developing intimate relationship with students. They also learnt to position themselves as teachers in the classroom and not to take misbehaviors personally. It showed that they gained awareness of teaching as a profession. It can be inferred that mentorship experience contributed to their development self-as a teacher. In addition, the mentors observed that the mentees were becoming more patient with the students and they were behaving like a teacher in the classroom. In this respect, the results of this study are in line with the other studies on mentees' development (Valli, 1993; Erginel, 2006; Maldarez, Hobson, Tracey & Kerr, 2007) which suggest that mentees begin to construct a self-image of themselves as teachers during the practicum.

3.4. Benefits to Mentors

As also highlighted by Simpson et. al. (2007), the available research on pre-service field experience is limited to preservice teacher and the supervisor (at the university). Studies on mentor teachers and how they are affected in this experience is scarce. Thus, in addition to exploring the benefits obtained by mentees, this study also focused on how mentors utilized from mentorship program. Limited number of earlier studies with the same focus report benefits such as improvement in teaching skills (Jacobsen, 1992; Odell & Ferraro, 1992), the feeling of improvement in professionalism (Koskela & Ganser 1995; Taharally, Gamble, & Marsa, 1992; Wilson, 1995), increased self-confidence (Odell and Ferraro, 1992; Wilson, 1995), and more reflective practice (Jacobsen, 1992; Wolfe & Stupiansky, 1992). As in line within the scope of our study, in order to address the gap in the mentor literature particularly in the context where this study took place, namely Turkey, participant mentor teachers were asked to reflect on the benefits of mentorship on them. In this part of the paper, the benefits of mentorship to the mentor teachers are presented. Two main categories of benefits for mentors were identified as *personal growth* and *professional growth* (Table 3).

Table 3. *Mentors' development throughout the practicum*

personal growth	**professional growth**
feeling updated, refreshed	developing, adapting new materials,
motivated and enthusiastic	updating tests
being more productive	using new techniques
self-reflection opportunities	

3.4.1. Personal growth

Doğa (T), as being the mentor at high school A was asked to comment on whether or not mentorship provided any benefits to her and if yes, what type of benefits she could talk about.

Main sub-themes found in her response were related to feeling refreshed and feeling motivated as a mentor thanks to the mentoring experience. It is clear from what she told that her understanding of benefits of mentorship has a more sentimental perspective and she highlighted gains like good feelings as a mentor, satisfaction, and happiness.

When asked if she was satisfied with the mentoring program, she clearly stated that she was pleased and satisfied with the experience. She particularly mentioned how refreshed and updated she felt refreshed and updated:

"Whenever I see each wise and responsible young mentee, I feel refreshed once more, I feel as if I am breathing fresh air. I feel like I am gaining something from them."

As in line with the previous findings (Hobson et al., 2007), there is a sense of becoming re-energized or re-engaged as a result of mentoring experience, which might have positive effect on teaching and learning in general. A mentor who thinks that mentees help her feel re-energized can be assumed to be more motivated, productive and positive which are all significant concepts in the mutual relationship of mentor-mentee.

Doğa (T), who viewed mentorship as a fruitful process not only for mentees but also for mentors, talked about how her motivation as a teacher was influenced in working with mentees. As earlier mentioned, she found the overall relationship quite refreshing and updating which yielded to enthusiasm for teaching which was a very significant phenomenon in the philosophy of teaching. An enthusiastic teacher who functioned as a role model for mentees was undoubtedly had a lot to offer in terms of mentoring. If a mentor had enthusiasm for teaching, it was likely that students could be infected with the same type of enthusiasm which in return would lead to an ideal mentoring experience. Doğa (T) expressed her opinions on this issue as follows:

"At this point, mentoring definitely brings excitement and enthusiasm. The enthusiasm in the mentees' eyes, their enthusiasm for teaching, their behaviors, and all the beauties they bring to class, the message they give to me, all of these definitely contribute to me as the mentor. It is impossible to say there is no contribution. They contribute a lot: they direct me to true path, they refresh me, and they make me run on my true path to reach my goals as a mentor teacher."

As can be seen in the excerpt, one can easily see how the mentor felt enthusiasm obtained from this mutual relationship of mentor and mentee which was found to be a common phenomenon occurring in previous studies as well. For example, Koskela and Ganser (1995) stated that cooperating teachers "... view themselves as learners and many look forward to personal growth in terms of sharing, gaining new perspectives, ideas, and 'catching enthusiasm' from student teachers" (pp. 30, 31).

Motivation is found to occur in both of the mentors' reflections in the interviews. Like Doğa (T), Rüzgar (T) also emphasized that mentorship was a motivating experience not only for mentees but also for mentors. He added that this motivation also affected the lesson itself since it increased the overall "productivity" of teaching-learning process, which became a sub-theme on its own. Productivity was mentioned several times by Rüzgar during interviews. He thought that the role of the cooperating teacher contributed to their productivity in making their own careers and constructing their own identities as the teacher and the mentor. A similar thought on productivity was also explained by Ganser (1996) that, "enhancing and enlarging the role of the co-operating teacher will contribute to the personal and professional satisfaction of many veteran teachers and serve to make their own careers more productive and fulfilling" (p. 289). There is no doubt that this productivity will yield to a more collaborative environment which is a goal of the overall mentorship program. Rüzgar,

in between his lines, actually compared mentor teachers' classroom with mentees and without mentees. He said: "Naturally, this application (mentorship program) has a function of increasing the productivity of mentor's work because he is not alone in his teaching environment anymore."

He believed that being observed by mentees in a classroom changed the atmosphere of the classroom. The mentor teacher became more productive and tried novel things. In this way his routines changed and ordinary things in class were turned to more creative ones thanks to the productivity of the mentors. In addition to becoming more motivated, enthusiastic, and more productive, Rüzgar (T) believed that mentor teachers became more self-reflective in their teaching. They began to question their identities as teachers and their teaching philosophies. Rüzgar (T) thought that being self-reflective as a result of being a mentor meant having an observational eye on their own teaching and thinking about their weaknesses, strengths in this regard, which was a personal virtue gained via mentoring.

3.4.2. Professional growth

Zachary (2000) pointed out that mentors are stimulated both emotionally as well as intellectually through their interactions with mentees. In the case of Doğa (T), based on her reflections during the interviews, the question on the benefits of mentorship on the mentors by the researcher was directly linked to the use of technology, which was indeed a surprise for the researchers whose purpose of asking this question was not limited to and focused on the use of technology in class. Doğa did not reflect much on the professional gains of the mentorship except stating that she was already competent in using computer in class, yet mentorship did not contribute to her professional growth. In this respect, Doğa (T) considered that through mentorship she could only develop herself in terms of technology.

As also stated in Esra's case, Esra (S) emphasized that her mentor teacher, Doğa, had problems in her pronunciation in English. When Esra (T) was asked whether she interfered to correct Doğa's mispronunciation, she stated that she avoided it in order not to ruin the ecosystem of the classroom and did not want to be disrespectful towards her mentor. This also shows that mentors did not get into a mutual relationship with mentees and did not talk about their teaching which may limit their professional growth.

Unlike Doğa (T), Rüzgar (T) repeatedly mentioned the professional development side of the experience. For him, the benefits of mentoring in terms of professional development were being able to use new teaching techniques, updating present knowledge, and developing updated materials and tests. He reported that the greatest and the most common benefit of the mentoring was that teachers updated their knowledge, teaching skills, teaching techniques, methods and activities. This is indeed in line with what previous studies suggested. Bowers (1994) stated that mentorship experience provided the mentors with the chance to include new instructional materials in their own classes as presented by pre-service teachers. For instance, Rüzgar (T) said that "I know some colleagues who began to try new techniques that they never used before." He continues:

"…yes, yes. Mentorship definitely contributes to the mentors. Because now you contact with university students whose knowledge is fresh. They come to school having been trained on material development by taking such a course, hence as a mentor you need to improve your knowledge and develop materials to keep pace with the mentees."

As a natural outcome of feeling the need to update prior, existing knowledge, and teaching skills, mentor teachers reported that they came to classes more prepared during mentorship. Rüzgar (T) stated that due to the existence of mentees in class, the classroom atmosphere changed from more informal to formal. These changes included taking things more seriously

and revisiting and checking the classroom routines, materials, and even his own perceptions as a teacher. Rüzgar (T) repeatedly mentioned that mentorship contributed to teachers' understanding of material use. Thus, a teacher who was using the course book as a sole source became interested in finding extra materials and trying new activities in class. This influenced the overall teaching-learning itself in a positive way. Students got the chance to see variety and richness and the teacher himself gained more experience in trying material development, adaptation etc. In regard to materials development, Rüzgar (T) also talked about how the tests used in classroom for evaluation and assessment purposes changed. He said that teachers who used to use same type of questions in the tests felt the need to add variety in their tests. This was because the mentees were taking testing courses at their universities and the mentor felt obliged to show better examples of tests used in classroom.

When Memedov (S) was asked whether he gave feedback to Rüzgar (T) on his teaching, he stated that he never gave feedback to him as he thought that his mentor was experienced enough. Similar to Esra (S) and Doğa's (T) mentorship case, there seems to be no explicit feedback given to Rüzgar (T). Therefore, this study reveals that mentors did not receive any explicit feedback from the mentees for various reasons. Mentors improved their teaching only by reflecting on mentees' and their own practices.

In sum, mentorship contributed to mentors in both affective and professional ways such as feeling updated and refreshed, feeling satisfied, feeling motivated, being more productive, self-reflecting as well as professional gains such as trying new teaching techniques, updating prior knowledge developing and adapting new materials and preparing tests. As seen in the excerpts above, two mentors in this study benefited from mentorship in various ways. While one mentor considered it as a process during which a teacher emotionally and personally developed herself as a teacher, other mentor saw it as a chance to question one's professional competence and performance as a teacher. This variety might be the reason or motive behind becoming a mentor teacher. Hastings (1999) reported similar thoughts on the same issue and stated that teachers (mentors) had "pecuniary, professional and affective benefits" (pp. 22) as motivations for participation in the practicum.

4. Conclusion

This case study aimed to reveal how both pre-service EFL teachers and their mentor teachers view mentorship experience. Based on interviews with two pre-service teachers and two mentor teachers, the study revealed the common themes found on the issues of benefits, drawbacks and the contribution of mentorship experience on their professional development. For the areas that mentees developed with mentorship, three common themes were found as classroom management, instructional processes, and self as a teacher. For mentors, two main development areas were found: professional and personal growth.

From a pedagogical perspective, the results of the study indicated that mentors had crucial role in mentees' practicum experience. The mentees expected to be cared and respected. Therefore, mentors should be aware of this responsibility. In this sense, selection of the schools and mentors should be done with meticulous care. Affective qualities of mentors such as being respectful and enthusiastic as well as their professional qualities should be taken into consideration. Moreover, as mentees highlighted, a particular amount of attention should be drawn to mentor teachers' capacity for empathy as well for their selection since overall practicum is a delicate stage which necessitates tolerance and understanding form mentors' part. The study also revealed that the supervisor and the mentor should work collaboratively to monitor the mentees' performance and work at practicum school. More collaboration is needed. Therefore, teacher education programs may decrease course load of mentees in the senior year, which hopefully will lead to a maximum amount of time spent in

practice teaching schools. This may enable mentees to facilitate an organic bond with both mentors and practicing schools.

In constructivist teacher education tradition, it is acknowledged that teachers learn via collaboration and interaction with each other. In this sense, the feedback given to mentors is as important as the feedback given to mentees. However, the results of this study revealed that mentees do not provide mentors with explicit feedback for various reasons. One motive behind lack of mentee feedback might be their understanding that they are not in a position to provide feedback to mentors who were more experienced than themselves. In that regard, the idea that mentorship as a mutual relationship is based on co-learning should be conveyed to mentees so that they do not refrain from giving feedback and welcoming the notion of critically commenting on their mentors' teaching practices. Mentees should be aware of that mentorship entails open channels of communication, which with contribute not only to their development but also mentors' professional growth. In order to ensure that both parties provide each other with feedback, there may be training sessions about giving constructive feedback within the practicum. In relation to this, in order to increase the quality of mentor-mentee conversation, rather than chit-chat forms, more structured properly scheduled conversation conventions in which constructive comments are neatly-organized can be followed.

The findings of the present study supported the previous findings that mentorship had significant potential to bring about learning from each other in the mutual relationship of mentor and mentee. Gains from mentorship included both personal and professional growth not only for mentees but also for mentors. This study showed that mentorship was a phenomenon more than being a course in a curriculum and its affective characteristic made it something beyond a course. It had a crucial function of shaping pre-service teachers' future lives as well as changing the existing behaviors, routines of experienced teachers. It should be noted that there were variations from case to case in the perception of mentorship and its functions, the roles of mentors, the duties of mentees etc. Still, what was found to be common was that the relationship between mentor and mentee was a continuous, dynamic, and fruitful one.

With regards to suggestions for further research, observations of the post-conferences could be made, and written reflections of the participants could be analyzed. The supervisors and the mentees doing their practicum with their pairs could be involved; the collaboration and the relationship between them are worthy of further exploration.

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PSYCHOMETRIC PROPERTIES OF THE PERCEIVED ICT LITERACY SCALE AMONG TURKISH UNIVERSITY STUDENTS

Research Article

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PSYCHOMETRIC PROPERTIES OF THE PERCEIVED ICT LITERACY SCALE AMONG TURKISH UNIVERSITY STUDENTS[1]

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Abstract

This study aims to assess the psychometric properties of the 17-item 3-factors perceived ICT literacy scale in a sample of Turkish undergraduate students. Previous research on measuring ICT literacy mostly focused on the technical competence dimension of the ICT use. The current scale not only considers the technical literacy but it also evaluates the information literacy. The scale consists of three factors, each of which refers to one dimension of the Information and Communication Technology (ICT). Data were collected from 284 undergraduate students educated at different departments. Confirmatory Factor Analysis (CFA) using maximum likelihood estimation procedure was applied to test the psychometric properties of the scale. Results of the CFA indicated that the scale showed acceptable levels of validity. Considering the reliability values, all the subscales and the scale as a whole showed adequate reliability values. The limitations of the scale were discussed and some implications were suggested.

Keywords: ICT literacy, information literacy, validity, reliability

1. Introduction

Today, Information and Communication Technology (ICT) has surrounded our life. In order to survive, one should become more literate in the 21st century, because abilities of researching and communicating information by means of technology are indispensable requirements. Besides, advancements in the ICT have been the triggering force for most of the developed and developing countries' economic growth (Tadesse, Gillies, & Campbell, 2018) and many popular occupations necessitate ICT-oriented skills (Ellis, 2001, as cited in Katz, 2005). European Commission (2018) has regarded ICT literacy as one of the key competencies for lifelong learning. Considering the importance of the issue, countries have started various initiatives to benefit from ICT in schools (Gök & Yıldırım, 2015). Policy makers and researchers offered different frameworks and competencies to emphasize the importance of ICT literacy (Zhang & Zhu, 2016).

Using ICT to find and process information is a significant obstacle that today's scholarly world, labor force, and society encounter (Katz, 2005). This may be because of having insufficient ICT skills. Although the significance of ICT literacy is well known, it has been stated that there is a serious gap between the levels of ICT skills and knowledge that students possess and the levels required by today's 21st century. Besides, there is a false belief that ICT literacy refers to performing technical skills such as using technologies and the internet effectively, leading to underestimation of the information literacy. This has prompted researchers and policy makers to propose a more holistic ICT literacy approach, which considers not only technical dimensions of ICT use such as computer and internet literacy, but also higher order skills such as information literacy (Katz, 2005; Lau & Yuen, 2014). Furthermore, measuring ICT literacy is as important as defining and conceptualizing it. The

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literature on ICT literacy did not provide sufficient measures to evaluate students' ICT literacy. Besides, in most of the scales, sub dimensions of the ICT literacy were not well discriminated, supposing that ICT literacy is unidimensional. Given this rationale, the current study aims to evaluate psychometric properties of the perceived ICT literacy scale (Lau & Yuen, 2014) among Turkish university students.

2. Defining and Measuring ICT Literacy

In order to define ICT literacy, first, one should define the term "literacy". However, there is not a consensus on the definition of the literacy in the literature (Bawden, 2001). Literacy has been defined as the ability to read and write by Turkish Language Association. However, as referred by Dinçer (2017), today, the concept has a broader meaning. "Literacy can be defined as having the skills one needs to make the connection to the information necessary to survive in society" (Olsen & Coons, 1989, as cited in Bawden, 2001, p. 222). Considering information literacy, American Library Association suggested the following definition: "To be information literate, a person must be able to recognize when information is needed and have the ability to locate, evaluate, and use effectively the needed information" (ALA, 1989, as cited in Katz, 2005). Considering ICT literacy, several concepts were used interchangeably in the literature. To name a few, these include digital competence, ICT competence, internet literacy, media literacy, digital literacy, computer literacy, and ICT literacy (Dinçer, 2017; Zhang & Zhu, 2016). Young generation of today devotes considerable time to use their laptops, tablets, smartphones, PCs, and etc. However, this doesn't necessarily mean that they are literate on using ICT (Siddiq, 2016). Therefore, previous conceptualizations of ICT literacy have been criticized by the researchers in that they were used to refer only to the technical competence of ICT use neglecting higher order skills such as problem solving and critical thinking. However, effective and efficient use of ICT necessitate not only technical competence but also information literacy skills. That is, ICT usage ability should be combined with information literacy skills that include researching and communicating information (Lau & Yuen, 2014; Rodríguez-de-Dios, Igartua, & González-Vázquez, 2016), because having expert in technical operation of ICT does not mean using ICT effectively (Katz, 2005). The concept of technology should not be delimitated to the merely usage of hardware and software but it should be considered along with social, ethical and intellection issues related to it (Rodríguez-de-Dios et al., 2016). In line with this rationale, in an international panel, Educational Testing Service (ETS) defined ICT literacy as "using digital technology, communications tools, and/or networks to access, manage, integrate, evaluate, and create information in order to function in a knowledge society" (ICT Literacy Panel, 2007, p. 2). It was also defined by Claro et al. (2012) as the capacity to solve problems of information, communication and knowledge in digital environments.

Various frameworks were suggested by the researchers, institutions and policy makers to determine the indicators of ICT literacy. According to Educational Testing Service (ETS), ICT proficiency includes the following abilities: access, manage, integrate, evaluate, and create information (ICT Literacy Panel, 2007). According to Australian Council for Educational Research (ACER), components of ICT literacy were determined as accessing, managing, and evaluating information, developing new understandings, communicating with others and using ICT appropriately (Meiers, Knight, & White, 2009). According to Organization for Economic Co-Operation and Development (OECD), ICT literacy includes abilities of accessing, managing, integrating, evaluating, and creating information (Dinçer, 2017). According to European Commission (2018), digital competence framework includes "information and data literacy, including management of content, communication and collaboration, and participation in society, digital content creation, including ethical principles, safety and problem solving" (p. 51).

Although conceptualizations on ICT literacy have been widely discussed by the literature, little research was devoted to the development of ICT literacy scale (Lau & Yuen, 2014; Tadesse et al., 2018). Besides, most of the measures were limited in that they mostly regarded ICT literacy as capabilities of using computer hardware and software. However, as the definition of ICT is broader in today's conditions, former scales are regarded to be limited to measure all aspects of the ICT literacy (Rodríguez-de-Dios et al., 2016).

Different scales were used to measure ICT literacy of the various groups of students. For example, studying with pre-service science teachers, Üstündağ, Güneş and Bahçivan (2017) adapted digital literacy scale (Ng, 2012) into Turkish culture. It was found that the 10 items loaded into one factor explaining 40% of the total variance. Rodríguez-de-Dios et al. (2016) conducted a study on the development and validation of a digital literacy scale for teenagers. Accounting for 44.3% of the total variance, exploratory factor analysis showed the existence of six factors: technological skill, personal security skill, critical skill, devices security skill, informational skill, and communication skill. Goldhammer, Naumann and Keßel (2013) developed a basic computer skills (BCS) scale based on the data of German PISA 2009 field trial. BCS is regarded as the basic computer use scale of the broader concept of the ICT literacy. Results of the Confirmatory Factor Analysis (CFA) indicated that the BCS scale included one dimension labeled as BCS speed and ability. Richter, Naumann and Horz (2010) used Practical Computer Knowledge (PRACOWI) to measure ability of solving computer related problems, which is a subscale of computer literacy inventory. The subscale was found to have a good internal reliability value and was one-dimensional (cited in Greiff, Kretzschmar, Müller, Spinath, & Martin, 2014). Lau and Yuen (2014) developed a three-factor 17 items perceived ICT literacy scale for the secondary school students. The scale consisted of three factors including all dimensions of Information and Communication Technologies: Information (Information), the Internet (Communication) and Computer (Technology) literacy. Results showed that the three subscales explained 65.83% of total variance and it had a good reliability value (Cronbach's alpha = .92). Nasser AL-Nuaimi, Bouazza, Abu-Hilal, and Al-Aufi (2017) developed an information-ethics questionnaire for undergraduate students. One of the sub dimensions of the scale was perceived ICT literacy self-efficacy. The researchers barrowed items from the perceived ICT literacy scale developed by Lau and Yuen (2014) and from information literacy survey developed by Pinto (2010). Different from Lau and Yuen (2014), Nasser AL-Nuaimi et al. (2017) tested the psychometric properties of the developed scale with undergraduate students rather than secondary school students. Exploratory factor analysis showed that the scale explained 58.93 % of the total variance. In addition, the results of the CFA indicated satisfactory results of model fit indices.

To sum up, although the conceptualization and definition of ICT literacy have been widely discussed by the literature, scales on measuring ICT literacy including all dimensions of ICT remain insufficient (Lau & Yuen, 2014). In addition, most of the studies on developing ICT literacy scale and measuring it consider ICT literacy as a homogenous unidimensional construct, in which cognitive and technical proficiency are combined (Tadesse et al., 2018). On the other hand, few studies addressed the issue of taking ICT literacy as a construct that involves sub-correlated dimensions such as information, internet and computer literacy (Lau & Yuen, 2014; Nasser AL-Nuaimi et al., 2017).

Developing an ICT literacy scale is important in that such a measure could be used to determine students' prerequisite knowledge regarding the media literacy skills, when implementing media literacy education (Arke & Primack 2009; Buckingham 2009). Besides, as referred by Zhang and Zhu (2016), to put into action of ICT literacy education effectively, one should determine these skills as proxies of the prerequisites. Considering the lack of

research in Turkish culture about the issue, it could be argued that there is a need for such a scale to use it in Turkish culture.

To this end, the purpose of this study is to assess the psychometric properties of the perceived ICT literacy scale in a sample of Turkish undergraduate students. Accordingly, the following research question was posed: Does the Turkish version of the perceived ICT literacy scale have satisfactory levels of validity and reliability.

3. Method

3.1. Item Selection and Scale Translation

The current study barrowed items from a three-factor 17-item perceived ICT literacy scale (3F-PICTLS) developed by Lau and Yuen (2014). The scale was originally developed for the secondary school students. However, during the item generation, the researchers applied for various frameworks (e.g., Educational Testing Service, 2003), which were originally suggested for the context of higher education. In addition, Nasser AL-Nuaimi et al. (2017) tested the adapted version of the scale (ICT self-efficacy subscale) in a sample of undergraduate students and showed that it had appropriate levels of validity and reliability values. Considering the lack of such a scale for Turkish undergraduate population, the target group for the current study was also undergraduate students. Therefore, referring to Nasser AL-Nuaimi et al. (2017), some of the items barrowed from Lau and Yuen (2014) were modified in a way that suits the levels of undergraduate students.

The 3F-PICTLS scale consists of three factors, each of which refer to one dimension of the ICT). These factors are information literacy, internet literacy, and computer literacy, which denote to Information (I), Communication (C) and Technology (T) respectively. Information Literacy factor includes seven items that are about recognizing the needed information and abilities such as locating, evaluating, and using the needed information (ICT literacy Panel, 2007). The following, one item of Information Literacy is given as example: "I am able to interpret and represent information, such as using ICT to synthesize, summarize, compare and contrast information from multiple sources". Internet Literacy factor included five items, which are about technical competencies needed when using internet. A sample item related to the Internet Literacy factor could be given as follows: "I am able to use email to communicate." Finally, Computer Literacy factor is related to the offline computer usage abilities. The following, a sample item of the Computer Literacy scale was given: "I am able to plot a graph and chart using spreadsheet software". All items are scored on a 5-point Likert type scale. A one - point (1) refers to strongly disagree and a five - point (5) refers to strongly agree.

In the process of scale translation, the following procedures were followed: Items were translated by four scholars separately, two of whom are expert in educational sciences and two are in educational technology. All translators have the PhD degree in their field and they speak English well. Then, the four translated versions of the scale were carefully reviewed and compared with each other by the researcher of the current study. Experts' opinions regarding the items were also considered in this phase and the necessary modifications were applied to the items based on the suggestions. Finally, back translation was conducted by an expert working in the English language teaching department. This form of the scale was compared with the original form and it was observed that the two scales were similar. Finally, the Turkish form of the scale was sent to a Turkish language expert to put it in final form based on the appropriateness of the items in terms of the grammar, wording, clarity, and spelling.

3.2. Participants and Data Collection

A non-random convenient sampling procedure was used to collect data from the participants. Convenient sampling is used by the researchers, when participants of the study were determined based on their availability and accessibility (Creswell, 2012). The participants were undergraduate students studying different majors at different public universities in Turkey. In order to conduct factor analysis, different criteria for a minimum of required sample size was suggested by different researchers. According to Guilford (1954), the sample size should be more than 200. According to Hair, Black, Tatham and Anderson (2010), at least five participants for each parameter are needed but 10 participants are preferred.

Data were collected through both online and offline methods during summer school of 2017-2018 academic year. Online data were collected via Google form. Offline data were collected face to face by using a paper-based format. In the current study, initially, there were 295 respondents. Of all participants, 55% (N =164) of them are female and 45 % (N = 131) are male. Their mean age is 22 (*SD* = 3.56). As the data had missing values and univariate or multivariate outliers, 11 of all cases (5 males, 6 females) were excluded from the analysis yielding a total number of 284 respondents. This sample size was deemed sufficient according to the criteria suggested by the researchers.

3.3. Data Analysis

IBM AMOS version 24.0 was used to analyze the data. Confirmatory Factor Analysis (CFA) using maximum likelihood estimation procedure was applied to test the psychometric properties of the scale and the strength of the factor solution suggested by the original study. Also known as the measurement model, CFA is used to test the relationships between the observed variables and the latent structures considered to be measured by these observed variables (Kline, 2015; Weston & Gore, 2006). Before conducting the analysis, outlier and missing case analysis were conducted and problematic cases were removed. Outliers were detected by univariate boxplots and Mahalanobis distance. After that, assumptions of CFA such as univariate normality and multivariate normality were tested. According to Kline (2015), distributions with skewness values greater than the absolute value of 3 and kurtosis values greater than the absolute value of 10 should not be considered as normal. In the current study, it was found that all the items distributed normally based on this suggestion. To test multivariate normality, Mardia's coefficient was evaluated. According to Raykov and Marcoulides (2008), the suggested value for $p\,(p + 2) = 17(19) = 323$, where the p is the number of the items (as cited in Lau & Yuen, 2014). In the current study, the coefficient was calculated as 139.881, which was below the suggested value. Therefore, multivariate normality assumption was met.

4. Results

4.1. Validity Results

To test the validity, various model fit indices could be used. However, there is not a consensus in the literature regarding which indices should be reported (İlhan & Çetin, 2014). Kline (2015) indicates that "a minimum set of fit statistics that should be reported whenever it is possible to do so" is "model chi-square with its degrees of freedom and p value, Root Mean Square Error of Approximation (RMSEA), Bentler Comparative Fit Index (CFI) and Standardized Root Mean Square Residual (SRMR)" (p. 269). In the current study, χ^2/df (Chi-Square/Degree of Freedom), Comparative Fit Index (CFI), Standardized Root Mean Square Residual (SRMR), Root Mean Square Error of Approximation (RMSEA) and NNFI (TLI) were reported.

Comparative Fit Index (CFI) supposes that latent constructs are uncorrelated. This null model is compared with the sample covariance matrix (Hooper, Coughlan, & Mullen, 2008). Values close to one indicates a good fit for the model. Standardized Root Mean Square Residual (SRMR) is the standardized form of Root Mean Square Residual (RMR), which refers to mean of absolute covariance residual. Values close to zero indicates a good fit (Kline, 2015). Like SRMR, Root Mean Square Error of Approximation (RMSEA) is a badness of fit index. Values of RMSEA should be close to the zero, as values close to the zero shows minimum error between observed and reproduced matrices (Meydan & Şeşen, 2011). Normed-fit index (NFI) evaluates the strength of the model by comparing χ^2 value of the current model to the χ^2 value of the null model. Values of NFI range between zero and one, with values close to one indicate a good model fit. The disadvantage of this index is that for small sample sizes, ($N < 200$), it underestimates the model fit. However, the introduction of Non-Normed Fit Index (NNFI), which is also known as Tucker-Lewis Index (TLI), solved this problem (Hooper et al., 2008).

The suggested model fit indices for perfect and acceptable model fit were summarized by İlhan and Çetin (2014) based on the various references. It was given in the Table 1.

Table 1. *Suggested values for perfect and acceptable model fit*

Model fit indices	Perfect fit	Acceptable fit
χ^2/sd	$0 \leq \chi^2/sd \leq 2$	$2 \leq \chi^2/sd \leq 3$
CFI	$.95 \leq CFI \leq 1.00$	$.90 \leq CFI \leq .95$
SRMR	$.00 \leq SRMR \leq .05$	$.05 \leq SRMR \leq .10$
RMSEA	$.00 \leq RMSEA \leq .05$	$.05 \leq RMSEA \leq .08$
NNFI (TLI)	$.95 \leq NNFI\ (TLI) \leq 1.00$	$.90 \leq NNFI\ (TLI) \leq .95$

In the current study, the following model fit values were found. $\chi^2/sd = 2.42$, CFI = .94, SRMR = .053, RMSEA = .071, NNFI (TLI) = .92. All the values could be interpreted as having acceptable values (see Table 1). In other words, the model fits data well. Factorial structure of the tested theoretical model is provided in the Figure 1. Unstandardized and standardized regression weights and the squared multiple correlations (R^2) values are provided in Table 2. All standardized regression weights (i.e., factor loadings) are significant at the .001 alpha level. The squared multiple correlations (R^2) refer to the amount of variance of the observed variables (items) explained by the latent variable (factor). Correlations between factors are found as .82 between Information Literacy (INFL) and Internet Literacy (INTL), .79 between Computer Literacy (COMPL) and INTL and .70 between COMPL and INFL.

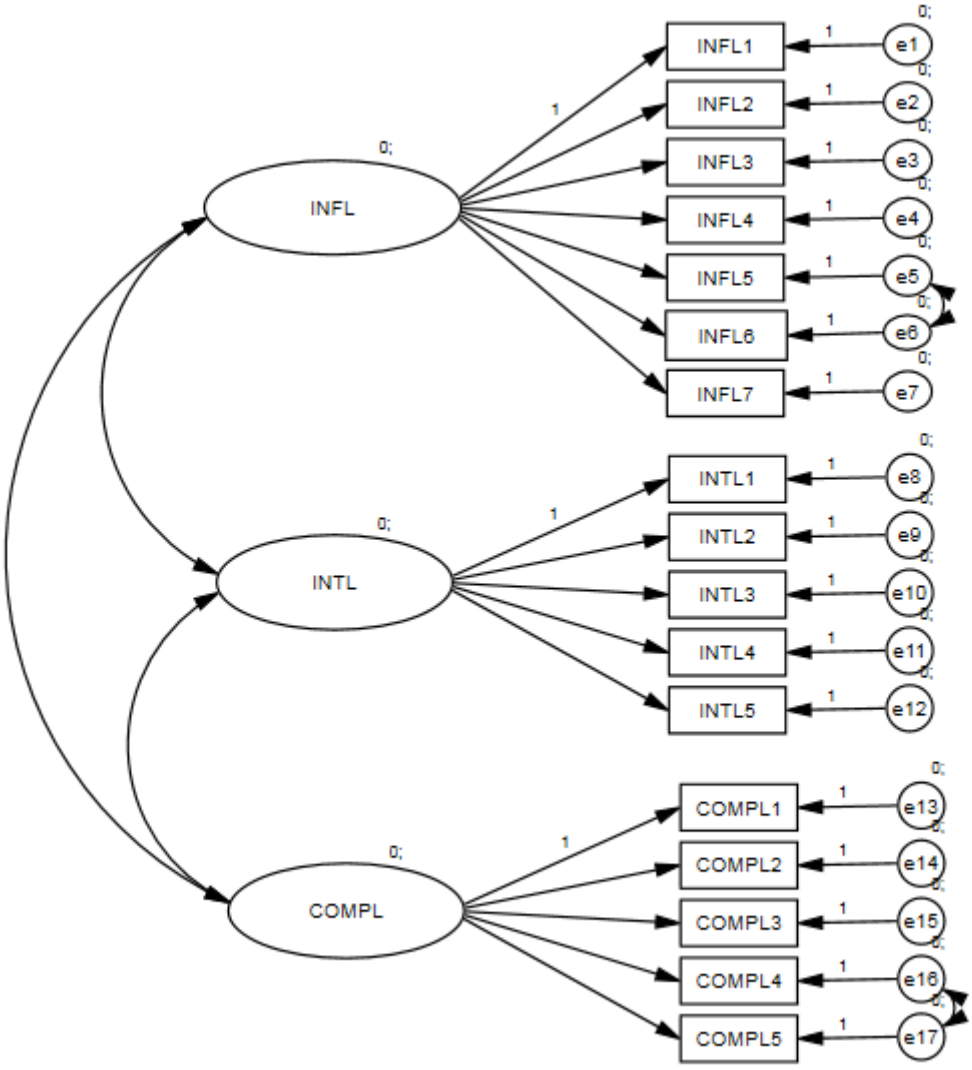

Figure 1. Factorial structure of the Turkish version of 3F-PICTLS.

Note. INFL = Information Literacy, INTL = Internet Literacy, COMPL = Computer Literacy.

Table 2. *Regression weights and the squared multiple correlations*

Factors	Items	Unstandardized estimates	Standardized estimates	R^2
INFL				
	INFL1	1	.618	.382
	INFL2	1.131	.775	.601
	INFL3	1.326	.849	.721
	INFL4	1.331	.810	.656
	INFL5	1.377	.792	.627
	INFL6	1.179	.663	.440
	INFL7	1.153	.679	.461
INTL				
	INTL1	1	.678	.460
	INTL2	.735	.688	.473
	INTL3	.694	.693	.480
	INTL4	.327	.612	.375
	INTL5	.687	.719	.517
COMPL				
	COMPL1	1	.767	.588
	COMPL2	1.108	.731	.534
	COMPL3	1.155	.810	.656
	COMPL4	1.120	.761	.579
	COMPL5	1.102	.623	.388

Note. INFL = Information Literacy, INTL = Internet Literacy, COMPL = Computer Literacy.

4.2. Reliability Results

In order test whether the scale and its sub factors have sufficient reliability values, Cronbach's Alpha values, which refers to internal consistency were calculated. According to Nunnally (1978), values above .70 are regarded to be a sufficient reliability value. According to the results, INFL has a reliability value of .90. Deleting none of the items from the scale increased the reliability value. INTL has a reliability value of .78 and deleting items did not increase the reliability value of the scale; therefore, items of the INTL were decided to be retained. Finally, the reliability value of COMPL was found to be .86 and none of the items seemed to be problematic based on their item deletion values. In addition to sub dimensions, the Cronbach's alpha reliability value of the ICT literacy as a whole was assessed, which was found to be as .92. From these results, it could be argued that the scale has sufficient Cronbach's alpha reliability values.

5. Discussion and Conclusion

The purpose of this study was to evaluate psychometric properties of the perceived ICT literacy scale (3F-PICTLS) in a sample of the Turkish undergraduate students (N = 284). To this end, the scale, originally developed by Lau and Yuen (2014), was adapted into Turkish language and then validity and reliability issues were addressed. To test validity, CFA was applied to the data to confirm the factor structure proposed by the original study. As indices of

the model fit, values of χ^2/sd, CFI, SRMR, RMSEA, NNFI (TLI) were used. Results of the CFA indicated that the scale showed adequate levels of validity indices values indicating that the measurement model shows a good fit. Factor loadings were all significant, meaning that all the standardized regression weights for the latent variables in the prediction of the observed variables were significant. Therefore, the theoretical measurement model suggested by the original study was confirmed by the data collected from Turkish undergraduate students. Considering the reliability, all the subscales and the scale as a whole showed adequate levels of Cronbach's alpha values. In addition, deleting none of the items increased levels of Cronbach's alpha values.

In sum, the 3F-PICTLS scale was proven to have adequate levels of validity and reliability values in the sample of Turkish undergraduate students. This is in good agreement with the original scale developed by Lau and Yuen (2014). Results are also consistent with Nasser AL-Nuaimi et al. (2017)'s study that found acceptable validity and reliability results. Besides, as referred by other studies in the literature, ICT measurement tools should evaluate not only technical skills but also information literacy skills including problem solving and critical thinking, which are needed to function in the societies of the 21st century (Katz, 2005; Lau & Yuen, 2014; Rodríguez-de-Dios et al., 2016; Siddiq, 2016). Using internet and computer effectively necessitate information literacy skills, as having knowledge about technical skills does not imply being literate in ICT. For example, as referred by Lau & Yuen (2014), the item of "I am able to search for information on the internet using the advanced search options made available by search engines such as Google, Yahoo etc." is significantly related to the item of "I can gather and retrieve information in digital environments" (Lau & Yuen, 2014; Nasser AL-Nuaimi et al., 2017), showing the relationship between cognitive and technical dimensions of the ICT literacy. Therefore, the effect of students' information literacy skills on the effective and efficient use of ICT resources should be addressed in further measures dealing with the ICT literacy. Considering the lack of research in measuring ICT literacy from this perspective, it could be argued that the results of the current study would be an important contribution in fulfilling such a need in the current research base in a multifaceted manner. Another issue was the practicability of the scale. As referred by Üstündağ et al. (2017), in addition to validity and reliability, practicability of a scale should also be a concern for the researchers, as the scales with too many items may not be feasible for students to when responding to the items (Fraenkel, Wallen, & Hyun, 2012). As 3F-PICTLS consists of 17 items, one may argue that the scale seems feasible to collect data.

The Turkish version of the 3F-PICTLS scale can be used in measuring Turkish undergraduate students' ICT literacy and the results would be beneficial to guide or design in their ICT education. Turkish researchers and instructors would take beneficiary in using this Turkish translated scale. In technology integration or ICT literacy education studies, the scale could be beneficial to understand students' entry levels of ICT usage skills as proxies for determining their prerequisites (Arke and Primack 2009; Buckingham 2009; Zhang & Zhu, 2016). Furthermore, the scale may be useful for practitioners, who are working in the field of value education to determine the relationship between ICT literacy and ethical use of ICT.

The study undoubtedly has some limitations. First, the 3F-PICTLS scale did not include items addressing ethical issues of accessing and using information with ICT, although various international associations such as Association for Educational Communications Technology (AECT) (Molenda & Januszewski, 2008) and European Commission (2018) included ethics dimension in their conceptualizations of the ICT use. Second, the current 3F-PICTLS scale did not include items about the secure use of the ICT, which could also be addressed by the future studies (Rodríguez-de-Dios et al., 2016). Last, the scale did not include items regarding the

complex technical skills such as troubleshooting techniques, when faced with a problem during ICT use. Future studies may address this issue.

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THE EVALUATION OF LANGUAGE TEACHING PROGRAM APPLIED IN THE SCHOOL OF FOREIGN LANGUAGES

Research Article

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Abstract

English language teaching is one of the most crucial issues in the field of education in the world as well as in Turkey. There has been a growing need for adequate English language education programs at schools in Turkey. Preparatory classes of the School of Foreign Languages which offers students a full one year of English education try to fulfil this need regarding the students' needs and wishes into consideration in order to teach English successfully. This study focused on the evaluation of the effectiveness of language teaching program applied in the preparatory classes by the school of Foreign Languages of a state university in Turkey through the perspectives of the students studying English for a year. 270 students attending the preparatory school participated in the study. The data were gathered through a self-reported student questionnaire and were analyzed descriptively through SPSS 20. The results of the study demonstrated that the language teaching program in the preparatory classes of the School served for its purpose not fully but partially. The findings of the study indicated significant implications in relation to the strengths and weaknesses of the program. It would give some clues to the administration to understand the effectiveness of the Program.

Keywords: language preparatory program, foreign language teaching, program evaluation

1. Introduction

We all know that English is a worldwide language and has been gaining prominence among world communities since World War II (Toker, 1999 cited in Tunç, 2010, p. 8). In Turkey, the situation is similar to that of the rest of the world in terms of the prevailing use of English. Among the reasons that English is becoming very popular and to some extent, compulsory in Turkey is "the effect of globalization and strong political ties with the U.S." (Doğançay-Aktuna, 1998, cited in Tunç, 2010, p. 8). Therefore, English language learning and teaching gains importance and has an important role in Turkish education system. According to Konig (1990), English is not an official language or accepted as a second language in the Turkish educational context, however; it is undeniable that English is "the most useful foreign language" (cited in Tunç, 2010, p. 8). Among the reasons given for the necessity of speaking English is getting better job opportunities, keeping up with scientific and technological developments and for academic purposes. Besides, it is mainly important in the field of education especially in higher education as English language is the medium of instruction at some departments of many state or private universities. Accordingly, quite a number of universities in Turkey give much priority to English language learning and teaching in order to meet the demands in the domain of education.

Due to the increasing need for English learning, preparatory schools of the universities provide help for the students by giving them a full one year of English education. The main aim of these schools is to make students follow the courses in English at their departments efficiently by providing them help to increase their proficiency in the target language. As can be understood from the information given above, preparatory schools have an important mission in preparing students for their future majors. However, it has been a debate whether these schools are effective and adequate enough to teach English to learners. With this aim, there is a need to evaluate curriculum of preparatory schools in attempt to identify its weak and strong sides. Moreover, it is also essential to evaluate language teaching programs at the school to understand its effectiveness for the purpose of designing a good quality curriculum for the sake of the students, improving materials and resources and making necessary assessments.

In terms of education, curriculum evaluation is defined as "the process by which we attempt to gauge the value and effectiveness of any particular piece of educational activity – whether a national project or a piece of work undertaken with our own pupils (Kelly, 1999, p.137). Cronbach (1991, p. 236) categorizes three types of decisions that can be employed in the evaluation as in the following:

1. Course improvement: deciding what instructional materials and methods are satisfactory and where change is needed.

2. Decisions about individuals: identifying the needs of the pupil for the sake of planning his instruction, judging pupil merit for purposes of selection and grouping, acquainting the pupil with his own progress and deficiencies.

3. Administrative regulation: judging how good the school system is, how good individual teachers are, etc. (cited in Öner & Mede, 2015, p. 206).

Payne (1994) classifies the roles of evaluation into three sections. The sections are comprised of "development of the program in progress, simplification of comparison between competitive programs and promotion of knowledge concerning an efficient program design" (cited in Tercan, 2018, p. 4).

There is not only one model which can be applied in attempt to evaluate the program as the evaluators have different cognitive styles, philosophical ideologies and practical perspectives. Summative and formative models are among evaluation models proposed by Fitz-Gibbon and Morris (1987) who state that the main concern of the evaluator in this model is "to draw conclusions and statements about the merit of the program" while formative evaluation focuses on "identifying potential problems, determining areas where there is a need for improvements, identifying, describing, and monitoring program activities in the process of program implementation, and finally testing the achievement of the program periodically" (cited in Tunç, 2009, p. 17). Ornstein and Hunkins (1998) and McNail (1985) present humanistic and naturalistic evaluation and scientific-positivistic evaluation approaches. Robert Stake's Responsive Evaluation Model, Portraiture Model, Illuminative Evaluation Model and Elliot Eisner's Connoisseurship Evaluation Model constitute humanistic and naturalistic models while scientific-positivistic approaches are consisted of Judicial, Provus discrepancy, CIPP and Congruence-contingency models (Tunç, 2009).

There have been various studies on the effectiveness of language teaching programs applied in the Schools of Preparatory departments of both state and foundation universities. A study conducted by Mede and Uygun (2014) sought to explore whether a language preparatory program applied to the students with different majors was effective enough to meet the students' needs for learning. 64 learners completed the questionnaire and were

interviewed for the purpose of the study. The findings of the study indicated that the program assisted them to develop their language skills and to use language learning strategies effectively.

Another study by Özüdoğru (2017) investigated how the students attending to the preparatory class perceived the program provided by the School. The aim of the study was to make the evaluation of the English Preparatory Program of a state university. The program was totally voluntary. 208 students participated in the study having different proficiency levels from low to high. The result of the study revealed that the students thought that the program was partially effective. The instructors and the students were not satisfied with the physical conditions while they found the assessment of the program efficacious.

Tekin (2015) explored how the instructors and the students in the preparatory classes at a state university in Turkey evaluated the current program and its components in terms of teaching methods, assessment and materials and physical conditions. The results indicated that the students hold highly positive attitudes towards the program in the school except for a small amount of them. To be more specific, the students required a Turkish instructor for their listening and speaking lesson and also a separate vocabulary course. Furthermore, the instructors and the students participated in the research both agreed on the idea that the assessment needed to be spread to the whole year. One-thirds of the participants stated that they were dissatisfied with the materials used in the courses.

In another study conducted by Coşkun (2012), different dimensions of the preparatory school program such as teaching, assessment and materials were evaluated by the students and the instructors. In terms of teaching, it was understood that lecturing was mostly preferred method while more learner-centred activities like presentations and role-play were the least ones. The participants complained about the number and the lengths of the exams along with the subjective assessment of speaking and writing skills. Regarding the students' opinions about the material use, there was a need for supplementary materials especially for speaking. As for the teachers' views on the materials, some of them thought that the materials were not academic, in other words, they did not appeal to their students' profile.

Regarding the effectiveness of the modular system of a Foreign Language Preparatory class program in Turkey, Tercan (2018) conducted a study with 132 EFL students and 5 instructors. The participants were required to evaluate the program according to four dimensions as teaching, program, assessment and material. In terms of teaching, the study revealed that methods and activities used in teaching English needed to be revised in order to create more communicative learning environment. Besides, according to the findings obtained from the category of the program, the students did not see the program of the school effective. Specifically speaking, the students saw improvements in their writing skill while speaking skill got low mean value by both students and instructors. In a similar line with these findings, the participants were dissatisfied with the materials used in the program as this category had the lowest mean score among the other sections. On the contrary, the students had positive attitude towards the assessment in the modular system.

The study conducted by Akpur, Alcı and Karataş (2016) aimed to evaluate the instruction program of preparatory class at a state university through CIPP model. The findings of the study indicated that the students were not satisfied with the curriculum in terms of developing their four skills and the balance of four language learning skills. In the context of input factor, audio-visual materials did not meet the students' needs as the items in this category got the lowest mean scores. However, in-class activities were rated high. In terms of the process factor, the students found the activities insufficient and thought that these activities could not

provide them opportunity to practice their skills. For the students, the curriculum did not meet their expectations in terms of knowledge, study habits and following the course.

In the light of the literature given above on language teaching programs offered by the schools in Turkey, this study focused on the evaluation of the effectiveness of language teaching program applied in the preparatory classes by the school of Foreign Languages in a state university through the perspectives of the students studying English for a year. Moreover, this study aims at assisting the Preparatory School administration to identify the effectiveness of the program focusing on the weaknesses and the strengths of it. The evaluation of the program made by the students is believed to provide necessary changes in the curriculum of the school considering the issues raised by the results of the present study. With this aim, this study was guided by the following research questions:

1. Are the students at the Preparatory School satisfied with the program?
2. What are the students' perceptions about the effectiveness of the Preparatory School English language teaching program applied in the university?

2. Method

2.1. Setting and Participants

Totally 270 students participated in the study and 258 of them were involved in the analysis of the research. Of the students, 122 were male (47.5%) and 135 were female (52.5%). The age of the participants ranged from 18 to 34 with the mean of 20±2.1. The study was conducted at the School of Foreign Languages of a state university. Preparatory class of the School was compulsory for some of the departments in the university, however; those who want to learn English voluntarily could also take one year preparatory education at the School. The students had a total of 24 hours of English which was comprised of 16-hour Main Course, 4-hour Reading and Writing Skills and 4-hour Listening and Speaking Skills courses.

2.2. Instrument

In accordance with the purpose of the study, the model applied in this study is Robert Stake's responsive evaluation as a humanistic and naturalistic model, which stresses on the educational process (Tunç, 2009). The questionnaire was originally developed by Tunç (2009) to evaluate learners' perceptions towards the effectiveness of an English teaching program conducted in a preparatory school in a private university. It was conducted in the participants' native language in order to obtain data. For the current sample, Cronbach's Alpha of the questionnaire was 0.96 which is quite satisfying. It aimed to assess students' perceptions in five areas. To be more specific, the first section of the questionnaire was devoted to elicit the students' general opinions about the program while the second section was related with the learners' perceptions of the program in terms of their expectations. The third section sought to address the participants' perceptions of content and delivery of instructional process, the fourth section dealt with the students' perceptions of the materials, resources and the use of technology in the program and finally, the fifth section focused on the participants' perceptions of assessment and evaluation process of the program.

2.3. Data Collection and Analysis

To analyze the data, quantitative process was run. Quantitative procedures involved statistical analyses through descriptive statistics including means, standard deviations, frequencies, and percentages and the results were presented in the tables.

3. Findings

Findings of the research are going to be presented under the subtitles in accordance with the research questions.

3.1. Are the Students at the Preparatory School Satisfied with the Program?

Table 1. *Results for the items related to students' general opinions on the program*

ITEMS	1	2	3	N	M	SD
	%	%	%			
1. How would you rate English Language Program at preparatory school in general?	11.0	42.4	46.7	255	2.35	0.67
2. How would you rate the course system appropriate to your proficiency level used at preparatory school?	10.6	52.8	36.6	254	2.25	0.63
3. Do you think that English Language Program in use at Prep. School is efficacious enough to realize your aims regarding language learning?	13.3	52.2	34.5	255	2.21	0.65
4. Do you think that English Language Program in use at Prep. School is efficacious enough for you to follow your classes at your departments?	19.1	45.8	35.1	251	2.15	0.72

1= Does not meet my expectations and needs improvement; 2= Good and meet my expectations; 3= Beyond my expectations (For Questions 1; 2). 1= Not efficacious and definitely needs improvement; 2= Efficacious but still could be improved; 3= Definitely efficacious (For Questions 3; 4).

According to the results shown in Table 1, it is obvious that almost half of the students rate English Language Program at preparatory school in general as beyond their expectations and nearly half of them have the belief that it is good and it meets their expectations. Furthermore, more than half of the respondents believe that the course system used at preparatory school is appropriate to their proficiency level, in other words, it is good and meet their expectations whereas one third of the participants find it beyond their expectations. In both items only a small percentage of the students seem to believe that the program does not meet their expectations and needs improvement. Over half of the respondents declared that the program was efficacious enough to realize their aims regarding language learning but still some improvements could be made. Almost one third of the participants seem to believe that it is definitely efficacious. Finally, nearly half of the respondents believe that the program is efficacious enough for them to follow their classes at their departments but still needs some improvements while some of them seem to be quite confident about the efficiency of the program at this point since they regard the program to be definitely efficacious. However, nearly one fifth of the participants who do not find the program efficacious and believe that it definitely needs improvement cannot be underestimated.

3.2. What are the Students' Perceptions about the Effectiveness of the Preparatory School English Language Teaching Program Applied in the University?

Table 2. *Results for the items related to students' perceptions of the program in terms of their expectations*

Items	1	2	3	4	5	N	M	SD
	%	%	%	%	%			
1. The goals of the Language program at Preparatory School mostly comply with my aims /goals.	18.3	25.8	39.2	12,5	4,2	120	2.58	1.05
2. The language program at Prep School meet my expectations to a great extent.	19.6	21,6	40,0	15,7	3,1	255	2.61	1.06
24. Thanks to the program, my grammar has improved at a satisfactory level.	8.8	16,8	31,2	30,8	12,4	250	3.21	1.13
25. Thanks to the program, my writing skills have improved at a satisfactory level.	14.3	15,1	31,9	30,7	8,0	251	3.02	1.16
26. Thanks to the Program, my speaking skills have improved at a satisfactory level.	14.3	17.9	30.2	27.0	10.7	252	3.01	1.20
27. Thanks to the Program, my listening skills have improved at a satisfactory level.	13.0	17.4	30.8	28.1	10.7	253	3.05	1.18
28. Thanks to the Program, my reading skills have improved at a satisfactory level.	10.0	14.7	27.1	33.1	15.1	251	3.28	1.18

1= Strongly disagree; 2= Disagree; 3= Neutral, 4= Agree, 5= Strongly agree

Considering the results as indicated in Table 2, it can be understood that almost half of the students unfortunately are neutral about the consistency between students' own goals or expectations and the goals of the program. In addition, the students having negative perceptions are far more than the ones having positive perceptions with regard to the goals and expectations. As for the benefits of the program in terms of improving language skills, it can be seen that around one third of the students are neutral in all the items. More specifically, the students do not present positive or negative views about the improvements in grammar, writing, speaking, listening and reading skills. Nevertheless, the percentage of the students having positive perceptions in all the items is higher than the ones having negative perceptions.

Table 3. *Results for the items related to students' perceptions on content and delivery of instructional process*

Items	1	2	3	4	5	N	M	SD
	%	%	%	%	%			
4. I think the time for the course I am currently in is adequate in the program.	12. 5	17.3	28.2	27.8	14.1	255	3.13	1.22
5. The course I am currently in matches the level of each student.	16.3	19.5	33.9	23.0	7.4	2.57	2.85	1.16
13. The instructors teaching at Prep. School use various methods to make the lessons more interesting and motivating.	17.0	19.8	28.1	28.1	7.1	253	2.88	1.19
14. Technological means such as visuals and audios are used in the classroom for reinforcement.	8.0	16,5	22,9	33,3	19,3	249	3.39	1.20
15. There is enough focus on group work in the classroom.	13,1	19,9	27,9	31,1	8,0	251	3,00	1,16
16. The lessons are generally student-based.	10,5	18,1	28,2	33,5	9.7	248	3.13	1.14
17. I think that instructors provide me with enough practical examples for me to practice for the exams.	11.6	14,9	32,5	29.7	11,2	249	3.14	1.16
20. I support the idea of making use of more technology in the classroom.	14.7	21.6	29.4	26.5	7.8	245	2.91	1.17
21. I support use of audio-visuals in the classroom	14.3	21,8	29,0	25,0	9,9	252	2.94	1.19

1= Strongly disagree; 2= Disagree; 3= Neutral, 4= Agree, 5= Strongly agree

In the category of the perceptions of content and delivery of instructional process, the results as demonstrated in Table 3 indicate that students mostly believe that the time for the course they are currently in is adequate in the program for them. However, one third of them are neutral about whether the course they are currently in matches the level of each student and instructors provide them with enough practical examples to practice for the exams. In terms of using technology and audio visuals in the classroom, it has been seen that the students mostly have positive perceptions and mostly believe that they are necessary and adequately used in their classrooms. In the other items, related to the delivery of instructional process such as using various methods to make the lessons more interesting, having group works and student centred applications, it can be concluded that students mostly revealed positive attitudes as well as being neutral.

Table 4. *Results for the items related to respondents' perceptions of the materials, resources and the use of technology in the program*

Items	1	2	3	4	5	N	M	SD
	%	%	%	%	%			
3. I think English Language Program is efficacious in term of resources and materials.	1.32	22.6	27.2	28.4	8.6	257	2.96	1.17
6. The textbooks used in the program match my level.	11.2	17.8	26.0	32.9	12.0	258	3.16	3.14
7. The textbooks used in the program match my goals.	14.8	12.8	28.8	30.1	13.2	257	3.14	1.24
8. The textbooks used in the program are interesting.	16.1	18.4	29.8	23.1	12.5	255	2.97	1.25
9. The textbooks used in the program are efficacious for me to get prepared for exams.	15.1	20.9	24.4	28.7	10.9	258	2.99	1.24
10. The exercises in the books are sufficient for me to get prepared for the exams.	14.3	16.7	25.6	32.6	10.9	258	3.08	1.22
11. I think that extra materials are beneficial.	20.2	18.1	26.7	27.6	7.4	243	2.83	1.24
12. I think that the extra materials are more beneficial than textbooks in terms of getting prepared for the exam.	13.9	19.0	36.9	23.0	7.1	252	2.90	1.12
29. The reading passages in the textbooks are interesting.	17.1	17.9	26.3	29.9	8.8	251	2.95	1.23

1= Strongly disagree; 2= Disagree; 3= Neutral, 4= Agree, 5= Strongly agree

Regarding the students' perceptions about the materials, resources and the use of technology in the program, the results in Table 4 indicate that over one third of them agree that English Language Program is efficacious in term of materials and resources. Almost one third of the participants are neutral about the efficacy of their textbooks used in the program. To be more specific, they are neutral about whether the textbooks match their levels or goals, they are interesting and they are efficacious for them to get prepared for exams. However, more than one third holds positive perceptions of the efficacious of the exercises in the books and find reading passages in the textbooks interesting. In terms of the benefits of extra materials, one third of them are neutral while more than one third shows positive attitudes towards it.

Table 5. *Results for the items related to respondents' perceptions on assessment and evaluation process of the program*

Items	1	2	3	4	5	N	M	SD
	%	%	%	%	%			
18. I think weekly quizzes, making up a part of the total grade, are beneficial.	13.3	14.1	24.9	33.7	14.1	249	3.21	1.23
19. I think that weekly quizzes are effective in preparation for the other exams.	13.1	16.7	21.9	32.3	15.9	251	3.22	1.27
30. The activities provided in the text books are similar to the ones in the exams.	11.9	17.8	27.3	35.6	7.5	253	3.09	1.14
31. Text books are suitable for the exams.	10.3	14.7	24.2	39.3	11.5	252	3.26	1.15
32. My grammar knowledge is tested at a satisfactory level in the examinations.	9.2	19.2	23.6	37.6	10.4	250	3.20	1.14
33. My speaking skills are tested at a satisfactory level in the examinations.	9.5	18.7	25.8	33.3	12.7	252	3.21	1.17
34. My listening skills are tested at a satisfactory level in the examinations.	11.5	15.9	25.8	35.3	11.1	252	3.17	1.18
35. My writing skills are tested at a satisfactory level in the examinations.	11.5	13.1	23.4	38.5	13.5	252	3.29	1.19
36. My reading skills are tested at a satisfactory level in the examinations.	12.4	13.5	27.1	38.6	8.4	252	3.17	1.15
37. The writing questions in the exams are consistent with the writing exercises in the class.	11.6	17.2	30.4	31.2	9.6	250	3.10	1.15
38. The reading questions in the exams are consistent with the exercises in the class.	10.7	21.0	28.2	30.6	9.5	252	3.07	1.15
39.Listening comprehension questions are tested in parallel to the content of the lesson.	12.4	15.2	32.0	28.0	12.4	250	3.12	1.18

1= Strongly disagree; 2= Disagree; 3= Neutral, 4= Agree, 5= Strongly agree

Finally, in terms of the assessment and evaluation process of the program and the consistency between the knowledge presented during the courses through textbooks and extra materials and exams, Table 5 reveals that most of the participants (almost half of them in most items) are seen to have positive perceptions in changing degrees. They imply that during the exams they are assessed based on what they are offered during the courses. Majority of the students also seem that weekly quizzes help them prepare for the midterm and final exams. In addition, most students believe that their grammar knowledge and all

language skills are tested at satisfactory levels in the exams. Finally, they agreed that the activities used listening; speaking, reading and writing courses are all related to the exam questions. However, in all the items almost one fifth of the participants rated that they are all neutral while around one fifth of the participants reveal negative perceptions towards items of this category.

4. Conclusion

The aim of the present study was to evaluate the effectiveness of language teaching program in the school of foreign languages in a state university in Turkey through the students' perspectives. For that reason, the first research question was elicited to explore whether the students at the preparatory school were satisfied with the program. The data obtained from the first section of the questionnaire which focused on the participants' general opinions on the program revealed that in general, the students are satisfied with English Language Program applied at preparatory school as it is beyond their expectations, good and at the same time, it meets their expectations. More specifically, the program provided opportunity for them to raise their awareness of goals in learning a language and to follow their classes at their departments. However, the program also needs some improvements to have a better education from the participants' views.

As for the second research question, it was explored what the students' perceptions of the effectiveness of the Preparatory School English language teaching program applied in the university are. Regarding the participants' perceptions of the program in terms of their expectations, they have less positive perceptions towards the teaching program conducted in the school in terms of their expectations. The findings revealed that many students are neutral about the objectives of the school and objectives and expectations of them. Specifically, they are neutral about whether their speaking, listening, reading and writing skills along with grammar knowledge are improved with the help of the program.

Moreover, in terms of content and delivery of instructional process, their perceptions about the delivery of instructional process show difference as both positive and neutral. In other words, it is not wrong to say that they have more positive views about the efficacious of the time for the course, the use of audio visuals and technology and delivery of instructional process. The result concerning the use of audio visuals is not in line with the study conducted by Akpur, Alcı and Karataş (2016) who state that the students have negative perceptions of the use of audio visuals effectively. However, they are neutral about whether the course appeals to the students having different levels of proficiency and their teachers assist them to prepare for the exams providing practices.

Concerning the participants' perceptions of the materials, resources and the use of technology in the program, the students find the school program adequate regarding resources and materials, which shows inconsistency with the findings of the study by Coşkun (2012) and Tercan (2018) who claims that the students are not satisfied with the materials and would like to have more extra speaking materials. However, many of students are not sure about the effectiveness of the textbooks in terms of their expectations from textbooks such as whether they get their attention and prepare them for the exams. However, they find the exercises, reading passages in the textbooks and extra materials beneficial and adequate. In general, they mostly have positive perceptions towards the materials used in the program.

Lastly, regarding assessment and evaluation process of the program, most students have positive perceptions of the weekly quizzes which provide assistance for other exams such as midterms and final exams. They also state that there is a correlation between the questions asked in the exams and the related practices in all courses in the school. This result

is in line with the results obtained by Özüdoğru (2017) who found that the students found the assessment of the preparatory class program efficacious. However, there are some students who hold neutral or negative views about these items.

5. Implications and suggestions

Based upon the results of the study, it would not be wrong to say that the prep program was found to be partially effective and partially served for its purpose. This study shows that it is necessary to do some compulsory changes by the administration to strengthen the weaknesses of the school program according to the findings obtained from the questionnaire. In order to improve the effectiveness of the English language teaching programs, the objectives which the students are expected to attain at the end of one-year preparatory class program can be explained explicitly in order to raise their awareness of their learning process and meet their expectations by the administration at the beginning of the academic year through orientation meetings or brochures. Besides, the classes need to be arranged according to the similar English proficiency levels of the students at the beginning of the school and rearranged if it is necessary, in other words, when the students reach the expected level of English. Regarding the selection of the textbooks, the students' opinions should be taken into consideration and textbooks should be supported by providing extra materials. Moreover, the curriculum of the school needs to be designed in order to give more priority to the improvement of four skills of the students in learning English. In terms of the teachers' role in improving the effectiveness of the school, they should provide assistance for the students to prepare them for the examinations throughout the classes.

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ENDNOTE

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THE RELATIONSHIP BETWEEN EMOTIONAL INTELLIGENCE, SELF-DIRECTED LEARNING READINESS AND ACHIEVEMENT

Research Article

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Abstract

The aim of this study is to understand the influence of emotional intelligence and self-directed learning readiness on achievement and the influence of emotional intelligence on self-directed learning readiness of students who are in their first or second-year education in a private university in Ankara. The scales used are self-directed learning readiness scale and Schutte et al.'s (2001) emotional intelligence. SPSS version 20 is used by the researcher to carry out correlation and regression analysis to reach conclusions about the research questions. It is found that emotional intelligence and self-directed learning readiness are strongly correlated. Also, emotional intelligence predicts self-directed learning readiness with very little support from gender. However, there is no relation found between self-directed learning and GPA as well as emotional intelligence and GPA. Participants' being from different departments does not have an influence on GPA.

Keywords: self-directed learning readiness, emotional intelligence, achievement.

1. Introduction

In this section, self-directed learning readiness (SDLR) and emotional intelligence (EI) and the literature gap will be explained.

1.1 Emotional intelligence (EI)

EI has been studied in the domain of education for quite some time. A general description of EI by Mayer & Salovey (1997, p. 5) is as follows: "Emotional intelligence involves the ability to perceive accurately, appraise and express emotion; the ability to access and/or generate feelings when they facilitate thought; the ability to understand emotion and emotional knowledge; the ability to regulate emotions to promote emotional and intellectual growth."It has been studied under two topics as trait and ability emotional intelligence. Trait emotional intelligence (TEI) measures use self-report whereas ability emotional intelligence applies tests to understand the degree of expression, regulation and understanding of emotions. Examples of TEI scales are "The Schutte Self Report Emotional Intelligence Test" (SSEIT) and "The Trait Emotional Intelligence Questionnaire" (TEIQue). EI is defined by Schutte et al. (2001) as "the ability or tendency to perceive, understand, regulate, and harness emotions adaptively in the self and in others".

TEI uses self-report questionnaires about people's perceptions about their emotional world and is concerned with personality issues regarding emotions. According to Petrides et al. (2007), it is different from ability emotional intelligence in that it depends on hierarchical models of personality rather than cognitive abilities.

When we look at EI as an ability, we see that in an attempt to distinguish EI from personal and social intelligences, Mayer, Caruso & Salovey (2016) define a set of principles stating that

EI can best be measured as an ability and add that it is a broad ability focused on rapid information processing.

Goleman's (1995) definition of EI roots from distinguishing IQ from EQ by emphasizing that success in life is driven more by EQ than IQ saying that only 20% of IQ contributes to a happy life in general. Goleman describes EI as abilities including "regulation of motivation, understanding others' emotions, and controlling and understanding one's own emotions".

1.2 Self-Directed Learning

Self-directed learning(SDL) is a concept found in individuals who are efficient at controlling learning with their own preferences and choices which confirms their best way of learning. Self-directed individuals accept their own responsibility with support from their mentors. Garrison (1997) mentions that self-directed learners monitor themselves and make learning meaningful. SDL in its core has ties to metacognitive, cognitive and social strategies as they are related to autonomous learning. The importance of metacognitive skills can be seen in related research. For instance, Doyle (2008, p. 69) states that he sees a few students that are efficient in his classes and according to his observation, he identified the following 8 general skills of students who follow principles of self-directed learning, supporting that the learners need to organize, monitor and evaluate their own learning:

- *Finding and evaluating quality sources of information*
- *Identifying important information in quality sources*
- *Organizing information in meaningful ways*
- *Writing reports and papers*
- *Managing time*
- *Remembering what has been learned*
- *Using problem-solving systems*
- *Monitoring one's own learning (metacognition)*

Also Kleden (2015) uses similar footprints of SDL when he finds in his research that they give better outcomes of achievement as opposed to conventional methods of teaching. Gibbons (2002,p.11-12) explains that self-directed learning activities should essentially contain the following principles: "Student control over as much of the learning experience as possible,…skills development,… student self-management,…"

Knowles' (1975) definition of SDL involves processes where learners can understand what they need to learn and build strategies and set goals for learning. They also evaluate their learning outcomes. Knowles also thinks that this can occur with or without help of others such as peers or teachers. This means that if learners have not discovered this type of learning on their own naturally or if they have not been exposed to SDL by other means, the only way they will learn this kind of learning is with the help of tutors. While it is possible that learners developed themselves as self-directed learners or life-long learners, given the circumstances where the teacher is there for support and the method used in teaching is compatible with SDL, it is a question that learners will adapt themselves to this kind of learning. In this research study, though first and second-year university students constitute the sample, it is expected to shed some light on the issues concerned.

2. Literature Review

In this section, the concepts of SDLR and EI are reviewed and the research questions are shared.

2.1. Emotional Intelligence

The association among EI and academic success is researched in various studies to understand whether it acts directly, indirectly, or is mediated by other factors. Having emotional competencies enables learners to be better at various forms of adjustments, achievements and interpersonal skills (Adeyemo, 2005; Schutte et al., 1998; Wright, 2012). In a study by Yıldızbaş (2015) trying to tie EI to teacher leadership styles, positive results were found and it is stated that this is important for teachers to become role models and develop professional competencies. In literature, it is seen as the teachers' responsibility to take care of their students' emotional feelings. Especially in language learning, teachers' emotional intelligence is directly related to their success (Ghanizadeh & Moafian, 2010). Through teacher training programs, teachers should find ways to raise their emotional competencies and support students' emotional development. The same could be said for the materials and techniques used in language teaching (Shao et al., 2013). It would seem not only learners benefit from EI but also teachers who possess these competencies are better at concentration and strengthening their weaker points. Studies by Rahimi (2016), Sünbül & Aslan (2007) show meaningful relationships between EI and academic achievement. Furthermore, people with greater EI are more persistent with academic activities (Clariana et al., 2012; Parker et al., 2006). Urquijo & Extremera (2017) find that not only EI is positively related to academic satisfaction but also academic engagement mediated EI and academic satisfaction while sociodemographic and personality variables are controlled. Urquijo & Extremera (2017) also point out that emotions are components of academic engagement. That is why, it is supported that students who are more aware of their emotional abilities fulfill academic responsibilities better than others.

There are also studies that are concerned with the utilization of EI as a predictor of achievement levels through abilities such as coping with different kinds of stress. These studies perform mediation analysis with the mediating factors such as learning adaptability (Fei-Zhou et al., 2013), confidence and cooperating with others (Nasir & Masrur, 2010), assertiveness, self-motivation, and self-control (TEI). Some of these abilities become sub-elements of different EI scales.

Explanations above show direct or indirect positive effects of EI on learner achievement via mediating roles (MacCann et al., 2011). While EI is related to academic achievement, the prediction of achievement in long term studies is not sustained if other individual factors such as coping with stress, academic stress and test anxiety are accounted for. Barchard (2003,p.850) finds "…it is clear that the cognitive and personality domains are able to predict academic achievement but that a collection of unselected EI measures is not".

Literature shows gender to be a differentiating factor of EI. Generally, female students have better EI scores than male students in social dimensions according to various studies (Petrides & Furnham, 2000; Rahimi, 2016; Schutte et al., 1998).

Perera (2016) also goes on to say that there is a lack of theoretical explanations of TEI for achievement. While there are many instruments for measuring EI effect on achievement, confusion exists in self-reported instruments due to measuring intelligence and interpretation of data. The degree of representations of TEI differs from one study to another and that is why different results are observed. There are many factors that underlie TEI such as regulation of attention turning into other emotional strategies since academic achievement requires a lot of different input, abilities and state of mind as it is seen as a multi-stage process.

There are also studies that find no significant relationship between EI and academic achievement. For instance, the study by Shipley et al. (2010) finds no significant association between global trait EI and academic achievement. Furthermore, Koifman's (1998) study shows no relationship between EI and academic achievement.

2.2. Self-Directed Learning Readiness

Previous literature studies about SDL show that this kind of learning is related to personality traits (Cazan, 2015; Roberson and Merriam, 2005). Oddi (1987) suggests studying personality traits as they are free of learning mode and they constitute a more reliable indicator of SDL.

There are external and internal factors that affect SDL. External factors are support from "family and friends, faculty facilities, problems encountered, peer relationships and influence of parents and friends." Internal factors are "physical health, leisure time availability, hobby or passion, self-maturity and intelligence" (Nyambe et al., 2016, as cited in Ramli et al, 2018(p.38)). Both internal and external factors have social dimensions and both are important for academic achievement.

SDL has also been studied together with topics that are included due to the strategies that must be implemented as learners are planning, monitoring and evaluating their learning. Time management is studied by Başak & Aslan (2008) and the participants' academic success as well as their time management skills is high. Procrastination behavior is found to be negatively correlated with SDL (Hariyati & Tarma, 2017). Hematian et al. (2017) find that teaching how to set goals to students increases their SDL and motivates them but it has no significant effect on their achievement.

Studies that focus on the relations between SDL and academic performance find positive correlations (Baker et al., 2009; Cleary, Platten, & Nelson, 2008). While self-regulated learning and SDL are supposed to be distinct due to their micro and macro levels (Saks & Leijen, 2014) respectively, they are both related to motivation, persistence and academic performance (Zimmerman, 2008). Abd-El-Fattah (2010,p.594) in his study, discovers that "self-management was marked as the strongest predictor of academic achievement" which is an SDL component he chooses.

Literature represents studies including online learning and teaching which find out that students' self-directed learning correlates with academic achievement (Gradinetti, 2013; Zimmerman & Kitsantas, 2005). In a study by Kırmızı (2015,p.133), using "Online Learning Readiness Scale developed and validated by Hung et al. (2010)" as a sub-dimension, SDL correlates most significantly with student achievement and Kırmızı (2015,p.140) explains that "self-directed learning is the most important predictor of academic achievement…" in distance education students. Merriam & Caffarella (1991) also find significant relationships between SDL and achievement. Heo & Han (2018,p.66) study reveals that "online learning opportunities, responsibility for learning, love of learning,… self-concept as an effective learner…" and "independence in learning" correlates positively with motivation and negatively with academic stress.

Ramli et al.'s (2018) study shows that academic environment as facilities and atmosphere has positive effects on students' SDLR which coincides with Huang's (2008) study which finds that perceptions of supportive learning environment influence SDLR. Saeid & Eslaminejad (2017) find that SDLR significantly correlates with achievement motivation and self-efficacy. This finding is further validated by Lounsbury et al.'s (2009) study that show positive correlation between GPA and SDL.

2.3. The Relationship between Self-Directed Learning Readiness and Emotional Intelligence

The relationship between EI and SDLR is not very clear. Generally literature reveals that EI is more present in SDLR than given credit for.

Learners must regulate what they learn and self-regulation requires a set of skills that are difficult to acquire. These skills demand cognitive, metacognitive, motivational and emotional

controls at various levels such as the reduction of stress, adaptation to different circumstances, regulation of motivation and affect and the like. A study done by Delfino et al. (2010) which is about comparing self-regulated learning types in different online activities based on interaction analysis of the exchanged messages, it is found that the "nature of the task" (p.303) determines how students use self-regulation.. The indicators of self-regulation include the motivational/emotional aspects at individual and social levels. So motivational/emotional support is needed for the self-regulation strategies to work or made the self-regulation work better. Hence it can be assumed that students with high EI would give better support for themselves and for their social group. The motivational/emotional component of self-regulated learning is calculated as the highest in the evaluation part of the tasks. In SDLR, it is expected that learners monitor, evaluate and plan their own learning so making their own evaluation of the work is where the EI works best and where learners can reflect for professional growth.

Heo and Han(2018) found that academic stress can predict SDLR. Also, in Khiat's (2017) study on determining the indicators of SDL, it is found that stress management as an indicator needs further investigation because it does not show a direct influence on academic performance and it does not reflect a real stress level. As the stress level is seen as an emotional aspect or an aspect that can be avoided using emotional strategies, it is related to EI. A research study done by Elizabeth & Chirayath (2013) accepts that EI could be an important factor to determine learning outcomes and learning styles. SDL can be expressed by learning styles so learning styles employ both SDL and EI at their core. It can be seen that characteristics of self-regulated learning have elements of emotional control and emotionally balanced nature.

Research shows that SDL is linked to personality traits and SDL can itself be a personality trait. In Cazan & Schiopca's (2014) study, big personality traits such as openness, extroversion, emotional stability, conscientiousness and agreeableness were tested for correlation against SDL. The areas of SDL are "awareness,…, learning strategies,…, learning activities,…, evaluation,… and interpersonal skills" Cazan & Schiopca's (2014,p.641). It is found out that emotional stability is not related to any areas of self-directed learning. However, interpersonal relations are connected to EI. In Schutte et al.'s (2001) study, it is shown that high EI means better adaptation, cooperation and inclusion, and more satisfactory relationships with partners. Especially in their experimental study which is part of several studies, Schutte et al. (2001) come to the conclusion that EI is a desirable quality and it facilitates interpersonal relations. While interpersonal skills seem detached from EI in SLD, they are actually linked. Moreover, social influence, awareness, self awareness and self regulation work together to improve interpersonal skills in an emotionally intelligent individual (Kunnanatt, 2004). As seen, there is more to the link between EI and SDL-.

Buzdar et al. (2016) state that they see a gap in literature between the psychological aspects of students' online readiness for learning and EI in terms of causal relationships. In this study the researcher will try to expand the nature of this relationship and the effect of EI on readiness for learning.

2.4 Research Questions

1. Is there a significant correlation between EI and GPA of students?
2. Is there a significant correlation between self-directed learning readiness and GPA of students?
3. Can self-directed learning readiness of students be predicted from their EI?
4. Can self-directed learning of students be predicted from gender and being from different departments?

3. Method

This is a non-experimental research design that relies on correlational data. to understand correlations among SDL, GPA and EI. Also multiple-regression is used to see if SDLRS could be predicted from gender, being from a different department and EI.

3.1. Participants

The sample is 259 students from the Department of Mathematics Teaching Education, the Department of Turkish Language Education and the Department of Primary Education in the Faculty of Education at a private university in Ankara. 40.1% of students are from Turkish Language Education, 40.5 % from Primary Education and 19% from Mathematics Teaching Education.

3.2. Instruments

In this study, two instruments named as "Assessing Emotions Scale (AES)" by Schutte et al. (1998) and "Self Directed Learning Readiness Scale (SDLRS)" which is also known as "Learner Preference Assessment" by Guglielmino (1977) are utilized within the body of research.

The first scaleand it branches into expression, utilization, regulation and appraisal of emotions. This 5-point Likert-like scale consists of 33 items and it focuses on trait emotional intelligence. Some researchers find one factor solution (Brackett & Mayer, 2003; Schutte et al., 1998); whereas other researchers (Austin, Saklofske, Huang & McKinney, 2004; Ciarrochi, Chan, & Bajgar, 2001;) discover subfactors and they consider it to be better to focus on them rather than one factor.

For this study, the item number of the subfactors discovered in Ciarrochi et al.'s (2001,as cited in Schutte et al(2009)) study are as follows:

"Perception of Emotions (items 5, 9, 15, 18, 19, 22, 25, 29, 32, 33), Managing Own Emotions (items 2, 3, 10, 12, 14, 21, 23, 28, 31), Managing Others' Emotions (items 1, 4, 11, 13, 16, 24, 26, 30), and Utilization of Emotions (items 6, 7, 8,17, 20, 27)."

"An internal consistency analysis showed a Cronbach's alpha of 0.90 for the 33-item scale." by Schutte et al. (1998, p 171). Also the internal consistency measures of subscales of AES by Ciarrochi et al. (2001,p 1112) on higher education students are found to be: "…perception,(α= 0.76),…Managing Self-Relevant Emotions (α= 0.63),…Managing Others' Emotions, (α=0.66),… and utilizing emotions(α= 0.55)" respectively. Additionally, "Two-week test-retest reliability was 0.78." by Schutte et al. (1998, p.173).

For Self-Directed Learning Readiness Scale, while Knight finds 8 subfactors of the scale in her study, Guglielmino (1977) recommends using the scale without subfactors and as a score. He reports a reliability coefficient of .87 using the Cronbach's alpha, and test-retest ability reliability is reported to be .82 by Finestone (1984).

3.3. Procedure and Analysis

Both scales are translated into Turkish with an expert on English, expert opinions are obtained from two experts in the field and the questions are modified accordingly. There is not enough time to do a pilot study but the analysis shows that the students understand the questions well. The students are given the instruments after they had their final exams. The forms are completed by the participants. The results of the forms were entered into SPSS version 20 by the researcher and after that, the negative statements in the forms were reverse coded. 18 participants do not complete all of the AES so they are omitted and some of the participants fail to fill in the SDLRS so they are also omitted. The researcher uses correlation and regression analysis to reach conclusions about the research questions.

4. Results

For this study, the internal consistency for AES and SDLRS are found to be .88 and .93 respectively with Cronbach's alpha.

While subfactors of AES are moderately correlated amongst each other, it is found that they are not correlated with the GPA.

It is found that EI as a score and GPA are not significantly correlated so first research question is rejected. Results of the Pearson correlation indicate that there is no significant association between EI and GPA (r(221)=.036, p=.599. The results of the Pearson correlation indicate that there is no significant association between GPA and sub-factors of Perception of Emotions (r(221)=-.018, p=.79), Managing Own Emotions (r=221)=.059, p=.38), Managing Other's Emotions (r(221)=.101, p=.134) and Utilization of Emotions (r(221)=-.045, p=.501).

It is also found that SDLRS and GPA are not significantly correlated. The results of the Pearson correlation indicate that there is no significant association between SDLRS and GPA (r(221)=.069, p=.309). That is why the second research question is rejected.

It is found that SDLR and EI were significantly correlated. The results of the Pearson correlation indicate that there is a significant association between SDLRS and EI (r(259)=.629, p<.01. This statistical data will be further analyzed in the prediction of SDLRS from EI.

Principal component analysis is carried out to see the subfactors of AES and for this particular sample, 10 subfactors are found. Similarly, 15 subfactors of SDLRS are found, furthermore, the creators of SDLRS recommended that score of the scale should be used instead of subfactors. So it is decided to use the scale as the mean score of questions for both instruments.

4.1. Prediction of SDLRS from EI, GPA, Gender and Department

The sample consist of 222 female and 37 male students. Their departments were Primary, Turkish and Elementary Mathematics Education. Dummy variables are created such as PrimaryandOthers and TurkishandOthers. To test if EI and being from a different department and gender significantly predict SDLRS, multiple regression analysis is used. All variables are entered in regression model, departments and GPA are excluded. The results of the regression analysis indicate the two predictors as EI and gender explain 41% of the variance (R_2=.38, F(1,218)=5.56, p<.001).

It is seen that gender and EI together can explain for 41% of variance and most of this comes from EI. Also male students' EI is a better predictor of their SDLR than female students. It is also seen that there is not a significant collinearity between gender and EI. So third research question is accepted and fourth research question is partially accepted since gender has very little prediction of SDLRS and being from a different department has none.

5. Discussion and Conclusion

This study confirms a positive relationship between SDLR and AES. However, it is found out that there is no relationship between SDLR and GPA or AES and GPA. The researchers who study the relation or predictive force of EI on academic achievement generally use subfactors of EI scale. In finding no relation between SDLR and achievement, this research study bears similarities to Lotfi et al. (2012). Also, Rahimi (2016), and Yıldızbaş's (2017) studies find no significant relationship between EI scale they use and academic achievement. Some studies find indirect effect of EI on academic achievement such as academic motivation (Naik & Kiran, 2018), time management, goal achievement, and assertive communication (Nelson, 2003). In Arradaza-Pajaron's (2015) and Doost's (2017) study, it was concluded that EI can predict academic performance and it has a direct effect in studies such as Shao et al.

(2013), Pope et al. (2012), Walsh-Portillo (2011), and Fei-Zhou et al. (2013). These are all significant factors. Moreover, the study by Fei-Zhou et al. (2013) finds that EI is significantly related to academic achievement, also learning adaptability or EI predict academic achievement alone. A study by Alam & Ahmad (2018) reports significant relationship between a teacher's EI and student achievement. While it is explained by Lounsbury et al. (2009) that SDL can happen without some guidance from the teacher, Khiat (2017) shows that academic performance depends on the teacher as a factor as teachers maintain balance by keeping external control to ensure intended educational outcomes. It is thought that these examples show the link between EI and SDLR through complex mechanisms such that teacher's high EI can make students better self-directed learners and increase their motivation through studies. Elizabeth & Chirayath's (2013) study reveals that managing and understanding emotions as part of EI is strongly related to academic success. Goodwin (2016) supports this by saying that emotional competencies are predictors of academic achievement. While Fayombo (2012) states that EI partially predicts academic achievement, Hadiwijaya & Hutasoit (2017) emphasize the influence of social awareness on learning achievement. Alam & Ahmad (2018) add school culture as the mediating factor to the relationship between EI and achievement. While these factors are not included in this research, it can be a future reference to include school culture and social awareness.

Recent research studies show SDL competence as positively related to academic performance. The study by Khiat (2017,p.47) shows that the respondents "had the highest competence for two indicators of self-directed learning: Goal Setting and Technical Readiness". It appears that this relation remains almost the same whether we change the courses applied to be online, in-class or hybrid according to studies of Alonderiene & Suchotina (2017), Nikitenko (2009), and Triastuti (2016). A study by Saeid & Eslaminejad (2017) relates achievement motivation to SDL. Dağal & Bayındır (2016) in their study find no significant relation between SDLR and academic achievement. Study by Chou (2012) finds significant positive results between students' level of SDL and online learning performance.

Studies that include both SDLR and EI are scarce in literature. In studies where EI and SDL are both examined, there are commonalities in measurement instruments which could well be the cause of such high correlation. These commonalities show themselves in studies where EI and SDLR are examined separately. Mueller (2007) finds significant correlations between SDL and EI as .59. He finds that task performance is indirectly related to EI with elements of perseverance, commitment and self-confidence. While people can be trained in EI, it is considered as an innate ability and it develops self-confidence and self-competence. It is thought that this is the key point where EI and SDL intersect. It is apparent when Barr-On (1997) goes on to say that independence as a competence is to be self-directed in making decisions and thinking. Furthermore, Boyatzis et al. (2011) emphasize that self-directed learning can improve EI through creation of personal learning agenda. Straka & Schaefer (2002) count accompanying emotions such as joy, anger and boredom with SDL. Present research is similar in finding predictions of EI and SDL on managerial performance of Mueller (2007) such that EI and SDL are highly correlated.

The link between EI and self-directed learning shows itself in defining greater academic goals and better organization of learning. Regulation of emotions helps develop intrinsic motivation (Costa & Faria, 2015). Goleman (1998) also puts motivation as a sub element of EI. Bar-On (1997) connects self-directed learning and EI as self-planning whereas Hamachek (2000) sees self-directed learning as an outcome of EI. Bar-On (2004) also emphasizes that people with increased levels of EI are better decision makers and planners. Bar-On (1997) confirms the link between EI and SDL in competences he uses in his scale and says that being-self-directed is an emotional competence. The trait emotional intelligence model takes motivation into account (Mueller, 2007). Emotional ability is strongly tied to motivation

because by definition it is an ability to motivate oneself (Johnson, 2016) and motivation is a dimension of trait emotional intelligence (Perera, 2016).

As stated before, the relationship between SDLR and AES could be explained by their commonalities, i.e., the common concepts they use when testing for the influence on concepts such as achievement, job performance. When we try to understand why there is a strong relationship between SDLR and EI, we are faced with motivation in a great deal of research. Achievement motivation, motivation to learn, self-motivation, motivation for success, and performance motivation are all studied extensively under the topics of SDL, EI and SDLR. Firstly Garrison's model of self-directed learning accepts motivation as a link between self-monitoring and self-control (Garrison, 1997). Motivation is also a factor that affects readiness of an individual to complete a task in varying degrees (Richards, 2005). Artist & Harris (2007) also support this idea by saying that SDL is affected by motivation to learn independently. Self-motivation is defined as an important factor in removing obstacles to overcome self-confidence and doubt to achieve self-directed learning as well as autonomy Eggen & Kauchak (2007).

In a study by Abd-El-Fattah (2010), it is found out that motivation significantly predicts academic achievement and SDLRS is related to subfactors of academic achievement such as academic self-efficacy and motivation. In addition, Triastuti's (2016) study finds significant correlation between SDLR and motivation to learn. Learning motivation is also affected by becoming self-directed and how much freedom students have in class and in turn will increase their learning results.

It is claimed by Bonham (1991) that SDLRS is a more proper measuring instrument to measure the degree of motivation to learn than being self-directed. This finds evidence since self-directed learning has many factors that are in close ties with motivation for learning and success. In fact, SDL and self-motivation are so closely linked that self-directed learning scale uses self-motivation as subscale. We can also see that readiness is labeled as connected to motivation of learners as it influences satisfaction in online learning (Kırmızı, 2015).

Not only motivation but also the regulation of motivation becomes an important part to sustain SDL and this regulation keeps the learner on the job for his learning goals (Lee et al., 2017). Online readiness scale also shows motivation as a subscale. Results of study by Heo & Han (2018) show that motivation can predict SDLR. These are supported by Gencel and Saracoğlu's (2018) study which finds out that motivation goes hand in hand with SDL readiness for teachers. According to Khiat (2017), motivation is regarded as an important factor for managing learning process and a trait of self-directed learners.

Motivation is a strong indicator of self-regulated learner (Sırakaya & Özdemir, 2018). An instrument developed by Oddi (1984) to measure self-directed learning which contains 3 domains is increased to 4 domains by a more recent Harvey et al's (2006) study. The new factors are (Harvey et al, 2006 p.188) "learning with others, learner motivation/self-efficacy/autonomy, ability to be self-regulating, and reading avidity" . It would appear that self-directed learning is still developing as it includes more concepts that are related to motivation and ways of keeping motivation through the learning process (Chou, 2012). Perera & Digiacomo (2015) argue that TEI causes increased engagement through increasing attention and the sustained attention helps coping with adversities during learning. The researcher thinks that sustained attention is also an element of SDL since it is required to regulate learning. Derryberry & Reed (2008) support this by saying that attentional systems that create the basis of self-motivation ensures the attention required for focusing on academic achievements. According to Perera (2016), TEI can predict achievement much better if affective motivational capacities are included. Perera's (2016) study also finds gender as a predictor of SDLR. However, there are different results in literature. For instance, according to variation as SDLR scores, Alharbi (2018) finds no difference with gender and program types whereas Slater et al. (2017) find SDLR to be significantly higher in females who study in two departments. In Jaleel

& Anuroofa's (2017) study, girls scored higher in both SDL and achievement. Also the study by Osman (2015) finds female scores in SDLR to be higher. This contradicts with the present research study since male students are rated as higher in self-directed learning readiness. Jaleel & Anuroofa's (2017) study also incorporates gender into achievement which is special to information technology in the form of significant positive correlations.

6. Implications and Future Studies

The literature shows that TEI is concomitantly related to achievement. So implementation of emotional training will result in better achievement and better self-directed learning readiness for learners. That is why, EI training should be included in the curriculum. The dimensions of cognitive, motivational and interpersonal mechanisms between trait emotional intelligence and achievement should be tested via empirical data. The effect of EI training in schools should be studied with large populations and with learners from different backgrounds. Also, the specific course design and instructional strategies that reinforce EI such as focus of attention can be implemented to make students more aware of and open to different perspectives. Also, using metacognitive strategies, learners may become ready to learn through EI. The students should be told that the most important things to understand are meanings and positions of opinions in a collaborative manner so as to make room for empathy and managing differences. For homework, this could lead to enhanced levels of EI and benefits of learning. It is recommended that future studies about scale development or adaptation of SDLR and AES focus on separating EI and self-directed learning or accept EI as sub-elements of SDLR or vice versa. Students have to be motivated in order to be taught how to be self-directed learners to pursue interests. That's why teachers have to build enthusiasm in students for their commitment. Adaptation of the course to student experience and for productivity is essential for motivation. In a study by Dulewicz & Higgs (2004) testing whether EI can be developed or not, it is found out that motivation and resilience could be exploited further. For this reason, EI is already embedded in teaching materials and educational programs so that it can support motivation (Goodwin, 2016).

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BRIDGING THE GAP: A STUDY ON THE RELATIONSHIP BETWEEN MINDSET AND FOREIGN LANGUAGE ANXIETY

Research Article

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Abstract

This study aimed to investigate the relationship between mindset and foreign language anxiety (FLA) of EFL learners at both a private and a state university in Turkey. Quantitative methods were used and two Likert-scales, Foreign Language Classroom Anxiety Scale (FLCAS) and Dweck's Mindset Instrument (DMI) were administered to collect a set of data. Turkish versions of both scales were used during this phase. As well as foreign language anxiety, its three sub-dimensions, which are communication apprehension, test anxiety, and fear of negative evaluation, were also taken account. The study was conducted at the preparatory school of Gazi University and Atılım University, with a total of 203 participants. The findings revealed that there was no statistically significant correlation between mindset and foreign language anxiety. Moreover, EFL learners' foreign language anxiety was found at a moderate level, and it was also explored that they mostly adopted a growth mindset rather than a fixed mindset.

Keywords: mindset, foreign language classroom anxiety, EFL learners

1. Introduction

Foreign language anxiety (FLA), also known as xenoglossophobia, is considered as one of the most powerful predictors of language achievement and has long been the focus of teachers and educators in the world. Some specific factors that lead to foreign language anxiety have been identified in various studies, and it is commonly believed that foreign language anxiety impairs language learning (e.g., Horwitz, 2001; MacIntyre and Gardner, 1994b; Woodrow, 2006). Another strong predictor of language achievement is the mindset that learners adopt, fixed vs. growth mindset, a famous and broadly embraced concept suggested by Dweck (2006). According to her, students who carry fixed mindset view the source of intelligence is a virtue we are born with, stable and unchangeable whereas those with a growth mindset believe that intelligence is malleable, changeable and can be improved with persistence. The current study sought to find out the relationship, if any, between mindset and foreign language anxiety. Fairly limited empirical research has been carried out in this particular issue, therefore, the study will contribute to the elimination of a gap in the relevant literature.

2. Literature Review

2.1. Mindset

Not all the learners are the same and their beliefs, behaviors, needs and skills highly differ from each other. However, there is one more point which is not all the same in learners: their mindset. Mindset refers to implicit beliefs about the malleability of personal attributes (Dweck, 1999). Based upon research studies regarding implicit theories of intelligence, achievement and success, Dweck (2006) has come up with a new concept named ‘mindset’,

which makes all the difference in learning and teaching. This new and broadly embraced idea suggests that one can possess one of these two mindsets: fixed mindset or growth mindset. More specifically, Mercer (2012) asserts that the mindset in foreign language education "*reflects the extent to which a person believes that language learning ability is dependent on some immutable, innate talent or is the result of controllable factors such as effort and conscious hard work.*" (p.22).

Those who carry a fixed mindset —entity theorists—support that the possessed intelligence level is stable and unable to change since it is an innate ability. According to Dweck (2005), *"In a fixed mindset, people believe their basic qualities, like their intelligence or talent, are simply fixed traits. They spend their time documenting their intelligence or talent instead of developing them. They also believe that talent alone creates success—without effort. They're wrong."* In other words, in a fixed mindset, students do not believe that they can indeed change and improve their existing intelligence since they view it as a stable and inborn quality. It is also worth mentioning that students avoid challenges or opportunities to learn if they feel that they may make mistakes (Mueller and Dweck, 1998, cited in Dweck, 2008). If they make mistakes or something wrong, instead of correcting them, they tend to hide it (Nussbaum and Dweck, 2008) because they can easily give up when they face challenges and obstacles. Moreover, they are apt to ignore useful feedback, or even can take it personally. Since they don't believe that they become successful as long as they put enough effort, they do not use the feedback to learn, either. Rather, they believe that the higher innate ability they have, the more successful they will be. For this reason, they are afraid of failures as it means constraints or limits that they cannot readily overcome. Furthermore, if they witness the success of their peers, they may feel threatened rather than admiring.

Contrary to the fixed mindset, the growth mindset is met with different characteristics (Dweck, 1999). Those have a growth mindset – incremental theorists- support that one's intelligence is fully shaped by self- improvement and determination (Elliott and Dweck, 1988). This is possible because of neuroplasticity – the brain's ability to restructure itself and to form new connections with more repetitive practices, making it stronger in turn. Dweck (2015) suggests that *"In a growth mindset, people believe that their most basic abilities can be developed through dedication and hard work—brains and talent are just the starting point. This view creates a love of learning and a resilience that is essential for great accomplishment. Virtually all great people have had these qualities."* To put it differently, the ones who adopt a growth mindset fundamentally believe that talent comes through effort, and their abilities can be further developed when they are dedicated, perseverant and well-trained enough, therefore, intelligence is indeed improvable (Bandura and Dweck, 1985; Dweck and Molden, 2007). As a result, they do not believe that everyone can be very intelligent or genius, but they believe that everyone can be more intelligent when they work harder and put enough effort into what they aim to achieve. The difference between the fixed and growth mindset is summarized by Dweck (2015) as follows: "*In the fixed mindset, everything is about the outcome. If you fail—or if you're not the best—it's all been wasted. The growth mindset allows people to value what they're doing regardless of the outcome. They're tackling problems, charting new courses, working on important issues. Maybe they haven't found the cure for cancer, but the search was deeply meaningful*". Moreover, despite the fact that individuals with a fixed mindset care how they are judged by others, those with a growth mindset focus on their own learning. They welcome feedback as a means to improve rather than ignoring or avoiding it. Furthermore, unlike students with a fixed mindset, if those with a growth mindset make any mistakes, they try to correct it immediately. Failures are just temporary setbacks for growth mindset holders, and they are seen as potential chances for

growth-minded students for instructive feedback and thus their mistakes make indeed their learning better (Dweck, 2006). For this reason, they tend to demonstrate more adaptive behaviors and psychological traits such as resilience in response to failure. The success of their peers makes them inspired and gives them some lessons. Taking all these into consideration, learners who are of the opinion that abilities are fixed are less likely to progress better than others who believe that abilities can be improved.

Dweck and Molden (2007) state that there is also one more category where those who do not strongly hold either of these two mindsets–fixed vs growth- compose. Their work indicated that among children and adults, approximately 40% of them endorse a growth mindset whereas another 40% adopt a fixed mindset. The remaining 20% is undecided, in other words, they fall into somewhere in the middle of the applied scale points. As opposed to Dweck's (2006) argument, Mercer (2012) asserts that a fixed mindset prevails in language learning.

2.2. Foreign Language Anxiety

Among all the affective variables for language achievement such as motivation, attitudes, language aptitude and so on, it has been proved that one of the most important barriers in language achievement is anxiety (Horwitz et al., 1986). Spielberger (1983) defines anxiety as "the subjective feelings of tension, apprehension, nervousness, and worry associated with an arousal of the autonomic nervous system". Scovel (1991) also states that "Anxiety is a psychological construct, commonly described by psychologists as a state of apprehension, a vague fear that is only indirectly associated with an object" (p.18). Besides, it is also seen as "a threat to some value that the individual holds essential to his existence as a personality" (May, 1977, p. 205).

When learning a new language triggers the feeling of anxiety among learners, it is named foreign language anxiety, which is defined as "a distinct complex of self-perceptions, beliefs, feelings, and behaviours related to classroom language learning that arise from the uniqueness of the foreign language learning process" (Horwitz et al., 1986). According to MacIntyre and Gardner (1994b, p. 284), it refers to "the feeling of tension and apprehension specifically associated with second language contexts, including speaking, listening, and learning". Language anxiety is also defined as "a term that encompasses the feelings of worry and negative, fear-related emotions associated with learning or using a language that is not an individual's mother tongue" (MacIntyre and Gregersen, 2012, p. 103). Research on FLA has shown that it is categorized as situation-specific anxiety, which results from a particular reason such as learning or using a foreign language (MacIntyre and Gardner, 1991b).

Numerous studies show the existence of a negative relationship between FLA and foreign language learning among different languages such as English, French, Spanish or Japanese (MacIntyre and Gardner, 1991b; Aida, 1994; Horwitz, 1986). According to MacIntyre and Gardner, a context in which foreign language anxiety is experienced hinders cognitive processing (1994a, 1994b), and it hinders to communicate actively in the target language (MacIntyre and Gardner, 1991a, 1991b). However, there are also various views about this issue. To clarify, some researchers have emphasized the fact that an anxious attitude towards foreign language learning may indeed facilitate the learning process (Spielmann and Radnofsky, 2001). Besides, some of the authors view FLA as a result of learning deficiency (Sparks, Ganschow and Javorsky, 2000). In light of this information, it can be said that the problem of anxiety and its connection to foreign language learning is still an ongoing discussion in the literature. However, it is crucial to note that FLA level of students should not be neglected under any circumstances since it is of utmost importance to support and sustain effective language learning and teaching.

Horwitz (1986) suggests three components related to foreign language anxiety, which are also the sub-dimensions of Foreign Language Classroom Anxiety Scale (Horwitz et al.1986) used in this study: communication apprehension, test anxiety, and fear of negative evaluation. McCroskey (1977) defines communication apprehension as "an individual's level of fear or anxiety associated with either real or anticipated communication with another person or persons." (p. 78). Horwitz et al. (1986) also define it as "a type of shyness characterized by a fear of or anxiety about communicating with people." According to McCroskey (1984), communicatively apprehensive people display three typical behaviour patterns: They avoid, withdraw and disrupt the communication. Furthermore, there is no doubt that the environment where people take the test causes anxiety for them. Test anxiety is referred as the second segment of FLA proposed by Horwitz (1986) which is vitally important in people's lives for various reasons. Simply put, it implies a sort of performance anxiety which arises from the fear of deficiency in testing or evaluation environment. Horwitz et al. (1986) assert that students experiencing test anxiety often feel that if their performance in the test is not perfect, it can be considered as a failure since they put unrealistic demands on themselves. Finally, fear of negative evaluation implies "apprehension about others' evaluations, avoidance of evaluative situations, and the expectation that others would evaluate oneself negatively" (Watson and Friend, 1969: 448). It occurs when foreign language learners are not self-confident enough and not completely sure about what they are saying. Furthermore, since evaluation on each other is an essential part of second language classes, learners feel anxious, insecure and uncomfortable when they are aware of the fact that they are being watched by the teacher and other peers (Zhao, 2007). As a result, it affects their class performance in a negative way. Besides, students tend to believe that they cannot display the proper social impression as they desired. According to Aida (1994, p.157), students with fear of negative evaluation "sit passively in the classroom, withdraw from classroom activities that could otherwise enhance their improvement of the language skills" or even "cut class to avoid anxiety situations". It is essential to state that fear of negative evaluation and test anxiety seem similar at first, however, they are different concepts in that fear of negative evaluation is not only limited to test-taking situations but rather it also includes such anxiety types as social anxiety or public- speaking anxiety. Therefore, it is much broader in scope than test anxiety.

In an effort to take a closer look at the relationship between mindset and foreign language anxiety of EFL learners, the following questions will be investigated in the present study:

1. What is the level of EFL learners' foreign language anxiety?
2. What is the percentage of learners who view intelligence as fixed and growth, and who are undecided?
3. To what extent, if at all, is there a relationship between mindset and foreign language anxiety level of EFL learners?

3. Methodology

3.1. Research Design

The current study adopts a quantitative study design, which refers to "explaining phenomena by collecting numerical data that are analyzed using mathematically based methods in particular statistics." (Aliaga and Gunderson, 2002, p. 1). The current study is descriptive in its nature since the data was collected without changing or manipulating the conditions or the environment. Since the ultimate goal of this study is to describe the characteristics of a group of EFL learners via some surveys, it is fair to say that survey research is adopted in the present study. Survey method is highly preferred by the researchers

because of representing a high population, being cost and time-effective, gathering the data with different ways such as telephone, e-mail, interview, web-based and direct administration of surveys (Cresswell 2005; Fraenkel et al. 2012; Mertens, 2005) and providing fast and precious results. Direct administration was chosen in the present study, providing an easier and faster data collection procedure. While survey research can be used in a descriptive manner as explained, it is also possible to use it for investigating the relationship between the variables involved (Fraenkel et al., 2012). This can be done by combining survey research and correlational research design, and it is crucial to emphasize that the current study exactly tries to do so since it seeks to find out the relationships among a number of variables by administering some sort of surveys.

3.2. Setting and Participants

The present study was conducted in two different settings, one of which is a private university in Ankara whereas the other one is a state university, based on the assumption that findings from these universities would also be generalized to other private and state universities. The first setting is Atılım University Preparatory School, a private university in Ankara, Turkey. The second setting of the study is a state university, Gazi University School of Foreign Languages where the researcher currently works as an English instructor. Both universities aim to equip students with the main foreign language skills required in a global level in order to assist their future studies in their academic life in the most effective way.

The study comprised of a total of 203 participants who were enrolled in various departments and were receiving compulsory English prep-class education Among 203 participants, 100 (49.26%) of the students are currently studying at Atılım University Preparatory School whereas 103 (50.74 %) of the students are currently studying at Gazi University Preparatory School. Participants were chosen through convenient sampling. They varied in gender, department, type of high school graduated from, L2 proficiency, the number of years they have known English, and any other foreign language they have known different from English. Table 1 summarizes the demographic information of the participants:

Table 1. *Demographic Information about the Participants*

		F	%
Gender	Female	90	44,3
	Male	113	55,7
Department of Study	Natural Sciences	164	80,8
	Social Sciences	39	19,2
Type of High School Graduated	Science High School	21	10,3
	Anatolian High School	86	42,4
	Social Sciences High School	1	,5
	Vocational High School	10	4,9
	Regular High School	11	5,4
	Private High School/College	57	28,1
	Basic High School	11	5,4
	Anatolian Teacher Training High School	6	3,0
L2 proficiency level	Pre-Intermediate	154	75,9
	Intermediate	43	21,2
	Upper-Intermediate	6	3,0
The number of Years English is Known	1-5 years	41	20,2
	5-10 years	113	55,7
	+10 years	49	24,1
Any Other Languages Known Different from English and Native Tongue	Yes	31	15,3
	No	172	84,7

3.3. Data Collection

The data was collected using two Likert scales: the adapted version Dweck's Mindset Instrument (DMI) and Foreign Language Classroom Anxiety Scale (FLCAS). DMI, which was developed by Dweck (2000) and consisted of 8 items in its adapted version, aimed to understand how people view their own intelligence and talent whereas FLCAS consisting of 33 items in total was developed by Horwitz et al. (1986) to measure students' level of foreign language anxiety in the classroom. By taking participants' language qualification into consideration, Turkish versions of both scales were administered to participants. In the present study, the Turkish adaptation version of FLCAS by Aydin (1999) was used. DMI was

translated into their native language, Turkish, by the researcher. Since it was of great importance to have no difference between both versions, the procedures of translation and back- translation were applied thanks to some native speakers of English and Turkish colleagues.

3.4. Data Analysis

In the current quantitative study, descriptive and inferential statistical procedures in SPSS Statistics 21.0 were applied to evaluate the collected data. For the first research question, descriptive statistics were used, and mean and standard deviation were computed so as to explore students' level of foreign language anxiety. For the second research question, students were placed into three different groups (fixed mindset, undecided, and growth mindset) according to their scores in Dweck's Mindset Instrument, and the ratio of students identified with each of these three groups was calculated and analyzed with the help of descriptive statistics by examining mean and frequency distribution. Finally, Spearman-Brown Correlation Coefficient analysis was run to explore the existence of any relationship between foreign language anxiety and mindset.

4. Findings

The first research question investigated the level of foreign language anxiety that EFL learners have. The findings are presented in Table 2 as follows:

Table 2. *Participants' level of foreign language anxiety and its sub-dimensions*

	Mean	Standard Deviation
Communication Apprehension	3,06	0,94
Test Anxiety	3,13	0,85
Fear of Negative Evaluation	2,76	1,01
Foreign Language Anxiety (FLA)	3,03	0,85

According to the descriptive statistics, the mean score for foreign language anxiety (*M*= 3.03, SD= 0.85) is slightly above the mid-point (3.00) of a 6-point Likert Scale. Thus, the foreign language anxiety level of students (*M*= 3.03, *SD*= 0.85) was found at a moderate level (*M*= 3.03, *SD*= 0.85) as "*students with averages around 3 should be considered slightly anxious*" (Horwitz, 2008). As for its sub-dimensions, the participants appeared to have the highest mean value in the sub-dimension of test anxiety (*M*= 3.13, *SD*= 0.85), showing that test anxiety was the most significant type of anxiety felt at a moderate level in L2 classes. It was followed by communication (*M*= 3.06, *SD*= 0.94), the result of which also clearly showed that participants slightly experienced communication apprehension in L2 classes. Last but not least, the sub-dimension of fear of negative evaluation released the lowest mean score (*M*= 2.76, *SD*= 1.01), and this finding indicated that fear of negative evaluation was not experienced as much as the other two types of anxiety mentioned above since "students with averages below 3 are probably not very anxious" (Horwitz, 2008).

Regarding research question 2, which investigates the percentage of participants who view intelligence as fixed and growth, and who are undecided, descriptive statistics were

employed and frequency distribution analysis was used. Frequency distribution analysis of the participants regarding their particular mindset is given in Table 3.

Table 3. *The percentage of learners who hold fixed and growth mindset, and who are undecided*

		Number of Participants	%
Mindset Type	Fixed Mindset	37	18,2
	Undecided	36	17,7
	Growth Mindset	130	64,0
	Total	203	100,0

The findings proposed that 64% of the students were identified as having a growth mindset, viewing intelligence as dynamic, changeable, and not fixed at birth. Furthermore, 18,2% of the students were identified as having a fixed mindset, viewing intelligence as fixed and unchangeable. Lastly, 17,7% of the students were identified as undecided.

Dweck (2006) asserts that about 20% of learners are identified as undecided (DMI score between 3.1-3.9) in their view of intelligence. Taking this into consideration, it can be said that the data collected from this study also support what Dweck (2006) has suggested in her theory in that 17,7% of students from two universities were classified in the undecided category in the current study and it is undoubtedly quite close to Dweck's suggested value of 20%.

Finally, for the last and main research question which seeks to investigate the relationship, if any, between mindset and foreign language anxiety, Shapiro-Wilk Test was first run to see whether the collected data is normally distributed. As Table 4 illustrates below, while the data from the sub-dimension of test anxiety and foreign language anxiety is normally distributed, the data collected from other variables is not normally distributed ($p>0.05$). Therefore, to understand the correlation between participants' level of foreign language anxiety and their particular mindset type, Spearman-Brown Correlation coefficients were examined.

Table 4. *Test of Normality: Shapiro-Wilk Test Analysis*

	Shapiro-Wilk		
	Statistic	Df	Sig.
Mindset	,945	203	,000
Communication Apprehension	,986	203	,040
Test Anxiety	,987	203	,066
Fear of Negative Evaluation	,974	203	,001
Foreign Language Anxiety (FLA)	,989	203	,106

The correlation coefficients of FLA, its three sub-dimensions, and mindset were presented in Table 5:

Table 5. *Spearman-Brown Correlation Coefficients of the Variables*

		Communication Apprehension	Test Anxiety	Fear of Negative Evaluation	Foreign Language Anxiety (FLA)
Mindset	Correlation Coefficient	-,041	-,040	,017	-,040
	P	,558	,571	,811	,570

As indicated in Table 5, the correlation coefficients among mindset, foreign language anxiety, and the sub-dimensions of communication apprehension, test anxiety and fear of negative evaluation were found quite close to 0. The results showed that a weak negative relationship between students' mindset and level of foreign language anxiety (r = -.040, p=.57, >0.05) with its sub-dimensions of (r = -.041, p=.55, >0.05), test anxiety (r = -.040, p= .57, >0.05), and a weak positive relationship between mindset with fear of negative evaluation (r = .017, p= .81, >0.05) was found, however, this relationship was not statistically significant. (p>0.05). All in all, no statistical relationship was found between learners' mindset and foreign language classroom anxiety level.

5. Discussion of Results

The present study mainly sought to examine the relationship, if any, between mindset and foreign language anxiety of EFL learners. Overall, the findings ascertained that no significant relationship existed between the two variables. To put it another way, holding a fixed or growth mindset was not related to the level of FLA experienced by EFL learners. Reviewing the existing literature on the topic, it is clearly seen that a limited number of studies focus on this relationship, and claim that there is a significant correlation between mindset and anxiety (Bandura and Jourden, 1991; Martocchio, 1994; Northrop, 2014; Schleider, Abel, and Weisz,

2015; Trudeau, 2009). These studies found out that individuals with more fixed- minded experience more anxiety. Taking this into consideration, the results of this research study contradict with the aforementioned studies. However, it is vital to emphasize that these studies did not specifically investigate any existence of a significant relationship between mindset and FLA as opposed to the present study; however, the type of anxiety they focused on was actually different. For example, Martocchio's study (1994) concerned computer anxiety whereas Schleider, Abel, and Weisz (2015) dealt with general anxiety and depression. Furthermore, Northrop (2014) investigated the relationship among student mindset, parent mindset, and anxiety, which includes such different anxiety types as trait anxiety, trait-somatic anxiety, trait-cognitive anxiety, state anxiety, state-somatic anxiety, and state-cognitive anxiety while Trudeau (2009) focused on only test anxiety. Thus, the difference found between the results of the current study and other aforementioned studies might stem from the fact that they tried to explore the relationship between mindset and anxiety, not particularly foreign language anxiety, as mentioned above. To the best of researcher's knowledge, since almost no study exists exploring the correlation between mindset and FLA, the current study will hopefully be a starting point in this issue and contribute to fulfilling the gap that can be observed in the literature. In addition, comparing the findings of the current study with future studies specifically focusing on the correlation between mindset and foreign language anxiety will draw a better and more precise picture to evaluate the results.

The study also tried to explore what the level of foreign language anxiety of EFL learners is. It is concluded on the basis of the findings that EFL learners' language anxiety has been found at a moderate level, which indicates similar results with Mesri (2012) and Rajanthran et al. (2013). They also found participants' level of anxiety at a moderate level in their studies. As Horwitz (2008) states, "*Students with averages around 3 should be considered slightly anxious, while students with averages below 3 are probably not very anxious. Students with average 4 and above are probably fairly anxious*". It is claimed that moderate level of anxiety in second language education triggers the motivation for the target language, and as a result, learners would put much more effort so as to learn and acquire that foreign language (Khairi and Nurul Lina, 2010). The results of prior studies express that language anxiety is a quite different and unique type of anxiety than other types (Horwitz, 1986), and types of language anxiety are communication apprehension, test anxiety, and fear of negative evaluation as stated before. Regarding this, in the current study, the first and main type of language anxiety was attributed to test anxiety, which has a negative correlation with grades, self-confidence and test performance (Oxford, 1990, as cited in Piechurska-Kuciel, 2008). This revealed that EFL learners felt anxious, nervous, or worried about an upcoming assessment. It was followed by communication apprehension, and finally, fear of negative evaluation. The fact that test anxiety was found to be the major type of language anxiety might result from EFL learners' often being exposed to a number of assessment tools such as exams, quizzes or oral presentations, which are undoubtedly indispensable parts of foreign language learning. In this sense, the finding of this study is not considered a surprise. It is also supported by the prior study of Lee (2011) finding that among the three types of language anxiety, test anxiety was the highest, followed by communication apprehension, and finally the fear of negative evaluation. However, when the previous research is analyzed, some studies also suggest that communication apprehension is the main source of foreign language anxiety (Young, 1990). Conversely, it is also seen that in a research study conducted by Chen (2005), the highest source of foreign language anxiety has been found as fear of negative evaluation, followed by communication apprehension, and finally, test anxiety.

Finally, the percentage of EFL learners who endorse a fixed or growth mindset, and who fall into the category of undecided was also investigated in this study. The results of the current study are in line with Dweck's Theory of Motivation (2006) to some extent. According to Dweck (1999), "*While people may vary greatly as to how much they are inclined toward a fixed theory [i.e., mindset] or a growth theory [mindset], roughly 40% seemed more inclined toward a growth theory and 40% seemed more inclined toward a fixed theory. The other 20% were undecided."* When the findings are analyzed, it is apparent that 17.7 % of EFL learners fall into the undecided category, which is a quite similar percentage to what Dweck (2006) has suggested. Yet, it is observed that 64% of them adopt a growth mindset whereas 18.2% adopt a fixed mindset, indicating that they are not quite similar percentages to Dweck's suggested percentages. That is to say, the participants of the current study highly tended to adopt a growth mindset unlike what was expected. The results of this study are persistent with Dweck's (1999) and P'Pool's (2012) research which found out that roughly 20% of students was classified in the undecided category because of not holding fixed or growth mindsets. In a research carried out by P'Pool (2012), for example, 17.8% of students hold a fixed mindset (entity theory) whereas %67.8 of them endorses a growth mindset (incremental theory). The rest 14.4% have been identified as undecided. Taking into the consideration of the findings stated above and the decrease in the percentage of learners holding a fixed mindset (18.2%), and the increase in the percentage of learners holding growth mindset (64%) in this study, it can be inferred that EFL learners may have started to develop more growth mindset towards language learning with the help of their schools, teachers, interventions, or simply by themselves with their own efforts such as curiosity, persistence and asking for feedback.

6. Implications for Education and Teaching

The results of the present study provide some key pedagogical implications which can be useful in language education for educators, learners and institutions to create a highly-effective learning and teaching environment where growth mindset can be developed for holders of fixed mindset and for undecided ones, and where the level of learners' FLA level can be decreased substantially.

The results of this research study demonstrated that no significant relationship existed between the mindset adopted and FLA level. Thus, the judgment that learners with a growth mindset feel more anxious than learners with a fixed mindset or vice versa may mislead the teachers, so educators should evaluate these two psychological factors independently from each other. Furthermore, while developing curriculums, lesson plans and materials, teachers and institutions should be aware of the fact that there is no link between holding a fixed or growth mindset and FLA, and thus they should prepare them accordingly.

Regarding foreign language classroom anxiety, the findings of the current study demonstrated that EFL learners felt a moderate level of FLA, and females appeared to experience more anxiety than males despite being not a statistically significant difference. Since the level of FLA has been found moderate but not weak in this study, it is not possible to neglect it at all. As Crookall and Oxford state, "*dealing with anxiety in an explicit and purposeful way is part of true learner training*" (1991, p. 145) given the fact that anxiety can result in detrimental effects on foreign language achievement. Thus, for both teachers and institutions, it is significant to raise EFL learners' awareness of the existence of FLA (Horwitz, 1986, p.131) and its possible effects, and important measures should be taken in order to reduce it among EFL learners. On the other hand, bearing in mind its facilitative role which has been suggested by a wide variety of research (Ehrman and Oxford, 1995; Young, 1992), it is also crucial to have an optimal amount of language anxiety for students,

and teachers have a great role in achieving this. Teachers, firstly, can provide a safe and learner-friendly classroom environment that does not include any factor causing debilitative anxiety. They can also prepare their lesson plans according to learners' personalities, needs, and interests. Furthermore, since students studying natural sciences felt more fear of negative evaluation, teachers can try to make them feel more relaxed and comfortable before any kind of evaluation such as exams, quizzes or oral presentations. With respect to this, they can also take initiatives to minimize the sense of negative competition among the learners, and the importance of cooperation and collaboration can be emphasized instead. Moreover, Price (1991) suggests that teachers can encourage students to make mistakes in the class and can enlighten them about the fact that having mistakes is a natural part of the process of learning and they are not considered a failure. Next, since L2 proficiency level is found to be correlated with FLA and the sub-dimensions of communication apprehension and test anxiety, especially upper-intermediate level learners should be informed about the sources and debilitative results of language anxiety directly by their teacher or providing some seminars and workshops focusing on the ways that anxiety can be decreased.

As for mindset, it was revealed that the vast majority of participants in this study (64%) adopted a growth mindset, which is a surprising but a desirable result. For the rest of the learners who endorsed a fixed mindset and who were undecided, some meaningful implications can be suggested to develop a growth mindset. Firstly, students can be actively involved in the learning process itself by creating goals, making efforts to pass and complete them, and tracking their own process during that time (Dweck, Walton and Cohen, 2014). By doing so, teachers will embrace a more holistic approach which can, in turn, result in increased achievement and motivation. In her well-known research, Dweck also gives other strategies such as using praise for effort and persistence, encouraging deep learning rather than fast learning, teaching learners about the differences between two mindsets, setting personal goals with learners, emphasizing challenges and risks as well as success, and designing grading systems that support the growth-mindset criteria more. Besides, building a curriculum to implement growth mindset practices into the classroom is another crucial step to see the true potential of growth mindsets enhancing students' learning. Secondly, to strengthen a growth mindset and develop incremental beliefs among L2 learners, mindset interventions, whose positive effects on learners have already been proved by a large body of research (Paunesku, Yeager, Romero and Walton, 2014; Yeager and Dweck, 2012) can be implemented by the schools. These interventions can be quite simple and affordable by offering learners an online program such as *Brainology* created by Dweck and her colleagues (2008), whose aim is to assist learners know about the human brain and its *neuroplasticity*- the idea that the brain is like a muscle and it grows stronger with more repetitive practices- and how to make it work better to form new connections, or even by providing them a one-hour training focusing on the idea that intelligence is something which can be cultivated over time. The essential point here is that these mindset intervention programs do not directly teach the idea of a growth mindset or impose learners to adopt a growth mindset. Rather, they aim to facilitate learners to be more aware of the learning strategies and opportunities that they can make the most of. Last but not least, it is also essential to emphasize that not only for learners but also for teachers can initial and continuing professional development sessions regarding growth mindset be given. In these sessions, how to build curriculums and lesson plans to implement growth mindset practices into the classroom can be highlighted. Moreover, teachers can be taught how to create some visual materials such as posters, pictures or charts as the constant reminders of the idea of growth mindset in the classroom both for themselves and learners to help them reach their true potential.

7. Comments and Further Suggestions

7.1.1. Comments and Suggestions for Institutions and Organizations

In this study, it is found out that university students have a moderate level of foreign language anxiety. In order to decrease foreign language anxiety of university students, it is suggested for universities to focus on more student-centered lessons. Universities should also create opportunities to discuss and inform students about anxiety and its effects via some seminars or supportive activities.

This study finds out that 64% of students adopt a growth mindset whereas 18,2% of students adopt a fixed mindset and the rest (17,7%) is labeled as undecided. For fixed-minded or undecided students, universities are suggested to make use of growth mindset interventions or programs that teach the growth mindset and the neuroplasticity of the human brain.

7.1.2. Comments and Suggestions for Researchers

In the current study, the relationship between mindset and foreign language anxiety is examined. Since there is a gap in mindset literature, it is suggested for researchers to conduct more studies examining the relationship between mindset and different variables such as motivation, academic achievement, self-efficacy and so on.

This study is conducted only with university students. Researchers are suggested to conduct studies with primary, secondary and high-school students as well.

The present study was conducted only in the capital city of Turkey, Ankara. It is suggested to study the same topic in different universities, and different cities with a larger study group, which will definitely assist researchers in investigating different variables such as socio-economic status and educational background of participants.

This study was descriptive correlational research indicating only the correlations between variables, not causations. Thus, more causal studies investigating the cause and effect relations between these variables may contribute to the findings and lead researchers to more causal conclusions.

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CONTINUING PROFESSIONAL DEVELOPMENT OPTIONS OF FOREIGN LANGUAGE SCHOOL DIRECTORS[1]

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Abstract

The professional development activities designed solely by respecting the instructors and the trainers are mostly presented to fail to reflect the operations at schools of foreign languages. Hence, continuing professional development programs need to include the directors of the schools, and their preferences about the practices. To this end, the current study is of significance in terms of highlighting the opinions of the directors about CPD process in Turkey. The study was conducted at two state and two foundation universities through questionnaires and semi-structured interviews. Purposive sampling method was utilized while determining the participants of this research. Having filled in the questionnaires which include some statements about their educational background, personal preferences of CPD, and the operationalization of professional development process, four directors gave answers to some of these questions in an interview to explain critical points thoroughly. According to interpretations of the data gathered from the directors, it was concluded that the directors at state universities could not have equal chance to adopt and serve opportunities for the instructors compared with the foundation universities. Nevertheless, the directors whose educational background has been grounded to ELT were noted to be more successful in implementation of CPD events.

Keywords: CPD, School of Foreign Languages, Directors

1. Introduction

As an essential part of teacher education, schools are expected to regard Continuing Professional Development (CPD) as the prerequisite of self-improvement process among teachers. In that respect the needs, opinions, beliefs and expectations of teachers cannot be ignored. On the contrary, they must overlap with the preferences of teacher trainers and directors about the program. Thus, CPD comprises quite a few elements so as to make teachers successful on the way to maintain their professionalism, and it is worth handling this term individually to examine whether its potential has been fully exploited.

CPD is an umbrella term which covers any kind of academic attempts of teachers in order to achieve self-actualization, lifelong learning via critical thinking, language awareness, and reflectivity. CPD is often confused with other terminologies, such as professionalization, professionalism, teacher training, teacher development and professional development. To start with professionalization (Leung, 2013), it stands for a step on which teachers need to discover their immediate needs and inadequacy in teaching performance to arrive at

professionalism. As for professionalism, it means that teachers have recognized the importance of 'self-actualization' in their career, and they are closer to achieve CPD practices in line with their goals. In reference to teacher training, it can be accepted as a sub-set of teacher development. Head and Taylor (1997) emphasize the distinction that teacher training is obligatory, limited, and implemented by supervisors. On the other hand, teacher development directs teachers to be life-long learners, and motivates them to feel pleasure of giving lectures. Finally, as reported by Mann (2005), professional development and CPD can be differentiated by illustrating CPD as the route to arrive at autonomy in teaching, whereas professional development can solely be compulsory, career focused, and quite constrained. In short, it is probable to summarize that all those terms have paved the way to identify CPD literally in teacher education.

CPD can also be introduced as the backbone of education system. Nevertheless, Çelik, Çepni and İlyas (2013) remarked that though instructors have the awareness of professional improvement, and appreciate the value of CPD in their academic lives, they could not internalize these events. Thus, apart from teacher trainers', and the instructors', the opinions of the directors should also be respected as one of the stakeholders to increase the functionality of CPD in schools.

2. Literature Review

Similar to teachers at primary, secondary or high school, the instructors at schools of foreign languages are also in need of CPD so that they could determine their needs, plan their self-learning process, trainings and development. Nonetheless, as detailed by some other scholars (Ar, 1998; Aydın et al., 2017; Çelik et al., 2013; Ekşi and Aydın, 2013; Özcan, 2011; Şentuna, 2002), the studies administered at these schools in Turkey to unearth the contentment of the instructors and the efficiency of these programs have displayed some failures and inoperative points in CPD practices. Even though these results often reveal the opinions of instructors, directors are also a serious factor in CPD process. Hence, their academic background and roles in decision-taking process about CPD would matter in the efficiency of programs on instructors (Alan, 2003; Coşkuner, 2001; Gültekin, 2007; Şahin, 2006; Türkay, 2000; Yurtsever, 2013).

In spite of the fact that being director requires multi-layered authority like managing the school, developing organization, leading staff to life-long learning, enabling the best teaching and learning atmosphere to teachers, and strengthening collegiality, all these responsibilities meet at a common point which is providing continuous professional learning and development in schools (Schleicher, 2012). Rather than basing operationalization of CPD on trial and error technique in order to accomplish it thoroughly in educational settings, directors should show regard to expanding knowledge among all stakeholders (Mizell, 2010), and they are to believe in change not only about trainings, yet students, teachers, and their expectations. This is because every school and its needs are unique, and adopting one strategy to be followed at each institution would not bring success.

Regarding another fundamental point, Pedder, Storey and Opfer (2008) indicated perceptions of directors about CPD. Accordingly, directors have placed considerable emphasis on the programs which basically address learning process, immediate needs, developing and working with others as well as in-school trainings than receiving any assistance from guests, external trainers or hosting corporations. This finding accords with the fact that directors need instant, particular and sustainable solutions conforming best to their own schools besides identifying the weight of pedagogical content knowledge in teaching-learning discipline (Aydın et al., 2017; Gültekin, 2007).

The prevalent problem among directors as to CPD is the short-term efficiency of these

programs on teachers and students' level of progress (Peterson, 2002). Beyers and Mohloana (2015) and Mizell (2010) stated that funding, workload, timing appeared as the most remarkable obstacles before directors. This also reveals the fact that when the quality in trainings could not be maintained well within professional continuum, its consequence will become evident on students themselves.

Considering the mentioned missing aspects of CPD programs, this research has been carried out to find the answers to two questions as follows:

1. Do the opinions of state and foundation universities' directors of foreign language schools differ with regard to CPD practices?
2. What kind of CPD practices can occur at state and foundation universities according to background of the directors?

3. Methodology

3.1. Participants and Setting

Two directors at state universities and another two directors at foundation universities volunteered to be participants. Four universities at distinct cities, Ankara and İzmir, were included in the current study. Especially state universities were well-established educational institutions with its reputation of training students in Turkey.

According to the directors' demographic information form, all of the directors were over 40, and they had teaching experience from 11 to 31 years. Two directors held their PhD degrees in English Language Teaching (ELT). One of the directors of the foundation universities completed his bachelor's degree in English Language and Literature, and master's degree in ELT. As an American, and the native speaker of the target language, he could continue his academic work in Educational Leadership. Different from the other three, one director's major is Japanese Language and Literature.

3.2. Instruments

A mixed methods research was included to reach both quantitative and qualitative data and triangulate them (Creswell, 2014). A questionnaire and an interview were utilized as data collection tools, respectively. In terms of content validity, a thorough literature review and expert view were implicated in both instruments. After getting basic descriptive results of the participants through the questionnaire, a semi-structured interview was conducted to the same directors in order to gain more detailed knowledge about their opinions of the functioning of CPD at schools (Mertens, 2014; Patton, 2005). Quantitative data was comprised of Likert-scale question types and multiple-choice forms about professional development process, the personal preferences about CPD, and professional development programs. Qualitative data were attained via the interview which elaborate similar questions in the questionnaire. The questionnaire and the interview were in Turkish, the mother tongue of the directors because of the fact that one of them continued his career in Japanese language.

3.3. Data Collection

Having applied for the ethical consideration process via the correspondence among the institutions, and obtained ethics committee approval, the researcher launched piloting process at School of Foreign Languages in Samsun (a state university) and Ankara (a foundation university) at the beginning of 2018-2019 academic year in September. Depending on the answers, the questionnaire was revised and some new alternatives were included into the questions so as to create its final version. The data collection process started through the questionnaires. Then, the semi-structured interviews with a similar scope were tape recorded

and transcribed by keeping the research questions in mind in November and December. These universities were chosen according to purposive sampling procedure in a non-random manner (Flick, 2014).

3.4. Data Analysis

The data collected via interviews were analysed depending on grounded theory. This is because it has a methodical code to gather, synthesize, analyse, and conceptualize qualitative data inductively. During data analysis process, upon transcribing the interviews, two coders classified each question according to the answers of instructors, teacher trainers and directors under correlated codes, and thus they began the first coding to examine and measure the data in a well-regulated way. Likewise, by keeping the research questions and the codes in mind, the researcher and the second coder detected themes when the feasible links among them were affirmed. Therefore, the procedure of designing themes was to arrange framework of data analysis systematically. After the analyses of the instrument by the researcher, an expert with PhD in the field once again investigated the interviews, and transcripts to confirm the results, and ensure inter-coder reliability.

4. Findings and Discussion

Firstly, the descriptive analyses of the findings were indicated by the tables below. This was to clarify whether directors at state and foundation universities had different practices with regard to reflecting opinions about CPD at schools. Subsequently, the discussion was made, and the results were commented on the basis of the differences in CPD implementations at schools according to background of the directors.

4.1. The Practices of the Directors about CPD at School of Foreign Languages

Table 1. *CPD Process 1*

	State University	Foundation University	Total
Part 2	N	N	N
1. What is the number of English language teachers in your institution?			
10 to 50			
51 to 100			
101 to 150	1	1	2
151 to 200	1	1	2
2. Do you have a professional development unit at school?			
Yes	2	2	4
No			
3. What are the ways of professional development opportunities to your English language teachers at school?			
academic support through CPD	2	2	4
extra time for CPD	2		2
CPD programs	1	1	2
mentoring	1	1	2

other ways of motivation: providing them to present their MA or PhD thesis, implementing a Micro-Credential Badge Program	1	1	2
4. Who are the decision makers of the content of the CPD program?			
you	1	1	2
teacher trainers	2	2	4
teachers all together		2	2
other (bookshop volunteers)	1		1
5. How do you inquire about English language teachers' continuing development in academic studies?			
with the help of teacher trainers	1	2	3
with an evaluation system in your institution	1	2	3
6. How could you be informed about teachers' needs to sustain their professional development?			
via needs analysis	2	2	4
teacher trainers' contact with teachers and their reflections	2	2	4
in meetings	2	1	3

The table introduced that all universities had Professional Development Unit (PDU) and employed a large number of instructors changing from 100 to 200. Similar to Gültekin (2007), the directors were also reported to reflect their full support to the instructors on the way to improve themselves professionally by establishing CPD units at schools, and providing extra time to think about CPD activities. It means that unlike in Alan's (2003) and Türkay's (2000) study, they were noted to feel satisfied to offer alternatives to the instructors in self-fulfilment process. Furthermore, they all identified teacher trainers as the decision makers of contents of CPD programs. However, regarding the other frequencies, it can be deduced that they also had an authority to comment their design. In addition, the directors of two foundation universities reported the contributions of all instructors to shape their scope. In other words, similar to Gültekin's (2007) and Schleicher's (2012) statements, the directors believed in the coordination among teacher trainers and the instructors to cooperate with each other. Moreover, it appeared that the directors at foundation universities attended decision-making process more than at state universities.

Finally, the table demonstrated how careful the directors were to meet the needs of the instructors through needs analysis and meetings.

Table 2. *CPD Process 2*

	State University	Foundation University	Total
Part 2	N	N	N
7. Are your professional development programs voluntary or compulsory for English language teachers to attend?			
voluntary	1	1	2

compulsory	1	1	2
8. How long do the CPD programs last?			
up to 60 minutes	1		1
up to 90 minutes		1	1
up to 120 minutes	1		1
it varies depending on session		1	1
9. How often could you organize these trainings?			
once every two or three weeks	1	1	2
once a term	1	1	2
10. How do you obtain academic assistance for your trainers' professional attainment?			
sending them other courses	2	1	3
other (providing courses within the institution)		1	1
11. How do you provide opportunities for your trainers' professional attainment?			
sending them other courses	2	2	4
if necessary sending to other cities	1	1	2
other (hosted conferences)		1	1
12. Could you fund money for professional development activities at your school?			
Definitely true	1		1
Mostly true		1	1
Not sure			
Mostly false	1	1	2
Definitely false	1		1

This quantitative finding was also supported with the interview of the participants. In the forthcoming statement, it was seen that trainings could be run voluntarily or compulsorily depending on some factors like appraisal system, and they took longer at foundation universities.

Likewise, Director of State University 1 (DSI) approved that:

> *'In regulations or legislations, there is no such a kind of unit to be promoted by the universities or the Council of Higher Education (CoHE). That's why, as in each state school, it is to be grounded on a volunteer basis.'*

The intervals between each session might vary from every three weeks to once a term or every five months. As in Arıkan's (2002) research, owing to this huge gap among directors to the time period of CPD, it was construed that even at the same context, state or foundation, the number of these events may alter. The directors also expressed the facilities of the school, such as sending academic staff to other courses when they cannot supply a workshop with a similar content, and the speakers at those courses were well-known.

The financial support of foundation universities unlike state universities can be noticed herein clearly when the rates of the directors and their comments in the interviews were

considered. Director of Foundation University (DF1) noted down:

> *'We have sent some of our instructors even to foreign countries to receive these trainings and be involved in projects. Moreover, the school has enough budget to invite some trainers to give presentations and CPD events to the academic staff.'*

Director of Foundation University 2 (DF2) also mentioned the financial support of the school on the way to prepare a new program to the instructors called 'credentialing, badging system':

> *'… Regarding specifically professional development, the number one thing that I have done is I broaden what we are calling micro-credential, badging system in here. It is still early stages. We are getting awareness of the program. But once it is upon running, I think it is going to be effective for professional development…'*

Table 3. *CPD Process and Personal Priority of the Directors*

	State University	Foundation University	Total
Part 2	N	N	N
13. Could you provide support (extra time) for professional development activities at your school?			
Definitely true	1	1	2
Mostly true		1	1
Not sure	1		1
Mostly false			
Definitely false			
14. Do you have a specific format or school based system to evaluate teachers' progress in the light of these courses?			
Definitely true		1	1
Mostly true	1	1	2
Not sure	1		1
Mostly false			
Definitely false			
15. Do you believe that professional development practices are to be fulfilled according to teachers' needs?			
Definitely true	2		2
Mostly true		2	2
Not sure			
Mostly false			
Definitely false			
16. Do you think that your school represents a warm learning atmosphere for all teachers?			
Definitely true	2	1	3

Mostly true		1	1
Not sure			
Mostly false			
Definitely false			
17. What do you think about the programs developed and carried out by teacher trainers?			
you know the procedures of how they design it	2	2	4
you have already attended one of the trainings	1	2	3
they pay attention to teachers' reflections, and your view	1	2	3

Similar to the third item in the second table, in general the directors also encouraged CPD activities with the provision of extra time to outline and enrich with appropriate techniques. DS2 (Director of State University 2) remarked it:

> *'We try to strengthen teacher education by supplying an off-day to the instructors who would like to hold master or doctorate degrees.'*

Additionally, Director of State University 1 (DS1) highlighted:

> *'Even though CPD cannot function as the way desired in that school, as the principals, we try to do our bits to encourage these studies. To the new or part-time instructors, mentoring and observations are kept by teacher trainers. Furthermore, educational programs are prepared in line with their needs to encourage them to work here ambitiously.'*

Upon scrutinizing the following question, which enlightened the directors' personal preferences about performing CPD, foundation universities evoked a more positive approach to track a specific, unique form of assessment type than state universities. This is because they felt very competent on the running system at school. DF1 proved this notion:

> *'The performance appraisal system is managed at school for instructors to choose which workshops they want to attend instead of forcing them to take part in each. They might also give presentations to the colleagues about their academic studies. Accordingly, the number of the events they participated is calculated and their points are identified.'*

To clarify the subsequent questions, the needs of the instructors and the rapport among them were noted as important values in CPD issue by the directors. It was disclosed that nearly as much as foundation universities, the directors at state universities were close followers of the progress they made on the instructors via CPD events.

Table 4. *The Preferences of the Directors*

	State University	Foundation University	Total
Part 2	N	N	N
18. How do you delegate the duties of teachers and teacher trainers according to importance (from 5 to 1)?			
the experience	8	2	
their major	5	6	
educational background	6	9	
their certificates	5	7	
general view towards them at school	3	5	
19. What are your suggestions to improve CPD in your institution?			
providing integration of ideas among colleagues	1	1	2
helping teachers to see the theoretical background of teaching practices		1	1
motivating teachers to seek for their own professional trainings	2	2	4
offering creativity	1	1	2
handling recent issues about language teaching	2		2
creating a learning environment among colleagues	2	2	4

Unlike other questions, the first item in Table 4 requested directors to give an order of importance according to the criteria they applied to assign instructors or teacher trainers in their institutions. Subsequently, foundation universities placed emphasis on 'educational background' of their academic staff, whereas 'experience' was ranked as the first substantial factor at state universities. Thus, there appears to be a tendency to recruit more experienced instructors at state universities.

Finally, the directors presented their advice to upgrade the effectiveness of current CPD programs at schools. To this respect, stimulating instructors to gain autonomy and build collegiality among them were rated the first in increasing the impact of CPD practices. This finding is also in accordance with the indications of Mizell (2010). DF2 and DS2 declared notions and upheld this view once again:

> *'...I really appreciate Teacher Development Unit (TDU). They didn't just say "Okay, we have to do something to improve our writing instruction, let's have a seminar on Tuesday afternoon. They didn't do that. What they did was they had two hours-session in orientation week. They had another two hours session in a couple of weeks later. And then, the third one another weeks later. So, all in all about six hours of classroom. You are part of training, and working together on these issues.'*
>
> *'We send them to this kind of seminar, providing financial support to 2-3 people, such as instructors who have a certain consciousness and are*

knowledgeable in the exam unit. What we want later is to share their learning outcomes, they gained there, with their colleagues here.'

Table 5. *CPD Programs 1*

	State University	Foundation University	Total
Part 3	N	N	N
1. Please choose any one (s) of the following relevant reasons for the programs in your school.			
Request from the director	1	1	2
Request from instructors	1		1
General academic policy to follow			
Increasing students' achievement levels	2	2	4
The number of novice teachers	1		1
The promotion of other teacher training programs, such as INGED, TESOL			
Forming the culture of the institution according to the learning organization	2	1	3
2. Please tick the ways of your CPD program evaluation feedback below.			
interviews	1	2	3
questionnaires	2	1	3
feedback from teachers	2	2	4
peer observations	1	1	2
taking part in the lesson with teachers		1	1
the data gathered from the studies		1	1

Part 3 covered CPD programs at school of foreign languages from the point of the directors. Consequently, the directors presented the students' performance as the pivotal element behind the existence of those programs at school. Moreover, state universities grounded the support of the programs on multiple reasons like their appeals to academic staff, the number of the instructors who were less experienced, and forming a culture special to the organisation. This shows the fact that foundation universities had more evident and certain motives to administer those events, while state universities were not so apparent and coherent in their justification to adopt CPD activities in their institutions. This can also be seen with the explications of two directors, DS1 and DF1 respectively.

'We can only interfere in the trainings when the needs became too apparent to be concerned.'

'The school takes teacher education seriously in that it is reflected to students' success. PDU meet up, determine the required type of education, and identify the ways of keeping observations among instructors within a specific schedule at the very beginning of the term.'

As an indispensable part of teaching and learning process, these programs were to be evaluated in the end. Nonetheless, the means of assessment might vary according to directors at each school. As is seen in the table, all of the directors treated 'feedback from teachers'

being the most compatible way of learning the appraisement of that system. Yet, the means of tools utilized to be informed about this process outnumbered at foundation universities, which exhibits the higher quantity in that context.

Table 6. *CPD Programs 2*

	State University	Foundation University	Total
Part 3	N	N	N
3. How do you conduct CPD in your school your institution?			
Your institution	2	2	4
British Council	1		1
English Language Education Association (INGED, IATEFL, TESOL)	1	1	2
International Publishing Houses	1	1	2
4. Please choose any one (s) of the following relevant reasons that teachers might not be willing to take part in CPD courses according to your perception.			
They feel they are qualified enough not to participate any trainings	1		1
They believe gaining experience in years can make them professional		1	1
They do not want to hear any theoretical information to adopt into their class	1	1	2
They do not gain any benefit for their academic status	1	2	3
They cannot earn extra money when they attend these programs		1	1
They do not want to invest time for these extracurricular activities	1	1	2
They may not relate their needs with the content of the program	1	2	3
They might not find teacher trainers competent enough in their field		1	1
5. Please choose any of the relevant reasons below what professional development could mean for the teachers in your institution.			
attending seminars on ELT	2	1	3
holding academic degrees	1		1
being knowledgeable about how to use instructional technology	1		1
reading and following ELT resource books		1	1
the exchange of ideas with colleagues	1	1	2
carrying out action research	1	2	3
recording class performance to examine later	1	1	2

implementing new teaching methods in class	1	1	2
being able to motivate oneself/gain autonomy	1		1
learning the ways of using technology in class	2	1	3
dealing with students' needs and being able to redesign the lesson	2	1	3
the competence of evaluating the effectiveness of one's teaching	1	1	2

It was also exposed that CPD activities were mostly held at universities locally as was put forward by Pedder, Storey, and Opfer (2008), though the help of external organizations, such as British Council or international publishing houses were appealed now and then.

The directors expressed potential rationales lying behind the reluctance of the instructors who refused to attend CPD events at school, too. To directors, they would not like to volunteer these trainings due to the lack of any impulsion in the recovery of their academic status. Besides, as was also dealt in previous explanations, their needs may not match with the program prepared by the PDU. In other words, directors observed and detected the fact that the interest of instructors in their academic positions or titles, and any probable mismatch between their needs and the school program can be the driving factor in their disinclination towards CPD.

Finally, they interpreted the meaning of CPD from the perspective of the instructors. 'Attending seminars on ELT', 'carrying out action research', 'learning the ways of using technology in the class' and 'dealing with students' needs and being able to redesign the lesson' became prominent as the most rated answers in total. It means that directors attached importance to keep in line with the recent trends in ELT. Thus, they must have paid attention to pedagogic knowledge in teaching English, given priority to hire ELT graduate instructors in their institutions. At least, they heartedly promoted the instructors with other majors like English Language and Literature or Linguistics to get help in methodology and other teaching language matters through seminars. In the same vein, other three most desired features of instructors by the directors met on a common ground 'the competence of carrying out teaching performance in the light of their educational background'.

4.2. The Connection between Educational Background of the Directors and CPD Activities at Schools

Upon investigating the academic bases of the directors, it came into sight that the directors at one of the state and foundation universities were ELT professionals, a lot more experienced, and they had less academic staff in their institutions. In parallel, they considered the leadership of the directors (Peterson, 2002) while giving opportunities to the instructors like providing extra time to hold their academic degrees or be engaged in CPD. Furthermore, similar to Gültekin's (2007) research, they were personally included into the planning of CPD contents in order to keep interaction among stakeholders. Regarding their suggestions and the route they followed in teacher education, 'motivation' was quite an essential term for them as in Aydın et al. (2017). They controlled the duration of the sessions within 60 to 90 minutes, and paid attention to the frequency of these activities which was once every two or three weeks. Similarly, while interpreting the questions in part 3, these two directors mostly touched on the practicality of activities which predicated topics on its theoretical base. This is

because they can be activated according to immediate needs or requests of the instructors. Therefore, they presented various choices to instructors in conducting CPD events as well as the school, such as English Language Education Association (INGED), Teaching English to Speakers of Other Languages (TESOL).

Another critical issue was the criteria during delegating roles and duties to academic staff. At that point, one of the state and foundation universities reflected 'the major' as the most prominent item. Then, the other two ranked 'educational background'. In the third list, 'certificates' was top graded, while 'the general view towards them at school' could be placed in the last. Nonetheless, 'experience' was regarded as the best only by one of the state universities. In brief, the correlation between the educational background of the directors and their priority in role assignment could only be achieved at one state and one foundation universities. The preferences of directors at other two universities could not show consistency as was also inspected in cooperation they offered to the instructors.

5. Conclusions and Implications for Further Research

Four directors at schools of foreign languages of different universities in Turkey attended this study. They shared their views about the quality of CPD systems in their organizations, and presented some practical suggestions to improve their quality. Besides the university types, the majors of the directors were investigated in order to reveal their background knowledge and then interpret the functions of CPD at those schools in a better way.

To conclude, the directors at foundation universities were reported to have extensive opportunities, such as giving instructors an opportunity to attend external events, subsidizing intuition fees to national and international trainings so that instructors could accomplish autonomy and self-actualization. The directors whose field of specialization was ELT were one step ahead than the others with regard to organize, administer, and assess the instructors' level of success after CPD activities.

By considering the result of that research, it can be suggested that directors should have clear-cut criteria about identifying the decision-makers to develop program's content. They need to include instructors' opinions more during this process. Additionally, more ELT graduate instructors should be recruited so as to advance the quality of CPD activities. In order to raise CPD achievement, the directors should also provide extra time, and an office separated only for PDU members to work in.

The present study is important in that it brings the opinions and practices of four directors about CPD from two distinct contexts. Shedding light on their perceptions regarding the implementation of CPD programs, developing an understanding toward the attitude of them about CPD process, and revealing both overlapping and missing points from dual perspectives (instructors and directors themselves) will possibly lead to an increase in the prestige of CPD research in language teaching.

In regard to the results, a further study can be operated at universities after three to five years in order to record the changes at schools. Besides that, the study can also be beneficial to the schools or universities which are on the way to establish PDU.

Notes

[1]This study is a part of doctoral dissertation called 'Expectations and Practices for Continuing Professional Development at Turkish State and Foundation Universities: A Suggested Model'.

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