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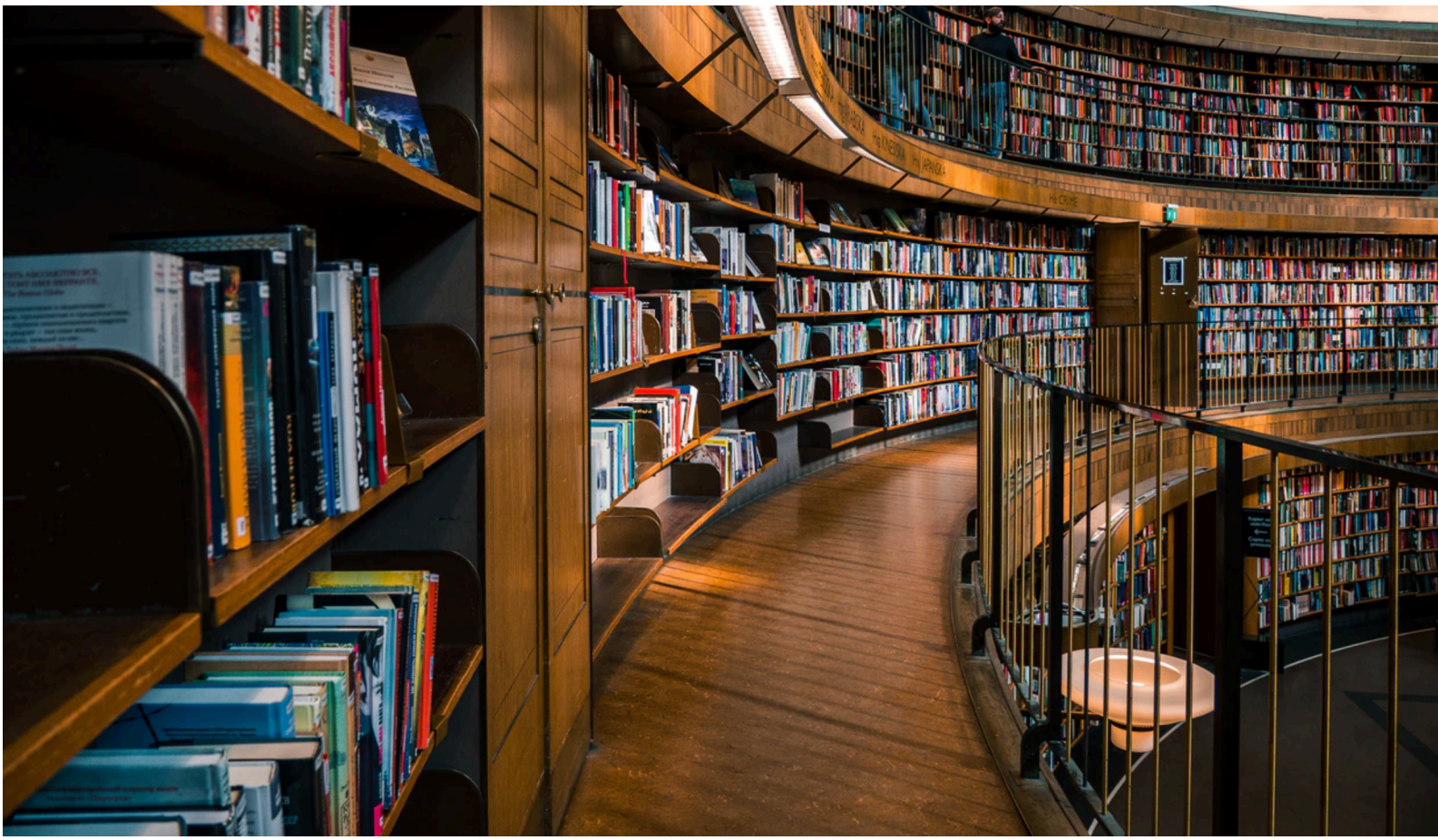

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The Views of International University Students About Online Education

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Abstract
Currently, international university students are working hard to cope with many problems in socio-cultural, psychological and economic terms. Particularly after Covid-19 epidemic experienced by the whole world in early 2020, they have started to face greater problems. Therefore, in this study, the aim is to examine the opinions of international university students taking Turkish online lessons about course practices and learning-teaching processes. Qualitative research design was used in this study, and the data were collected through focus group interviews. Participants of the study consist of 18 international university students enrolled in a state university in the academic year of 2020-2021 and receiving Turkish language education at B2 level. While some of the international university students expressed positive opinions regarding the economical and comfortable online education process, some of them expressed negative opinions; namely the lack of communication, the difficulties experienced in online exams and the language learning process and the inefficiency of education. Most of the students stated that the online education process has both positive and negative aspects. As the advantages of this educational process, students pointed out facilitating academic processes easily, managing time, being healthy and saving money. On the other hand, it was highlighted that there are technical, personal, educational, health and language difficulties in the online education process. As solution suggestions for these difficulties, the participants made suggestions on eliminating the problems in technical and physical conditions, including more motivational activities and improving the educational process.

Keywords: International University Student, Online Education, Focus Group Interview

1. Introduction

International university students decide to study in different countries in order to get to know different cultures and societies, to benefit from better educational opportunities and to have better living conditions. During this process, they may encounter many problems such as social, cultural (Tchoh & Mertan 2018; Koçak, 2020), psychological (Xiong & Zhou, 2018) and economic (Ghanbary, 2017) etc. Students, who are already working hard to cope with such problems, have faced with bigger problems due to the covid-19 epidemic experienced by the

whole world in early 2020. The epidemic has affected higher education institutions as well as all areas of life (Taşçı, 2021). As the education process has become digital all over the world, one of the important areas that have experienced a fundamental transformation in higher education (Bilecen, 2020). This situation brought many challenges to higher education/universities in the context of teaching, learning and research methods (Mok, Xiong, Ke, & Cheung, 2021). Due to travel restrictions and the lockdown of universities due to the epidemic, many international students had to stay in their own countries and continue their education with the online learning process. Thus, this digital transformation process in education has also revealed many inadequacies and inequalities in education systems (Taşçı, 2021).

Throughout this process, students experienced difficulties in many issues such as technical equipment required for online education, access to digital tools and digital content that supports learning (Choudaha, 2017; Schleicher, 2020). However, nowadays, when online education and applications have become the new normal, it is very important for the students to have digital tools (desktop / laptop computers or smart phones) in terms of functionality and sustainability of education. They need to access to lessons via the internet and develop existing digital interactions; in other words, digital tools encourage students to use the online learning process effectively (Radha, Mahalakshmi, Kumar and Saravanakumar, 2020). Filius et al. (2019) stated that students' access to tools such as computers, tablets or smartphones is essential for an effective online education.

Furthermore, in order to end up this process efficiently and effectively, both teachers and students should have some basic competencies in addition to the basic technical equipment / materials. Trainers are expected to follow up-to-date software and applications, develop content, solve software and hardware problems, use digital tools functionally and guide students about these digital tools (Hauck & Stickler, 2006 & Sun, 2011). In a related study, it was put forward that the proficiency of the instructor to use technology effectively affected the online experiences of the students (Cole, Shelley, & Swartz, 2014). It was also put forward in another study that students, who had digital competencies, provided their interpersonal relationships in digital environments and directed to collaborative work (Raaper & Brown, 2020). Therefore, it is possible to assert the idea that there are many positive or negative changes brought about by online education.

There are various cited advantages of online education. To begin with, teaching can be carried out regardless of time and place that may provide the opportunity to repeat the lessons to the user. In addition, students will have access to rich content, which may provide personalized learning and eliminate the costs of formal education (Barış & Çankaya, 2016). As the disadvantages of online education, it can be said that students may have limitations in using the online learning process effectively. Some students may not have enough technological skills. Also, some may experience physical problems such as waist, back, neck and eye pain, be unmotivated. Moreover, they may not have concentration, and they may face with serious anxiety and psychological problems (Firang, 2020). The important thing here is to try to understand whether the benefits of international university students in online learning processes are more than their harms (Karkar-Esperat, 2018).

As with all university students, international university students have had to cope with many variables such as providing technical equipment, having digital competencies and accessing to effective online environment in this difficult process. It is necessary to evaluate the need to create an effective and productive online learning environment in this context in a multifaceted way. For this reason, it has been decided to carry out this study in order to better understand international university students, to see the problems they may experience, to find solutions for them, to provide better learning environments and to contribute to all stakeholders working in the field in order to conduct the distance education process in a more effective manner.

There are studies in the literature on online education of international students during the epidemic process. In these studies, the perceptions of international university students regarding online learning (Demuyakor, 2020); online learning experiences during the Covid-19 outbreak (Ferdvez, Supiastutik, Angin, 2020), multilingual communication experiences (Li, Xie, Ai, & Li, 2020); the views on their use of information and communication technologies (Adıyaman & Adıyaman, 2020); challenges and learning experiences in online classrooms (Karkar-Esperat, 2018); the Covid-19 outbreak and higher education along with international mobility and social protection

of students (Bilecen, 2020) have been dealt with. Despite these studies, it is not known exactly to what extent international university students are satisfied with online education arrangements in the online learning process, and it is stated as a topic that needs investigation (Bilecen, 2020). A study in a similar vein, Adıyaman and Adıyaman (2020) emphasized that there are very few studies on the use of information and communication (ICT) technologies in international university students' language learning. Based on the fact that digital technologies are indispensable parts of life for today's students (Li, 2019) in an effective online course management, and considering that communication / interaction, process (teaching) management, behaviors, rules, time management and motivation are important for efficient learning processes (Polat, 2016), it is thought that conducting this study will shed light onto the literature.

Since international students did not have basic academic and welfare, and they experienced lack of technical equipment during the epidemic period, they had problems related to the basic academic and welfare support they needed (Bettinger & Loeb, 2013). Hence, they experienced feelings of stress, hopelessness, loneliness, anxiety and pessimism, causing them to be psychologically adversely affected by this process. (Gallagher, Doherty, & Obonyo, 2020). Based on these reasons, this study was carried out with the aim of trying to understand international university students. Another aim is to learn their attitudes and views towards online language teaching to reveal their problems and offer solutions in the light of the literature. It is expected that the results of the above-mentioned aims will contribute to the literature.

For distance online language teaching, it has already been underlined in the studies that it can cause some problems in terms of using digital tools, active participation of students, the interaction between students and time management (İnan, 2021). Another underlined point is is that the complex structure of language teaching might be very difficult to learn through distance learning (Hurd, 2006). This study based on these problems might give a different perspective to the problems. In this context, the main aim is to examine the opinions of international university students taking distance online Turkish lessons about course practices and learning-teaching processes. For this purpose, answers were sought for the following problems:

1. What are the views of international university students about online education?
2. What are the views of international university students about the advantages / positive aspects of online education?
3. What are the views of international university students about the difficulties they faced in the online education process?
4. What are the suggestions of international university students for using online education more beneficially and efficiently?

2. Method

The Method section describes in detail how the study was conducted, including conceptual and operational

2.1. Research Model

Qualitative research design was used in this study. The reason for choosing qualitative research design is that the aim is to understand the views of international university students about online education. Qualitative research designs allow an in-depth analysis related to the subject for definition, analysis, interpretation and understanding (Merriam, 2013). In this respect, the views of international higher education students about the concept of online education, their difficulties and solution suggestions were attempted to be revealed and interpreted in this study.

2.2. Participants

The participants of the study consist of 18 international university students enrolled in a state university in the academic year of 2020-2021 and receiving Turkish language education at B2 level. The working group was formed by using "convenience sampling," one of the purposeful sampling methods. This sampling type is a sampling method that is easily accessible in the immediate environment, and thus the research is carried out with people

who want to participate in the study voluntarily (Erkuş, 2009). The convenience sampling method accelerates the research in terms of time, and it is a useful method (Yıldırım & Şimşek, 2013).

Once the sample was arranged in the study, two groups were formed from the students who were going to be interviewed in the focus group. These two different study groups were separated using the maximum variation sampling method. In the maximum variation sampling method, the aim is to reflect the diversity of the participants in the study group at the maximum level (Yıldırım & Şimşek, 2013). Based on this method, attention is attached to ensure that the study group was heterogeneous in terms of gender and nationality variables, and variation was made. The first group consists of 10 students and the second group consists of 8 students.

Table 1: Demographic Characteristics of the Participants in the First Group

Code	Gender	Nationality
Participant 1	Male	Iraq
Participant 2	Female	Syria
Participant 3	Female	Syria
Participant 4	Female	Kazakhstan
Participant 5	Male	Palestine
Participant 6	Female	Uzbekistan
Participant 7	Male	Uzbekistan
Participant 8	Male	Uzbekistan
Participant 9	Male	Uzbekistan
Participant 10	Male	Iraq

As it is illustrated in Table 1, the participants in the first group are 10 students, 6 of them are male and 4 of them are female. When nationalities are examined, it can be said that there are students from Iraq, Syria, Kazakhstan, Palestine and Uzbekistan.

Table 2: Demographic Characteristics of the Participants in the Second Group

Code	Gender	Nationality
Participant 11	Male	Syria
Participant 12	Male	Indonesia
Participant 13	Male	Ivory Coast
Participant 14	Female	Saudi Arabia
Participant 15	Male	Syria
Participant 16	Female	Georgia
Participant 17	Female	Pakistan
Participant 18	Male	Syria

In line with Table 2, it is possible to state that the participants in the second group are from different countries such as Syria, Georgia, Pakistan, Ivory Coast, Indonesia and Saudi Arabia. There are 8 students; 5 of them are male, and 3 of them are female.

Focus group discussion is the process of obtaining information and generating ideas between a leader and a group. This discussion utilizes from the influence of group dynamics. The purpose of the focus group interviews is to examine the perspective of the working group on the subject determined by the researcher (such as their experiences, tendencies, thoughts, perceptions, feelings) to reach multidimensional qualitative information (Bowling, 2002). The reason for choosing this method is that international university students can use the online education process they have received and explain the difficulties they experience with the group by helping each other linguistically, rather than simply expressing their opinion on the subject.

2.3. Data Collection

During the data collection phase, the literature was reviewed by the researchers, and the questions were prepared with the content of the interview. The questions were finalized by taking the opinions of the Turkish Education field expert for the linguistic examination of the interview questions, and two scholars, who are experts in the field of Education Programs and Instruction, examined the questions in terms of the meaning, content and educational evaluation.

For the focus group interview, the researcher attended the lectures of international students at the university and explained the purpose and subject of the research to the students firstly. Later, volunteer students were divided into two groups by the researcher to ensure maximum diversity. The students were informed that the interviews would be recorded, and they were asked for permission. Each interview conducted through the online platform lasted between 60-75 minutes. In the initial phase of the interview, the purpose of the research was mentioned again, and the participants were asked to introduce themselves briefly. During the interviews, the questions prepared in the interview form were asked, and additional explanations were made when it was thought that the questions were not understood because the participants were international students. Via this method, in-depth information was obtained from individuals. In addition, special attention was attached to create an intimate conversation environment, where all students could freely express their opinions about the questions, to ensure group interaction at a high level. At the end of the interviews, the important points were summarized, and the session was ended by thanking the participants.

In the focus group discussion, the following questions were asked and discussed with the participants:

1. What are your thoughts on online education?
2. What are the advantages (positive aspects) of online education?
3. What are the difficulties you have in online education?
4. What are your suggestions for using online education more usefully and efficiently?

2.4. Data Analysis

In the first stage of the analysis of qualitative data, which was carried out in two stages through focus group interviews, the audio and video recordings obtained from the interviews were watched twice, and a written draft was created. Codifications were made in order to keep the identity information of the participants confidential.

In the second stage of the analysis, the data were evaluated using the descriptive analysis method. With the descriptive analysis method, the data are organized and interpreted according to the predetermined themes. Data can be organized according to research questions or presented according to themes. As it is widely known, descriptive analysis consists of four stages: framing, processing the data according to themes, defining the finding / giving and interpreting direct quotations (Glesne, 2013).

In this study, a framework was created for analysis on the basis of the literature on the concept of online education, and themes were organized according to research questions. In order to reflect the views of international university students on this subject, definitions have been made and interpreted through direct quotations in the study. Since the results of the focus group interviews are not for generalizing things, there is no need to quantify them with frequency, percentage and test tables (Fern, 2001). The reason is that the opinions of the individuals and the differences regarding these opinions are seen as important rather than quantification in the interviews (Çokluk, Yılmaz, & Oğuz, 2011). Hence, this study was carried out in the light of this information. Findings were formed by combining the results of two different focus groups.

3. Results

3.1. Findings about the First Sub-Problem

In the first sub-problem of the study, the opinions of international university students about online education were investigated. As a result of the descriptive analysis, the opinions of the students are divided into positive and negative themes about online education. The theme and Codes obtained from this research question are illustrated in Table 3.

Table 3: Theme and Codes for the First Sub-Problem

Themes	Codes
Positive point of view	Being economic (time and money)
	Being comfortable (environment and transportation)
Negative point of view	Communication problems
	Difficulties of online exam
	Problems regarding online language learning
	Inefficiency

Examples of direct quotes regarding both positive and negative opinions are as follows:
Participant 2: “Face to face is an easier system. For example, writing is more difficult for online exams. Sometimes, we have more difficulty in writing and sometimes we stop to solve questions" (negative- online exam difficulties)
Participant 5: "In my opinion, it was a very good alternative in our situation, in our case it is definitely better than not learning at all." (positive- different point of view)
Participant 7: “It has a good side and a bad side. The good news is that we just sit at home, we are with our family, we don't spend money for the vehicle, it's free. We eat the meal our mother cooked. We do not cook it ourselves like in Turkey. I think it would be better if we did the downside in the classroom. I think we understood better whether we talked to each other in the classroom or not. I think we would have the opportunity to ask questions and chat a lot when we were in the classroom. “(Being positive-comfortable, financially economical / negative-communication deficiencies)
Participant 8: “I think it is both good and bad. The good side is sitting at home. The bad side is that we cannot get a qualified education, so it is not very efficient. Face-to-face conversation would be much better. “(Positive-comfort in terms of space / Negative- inefficiency)
Participant 10: “I think it changes. For example, primary school, middle school and high school have very bad distance education systems, but it's very bad for language, for teaching. For our language learning experience, we could have met Turkish friends on campus, and we could speak Turkish every day. It would be better this way. Now, only my teacher is speaking. On the other hand, it has a very good side for university because I can manage my time. After I take part in a lesson, I can do something else." (Negative- difficulties in language learning, communication deficiencies / Positive- economy, time)
Participant 13: “In general, distance education is not easy and not nice for me. Sir, I am a social person, so I love direct communication in other words face to face. Online education drives people apart and reduces contact and communication. “(Negative- communication problems and deficiencies)
Participant 14: “Education process is going well, yes, it has difficulties. Because we are already learning languages, meeting people would be much easier if we were face to face. " (negative- language learning difficulties, communication deficiencies)
Participant 18: “I think it's better than not learning anything. It enables us to look at the education process differently. “(positive- different point of view)

Much as most of the students expressed negative opinions about online education, Participant 5 and Participant 18 stated that online education offered students a different perspective. Therefore, it was a good alternative to education in this process.

3.2. Findings Regarding the Second Sub-Problem

In the second sub-problem of the study, international university students were asked about the advantages / positive aspects of online education. The theme and Codes obtained from this research question are exhibited in Table 4.

Table 4: Themes and Codes for the Second Sub-Problem

Themes	Codes
Academic processes	Repeatability
	Learning a new method
Time management	Preparation time for the lesson
	Taking time to rest
	Ability to run more than one job
	Time allocated for transportation
Health	Physical health
	Emotional health
Economic issues	Not requiring classroom environment
	Monetary dimension

Though the international university students who participated in the focus group interviews have different cultural characteristics and nationalities, their views on the advantages of online education are similar. Direct quotations and Codes from student views on this subject are as follows:
Participant 1: "I think online education is also good for our physical health." (physical health)
Participant 2: "It is very good that the lesson is repeatable." (repeatability)
Participant 3: "It is getting healthier for the Corona period." (physical health)
Participant 7: “As I said, teacher, we are not spending money. I also agree with what my other friends said. “(financially economical)
Participant 10: “Time management. It is a very good thing for people who are already working, so we can continue online education. “(ability to run more than one job)
Participant 11: “Due to the fact that we could not go to school during this period, we would not be able to learn anything, but we can continue our education even online. Therefore, it has been a good alternative in terms of education, we can continue our lessons even in bad conditions. During the break, I can run other things at home. ” (learning a new method, running more than one job)
Participant 12: "To highlight, we can watch the lecture records over and over and understand the parts we do not understand by repeating them." (repeatability)
Participant 13: "We can both study and follow the lesson, we can do more than one job in the same time period." (ability to run more than one job)
Participant 14: “When the lesson is over, I can sleep (laughing). Time spent on the road is not a problem, and this gives the opportunity to rest immediately. " (taking time to rest - time for transportation)
Participant 16: “I can both listen and go on the road, so I can attend classes wherever I want. There is no obligation to be in any classroom, I can take classes anywhere. “(no need for classroom environment)
Participant 17: “It also prevents wasting time to go to class. Pre-class preparations are not composed of too many tasks. We can only sit in front of the computer , open the program and connect to the lesson. We don't have to go long distances. “(course preparation time and time allocated for transportation)
Participant 18: “In this way, we learned a new teaching method. If such a problem like Covid 19 happens again in the future, we will be used to such a lesson type, and we can continue this way. ” (learning a new method)

3.3. Findings Regarding the Third Sub-Problem

In the third sub-problem of the study, the aim was to understand the difficulties experienced by international university students in the online education process. As a result of the analysis, the themes "technical problems, personal / educational problems, difficulties in language learning and health problems" were obtained. The themes and codes obtained from the students' answers are displayed in Table 5.

Table 5: Theme and Codes for the Third Sub-Problem

Themes	Codes
Technical problems	Power outages
	Internet problem
Personal / Educational problems	Inability to focus / concentration problems
	Inefficiency
	Non-conformities in physical conditions
Difficulties in learning languages	Difficulties in the writing process
	Difficulties in the speaking process
Health problems	Physical health problems
	Mental / emotional problems

The direct quotations and Codes taken from the answers given by the students regarding the themes and Codes in Table 5 are given below:

Participant 1: “Depression is difficult because every day I am at home on the computer. I can never get out. “(mental / emotional problems)

Participant 3: "The writing process is difficult." (difficulties in the writing process)

Participant 4: “The biggest problem is speaking in the exam. There are internet problems in the system. " (Internet problems, difficulties in the speaking process)

Participant 6: "Internet problems." (internet problem)

Participant 7: "The Internet is the one I have the most problems with." (internet problem)

Participant 8: "Not very efficient." (inefficiency)

Participant 9: "The most common problem in online education is the internet problem." (internet problem)

Participant 10: "Internet problem was the biggest problem in exams, and we got low scores." (internet problem)

Participant 11: “People cannot get away from troubles and emotional problems at home. That's why, I can't focus. “(emotional problems, inability to focus / concentration problems)

Participant 12: “It is very difficult to arrange a space at home. Because of Covid-19, we are only sitting at home, we are very bored at home, but we have to continue the education process at home. This negatively affects my concentration in class. " (incompatibilities in physical conditions, inability to focus / concentration problems)

Participant 13: “It is very difficult for me to always sit passively in the same place all the time. My home environment is not suitable. Then, I try to convince myself to feel that my room is like a different environment. I try to feel as if I were going to school. I'm trying to attend classes in a different place from home. “(incompatibilities in physical conditions)

Participant 14: “The difficulties are many. Power outages sometimes cause a lot of problems. I live in Saudi Arabia, sometimes the electricity can be cut off, and education is disrupted this way. " (power outages)

Participant 15: "I have physical problems, I have eye problems on account of looking at the computer." (physical health problems)

Participant 16: “I haven't had a big problem, but the power outage scares me especially during exam times. This also worries me. At the same time, I can experience neck pain as a physical problem due to inactivity. " (power outages, physical health problems)

Participant 17: “Home is a resting place, not a place to learn. I am having difficulties in terms of physical conditions. “(incompatibilities in physical conditions)

It can be inferred that the biggest problem experienced by the majority of students in the online education process is technical problems. Among them, power outages and internet problems were also particularly emphasized by the students.

3.4. Findings Regarding the Fourth Sub-Problem

In the fourth sub-problem of the research, a question regarding the suggestions for using online education more beneficially and efficiently has been posed. According to the descriptive analysis results, the students expressed

their opinions on the themes of "solving technical problems, suggestions about the educational process, activities that increase motivation". The themes and codes obtained from the students' answers are illustrated in Table 6.

Table 6: Themes and Codes for the Fourth Sub-Problem

Themes	**Codes**
Elimination of technical and physical problems	Good and fast internet
	Having a good computer
	Organizing the physical environment
Recommendations regarding the educational process	Preparing for the lesson
	Mindfulness / concentration
	Active participation in the lesson
	Arranging the course hours
	Homework
	Giving feedback
Motivation increasing activities	Speaking activities
	Writing activities
	Discussion activities
	Watching movies and videos

The direct quotations from the participants regarding the themes and codes given in Table 6:
Participant 2: “Schools need to provide the necessary conditions technically. The students do not attend and follow the class. For this, attendance might be taken every minute (laughing). Students should actively participate in the lesson to make it more efficient. “(Elimination of technical problems, active participation in the lesson)
Participant4: "Different activities can be done to increase motivation."
Participant 5: "Watching movies or videos and talking about it." (watching movies and videos)
Participant6: “It is necessary to talk a lot. Speaking activities are useful for language teaching. For example, it may be useful to give a topic and write on it. " (speaking activities, writing activities)
ParticipantParticipant 7: “There should be discussions. If we participate in the discussion, the lessons are more fruitful. We should increase the speaking activities by focusing on the topics of discussion, and we should chat continuously. " (speaking activities, discussion activities)
Participant 8: “It's good to learn with a computer. However, lessons should not be conducted by eating something. It is important not to eat or drink. In addition, I think lessons should last for 7 days a week, instead of 6 hours every day, it would be more efficient to have 4 hours and 7 days. ”(Having a good computer, organizing the lesson hours)
Participant 9: "You can send a text and assign homework, and giving feedback on it can be much more effective." (assigning and giving feedback)
Participant 10: “I think the most important thing is to have a good internet, even a v at home. Technically, the internet provided by the computer needs to be fast. The room we are in needs to be like a study room; we should not attend the lesson in a bad environment like a desk or classroom environment. " (A good and fast internet, regulation of the physical environment)
Participant 12: “In my opinion, preparing for the lesson prior to it starts makes the lesson fruitful. That way, it can be more effective. We need to check the Internet to see if it's running fast. " (preparation for the lesson, good and fast internet)
Participant15: “There may be some communication barriers in online education, we can have a more effective process by turning on the cameras and participating in the lesson. Some friends might feel embarrassed in online education. During this process, not being embarrassed and trying to express ourselves will help you spend the process more efficiently. We can improve our speaking skills by continuously talking, trying to speak, and practicing. We may also conduct conversation activities among ourselves in this way. “(active participation in the lesson, speaking activities)
Participant16: “We need to concentrate, and our attention might be distracted immediately in online education. That's why, you have to listen very carefully. In addition, one should not be afraid of making mistakes. Even if it is wrong, we can learn the right one. Therefore, we need to practice often and express this to our teacher. The fact

that the teachers give feedback in this way will make the process go better. "(being careful / providing concentration, active participation in the lesson, giving feedback)
Participant 18: "To begin with, you should not be afraid of online education. You should attend the class and think that it will be easy. It might go on very well if you are careful. Being careful means that it can be useful and efficient. "(mindfulness / concentration, active participation in the lesson)

In line with the abovementioned direct quotations, it might be possible to assert the idea that international university students offer more activities to make the lessons more practical. However, they also express the need to solve technical problems and have digital tools in this process.

4. Discussion

Based on the fact that not many international university students have experience in taking online courses (Karkar-Esperat, 2018), 18 students from different countries participated in the study, which was conducted to examine their experiences / views on online education. In the data collected through the focus group interviews, very important information was obtained for the effective and efficient processing of the online education process carried out with international university students. For the case of this study, it is expected that examining the experiences / opinions of international university students regarding online education might shed light onto the literature.

International university students stated that online education has both positive and negative aspects. Participants stated that the online learning process is very economical in terms of time and finance, and there is no space limitation which is another important advantage. Er and Demir (2019) also stated that online education offers wide opportunities in terms of economy while minimizing problems related to time and space. Students also reported that they had a lack of communication in the online education process, and the lessons were inefficient in this respect.

The lecturer or teacher needs to pay much attention to ensure more interaction with students and among students in the online education process. In addition, the participants emphasized the negative aspects of online education by stating that they had difficulties especially while learning a language. However, the literature has revealed that online education makes learning a language easier, rather than making it difficult. In particular, there are studies that have highlighted that online learning environments are motivating and fun in that they offer materials that facilitate learning in four basic skill areas (reading, listening, speaking, writing) (language applications, word learning activities, etc.), and they are suitable for the use of various learning methods to encourage student autonomy. It is stated by studies that it positively affects foreign language learning due to the abovementioned reasons (Pleines, C. 2020; Li, 2019; Cacheiro-Gonzalez ve Medina-Rivilla, 2019; Liang-Yi ve Chin-Chung, 2017). In another study about today's case, Schulze and Scholz (2018) stated that there is a tendency to teach more language lessons online.

On the other hand, students also reported that online education has very important advantages. Online education has many features such as being able to be watched again, having a lot of time to rest, not needing to have a physical space and materials such as the classroom environment, and allowing a different and alternative learning process. Zhang et al. (2020) and Bilecen (2020) revealed that broadcasting the lectures in both live and archived form is an advantage for students, and online education is a good alternative in the coronavirus process. Also, Attardi, Choi, Barnett, Rogers (2016) stated that it is important to follow the lessons asynchronously. In another study, Watermeyer, Crick, Knight, and Goodall (2020) stated that transition to online education will be beneficial for students even though it is compulsory. In addition, Brown (2020) revealed that social networks, in particular, can create effective support for learning and stronger opportunities to overcome difficult problems.

Participants also noted the difficulties they faced in online education. They stated that they faced technical problems such as power cuts and internet access. Henaku et al. (2020) stated students faced technical problems such as computer, tablet and internet access. The students stated that they could not personally focus on the lesson and were not motivated. In terms of language learning, they stated that they had difficulties in speaking and writing

in online education. Students can overcome this problem by using language learning websites, mobile language applications, communication tools (Whatsapp, Instagram, Messenger, Skype, etc.) , digital tools and applications such as Google Translate. A study in a similar vein, Adıyaman and Adıyaman (2020) also stated that speaking tools such as Whatsapp and Facebook might be practiced. In that way, students might communicate with their friends in the languages they learn, and these applications might contribute to language learning processes. In other words, online education stands out as it provides students with multiple learning opportunities in digital environments. However, students also stated that online education causes health problems, both physical, mental and emotional. Çaykuş and Çaykuş (2020), Firang (2020), Kaya (2020), Sarı and Nayır (2020) also mentioned similar results in their studies.

International university students have made some suggestions to conduct online education effectively and efficiently. Participants stated that technical needs such as computer, tablet and internet access, which are the basic needs for online education, should be dealt with at first. Tamrat and Teferra (2020) also stated that students experience connection and repetitive power cuts during their access to the internet, and such technical problems should be eliminated in order to have an efficient online education. The students stated that teachers should carry out activities that increase their motivation, ensure active participation in the lesson, support the extracurricular learning process with homework and provide feedback at the same time. They stated that the process should be supported by watching movies / videos about motivational activities, focusing on discussion activities, speaking and writing activities. In another study, Karkar-Esperat (2018) concluded that students lack motivation in online education and have problems in terms of feedback. Furthermore, Kung (2017) stated that ensuring active participation of students, giving frequent feedback to students and creating diversity in terms of activities are important in the online learning process. Pattenaude and Caldwell (2020) also stated that a good online education should prioritize motivation.

While some of the international university students expressed positive opinions regarding the economy and comfort of online education process, some of them stated negative opinions, citing the lack of communication, the difficulties experienced in online exams and the language learning process and the inefficiency of education. Most of the students stated that the online education process has both positive and negative aspects. Features such as facilitating academic processes and time management, being a healthy, economical and good alternative method that can be performed in the Covid-19 process have been expressed as advantages of this educational process. It was stated that there are technical, personal, educational, health and language difficulties in the online education process. As solution suggestions for these difficulties, the participants made suggestions on eliminating the problems in technical and physical conditions, including more motivational activities and improving the educational process.

As a result, in this difficult epidemic period, it may be beneficial to conduct consultation studies in Turkey. Universities, non-governmental organizations and all stakeholders related to education should provide support so that international university students have a healthy adaptation to online education with an academic, social, psychological and economical support. Support centers can be established only for international university students to meet the basic equipment they may need in their online education processes and to find solutions to possible problems they may experience. In this respect, effective and fast solutions might be found for students' problems.

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Analysis of Disaster Awareness Perception Levels of Students in Social Studies Teaching Undergraduate Program

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Abstract
Disasters are known as calamities affecting all humanity on earth and have adverse impacts on human life in various ways. Although many natural disasters cannot be prevented, their adverse effects on people can be mitigated. It is important to raise the awareness of people about disasters, whether they are caused by human effects or nature. Disaster education plays an important role in raising this awareness. The study group of the study consists of 172 teacher candidates receiving education in the 1st, 2nd, 3rd and 4th grades of the department of social studies teaching in a state university located in the Central Anatolia region. In order to measure the disaster awareness of the teacher candidates, the scanning pattern included under the quantitative study method has been used. T-test and ANOVA has been utilized in the analysis of disaster awareness perception scale. As the result of the analysis; in the sub-dimensions of disaster education awareness, pre-disaster awareness, false disaster awareness and post-disaster awareness, the teacher candidates have been evaluated according to their gender, their general academic average scores, their participation in a conference or a panel and according to their homework, presentation or project preparing status. Based on the results of the research, in order for the teacher candidates to gain the right disaster awareness, it has been recommended that they should be provided with disaster awareness courses in their undergraduate curriculum, that they should take part in various research projects, and attend various symposiums, congresses related with disaster awareness.

Keywords: Social Studies, Disaster, Disaster Awareness, Perception Level

INTRODUCTION

Disasters are known as calamities that have affected all humanity on earth for centuries and had adverse impacts on human life social wise, economic wise and in various other ways. Disaster is a major crisis that affects society (Lee & Lee, 2019). At the same time, disasters are a common problem affecting all humanity (Çelik, 2020). This effect varies according to place and time. Based on this, disasters can be defined as follows: "The consequences of natural, technological or human-based incidents that cause physical, economic and social losses for people, natural and cultural resources, affect communities by stopping or disrupting the normal life and human activities, and of which the affected community cannot cope with using local facilities and resources are called disasters" (AFAD, 2013). Another definition is as follows: "Disasters are events that occur relatively suddenly in a specific geographic area, create collective stress, cause a certain amount of loss and disrupt the life of the society" (Tierney, 1989 cited by Öztürk, 2013, p. 308). The disaster here can be expressed as not an event itself but as the damage

caused by this natural or man-made event (Özey, 2011). These disasters that affect humanity differ as natural ones such as earthquakes and floods or as man-made ones that occur due to human effects. One of the biggest disasters affecting humanity is earthquakes (Aydın, 2010). Earthquakes are among the most common natural disasters in our country. Earthquakes, like other disasters, affect society in all aspects; physically, economically and sociologically (Karakuş, 2013). The older parts of the earth are the areas where the earthquake risk is the least (Sür, 1993). Turkey is a young country due to its geological structure. Thus, this situation brings along with it the geological mobility. A large part of the population in Turkey lives under the risk of earthquakes (Değirmençay & Cin, 2016). In addition to earthquakes, many natural disasters occur that affect humanity. Flood, drought, erosion and landslide can be named among the disasters that affect all the living things (Bozyiğit, Kaya, 2017). Many disasters affect humanity directly or indirectly. Natural disasters may not be prevented, but their impact on people can be mitigated (Cin, 2010; İnal, Kocagöz & Turan, 2012).

Individuals have been exposed to disasters in various ways and at various dimensions throughout their lives and their lives have been adversely affected (Özkazanç, Duman & Yüksel, 2015). "Therefore, in order for disasters to be regarded as comprehensible situations in societies with different socio-economic structures and for to teach their vital impacts effectively to all the individuals through education, society in general and students in particular must go through a serious education process" (Özgen, Ünaldı & Bindak, 2011, p. 305). Starting from childhood, this education process should be executed both formally and informally, as it may not be clear when the natural disasters shall affect human life. For example, people may encounter an earthquake, which is a natural disaster, at any time in their lives (Özgüven, 2006). Social awareness should be created for disasters that affect people's lives and cause serious physical, economic and social damage."Planning disaster awareness and disaster preparedness activities separately from people's daily life and worries makes it difficult to achieve the goals" (Şahin, Lamba & Öztop, 2018, p. 150). Therefore, all the activities concerning disasters should be integrated to daily life. Various natural events take place every day on earth, which do not harm different hominid lines (Tekin & Dikmenli, 2020). However, people should be made aware of all natural phenomena. Disaster education plays a great role in raising this awareness. In addition to printed materials, digital materials and various methods and techniques can be used in disaster education (Değirmenci, Kuzey & Yetişensoy, 2019). It is of importance to start giving disaster education to children at an early age (Karakuş& Öngör, 2017). "Disaster preparedness training is a part of disaster and emergency planning and contributes to the system in the preparation phase of risk management. Disaster trainings for the society should focus on improving skills rather than memorization"(Gerdan, 2019, p.105). Post-disaster phase constitutes the most important stage of disaster management (Bartolucci & Magni, 2016). Therefore, the post-disaster stage is included in disaster education as an important section.

The aim of this study is to determine the disaster awareness of the social studies teacher candidates. In this context, replies to the following questions have been sought in this study:

1. Is there a difference between the disaster awareness perception scores of the participants according to the gender variable?
2. Is there a difference between the disaster awareness perception scores of the participants according to their general academic average scores?
3. Is there a difference between the disaster awareness perception scores of the participants according to their participation in conferences or panels?
4. Is there a difference between the disaster awareness perception scores of the participants according to their homework, presentation or project preparation status on disasters?

METHOD

This section includes the research model, study group, data collection tool and analysis of the data.

STUDY MODEL

In this study, quantitative model has been used to measure the disaster awareness of the social studies teacher candidates. In the study, the scanning pattern included under the quantitative study method has been used. The

scanning pattern is “the studies that are made on relatively larger samples compared to other studies, where the opinions of the participants about a subject or event or their interests, skills, abilities, attitudes and similar characteristics are determined." (Büyüköztürk, Kılıç, Çakmak, Akgün, Karadeniz & Demirel, 2016, p.177). Scan patterns generally have structured features (Ekiz, 2015).

STUDY GROUP OF THE RESEARCH

172 teacher candidates, receiving education in the 1st, 2nd, 3rd and 4th grades of the department of social studies teaching in a state university located in the Central Anatolia region, constitute the study group of the research. The study group of the research has been selected according to the simple random sampling method. The most prominent feature of the simple random sampling is that “each unit in the universe has the possibility to be equal and independent in being selected for sampling” (Balcı, 2016, p.99).

Table 1: Demographic Features of the Study Group

Gender	f
Female	36
Male	136

According to Table 1, the study group of the research consists of 172 social studies teacher candidates in total, of which 36 are females and 136 are males.

DATA COLLECTION TOOL

In the research, disaster awareness perception scale prepared by Dikmenli, Yakar & Koca (2018) has been used as the data collection tool. The scale is of 5-point Likert type and consists of 36 items. Disaster education awareness, pre-disaster awareness, false disaster awareness and post-disaster awareness sub-dimensions have been included. In the first part of the scale, demographic information about the teacher candidates has been given. In the second part of the scale, items of disaster awareness scale have been included. The Cronbach Alpha Coefficient of the whole disaster awareness scale was found to be .671.

DATA ANALYSIS

In the study, SPSS computer program has been used to analyze the scores achieved by the social studies teacher candidates in the disaster awareness perception scale. As a result of the analysis conducted, it has been determined that the data showed a normal distribution when the Kolmogorov-Smirnov test has been performed. T-test and one-way analysis of variance has been used for the analysis of disaster awareness perception scale scores of the teacher candidates.

RESULTS

Findings Regarding the First Sub-Problem

The first sub-problem of the study is the question of "Is there a difference between the disaster awareness perception scores of the participants according to the gender variable?". T-test has been conducted for independent groups regarding the solution to the problem. The results obtained are given below.

Table 1: T-Test Results for Independent Groups Regarding the Comparison of Disaster Awareness Perception Scores by Gender Variable

Gender	**N**	$\overline{X}$	**S**	**Sd**	t	p
Female	36	3,20	,349	170	,930	,354
Male	136	3,14	,283			

According to the analysis results, there is no statistically significant difference between the disaster awareness perception scores of the participants according to their gender ($t_{(170)}$ =, 930, p> .05). This finding can be interpreted as being a male or a female does not change disaster awareness perceptions.

On the other hand, in order to understand whether there is a statistically significant difference in the disaster awareness perception scale sub-dimensions of the gender variable, the average scores for the dimensions have been calculated and subjected to a t-test for independent groups. The results achieved are given below.

Table 2: T-Test Results for Independent Groups Regarding the Comparison of the Disaster Awareness Perception Scale Sub-Dimensions Mean Scores According to the Gender Variable

Dimension	Gender	**N**	$\overline{X}$	**S**	**Sd**	t	p
Disaster Education Awareness	Female	36	3,24	,648	170	,250	,803
	Male	136	3,21	,469			
Pre-Disaster Awareness	Female	36	3,12	,384	170	-,811	,419
	Male	136	3,18	,384			
False Disaster Awareness	Female	36	3,19	,423	170	1,65	,101
	Male	136	3,06	,411			
Post-Disaster Awareness	Female	36	3,22	,566	170	1,71	,090
	Male	136	3,06	,477			

According to the gender variable, no statistically significant difference has been found between the disaster education awareness dimension mean scores of the participants ($t_{(170)}$ =, 250, p> .05). This finding can be interpreted as being a male or a female does not change the participants' awareness of disaster education.

When the pre-disaster awareness dimension mean scores have been compared according to the gender variable, it has also been found that there was no statistically significant difference ($t_{(170)}$= -, 811, p> .05). This finding can be interpreted as being a male or a female does not change the pre-disaster awareness of the participants.

When the mean scores of the participants in the false disaster awareness dimension have been compared, again, no statistically significant difference has been observed ($t_{(170)}$ = 1.65, p> .05). This finding can be interpreted as being a male or a female does not cause a difference in their status of having false disaster awareness or not.

Finally, when the participants' mean scores have been compared in the dimension of post disaster awareness, it has been found that there was no statistically significant difference ($t_{(170)}$ = 1.71, p> .05). This finding can be interpreted as that the participants' state of awareness after the disaster has not changed according to their being of a male or a female.

Findings Regarding the Second Sub-Problem

The question of "Is there a difference between the disaster awareness perception scores of the participants according to their general academic average scores?" constitutes the second sub-problem of the study. Conducting of one-way analysis of variance has been required to solve the problem. However, just before carrying out the variance analysis, Levene test has been performed to determine whether the assumption of homogeneity of variances was achieved or not. According to the results of the analysis, it has been understood that the scores obtained from the 4 dimensions and from the whole scale met the assumption of homogeneous distribution of variances. From this point of view, one-way analysis of variance has been conducted. The results obtained are given below. Descriptive statistics regarding the average scores of the participants obtained from the sub-dimensions and from the whole of the scale are presented in Table 3; and the one-way variance analysis findings according to the academic averages are given in Table 4.

Table 3: Descriptive Statistics According to Academic Averages

Dimension	Academic Average	N	$\overline{X}$	ss
Disaster Education Awareness	Lower than 2	10	3,30	,574
	Between 2.01-3.0	13	3,06	,483
	Between3.01-4.0	61	3,31	,502
	4,00	88	3,17	,508
	Total	172	3,22	,510
Pre-Disaster Awareness	Lower than 2	10	3,13	,503
	Between2.01-3.0	13	3,05	,344
	Between3.01-4.0	61	3,19	,335
	4,00	88	3,17	,409
	Total	172	3,16	,384
False Disaster Awareness	Lower than 2	10	3,23	,523
	Between 2.01-3.0	13	2,95	,370
	Between 3.01-4.0	61	3,07	,416
	4,00	88	3,11	,408
	Total	172	3,0901	,41520
Post-Disaster Awareness	Lower than 2	10	3,2500	,52851
	Between 2.01-3.0	13	2,9744	,45055
	Between 3.01-4.0	61	3,1694	,50780
	4,00	88	3,0379	,49307
	Total	172	3,0921	,49927
Whole of the Scale	Lower than 2	10	3,2343	,42116
	Between 2.01-3.0	13	3,0176	,23051
	Between 3.01-4.0	61	3,2037	,29446
	4,00	88	3,1325	,28824
	Total	172	3,1550	,29777

Table 4: One-Way Analysis of Variance Results According to Academic Averages

Dimension	Source of Variance	Squares Tot.	sd	SquaresAvr.	F	p
Disaster Education Awareness	Intergroup	1,128	3	,376	1,458	,228
	Intragroup	43,319	168	,258		
	Total	44,446	171			
Pre-Disaster Awareness	Intergroup	,224	3	,075	,503	,681
	Intragroup	24,979	168	,149		
	Total	25,204	171			
False Disaster Awareness	Intergroup	,470	3	,157	,908	,439
	Intragroup	29,008	168	,173		
	Total	29,478	171			
Post-Disaster Awareness	Intergroup	1,053	3	,351	1,418	,239
	Intragroup	41,573	168	,247		
	Total	42,626	171			
Whole of the Scale	Intergroup	,498	3	,166	1,902	,131
	Intragroup	14,664	168	,087		
	Total	15,162	171			

When the variance analysis results in Table 4 have been examined, according to the variable of the academic averages of the participants, no statistically significant difference has been observed among the average scores obtained from disaster education awareness ($F_{(3-168)}$ = 1,458; p>.05), pre-disaster awareness ($F_{(3-168)}$ =, 503; p> .05), false disaster awareness ($F_{(3-168)}$ =, 908; p> .05), post-disaster awareness ($F_{(3-168)}$ = 1,418; p> .05) and the mean scores obtained from the total of the scale ($F_{(3-168)}$ = 1,902; p> .05). This means that participants' perceptions of disaster awareness do not change according to their academic averages.

Findings Regarding the Third Sub-Problem

The third sub-problem of the study is the question of "Is there a difference between the disaster awareness perception scores of the participants according to their participation in conferences or panels?". T-test has been conducted for independent groups regarding the solution to the problem. The results obtained are given below.

Table 5: T-Test Results for Independent Groups Regarding the Comparison of Disaster Awareness Perception Scores According to the Conference or Panel Participation Status

Participation Status	**N**	$\overline{X}$	**S**	**Sd**	t	p
Yes	35	3,24	,248	170	2,02	,045
No	137	3,13	,306			

When the averages of the disaster awareness perception scale of the participants have been compared according to whether they have attended a conference or a panel on disasters, a statistically significant difference has been observed in favor of the participants ($t_{(170)}$=2,02; p<.05). The disaster awareness perception average score of the participants who have attended to a conference and a panel is ($\overline{X}$ = 3,24), whereas the average of those who have not attended is ($\overline{X}$ = 3,13). This finding can be interpreted as participating in a conference or a panel changes the disaster awareness perceptions.

On the other hand, in order to compare the scores obtained from the sub-dimensions of the scale, a t-test has been conducted for the independent groups. The results obtained are given in Table 6.

Table 6: T Test Results for Independent Groups Regarding the Comparison of the Disaster Awareness Perception Scale Sub-Dimensions Mean Scores According to the Participation Status in a Conference or a Panel

Dimension	Participation Status	**N**	$\overline{X}$	**S**	**Sd**	t	p
Disaster Education Awareness	Yes	35	3,30	,498	170	1,020	,309
	No	137	3,20	,513			
Pre-Disaster Awareness	Yes	35	3,20	,314	170	,555	,580
	No	137	3,16	,400			
False Disaster Awareness	Yes	35	3,31	,313	170	3,710	,000
	No	137	3,03	,420			
Post-Disaster Awareness	Yes	35	3,10	,526	170	,168	,867
	No	137	3,09	,494			

When the results of the analysis is observed, statistically no difference has been found in the dimensions of disaster education awareness ($t_{(170)}$=1,020; p>.05), of pre-disaster awareness ($t_{(170)}$=,555; p>.05) and of post-disaster awareness ($t_{(170)}$=,168; p>.05). This finding can be interpreted as whether they attend a conference or a panel does not make a difference in the disaster education, pre and post disaster awareness of the participants. On the other hand, in the false disaster awareness dimension, a statistically significant difference has been observed in favor of those who have attended a conference or a panel ($t_{(170)}$=3,710; p<.05). This finding can be interpreted as that those who have attended to a conference or a panel have acquired more accurate disaster awareness than those who have not attended.

Findings Regarding the Fourth Sub-Problem

The fourth sub-problem of the study is the question of “Is there a difference between the disaster awareness perception scores of the participants according to homework, presentation or project preparation status?”. T-test has been conducted for the independent groups regarding the solution to the problem. The results obtained are given below.

Table 7: T-Test Results for Independent Groups Regarding the Comparison of Disaster Awareness Perception Scores According to Homework, Presentation or Project Preparation Status

Preparation Status	**N**	$\overline{X}$	**S**	**Sd**	t	p
Yes	82	3,21	,245	170	2,532	,012
No	90	3,10	,331			

A statistically significant difference has been found in favor of the ones who have prepared a homework, a presentation or a project on disasters when the average scores obtained by the participants in disaster awareness perception scale has been compared according to their preparation status ($t_{(170)}$ = 2.532; p <.05). The disaster awareness perception average score of those who have prepared homework, presentations or projects is ($\overline{X}$ = 3.21), whereas the average of those who have not prepared is ($\overline{X}$ = 3.10). This finding can be interpreted as homework, presentation or project preparation changes disaster awareness perceptions.

On the other hand, in order to compare the scores obtained from the sub-dimensions of the scale, a t-test has been conducted for the independent groups. The results obtained are given in Table 8.

Table 8: T Test Results for Independent Groups Regarding the Comparison of the Disaster Awareness Perception Scale Sub-Dimensions Mean Scores According to Homework, Presentation or Project Preparation Status

Dimension	Preparation Status	**N**	$\overline{X}$	**S**	**Sd**	t	p
Disaster Education Awareness	Yes	82	3,24	,394	170	,491	,624
	No	90	3,20	,598			
Pre-Disaster Awareness	Yes	82	3,20	,036	170	1,07	,315
	No	90	3,14	,045			
False Disaster Awareness	Yes	82	3,24	,373	170	4,77	,000
	No	90	2,95	,406			
Post-Disaster Awareness	Yes	82	3,15	,500	170	1,57	,118
	No	90	3,04	,494			

When the results of the analysis is observed, statistically no difference has been found in the dimensions of disaster education awareness($t_{(170)}$=,491; p>.05), of pre-disaster awareness ($t_{(170)}$=1,07; p>.05) and of post-disaster awareness ($t_{(170)}$ = 1.57 p>.05). This finding can be interpreted as that the homework, presentation or project preparation status does not make a difference in the disaster education awareness, pre-disaster awareness and post-disaster awareness of the participants. On the other hand, in the false disaster awareness dimension, a statistically significant difference has been observed in favor of the preparers ($t_{(170)}$ = 4,777; p <.05). This finding can be interpreted as those who prepare homework, presentations or projects have more accurate disaster awareness than those who have not.

Discussion, Conclusion and Suggestions

In the study, the awareness of the teacher candidates about disasters has been examined. As a result of the analysis conducted, when the scores of the teacher candidates in disaster education awareness, pre-disaster awareness, false disaster awareness and post-disaster awareness sub-dimensions have been examined according to gender, no significant difference has been observed between the female and male teacher candidates. This situation shows that gender is not an effective factor in creating disaster awareness. When the academic achievements of teacher candidates have been examined, it has been determined that academic success did not make a significant difference in the sub-dimensions of disaster education awareness, pre-disaster awareness, false disaster awareness and post-disaster awareness. Based on the results of the research study, it can be stated that the academic success of the teacher candidates does not constitute an effective factor. When the disaster awareness perception scores of the

teacher candidates according to their participation in a conference or in a panels have been examined, no statistically significant difference has been observed in the dimensions of disaster education awareness, pre-disaster awareness and post-disaster awareness. On the other hand, a statistically significant difference has been observed in favor of the conference and panel participants in the false disaster awareness dimension. According to this result obtained, teacher candidates' participation status in a conference or in a panel reveals that false disaster awareness or mislearning has been eliminated. When the disaster awareness scores of the teacher candidates have been examined according to their homework, presentation or project preparation status, no statistically significant difference has been determined in disaster education awareness, pre-disaster awareness and post-disaster awareness dimensions. However, in the false disaster awareness dimension, a statistically significant difference has been observed in favor of those who have prepared homework, presentations or projects. According to this result of the study, it has been revealed that making of research on disaster awareness by the teacher candidates' is an important factor in eliminating false disaster awareness.

In the study conducted by Tekin & Dikmenli (2021) with classroom teacher (class master) candidates, it has been determined that they have high level of disaster education awareness perception, pre-disaster awareness perception, false disaster awareness perception and general disaster awareness perception but moderate level of post-disaster awareness perception. In the study conducted by Dikmenli and Yakar (2019), it has been concluded that teacher candidates' disaster awareness perception levels were at a medium level. In the study conducted by Inal, Kocagöz & Turan (2012) with university students, it has been found that the scores related to basic disaster and preparedness levels were low. The study by Şahin, Lamba & Öztop (2018) carried out on university students to determine the disaster awareness and disaster preparedness levels, has revealed that the disaster levels of the students were high, but their preparedness levels were low. In the study conducted by Dökmeci & Meriç (2018) with undergraduate and associate degree students on disaster awareness, results have been obtained in favor of undergraduate students. In the study conducted by Ayvazoğlu, Çekiç & Yüksel (2020), a positive significant relationship has been found between the disaster risk perception and preparedness levels of university students.

Based on the results of the research study, the following suggestions can be made to raise disaster awareness of teacher candidates, to have them gain disaster awareness:

- Courses should be included in the undergraduate curriculum of the teacher candidates in order to create the correct disaster awareness.
- In order to form and raise disaster awareness, it should be ensured that teacher candidates take part in various research projects.
- Participation of the teacher candidates in various symposiums, congresses etc. created for disaster awareness should be provided.

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A Tale of Seven Cases – Faculty Unions in the United States – From Yeshiva To Elon: Is It Time to Review Yeshiva and the Positions of Church-Sponsored Colleges and Universities As Well?

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Abstract
This article is a summary discussion of the main issues faced by faculty at private, often church-sponsored, universities who sought to be represented by a union in collective bargaining with their employers. The discussion begins by tracing the origins of the rule that faculty at private universities are managers and not employees under the aegis of the National Relations Act in the Supreme Court case of Yeshiva University. The summary then follows developments over the years up to the most recent decision of the National Labor Relations Board that sanctioned the efforts of adjunct professors at Elon University to seek union representation. In examining these two book-end cases, the article discusses issues relating to the effect of the religion clauses of the First Amendment in the context of the National Labor Relations Board's shifting views on the topic. Last, the authors discuss unionization in the context of church-sponsored colleges and universities. Is it now time for the Supreme Court to review its seminal decision in Yeshiva University and for church-sponsored colleges and universities to rethink their positions as well?

Keywords: National Labor Relations Act, National Labor Relations Board, Managerial Employees, Religious Exemption, Contingent Faculty, Adjunct Faculty

1. Introduction

The National Labor Relations Act of 1935, which created the National Labor Relations Board of NLRB, was enacted b Congress to "protect the rights of employees and employers, to encourage collective bargaining, and to curtail certain private sector labor and management practices, which can harm the general welfare of workers, businesses and the U.S. economy" (National Labor Relations Board, 2021). In order to safeguard employees' rights to organize and to determine whether to have a union as their bargaining agent, the NLRB recognizes that an "appropriate bargaining unit is any group of two or more employees who share a community of interest and may reasonably be grouped together for purposes of collective bargaining (Society for Homan Resource Management, 2021). The NLRB ordinarily has full discretion to determine what is an appropriate unit for each

purpose. Daykin (1959) notes that "the statutory provisions in section 9(b) of the Taft-Hartley Act give to the National Labor Relations Board the power or the exclusive jurisdiction to determine the appropriate unit for collective bargaining purposes when such a decision is required in a representation case or an unfair labor practice case brought before it." In 2019, the NLRB's decision in *The Boeing Company* (2019) clarified a three-step approach for determining an appropriate bargaining unit under the traditional community-of-interest test.

- "First, the NLRB will determine whether the proposed unit has an internal community of interest.
- Next, the NLRB will weigh the interests of those within the proposed unit against the shared and distinct interests of those being excluded. The excluded employees must have meaningfully distinct interests in the context of collective bargaining that outweigh the similarities to unit members.
- Finally, the NLRB will take into account the Board's established guidelines for specific industries (Faegre Drinker, 2019).

The NLRA, however, excludes certain individuals, "such as agricultural laborers, independent contractors (Rosen, Bloom, & Ryan, 2019), supervisors and persons in managerial positions, from the meaning of 'employees.'" Some of these exclusions were very controversial when they were enacted into the law (see Churgin, 1999; Perea, 2010). In addition, the NLRB, as a matter of policy, has excluded from collective bargaining employees who act in a confidential capacity to an employer's labor relations officials.

1.1. Definitional Considerations

Under the NLRA:

- A *supervisor* is defined as someone who uses *independent judgment* to make personnel decisions or to recommend personnel decisions. Personnel decisions include "hiring, promoting, transferring, rewarding and terminating employees" (see, e.g., *American League of Professional Baseball Clubs and Association of National Baseball League Umpires* (1969); Hudson, 2012; Mayer & Shimabukuro, 2012)
- A *managerial employee* is defined as someone who makes, executes, and exercises independent judgment about management policies (Germana, 1991).
- The National Labor Relations Act defines professional employee as "any employee engaged in work predominantly intellectual and varied in character as opposed to routine mental, manual, mechanical, or physical work" (see Bixler, 1985).
- A *confidential employee* is defined as someone who assists and acts in a confidential capacity to the management personnel who make and implement labor relations policies, or as someone who has regular access to confidential information about future bargaining strategy or changes that the employer anticipates may result from collective bargaining (see Brown & Kerrigan, 1995, citing Meeks v. Grimes, 1985).

  The California Higher Education Employer-Employee Relations Act (HEERA) (1979) defines a confidential employee as "any employee who is required to develop or present management positions with respect to meeting and conferring or whose duties normally require access to confidential information which contributes significantly to the development of those management positions. Positions usually are considered confidential if the employee: a) regularly types grievance responses and maintains the grievance files; or b) is directly involved with system-wide or campus meet and confer sessions, including participating in management caucuses to evaluate information and determine the campus' position."

- Other employees who are excluded from the bargaining unit include domestic workers, people employed by a parent or a spouse, and public employees.

Are faculty members "employees" within the meaning of the NLRA or Wagner Act, eligible to form a union (Herbert & Apkarian, 2017), or they excluded from being able to form a union on the ground that they are

"managerial"? The answer may depend on the faculty member's employer or perhaps even the composition of the NLRB.

2. The *Yeshiva* Case: Managerial or Professional Employees?

The seminal case in the discussion of faculty unions at private American universities is *National Labor Relations Board v. Yeshiva* (1980) (see Denslow, 1981; Metchick & Singh, 2004). The Faculty Association (faculty union) at Yeshiva University filed a representation petition with the NLRB, seeking certification as the bargaining agent for the full-time faculty members of 10 of thirteen schools of Yeshiva University. Yeshiva University is a private university, located primarily in New York City.

Yeshiva University (2021) on its website self-describes as follows:

> "Yeshiva University has grown from a small yeshiva offering some secular education to Jews on the Lower East Side of Manhattan in 1886 to a prestigious, multifaceted institution that integrates the knowledge of Western civilization and the rich treasures of Jewish culture."
>
> "Yeshiva University today supports three undergraduate schools (including honors programs and Torah studies programs), seven Yeshiva graduate and professional schools, renowned affiliates such as the Albert Einstein College of Medicine and the Rabbi Isaac Elchanan Theological Seminary, a diverse multitude of scholarly centers and institutes, and several libraries, a museum and a university press, located on campuses both in the United States and Israel."

The University opposed the petition on the ground that *all* of its faculty members were *managerial or supervisory* personnel, and hence not "employees" within the meaning of the National Labor Relations Act (Metchick & Singh, 2004; Guiler, Kelly, & Mills, 2018). Under the procedures of the NLRB, the petition was heard by a hearing officer (e.g., DiGiovanni, 2014) "who held hearings over a period of five months, generating a voluminous record." The evidence adduced at the hearings showed that a central administrative hierarchy at Yeshiva serves all of the University's schools, with University-wide policies formulated by the central administration upon approval of the University Board of Trustees, whose members, other than the University President, hold no administrative positions at the University.

> "An Executive Council of Deans and administrators makes recommendations to the President on a wide variety of matters. University-wide policies are formulated by the central administration with the approval of the Board of Trustees, and include general guidelines dealing with teaching loads, salary scales, tenure, sabbaticals, retirement, and fringe benefits. The budget for each school is drafted by its Dean or Director, subject to approval by the President after consultation with a committee of administrators. The faculty participate in University-wide governance through their representatives on an elected student-faculty advisory council. The only University-wide faculty body is the Faculty Review Committee, composed of elected representatives who adjust grievances by informal negotiation and also may make formal recommendations to the Dean of the affected school or to the President. Such recommendations are purely advisory."

However, the individual schools within the University are "substantially autonomous," and the faculty members at each school effectively determine its curriculum, grading system, admission and matriculation standards, academic calendars, and course schedules. The hearing officer determined that the "overwhelming majority of faculty recommendations" relating as to faculty hiring, tenure, sabbaticals, termination, and promotion are implemented by the University.

Summarily rejecting the University's contention that its faculty members were managerial, the Board held, however, that the faculty members were *professional employees* under Section 2(12) of the Act, entitled to the Act's protection because "faculty participation in collegial decision-making is on a collective rather than individual basis, it is exercised in the faculty's own interest rather than 'in the interest of the employer,' and final authority rests with the board of trustees."

Acting upon the findings of the hearing officer, a three-member panel of the Board granted the union's petition in December 1975, and directed an election in a bargaining unit consisting of all full-time faculty members at the affected schools. The unit included Assistant Deans, senior professors, and department chairmen, as well as associate professors, assistant professors, and instructors. Deans and Directors were excluded from the bargaining unit as managerial.

After the union won the election and was certified as the bargaining agent for the unit, the University refused to bargain with the union, “reasserting its view that the faculty are “managerial.” The union filed an unfair labor practice charge (see McDowell & Huhn, 1976; Guerin, 2021) against the University. In the subsequent unfair labor practice proceedings, the Board refused to reconsider its determination made in the representation hearing and ordered the University to bargain with the union, The Board sought enforcement of its order in the Court of Appeals for the Second Judicial Circuit, which denied the petition.

The Court of Appeals agreed that the faculty members were professional employees under Section 2(12) of the Act. However, the Court of Appeals found that the Board had ignored "the extensive control of Yeshiva's faculty" over academic and personnel decisions, as well as its "crucial role . . . in determining other central policies of the institution." The Court of Appeals determined that the faculty are in effect “substantially and pervasively operating the enterprise," holding that the faculty are endowed with "managerial status" sufficient to remove them from the coverage of the Act.

2.1. The Decision of the United States Supreme Court

The United States Supreme Court granted certiorari and held that the University's full-time faculty members were managerial employees, excluded from the Act's coverage. In so doing, the Supreme Court found the following:

(a) “The authority structure of a university does not fit neatly into the statutory scheme, because authority in the typical ‘mature’ private university is divided between a central administration and one or more collegial bodies. The absence of explicit congressional direction does not preclude the Board from reaching any particular type of employment, and the Board has approved the formation of bargaining units composed of faculty members on the ground that they are ‘professional employees’ under Section 2(12) of the Act. Nevertheless, professionals may be exempted from coverage under the judicially implied exclusion for ‘managerial employees’ when they are involved in *developing and implementing employer policy”* (*Yeshiva*, pp. 679-682 (italics added)).

> The Supreme Court wrote (*Yeshiva*, pp. 683-684):
>
> “Managerial employees are defined as those who ‘formulate and effectuate management policies by expressing and making operative the decisions of their employer.' These employees are ‘much higher in the managerial structure’ than those explicitly mentioned by Congress, which ‘regarded [them] as so clearly outside the Act that no specific exclusionary provision was thought necessary."
>
> “Managerial employees must exercise discretion within, or even independently of, established employer policy and must be aligned with management. Although the Board has established no firm criteria for determining when an employee is so aligned, normally an employee may be excluded as managerial only if he represents management interests by taking or recommending discretionary actions that effectively control or implement employer policy.”

(b) "Here, application of the managerial exclusion to the University's faculty members is not precluded on the theory that they are not aligned with management because they are expected to exercise 'independent professional judgment' while participating in academic governance and to pursue professional values, rather than institutional interests. *The controlling consideration is that the faculty exercises authority which in any other context unquestionably would be managerial, its authority in academic matters being absolute.* The faculty's professional interests—as applied to governance at a university like Yeshiva which depends on the professional judgment of its faculty to formulate and apply policies—cannot be separated from those of the institution, and thus it cannot be said that a faculty member exercising independent judgment acts primarily in his own interest, and does not represent the interest of his employer" (*Yeshiva,* pp. 682- 690 (italics added)).

(c) "The deference ordinarily due the Board's expertise does not require reversal of the Court of Appeals' decision (see Kopp, 2018; Hessick, 2019). This Court respects the Board's expertise when its conclusions are rationally based on articulated facts and consistent with the Act, but here the Board's decision satisfies neither criterion."

The core rationale for the decision of the United States Supreme Court relating to the role that faculty play at Yeshiva University may be summarized as follows:

> "Their authority in academic matters is absolute. They decide what courses will be offered, when they will be scheduled, and to whom they will be taught. They debate and determine teaching methods, grading policies, and matriculation standards. They effectively decide which students will be admitted, retained, and graduated. On occasion their views have determined the size of the student body, the tuition to be charged, and the location of a school. When one considers the function of a university, it is difficult to imagine decisions more managerial than these. To the extent the industrial analogy applies, the faculty determines within each school the product to be produced, the terms upon which it will be offered, and the customers who will be served" (*Yeshiva*, p. 687).

The decision of the Court of Appeals was thus affirmed, establishing the principle that faculty members at a private university were *de facto* managerial and therefore were not entitled to the protections afforded to employees under the National Labor Relations Act with respect to forming collective bargaining units.

3. *Pacific Lutheran:* A Further Exemption

In *Pacific Lutheran University and SEIU* (2014), the NLRB was called upon to once again wade into the debate about the organizing rights of certain private-sector faculty members (Parker & Park, 2015). The Board was called upon to resolve two important questions: First, whether certain institutions and their faculty members are exempted from coverage of the Act due to their religious activities or affiliations? Second, whether, in fact, faculty members at these institutions are managerial, who are excluded from protection of the Act?

The profile of Pacific Lutheran University (2021a) reveals the following:

> "Pacific Lutheran University educates 3,100 students for lives of thoughtful service, leadership, inquiry and care. We purposefully integrate the liberal arts, professional studies, and civic engagement through 40+ majors and 50+ minors. Students take part in student-faculty research, internships, lab work, field studies and numerous other hands-on learning experiences, and work closely with professors who are experts in their fields."
>
> "Located in Tacoma, WA, PLU is the closest university to Mt. Rainier National Park and a short drive from Seattle, with multiple opportunities for internships at world-class organizations, and many ways to enjoy the beautiful Pacific Northwest. As a national leader in global education, PLU was the first American university to have classes on all seven continents and over half of

> all students study abroad. Graduates are prepared for success – 90% of recent graduates were either employed or accepted into graduate school within six months of graduating."

Although not found on the University's "official" website, the following information may prove helpful in understanding the religious character of the University (Pacific Lutheran, 2021b):

> **"**Pacific Lutheran University (PLU) is a private Lutheran university in Parkland, Washington. It was founded by Norwegian Lutheran immigrants in 1890. PLU is sponsored by the 580 congregations of Region I of the Evangelical Lutheran Church in America. PLU has approximately 3,100 students enrolled. As of 2017, the school employs approximately 220 full-time professors on the 156-acre woodland campus."
>
> "PLU consists of the College of Arts and Sciences (including of the Divisions of Humanities, Natural Sciences, and Social Sciences), the School of Arts and Communication, the School of Business, the School of Education and Kinesiology, and the School of Nursing."

The case began when certain faculty members at Pacific Lutheran University petitioned for a union representation election. Pacific Lutheran objected to holding the election, claiming that some or all of the faculty members were *managers* and therefore ineligible for union representation. The NLRB Regional Director found in favor of the union and found that the faculty in question did not possess sufficient "managerial authority" to be precluded from unionizing. Pacific Lutheran objected to the determination made by the Regional Director and asked the full NLRB to overturn the ruling of the Regional Director.

In March of 2014, the AAUP submitted an *amicus brief* urging the NLRB to consider the full context of university governance issues when determining whether faculty at private colleges and universities are managers (adapted from *Pacific Lutheran*, 2014). The AAUP brief pointed to significant changes in university "hierarchical and decision-making models" since the United States Supreme Court's decision in *Yeshiva University*, which held that faculty at Yeshiva University were managerial employees and thus ineligible to unionize. The AAUP brief urged the NLRB to consider factors such as:

- The nature of university administration hierarchy in terms of governance;
- The extent to which the administration makes academic decisions based on market-based considerations;
- The degree of consultation by the administration with faculty governance bodies;
- Whether the administration treats faculty recommendations as advisory rather than as effective recommendations;
- Whether the administration routinely approves nearly all faculty recommendations without independent administrative review; and
- Whether conflict between the administration and the faculty reflects a lack of alignment of administration and faculty interests (*Pacific Lutheran*, 2014).

In its decision, the NLRB ruled that it had jurisdiction over the petitioned-for faculty members, even though they were employed at a religious institution, and also decided that the faculty members in question were not managers.

3.1. Is There a Larger Question? A Reprise of Catholic Bishop (1979)

The question of whether faculty members at religious institutions are subject to the jurisdiction and coverage of the NLRA has been long-debated. The decision of the United States Supreme Court's in *National Labor Relations Board v. Catholic Bishop* (1979) has served as the foundation for any analysis (Gaul, 2007; Serritella, 1980; Stabile, 2013).

In *Catholic Bishop*, the National Labor Relations Board (NLRB) had certified unions as bargaining agents for lay teachers in schools operated by the Catholic Bishop of Chicago, a corporation sole, and another group of schools operated by the Diocese of Fort Wayne-South Bend, Inc., both of which refused to voluntarily recognize or bargain with the unions. The NLRB issued cease-and-desist orders against respondent religious entities, finding that it had properly assumed jurisdiction over the schools. The exercise of jurisdiction was asserted to be in conformity with the policy of the Board to decline jurisdiction only when schools are "completely religious" not just "religiously associated," as the NLRB found to be the instant case, because the schools taught secular as well as religious subjects.

In interpreting the meaning of *Catholic Bishop*, the Board had established a two-part test for determining jurisdiction. First, whether "as a threshold matter, [the entity or institution] *holds itself* out as providing a religious educational environment"; and if so, then, second, whether "it holds out the petitioned-for faculty members as performing a *specific role* in creating or maintaining the school's religious educational environment."

The respondents challenged the NLRB orders in the Seventh Circuit Court of Appeals. The Seventh Circuit denied enforcement, holding that the NLRB standard "failed to provide a workable guide for the exercise of its discretion," and perhaps more importantly, that the NLRB's assumption of jurisdiction was foreclosed by the Religion Clauses of the First Amendment. The United State Supreme Court granted certiorari.

The United States Supreme Court held that schools operated by a church or other religious institution which taught both religious and secular subjects are not within the jurisdiction granted by the National Labor Relations Act, and the NLRB was therefore without authority to issue the orders against respondents. The Court noted:

> "We find the standard itself to be a simplistic black or white, purported rule containing no borderline demarcation of where `completely religious' takes over or, on the other hand, ceases. In our opinion the dichotomous `completely religious - merely religiously associated' standard provides no workable guide to the exercise of discretion. The determination that an institution is so completely a religious entity as to exclude any viable secular components obviously implicates very sensitive questions of faith and tradition" (citing *Wisconsin v. Yoder* (1972, p. 1118).

The Court reasoned:

(a) "There would be a significant risk of infringement of the Religion Clauses of the First Amendment if the Act conferred jurisdiction over church-operated schools" (citing *Lemon v. Kurtzman* (1971).

(b) "Neither the language of the statute nor its legislative history discloses any affirmative intention by Congress that church-operated schools be within the NLRB's jurisdiction, and, absent a clear expression of Congress' intent to bring teachers of church-operated schools within the NLRB's jurisdiction, the Court will not construe the Act in such a way as would call for the resolution of difficult and sensitive First Amendment questions."

3.2. Applying Catholic Bishop (see Benedict, 2013)

Pacific Lutheran University and those who supported its position argued that only the threshold question of whether the university was a *bona fide religious institution* was relevant. In that case, argued Pacific Lutheran, the Act would not apply to *any faculty members* of the institution. The Board had responded that this argument "overreaches because it focuses solely on the nature of the institution, without considering whether the petitioned-for faculty members act in support of the school's religious mission." Instead, the Board had established a standard that examines whether faculty members play a role in supporting the school's religious environment.

In so doing, the Board acknowledged concerns that inquiry into faculty members' individual duties carried out in religious institutions may involve examining the institution's religious beliefs, which could intrude impermissibly

on the institution's First Amendment rights. To avoid the negative implications of this inquiry, a new standard would focus on what the institution *"holds out"* with respect to faculty members. The Board explained, "We shall decline jurisdiction if the university 'holds out' its faculty members, in communications to current or potential students and faculty members, and the community at large, as performing a specific role in creating or maintaining the university's religious purpose or mission," such as integrating the institution's religious teachings into coursework or engaging in religious indoctrination. This new standard would not be satisfied by general statements that faculty are to "support religious goals," or that they must adhere to an institution's commitment to diversity or academic freedom. The faculty members must perform a specific religious function.

Applying this standard to Pacific Lutheran University, the Board found that while the University held itself out as providing a religious educational environment, the petitioned-for faculty members were *not* performing a specific religious function. Therefore, the Board asserted jurisdiction and then turned to the question whether certain of the faculty members were managerial employees.

This second question arises squarely from the Supreme Court's decision in *Yeshiva*, where the Court found that in certain circumstances, faculty members may be considered "managers" who would thus be excluded from the protections of the Act. The Board noted that the application of *Yeshiva* previously involved an "open-ended and uncertain set of criteria" for making decisions regarding whether faculty were or were not managers.

In addition, in explaining the need for a new standard, the Board specifically highlighted, as had the AAUP in its *amicus brief*, the increasing corporatization (possibly meaning secularization) of the university. The Board stated, "Indeed our experience applying *Yeshiva* has generally shown that colleges and universities are increasingly run by administrators, which has the effect of concentrating and centering authority away from the faculty in a way that was contemplated in *Yeshiva*, but found not to exist at Yeshiva University itself. Such considerations are relevant to our assessment of whether the faculty constitute managerial employees."

3.3. The New Standard

In seeking to create a simpler and more direct framework for determining whether faculty members served as managers, the Board explained that under the new standard, "where a party asserts that university faculty are managerial employees, we will examine the faculty's participation in the following areas of decision making: *academic programs, enrollment management, finances, academic policy, and personnel policies and decisions*." The Board will give greater weight to the first three areas, as these are "areas of policy making that affect the university as whole." The Board "will then determine, in the context of the university's decision- making structure and the nature of the faculty's employment relationship with the university, whether the faculty actually *control* or *make effective recommendations* over those areas. If they do, we will find that they are managerial employees and, therefore, excluded from the Act's protections."

The Board emphasized that to be found as managers, and thus not eligible to form a union, faculty must *in fact* have actual *control or make effective recommendations* over policy areas. This requires that "the party asserting managerial status must prove actual—rather than mere paper—authority. . . . A faculty handbook may state that the faculty has authority over or responsibility for a particular decision-making area, but it must be demonstrated that the faculty exercises such authority *in fact*." Proof requires "specific evidence or testimony regarding the nature and number of faculty decisions or recommendations in a particular decision-making area, and the subsequent review of those decisions or recommendations, if any, by the university administration prior to implementation, rather than mere conclusory assertions that decisions or recommendations are generally followed." Perhaps most importantly, the Board defined "*effective*" as meaning that "recommendations must almost always be followed by the administration" or "routinely become operative without independent review by the administration."

4. Then Came *Bethany College and Thomas Jorsch and Lisa Guinn* (2020)

> **"Bethany College,** established by Swedish Lutheran immigrants in 1881, is a college of the Evangelical Lutheran Church in America. The mission of Bethany College is to educate, develop, and challenge individuals to reach for truth and excellence as they lead lives of faith, learning, and service" (e.g., Bethany College, 2021).

The membership of the NLRB had dramatically changed with the election of Donald Trump (Hogler, 2020)—as did the position of the NLRB's General Counsel (Starich, 2018). The reconstructed Republican majority on the NLRB determined that it would not exercise jurisdiction over the faculty of Bethany College because exercising jurisdiction would inevitably involve an inquiry into its religious tenets in violation of the First Amendment to the Constitution. The decision effectively overruled the NLRB's 2014 ruling in *Pacific Lutheran,* as "defying the risks of First Amendment infringement rather than avoiding them" and called its previous two-part, *holding-out test* "fatally flawed," involving "an impermissible inquiry into what does and what does not constitute a religious function," and into the religious tenets of the institution that would result in a significant risk that the First Amendment rights of the employer might be infringed. The Board noted that that even the *inquiry* leading to findings about the good faith of the positions asserted by university administrators, not merely the conclusions reached, would impinge on the Religion Clauses of the First Amendment and give rise to *entangling church-state relationships* (see Macri, 2014).

4.1. Great Falls: Reprised and Reaffirmed

Instead, the Board reaffirmed the three-part, "bright-line" test established (again under a Republican majority) in *University of Great Falls v. NLRB* (2002) in order to determine whether it may assert jurisdiction.

1. Does the institution "hold itself out" to the public as a religious institution?
2. Is the institution nonprofit? and
3. Is the institution religiously affiliated?

The NLRB summarized its views:

> "Because the Supreme Court has clearly decided this matter, and because we find the rationale set forth in *Catholic Bishop* and in the circuit court decisions interpreting that seminal case to be persuasive, we now hold that the Board does not have jurisdiction over matters concerning teachers or faculty at *bona fide* religious educational institutions."

The manner in which the *bona fides* of a religious institution may be tested by the NLRB in the wake of *Bethany College* would now be restricted to the three-part *Great Falls* "bright-line" test.

The Court took specific note of the mission statement of the University of Great Falls [which was later renamed as the University of Providence] which:

> "… does not just speak of general morality, but rather of 'offer[ing] students a foundation for actively implementing Gospel values and the teachings of Jesus within the Catholic tradition.' The mission statement further explains that the University 'provides students with the opportunity to obtain a liberal education for living and making a living,' '[a]s an expression of the teaching mission of Jesus Christ.' To that end, the University 'offers students a foundation for actively implementing Gospel values and the teachings of Jesus within the Catholic tradition.' It fills its campus, indeed, every classroom and office with Catholic icons, not merely as art, but it claims as an expression of faith."

Later, in *Carroll College v. NLRB* (2009), a case involving a private Roman Catholic-affiliated college located in Helena, Montana, the Court invalidated an NLRB order requiring the college to engage in collective bargaining as patently beyond the Board's jurisdiction as found in *Great Falls*.

In its decision in *Bethany College,* the NLRB identified what it felt was the flaw in the reasoning in the Board's decision reached in *Pacific Lutheran.* Despite finding that the University held itself out as "creating a religious educational environment," the NLRB had invented an additional *holding-out test* under which the institution must also show that "it holds out the petitioned-for faculty members themselves as performing a specific role in creating or maintaining the college or university's religious educational environment, as demonstrated by its representations to current or potential students and faculty members, and the community at large."

Interestingly, the dissent in *Pacific Lutheran* by Board members Philip Miscimarra and Harry Johnson, who had been nominated by President Trump, presaged the Board's later reversal in *Bethany College*. Members Miscimarra and Johnson had objected to the decision of the Board and stated that the test enunciated by the majority "not only fails to avoid the First Amendment questions, it plows right into them at full tilt" by demanding that the NLRB "judge the religiosity of the functions that the faculty perform." Ambash (2015) noted: "The board's majority decision, issued in the face of powerful dissents, will inevitably spark controversy and ongoing litigation both about the legality of NLRB intrusion into the operation of religious institutions and the proper interpretation of the 'managerial' status of faculty under the U.S. Supreme Court's historic Yeshiva University decision."

5. … And *Duquesne University* (2020)

The case arose from the refusal of Duquesne University to recognize a group of adjunct faculty who were teaching in the McAnulty College of Liberal Arts who had been granted the right to form a union. After the faculty overwhelmingly voted in favor of the union, Duquesne refused to deal with or recognize the union, asserting that requiring it to do so would constitute "government entanglement" in its religious activities in violation of the First Amendment to the United States Constitution (*Duquesne University v. NLRB,* 2020).

Here is the Duquesne University description taken from "Colleges of Distinction" (2021):

> "Duquesne University is a private Catholic institution in the center of Pittsburgh, Pennsylvania, a vibrant and safe city that is home to a welcoming environment and plenty of professional opportunities. With a tight-knit community, students can choose from over 250 recognized student organizations, access one-on-one tutoring and other engaging resources, and make lifelong friendships."
>
> "The University Core Curriculum incorporates the liberal arts into each students' intellectual and ethical development in order to expand their self-understanding and knowledge of the world. Students are exposed to a wide range of experiences and opportunities with regional corporations, high-tech businesses, health systems, and nonprofits that recognize the exceptional quality of Duquesne's academic programs. Students can also work with their professors and take part in transformative research opportunities that impact local and global communities alike."

The NLRB applied the test it had established in *Pacific Lutheran*, inquiring whether Duquesne "holds out the petitioned-for faculty members themselves as performing a specific role in creating or maintaining the college or university's religious educational environment," and particularly, whether the faculty were "held out as performing a specific religious function" (citing *Pacific Lutheran*, pp.1410-1411). The NLRB found that other than faculty in the Department of Theology, Duquesne did not hold out its adjunct faculty as performing a "specific religious function." The Board determined that Duquesne committed an unfair labor practice by refusing to bargain with the union. Duquesne appealed the decision of the NLRB to the District of Columbia Circuit Court of Appeals.

On January 28, 2020, the United States Court of Appeals for the District of Columbia Circuit issued a decision finding that adjunct faculty did not have the right to unionize at a religiously affiliated university under the NLRA. The core issue before the Circuit Court was whether in applying the NLRA to the adjunct faculty of Duquesne University, the NLRB and the courts would risk interfering in the religious affairs of Duquesne, thereby violating the Religion Clauses of the First Amendment. In reaching its decision, the NLRB had employed the test it had enunciated in *Pacific Lutheran University*, and found there was no danger of an unconstitutional entanglement because the faculty in question did not perform a specific role in creating or maintaining Duquesne's religious educational environment. However, in a 2 to 1 decision, the District of Columbia Circuit rejected the *Pacific Lutheran* test, and applied the narrower bright-line test enunciated in *Great Falls*. The Court of Appeals held that the NLRB did not have jurisdiction and therefore the adjunct faculty were not entitled to unionize under the NLRA.

The Court once again reflected on the rule established in *NLRB v. Catholic Bishop of Chicago* where the Court held that the Board could not assert jurisdiction over the petitioned-for lay teachers because to do so would create a "significant risk" that First Amendment religious rights would be infringed.

In dissent, Judge Pillard pointed out that the NLRB's approach in *Pacific Lutheran* appropriately balanced the desires of the university to maintain its religious autonomy and the expression of the adjunct faculty to organize under the protection of the NLRA.

Have the Courts in fact provided that "bright line" that it had intended (see Garvey, 2020), or would the issue recur depending on the presentation of new facts or perhaps based upon the changing composition of the NLRB itself?

6. One More "Wrinkle": "Part Time" or "Contingent" Faculty: *Elon University* (2021)

> "Elon University is a private university in Elon, North Carolina. Founded in 1889 as Elon College, Elon is organized into six schools, most of which offer bachelor's degrees and several of which offer master's degrees or professional doctorate degrees."
>
> "Elon College was founded by the Christian Connection, which later became a part of the United Church of Christ. An institution that for many years enrolled mostly North Carolina residents, Elon began to enroll significant numbers of students from the mid-Atlantic states in the mid-1970s, and began to improve its academic standards for admission. By the start of the 21st century, about 68 percent of Elon's students came from out-of-state and were only accepted if they met high academic standards. Elon became known as a selective university and, by 2013, 82% of incoming students were from out of state."
>
> "Elon is no longer affiliated with the United Church of Christ. Elon's mission statement states that the university "embraces its founders' vision of an academic community that transforms mind, body, and spirit and encourages freedom of thought and liberty of conscience," and emphasizes its commitment to "nurture a rich intellectual community characterized by student engagement with a faculty dedicated to excellent teaching and scholarly accomplishment.""

On February 19, 2021, the NLRB modified its test for determining whether faculty at private colleges and universities should be excluded as managerial employees from the right to union representation under the National Labor Relations Act. The case turned on the nuances of "shared governance."

In *Elon University and SEIU* (2021) the NLRB, ironically still with a Republican majority, unanimously affirmed the decision of a Regional Director that the petitioned-for non-tenure-track faculty members ("contingent employees") constituted an appropriate bargaining unit under the NLRA. Contrary to the University's assertion, the Board held that the non-tenure-track faculty members, consisting principally of adjunct professors, are not managerial employees who did not possess collective bargaining rights under the

Act (see Herbert & Apkarian, 2017). The Board determined "that the University failed to meet its burden of establishing that the petitioned-for non-tenured faculty members serve on any of the University's shared governance committees that oversee academic programs, enrollment management policies, personnel policies, or financial considerations" (Dailey, Porzio, & Salvatore, 2021). According to Olson (2009), "Shared governance is not a simple matter of committee consensus, or the faculty's engaging administrators to take on the dirty work, or any number of other common misconceptions. Shared governance is much more complex; it is a delicate balance between faculty and staff participation in planning and decision-making processes, on the one hand, and administrative accountability on the other."

The Board found that, for a number of these shared governance committees, adjunct faculty members were explicitly restricted from participating. In those limited circumstances where adjunct faculty could at least in theory serve on a collegial faculty body, Elon failed to show that adjunct faculty in fact served on these committees. In addition, the Board found that the adjunct faculty members were not "structurally included" in Elon's core managerial bodies where the contingent or short-term nature of their employment status (in many cases, no more than on a semester-to-semester basis) makes service on the shared governance committees problematic. As Gottschalk, Jones, and Moschel (2021) stated: "Under that framework, managerial status of a subgroup of faculty will be determined by examining two distinct inquiries. "First, 'whether a faculty body exercises effective control' over areas of decision-making…, and second, 'whether, based on the faculty's structure and operations, the petitioning subgroup is included in that managerial faculty body.'" If both inquiries are satisfied, then the faculty members in the subgroup (adjunct or contingent faculty) "constitute managerial employees, regardless of whether they exert majority control within specific faculty bodies."

In adopting the "structural inclusion" test, the Board noted the deficiencies of the "subgroup majority" status test of *NLRB v. USC* (2019) (Hamilton & Dumbacher, 2019), including that a "bright-line rule solely focused on committee and assembly makeup incentivizes strategic division of faculties, ignores the frequent fluctuations in committee memberships, and fails to account for instances when faculty who clearly hold managerial authority and shared interests with the university may be in the minority on committees." Moreover, the Board found that subgroup majority status test could not be reconciled with the Supreme Court's decision in *NLRB v. Yeshiva University,* because the test ignores the possibility that subgroups may share common interests and may participate together as a body on issues relevant to managerial status (Gottschalk, Jones, & Moschel, 2021).

Applying the new standard, the Board in *Elon* held that the employer did not meet its burden in proving that petitioned-for *non-tenure-track faculty members* were structurally included in its faculty bodies and, as such, failed to establish that they were managerial employees excluded from the Act.

7. Concluding Comments: What These Cases May Mean for Private Universities

The decision in *Elon,* although limited to non-tenure track, adjunct, and other contingent faculty, recognizes the fact that colleges and universities increasingly rely upon the services of these employees (Metchick & Singh, 2004) in delivering instruction to students. Various reports indicate that between 70 to 77% of all university courses are now been taught by faculty on non-tenure tracks (e.g., Flaherty, 2020). Flaherty (2020) further reported that "Colleges and universities are increasingly granting adjuncts' requests for yearlong or multiyear contracts, but 41 percent of adjuncts still said they struggle with job security and don't know if they'll have a teaching job until one month prior to the start of the academic year. Three-quarters of professors said they only get semester-to-semester or quarter-to-quarter contracts." Flaherty (2020) also reported that most adjuncts earn less than $3,500 per course which means that "nearly 25 percent of all adjunct faculty members rely on public assistance, and 40 percent struggle to cover basic household expenses."

In revisiting the criteria adopted by the Board in its *Elon* decision, is it possible that there may be a shift in the NLRB's treatment of full-time tenured faculty as well (see Julius & DiGiovanni, 2019)? In the larger sense, *Elon* reinforces the principle that the NLRB will continue to exclude full-time tenured faculty and adjunct or

other contingent faculty from the right to organize based on their "shared interests" with their respective institutions and their "structural inclusion" in critical university committees.

Interestingly, newly-appointed Democratic NLRB Chair Lauren McFerran concurred in the decision in *Elon* with her three Republican colleagues, Marvin Kaplan, William Emanuel, and John Ring. In the concurrence, McFerran did draw a distinction between tenured and tenure-track faculty and "contingent" faculty members (adjunct and other non-tenure track faculty) (see Halverson-Cross, 2017) because contingent faculty are often "poorly integrated into university structures and communities." Might these same criteria be applied to full-time tenured and tenure-track faculty as well?

Clearly, institutions seeking to avoid the unionization of adjuncts or other non-tenure track faculty should weigh the feasibility of more fully integrating these individuals into shared governance committees *and* to assessing the status of all faculty under the seminal *Yeshiva* decision. Although unintended, based on *Elon*, private universities should assess their "shared governance" decision-making structures and processes, including the composition of those bodies. Under *Yeshiva*, this analysis should address whether faculty members exercise *actual control* or exercise a "*significant influence*" over university decision-making.

There is one more consideration. The list of Catholic colleges and universities which have voluntarily recognized faculty unions is miniscule. [See Table I]. Concerning unionization efforts at Catholic colleges and universities for their adjunct faculty (see Moreland, 2019), the Catholic Labor Network (2021) raises an interesting point and writes:

> "In recent years adjunct faculty in colleges across the United States — who have been assigned increasing amounts of the college teaching load — have sought to organize in unions. A growing number of Catholic colleges have recognized unions of adjunct instructors, but a handful are refusing to recognize the unions their adjuncts have chosen and invoking first amendment religious freedoms to seek exemption from the Labor Board's jurisdiction. Whatever one thinks of the merits of their legal case, Church teaching is perfectly clear on workers' right to form unions and bargain collectively through representatives of their choice. One would expect that an institution with a strong commitment to its Catholic identity would recognize and bargain with the union chosen by their employees WHETHER OR NOT the NLRB has jurisdiction. The position these schools have adopted — we are TOO CATHOLIC to be subject to US Labor Law but NOT CATHOLIC ENOUGH to adhere to honor Catholic social teaching on principle alone — arguably courts scandal."

In refusing to recognize and then bargain collectively with a faculty union by university administrators at Catholic Universities (and perhaps at other church-sponsored or religiously affiliated institutions of higher education (Carroll, 2018) that share in similar views on social issues), although permissible under Court and NLRB precedents, does such a stance fly in the face of *Catholic Social Teaching* (U.S. Conference of Catholic Bishops, 2021)? Professor McCartin (2018) of Georgetown University offers this perspective:

> "American Catholic higher education finds itself increasingly ensnared in a contradiction. On the one hand, Catholic colleges and universities, 'born from the heart of the church,' continue to play an indispensable role in the promotion of Catholic Social Teaching. At the same time, institutions of Catholic higher education are fighting to survive and remain relevant amid rapacious economic trends that are reorganizing all of higher education — secular and Catholic alike — in ways that contradict essential principles of Catholic Social Teaching, such as the dignity of labor and the centrality of solidarity to a just social order. Put more bluntly, Catholic colleges and universities find themselves increasingly entangled in what Pope Francis has called 'an economy of exclusion and inequality, an economy that 'kills.'"

It may be time to reevaluate *Yeshiva and the position of church-sponsored colleges and universities—most especially those affiliated with the Catholic Church*—in light of the new realities as well.

Table 1: Catholic Higher Education Institutions with Collective Bargaining, By State

California
- University of San Francisco, San Francisco
  - Faculty, AFT Local 4269
- St. Mary's College of California, Moraga
  - Non-Tenured Faculty, SEIU 1021
- Notre Dame de Namur, Belmont
  - Non-Tenured Faculty, SEIU 1021

Connecticut
- Fairfield University, Fairfield
  - Faculty, AAUP

D.C.
- Georgetown University
  - Adjunct faculty, SEIU 500
- Trinity Washington University
  - Adjunct Faculty, SEIU Local 500

Florida
- St. Leo University, St. Leo
  - Faculty, AFT/NEA United Faculty of Florida St. Leo

Illinois
- Loyola University Chicago
  - Adjunct Faculty, SEIU Local 73
- St. Xavier University*
  - Tenured Faculty, Independent Union

Massachusetts
- Laboure College, Milton MA
  - Faculty, NEA-Massachusetts Teachers' Association

Michigan
- University of Detroit, Mercy
  - Faculty, NEA/Michigan Education Association

Missouri
- St. Louis University, St. Louis MO
  - Adjunct Faculty, SEIU Local 1

New York
- Fordham University
  - Adjunct Faculty, SEIU Local 200
- St. Francis College, Brooklyn
  - Adjunct Faculty, AFT 7965
- St. John's University, Queens
  - Faculty, AAUP
- D'Youville College, Buffalo
  - Faculty, AAUP
- LeMoyne College, Syracuse
  - Adjunct Faculty, AFT 7967

Pennsylvania
- University of Scranton, Scranton
  - Faculty, AAUP

Vermont
- St. Michaels College, Colchester
  - Adjunct Faculty, SEIU 200

Source: The Catholic Labor Network, https://catholiclabor.org/catholic-employer-project/catholic-higher-education/

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Teacher Qualifications and Academic Performance of Pupils in Public Primary Schools in Hargeisa District

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Abstract
This study investigated effect of teacher qualifications on the academic performance of pupils in primary schools in Hargeisa districts. Teacher qualifications were operationalized as Formal education, certification and teaching experience. The study emerged from the deteriorating academic achievement of pupils in Somaliland National Primary Examinations. The deteriorating academic performance was well demonstrated from increase number of failures in Somaliland National Exams. The study employed cross sectional survey research design, on a sample of 160 teachers, the study found out that, Fo = 15.838 > F (2,157) = 3.06; p = .000. The eta-square returned an average value of η^2 = 16.8%. Therefore, teacher qualification accounts for 16.8% of the variance in academic performance of pupils in pubic primary schools in Hargeisa. The rest 83.2% are due to factors not investigated here, and errors in measurements. The study findings indicate that teacher qualifications affect to the academic performance of pupils in public primary schools in Hargeisa District.

Keywords: Teacher Qualification, Academic Performance, High Qualifications, Moderate Qualification, Low Qualification, Licensure and Certification

1. INTRODUCTION

Teachers' qualification is a particular skill or type of experience or knowledge someone possesses to make him or her suitable to teach (Zuzovsky, 2009). But Hammond and Anderson (1991) define teacher qualifications as the credentials and general intellectual skills a teacher holds. Further, teacher qualifications have been defined as holding at least bachelor degree from an accredited university, solid teaching experience and licensure (Learn How to Become, 2019). More so, teacher qualification is a pertinent skill and licensure; a standard certificate in a state-approved teacher education program (Jacob, 2014). All these definitions concur that teacher qualifications reflect teachers' formal education, experience and licensure and certification. Teacher qualification plays a pertinent role in boosting the academic performance of students. Literally, teacher qualifications can be measured from two perspectives: formal education and licensure (Jacob, 2015). This paper will explore teacher qualifications in terms formal education, teaching experience and certification.

Teacher qualifications have been linked to academic performance. A study conducted by Zuzuvsky(2003) with a sample size 371 mathematics teachers and 317 science teachers who taught about 4,000 students in 149 sampled

classes, each in every one of the sampled schools investigated the effect of teacher qualifications on the academic performance of students. The study adopted quasi-experimental design. The study found out that there was a positive relationship between teacher qualifications and academic performance. Other studies that showed positive correlation between teacher qualifications and student performance include: (Betts, Zau, & Rice, 2003; Ferguson & Ladd, 1996; Wayne & Youngs, 2003).

More so, another study on the impact of teacher qualifications on the academic performance of students was carried out by Rice (2003) over teachers holding different certificates were assigned to teach mathematics and science to students. The study revealed that teachers who earned advanced degrees had a positive impact on high school mathematics and science achievement. Additionally, a recent global study by Emery (2012) investigated the effect primary English teachers' qualifications on academic performance of the English proficiency of students. Data were collected via the use of an electronic survey, which gathered almost 2,500 responses and in-depth face-to-face interviews with classroom teachers and head teachers in nine countries around the world. Subjects represented rural and urban teachers who worked in state and private institutions. The findings indicate that teachers with high qualifications had strong positive effect on the academic performance of students. Furthermore, a study conducted by Collier (2013) explored the relationship between teacher qualifications and academic performance of students. The study adopted Longitudinal Panel Survey. Data was collected from a sample of 19000 students tested on their scores of mathematics and reading. Questionnaire was administered to parents, students and teachers. The study found out that teachers with higher level of qualifications had strong positive influence on the performance of students over mathematics and reading scores than their counterparts.

Most of the studies published on Somaliland education concentrated on reviews, policy analysis, teacher features, student characteristics, and some others in the field of research papers. Therefore, this paper explores the impact of teacher qualifications on the performance of pupils in the district of Hargeisa public primary schools.

Moreover, in the last five years, the academic performance of pupils in public primary schools has declined-the number of pupils did rise by 21 percent between 2014-2018. In Somaliland, the number of failures was 31% in 2014 and 30% in 2015, 40 percent in 2016, 51.2% in 2017 and 48.4% in 2018. Between 2014 and 2018, the number of failures increased by 16 percent in Hargeisa. The proportion of failures was 36% in 2014, 38% in 2015, 40% in 2016, 52.2% in 2017 and 51.97% in 2018.

On average, the performance of pupils in primary schools in Hargeisa dropped 16% in the last five years, delineating an average rise of percentage fail of 3.2% each year. In spite of the poor performance of primary school education, the effect of teacher qualifications on academic performance has not been investigated.

Therefore, this paper attempts to explore if teacher qualifications have any involvement of the deteriorating academic performance of students in public primary schools in Hargeisa District as reflected in National Exams Office (2018).

Consequently, the findings of this research are expected to help the Ministry of Education improve the education system of Somaliland.

2. METHODS

The target population was 675 teachers from 45 public primary schools in Hargeisa District (Ministry of Education and Science, 2018). The accessible population was 330 teachers from 21 primary schools in Hargeisa District. 21 schools can be reached by the researcher, within the allocated time and resources. The sample size consisted of 178 teachers. Krejcie and Morgan (1970) recommend that a population of 330 will use 178, at level of confidence 95%, and 5% margin error. The study used structured questionnaire which enabled the researcher to collect data on teacher qualifications within a short period of time. Documents to be examined including the first term examination. One Way ANOVA was also used to assess if there were significant differences between the means of the groups of teacher qualifications.

3. RESULTS

3.1. Employment Status of the Respondent

Respondents were requested to state their employment status. Employment status was deemed important to the study because the teacher's engagement could determine the pupils' performance. Therefore, Figure 4 depicts the employment status of the teachers.

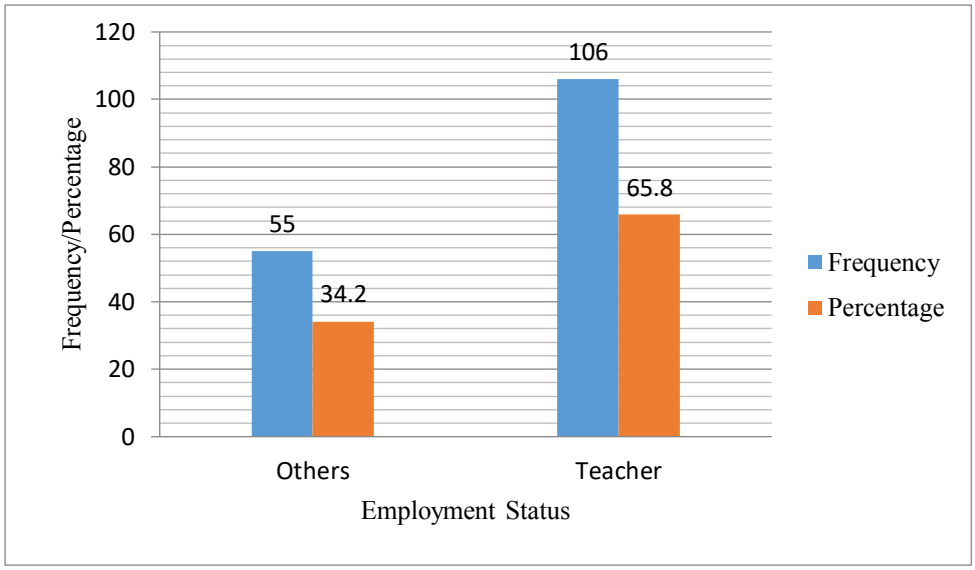

Figure 1: Employment status of the respondents.

Figure 1 depicts the employment status of the respondents. It shows that 65.4% of the teachers of public primary schools in Hargeisa are full-time teachers while 30.6% work as part time. As a result, there are more full-time teachers in public primary schools in Hargeisa than part time teachers.

3.2. Professional Training of the Respondents

Respondents were requested to show their professional training. Professional training was necessary to the study as a sign of how the performances of particular teachers are. The results are shown in Figure 2.

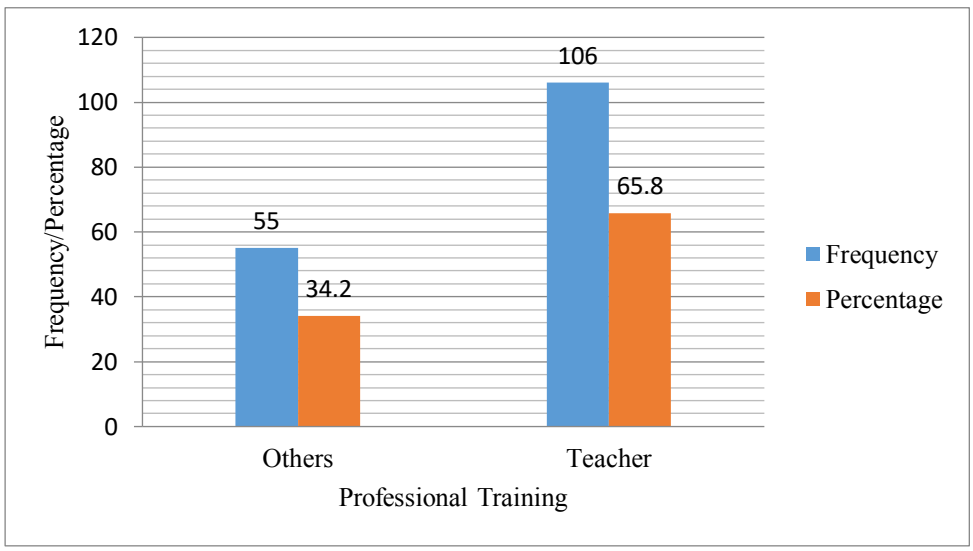

Figure 2: Professional training of the respondents.

Figure 2 portrays that majority (65.8%) of the teachers in public primary schools in Hargeisa District are teachers by profession while the minority (34.2%) have not undertaken professional training. This, therefore, means that as much as majority of the teachers in the public primary school in Hargeisa District, a number of them are not trained to teach and they affect students' performance.

The most important objective of this study was to determine effect of teacher qualifications on academic performance of pupils in primary schools in Hargeisa district. The teacher qualification was operationalized into formal education, teaching experience and certification. Respondents reacted several items on each variable and the responses were used to determine teacher qualification of the teachers in public primary schools as depicted in Table 5.

Table 1: Descriptive Statistics of Teacher Qualifications and Academic Performance

Teacher Qualifications	Performance (%)	S	ε	N
Low	46	12.44	1.197	108
Moderate	58	14.84	2.23	44
High	61	21.48	7.59	8
Total	50.2	14.875	1.176	160

Note. N = Sample, S = Standard deviation, ε = standard error.

Table 1 shows the descriptive statistics of academic performance of pupils in primary schools in Hargeisa district against different teacher qualifications. It indicates that the average performance of students taught by high qualification teachers (61%, S = 21.48) was higher than the performance of the students taught by teacher with moderate qualifications (58%, S = 14.84) and the performance of pupils taught by low qualification teachers (46%, S = 12.44).

Nevertheless, performance of pupils having teachers with high teacher qualifications was higher than the performance of pupils taught by teachers with low and moderate teacher qualifications (61%, S = 21.48). This pointed out to the fact that academic performance of pupils increases with teachers' qualifications. However, results suggest that qualification of the teacher affects performance of students in public primary schools. Therefore, the better the teacher qualifications, the higher the academic performance of pupils in public primary schools in Hargeisa.

The hypothesis is that teacher qualification does not affect the academic performance of pupils in public primary schools in Hargeisa.

There is no significant difference in the average performance of students taught under teachers with Low, Moderate and High teacher qualifications.

$Ho_1: TQF_L = TQF_M = TQF_H$

$H_{A1}: TQF_L \neq TQF_M \neq TQF_H$

Where TQF_L is low teacher qualification; TQF_M is moderate teacher qualification and TQF_H stands for high teacher qualification.

The results for ANOVA are shown in Table 2.

Table 2: F-Statistics of Performance of Pupils with Teachers' Qualifications

Source of difference	Sums of Squares	Df	Mean square	F P
Between	5906.098	2	2953.049	15.838 .000
Within	29273.502	157	186.455	
Total	35179.600	159		

Note. F(2,157) =3.06

Table 2 presents the ANOVA statistics of the performance of pupils taught by teachers with low, moderate and high teacher qualifications. The results indicate that there is a significant difference in the performance of pupils taught by teachers with low, moderate and high qualifications, Fo = 15.838 > F (2,157) = 3.06; *p* = .000. This led to the rejection of the null hypothesis. It shows that there is a significant difference in the performance of pupils taught by teachers with low, moderate and high qualifications. The study, therefore, established that teacher qualification affects academic performance of pupils in public primary schools in Hargeisa district. The more qualified the teacher, the higher the performance of the pupils.

The LSD Post-hoc produced a significant difference between the performance of students with low and moderate teacher qualifications, (I-J = 12.400, *P* = .000) and, these with low and high teacher qualifications (I-J = 15.616, *P* = .002). Therefore, teachers with low and moderate qualifications (58%, S = 14.84; 46%, S = 12.44) have lower performance than high qualification teachers (61%, S = 21.48). There is no difference between the moderate and high teacher qualifications.

The eta-square returned an average value of $\eta^2 = 16.8\%$. Therefore, teacher qualification accounts for 16.8% of the variance in academic performance of pupils in public primary schools in Hargeisa. The rest 83.2% are due to factors not investigated here, and errors in measurements. Academic performance can be affected by up to 16.8% through manipulation of teacher qualifications.

4. DISCUSSION

Foremost, the study established that teacher qualifications have a significant effect on the academic performance of pupils in public primary schools in Hargeisa, $F_o = 15.838 > F(2,157) = 3.06$; p = .000). Hence, the formal education, experience and certification of the teacher have a significant effect on the performance. The finding that teacher qualifications affects student performance can be understood the fact that teachers with high qualifications are suitable to teach students. As Zuzuvsky (2003) pointed out teacher qualification is a determinant factor that affects students' academic performance.

This finding compares with the study of Rice (2003) that found out that qualification of the teacher significantly affects the performance of pupils. Similarly, Hammond (2000) revealed that teacher qualification has a direct effect on the performance of students on different disciplines of learning. Moreover, teacher qualification of the teacher is indicated by the formal education, teaching experience and certification or licensure (Jacob, 2014). Consequently, teachers who meet these requirements tend to boost the academic performance of the pupils. This could mean that is a need to spend resources training teachers in advanced degrees. If teachers pursue advanced degrees in order to improve their skills and depth of knowledge, there is enough evidence, as this study has affirmed that advanced teacher education is associated with an improved student's performance. This finding is also supported by the point of view of UNESCO (1964) that teacher's inadequate preparation and experience during the training period is the cause of the poor academic performance of some pupils.

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Students' Attitude Towards Studying History and Teaching Practices

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Abstract
As an academic subject taught in schools, history provides infinite opportunities to develop analytical skills, value judgment and expression of creativity. But the actual classroom reality tells a different story. The linear approach to history teaching makes the subject extremely dull, monotonous and burdensome to the students. It is this attitude towards history teaching which breeds the perceptions of history being a non-utility subject, having no relevance with the present or future. The present paper synthesizes the findings of an empirical data collected to study the attitude of students towards history and the scope of creativity in history classrooms. The data were collected through classroom observations and questionnaires in three different schools of Delhi. Data analysis highlighted that majority of students did not like studying history or pursuing history as a career choice. Classroom observations found history teaching too much textbook centric and unrelated to students' experiences. Content loaded and rigid methods of teaching history were the plausible reasons for students possessing negative attitude towards history.

Keywords: Attitudes, Teaching Practices

1. Introduction

History is boring. It's all about dates. There is so much to mug up. You will get tired of writing long answers. You can never score good in history. It takes up all my time. It's so irrelevant I don't know why do they even teach it? (Comments from school students of History, Delhi, 2019).

From the initial stages of schooling, it is often presented that history is all about knowing the past, exhaustively fermented with dates and monotony. Textbooks are considered as the ideal source of reproducing this 'past' in classrooms. Teachers merely dictate the factual information stated in textbooks and the classroom transactions in a history class today are one where students have to rote memorize dates, names and territories as important historical milestones 'essential to their exam preparation'. In this process of teaching and learning of historical facts, very less scope is given to students to critically analyze the facts presented before them. Neither are they given space to make their own interpretations based on their individualistic understandings. This linear approach

to History teaching makes the subject extremely dull, monotonous and burdensome to the students. It is this attitude towards history teaching which breeds the perceptions of history being a non-utility subject, having no relevance with the present or future.

Schick (1991) in the famous work on students' perception of studying history claimed that students either have negative feelings about history or they are neutral about it. The Position Paper on Teaching of Social Sciences, NCF (2005)[1] also raised similar concerns over teaching of history and highlighted that the students find history teaching too textbook centric and information loaded with no immediate connection with everyday reality. Raising the concern on history not being considered as a serious subject, the U.S History National Assessment of Education Progress (NAEP) report (2018) outlined that American society is not raising history literate youth. History teaching provides little scope of creativity, imagination or self-expression to its learners, which are essential virtues to adjust and grow in a highly complex and independent world.

Attitudes are our beliefs and predispositions towards objects of attitude. Amengor (2007) defined attitude as human evaluation of objects of thought having three components: a cognitive, affective and behavioral component. Cognitive component comprises beliefs people hold for the object of attitude; affective component is made up of emotions stimulated by the object of thought and behavior component consists of our predispositions to act in a particular way towards object of attitude. Students' abilities and willingness towards learning are determined by their attitudes towards learning. (Ministry of Education, Guyana, 2016). Learning as an individual performance influenced by positive and negative attitude (Sen, 2013) claims that positive attitude makes a student more open to learning and reduces the anxiety level.

As an academic subject taught in schools, history provides infinite opportunities to develop analytical skills, value judgment and expression of creativity. Working on the scope of creativity in history teaching (Jackson, 2005), concluded that creativity is the central of being a historian because historians use their creativity to translate the past by understanding structures, cultures and belief systems that are not presented in the mind. The aim of teaching history at school level is to inculcate social, cultural and analytical skills in students. As per the National curriculum in England (History programs of study, 2013) highlighted that studying history should help students understand the process of change, complexities of human lives, diversities and relationships between different groups and establishing identities through the process of change and development. It further suggests that teaching history should inspire students to know more about the past and prepare them to weigh evidences; raise critical questions; put up arguments and develop perspectives.

The present paper synthesizes the findings of an empirical research to study the attitude of students towards history and the scope of creativity in history classrooms. The data was collected in three different schools of Delhi. The process of data collection and analysis has been delineated in the subsequent sections.

2. Review of related literature

In one of the seminal survey research done by (Schug, 1982), grade 6 to 12 students were asked to rank their favorite subjects in order of preference from the most favorite to the least favorite. In the findings social science was ranked as one of the least favorite subjects. Students' choices were based on the skills needed for future career. Amengor (2007) in his research work with senior secondary school students found that majority of students hold a negative impression and perceptions about history. Analyzing the responses of the senior secondary students, Amenogor found that students hold misconception that history was a dead subject and of no use and one of the dullest subjects in school. Harper (n.d) working with 1500 students from grade 7 and 8 found that 72% students placed history as one of the most disliked subjects. The four more prominent reasons mentioned by the students were: too much memorization; lack of continuity in the subject matter; dull and uninterested subject matter and

[1] NCF is the National Curriculum Framework prepared in 2005 by National Council of Education, Research and Training (NCERT) to suggest curriculum plan for all subjects across all grades. NCERT is the autonomous organization under Government of India to assist and plan policies for qualitative improvement in school education.

unimportance. Working with secondary school students (Obeidat et al., 2011), found that students were reluctant to study history because of lack of opportunities to dialogue and participate, too much emphasis on memorization and no real connection with real lives. The main reason of the reluctance was that history becomes more cumbersome and details-laden in higher classes. In a survey study conducted in Sargodha city of Pakistan by (Ahmad & Maryam, 2016), to examine the attitude of students toward social science, the results showed that students were more interested in studying natural science subjects as it could get them attractive and high paying jobs. Boadu (2016) conducted an empirical study in Ghana on 32 history teachers and 18 senior high school students to find out teacher' perceptions of the problems faced in teaching of history. The findings concluded that teachers and students struggled with overloaded syllabus; insufficient teaching resources and lack of academic support made teaching and studying history a challenge for the teachers and students respectively.

3. Methodology

The study was situated in classrooms of three Delhi schools. The data was collected through direct observations and questionnaires.

The objectives of the study were:

- to find out attitude of students towards history;
- to analyze the teaching methods used in the classroom.

The three schools are named as S1, S2 and S3 for the convenience of the readers. S1 was a private senior secondary or high school and S2 was a government funded senior secondary school. In both schools, history was offered as an elective subject choice in grade XI and XII. S3 was a private senior secondary school where history was taught as part of integrated social science and only till grade X. Data was collected through classroom observation and a questionnaire for the students. Table 1 presents the details of schools and observation schedules:

Table 1: Types of Schools and Observation Schedule

School	Type of school	Classes observed and number of students	Classroom observation hours
S1	Private school with history as an elective subject in grades XI and XII	Grade 7 No. of students:43	06 hours
		Grade 9 No. of students:38	
		Grade 11 No. of students:22	
S2	Government run school with history as an elective subject in grades XI and XII	Grade 7 No. of students:36	06 hours
		Grade 9 No. of students:42	
		Grade 11 No. of students:16	
S3	Private school with History subject taught till grade X	Grade 7 No. of students:36	04 hours
		Grade 9 No. of students:39	

Due permissions were taken from the schools before collection of data. Brief discussions were done with the teachers before starting the observations in their respective classes. The discussion was centered around teachers' planning of the day. A detailed observation schedule was prepared so that observations remained focused and all-important aspects were covered in the observation. The observation schedule consisted of seven focus points. The focus points emphasized on classroom discourses and opportunities given to students to raise questions, develop

perspectives, put forth arguments, critically analyze the facts and how teachers connected the present lives of students in the light of past developments. The seven-point observation schedule consisted of the following points:

- Delivery of content
- Use of textbook
- Use of learning resources
- Students' participation and level of participation
- Nature of questions asked
- Learning opportunities beyond textbooks
- Linking with present and practical life

Observations were done around each focus point and a brief description was instantly written. The last part of the observation schedule was kept open to write any other important highlight of the class that was not covered in the focus points. Observations were done by sitting at the last bench of the class. The observations continued for four consecutive history classes in each grade. The duration of each class was 30-40 minutes. After first day of observation in each class, students were asked to fill up a questionnaire. The questionnaire consisted of 12 questions related to students' likings, perceptions and aspirations of studying history. Students were to choose one category out of three categories (yes, no or can't say). Not all students however answered the questionnaire. 67 students from grade 7, 52 students from grade 9 and 22 students from grade 11 completed the questionnaire. The recorded observations and filled questionnaires were analyzed qualitatively though quantitative analysis was also done.

4. Analysis of data

4.1 Analysis of classroom observations

Sixteen hours of observations in three different grades across three different schools were recorded as per the observation schedule. An overall analysis was done on the existing practices of teaching history across different grades. Analysis was also done across grade levels: middle grades (grade 6-8); secondary grades (9-10) and senior secondary grades (11-12) to get an insight on how teaching at lower grades affects students' attitude towards history in senior years. During the initial stage of analysis, all recorded observations were complied around each focus point and analyzed. It was found that in almost all the classes the method of content delivery was to read aloud from the textbooks. In few classes teachers were reading through the text and students were following from their personal textbooks whereas in few other cases, teachers asked the students to read the content from the textbooks. In many cases, teachers asked students to highlight important points. Teachers also explained important points in-between the textbook readings. In four instances, teachers also wrote important points on the blackboard. Only 10-12% students were taking notes though majority students followed the instructions given by the teachers. In all the classroom observations, textbook was the most popular resource used by the teachers. The teaching was majorly focused on textbook. Teachers' own interpretations or explanations were used as an additive support to the textbook information. In most of the classes, textbook was the sole resource used by the teacher though in three classes teachers also used large-scale maps to help students identify the different places mentioned in the text.

In most of the classes, students were passive recipients of information. In almost every class only a handful of students used to respond repeatedly whenever the teacher asked a question. In majority cases, teachers did not encourage all students to respond. A single response from anyone student was considered enough to move to the next question. The frequency of questions asked in the history class was also not very high. The average number of questions asked per class was 3.1 with a range of minimum questions asked 1 and maximum number of questions was 5. In most cases, questions were either from the practice exercise at the back of the chapter or from the text content. Most questions required students to retrieve the information from the textbook. In one of the class in grade 7, teacher referred to historical monuments in Delhi built by Mughal emperors. There were very few learning opportunities beyond textbooks. The entire teaching–learning process was focused around the textbook.

The recorded observations were compared across grade levels. Not much difference was found in practicing methods of teaching history in grades 7, 9 or 11. In grade 7, teachers read the textbook for students whereas in grade 9 and 11 students read the books and teachers explained in –between the readings. In grade 7, teachers dictated the answers of the questions; in grade 9 teachers highlighted the answers in the textbook and in grade 11 teachers discussed the answers and students were asked to write final answers on their own.

4.2 Analysis of Questionnaire

The analysis of the questionnaire was done for each question item. Responses of each question item were tabulated, compared and analyzed. As shown in Table 3 the responses are tabulated as per the rating scale:

Table 3: Responses of students

Question Items	No	Can't say	Yes
Do you like history?	67%	21%	12%
Do you enjoy history class?	48%	25%	27%
Do you want to study history in your free time?	64%	25%	11%
Do you find history a difficult subject?	43%	20%	37%
Do you want to study history in higher classes/ in the college?	38%	44%	18%
Do you want to pursue a career in history?	54%	35%	11%
Do you find studying history useful for present or future lives?	76%	12%	12%
Do you like to watch movies on historical themes?	15%	22%	63%
Do you want to know about history of your country?	7%	9%	84%
Do you like to watch history channels or history documentaries?	12%	24%	64%
Do you want to take part in history related activities such as debates; plays; history clubs etc?	7%	15%	78%
Do you think history is a creative subject?	88%	8%	4%

The responses listed above clearly highlighted that majority of students don't possess a favorable attitude or liking towards history. 67% students don't want to study history. Only 12% students responded positively. Out of those 12% responses, 87% responses were from grade 11 students. 64% students don't want to study in their free time. 53% students consider history as a difficult subject out of which 72% responses were from grade 11 students. Close to 50% students don't enjoy their history classes where as more than three quarter of students don't find history useful or relevant to their lives. Contrast to classroom experiences, more than 60% students wanted to engage in history related activities beyond classroom. 63-64% would like to watch movies on historical themes and history documentaries and 78% students wanted to participate in history related activities. The responses highlighted that the students did not like history because they did not find history teaching relevant and did not see any scope of studying history with future careers. The reason many students did not want to pursue history in higher classes because they were not able to relate history with their lives and hence could not see history as a potential career choice. Classroom observations highlighted that history teaching was rigidly textbook-centric. It could be a plausible reason that students found history as a dull and non-creative subject. The over emphasis on textbook based notes making and encouraging memorization of historical facts hampered the students ability to make connections between the past and present.

5. Conclusion

When we talk of an innovative and interactive history classroom today, we often see its implementation restricted solely to scholarly work and policy drafts. The way in which history is reproduced in classrooms is what makes it look like a stagnant stock of irrelevant dates and monotonous events. History however, was never meant to be boring and dull. It was meant to leave its explorers in awe and amazement. If the nature of history is rightfully

decoded, one sees that the very bedrock of history teaching is based on fostering creativity and learning the art of critical analysis. History teaching today sees a huge gap between that which is mentioned in the text and that which is in the immediate environment of the child. History educators should attempt at bridging this gap in order to break the stereotypes of irrelevance and uselessness attached to the subject. It should ignite pupils' curiosity to know more about the past and equip them to ask innumerable questions, think critically, weigh evidence, sift arguments, and develop logical judgments. History should help pupils to understand the complexity of people's lives, the process of change, the diversity of societies and relationships between different groups, as well as their own identity and the challenges of their time. Most significant of all, it should imbibe the values of gratitude and appreciation towards the rich heritage students interact with every day.

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Using Quality Teaching and Learning Resources for Effective Integrated Science Education among Senior High Schools in Ghana

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Abstract
The study examined the use of quality teaching and learning resources and how these affect the teaching and learning of Integrated Science. A total of 172 randomly selected second year Senior High School (SHS) students and 25 Integrated Science teachers purposively sampled served as the subjects for the study within six districts in the Central Region of Ghana. Questionnaires were used to collect the students' and teachers' needed data. This study's key findings revealed a lack of teaching and learning materials and the stereotyped nature of Integrated Science teachers' methods of teaching. It was noted that access, selection and usage of good and quality teaching and learning materials and methods influenced learning outcomes of students in SHS Integrated Science. However, it was observed that both government and private school teachers used similar teaching methods in delivering the Integrated Science content. It was concluded that for successful teaching and learning of Integrated Science, the challenges should be addressed by SHS education stakeholders. As a result, the paper recommended possible solutions that would ameliorate the challenges hindering the teaching and learning of Integrated Science.

Keywords: Integrated Science, Instructional Resources, Methods of Teaching, Senior High School, Teaching and Learning

1. Introduction

Strides in human development and the progress made by human society over the past years highlight the role that science and technology play in meeting the challenges of an ever-transforming society. Thus, for people to appreciate this role played by science, teachers should be able to make its delivery more appealing to students to enhance their interest. In Ghana, Integrated Science is taught at the Junior and Senior High schools as a compulsory subject. However, many students have problems with the learning of Integrated Science, thereby affecting their

performance, due to the teaching approaches employed by the teachers (Adu-Gyamfi, 2014). Since 1990, educators have made frantic efforts to proffer solutions to the problem of under achievement of students in Integrated Science (Adu-Gyamfi, 2014; Ivowi, 1995; Okebukola, 1997; STAN, 1992). In order to eliminate students' academic deficiencies, it is expedient that needs assessment is conducted in the teaching and learning of Integrated Science. Thus, in assessing these needs, the teachers and students will be positively involved in finding ways of achieving better teaching and learning of Integrated Science.

According to Stanley, Slate and Jones (1999), there are many factors in the school set up that affect academic performance negatively. These include the poor attitude of some teachers and students, inadequate textbooks and materials for teaching and learning, poor learning and teaching methods, negative perception about the subject and poor maintenance culture. The problems of students are not peculiar to any one school, but a general phenomenon. Evidence shows that science teachers do not have sufficient time to learn new teaching methods to teach their subjects (Azure, 2015). This case is no exception for the Ghanaian SHS (Adu-Gyamfi, 2014; Quansah, Sakyi-Hagan, & Essiam, 2019; Yeboah, Abonyi, & Luguterah, 2019). Sadly, decades of efforts to increase science teaching standards have had just a minimal effect in classrooms (Azure, 2015).

The time students spend studying Integrated Science has significantly declined while more content has been added to the curriculum. Learners' achievement on national assessments, which increasingly aim to measure both content knowledge and critical scientific thinking, reflects this lack of devotion to science (Adu-Gyamfi, 2014; Anamuah-Mensah, Mereku & Ghartey-Ampiah, 2008). In the Ghanaian SHS, Integrated Science is taught as a core subject so that every student would have an opportunity to learn some amount of science. However, the performance of students in the subject leaves much to be desired. For instance, students' performances in WASSCE for the past ten years have been abysmally poor (Entsuah-Mensah, 2004). This observation is not new to any Ghanaian science teacher as every SHS remedial class has a chunk of students registering for Integrated Science aside English and Mathematics. At the national and international levels, poor performances of students continue to be a matter of concern (Anamuah-Mensah, Mereku & Ghartey-Ampiah, 2008).

The reasons accounting for this observation are not farfetched. Okhiku (2005) observed that poor performance in Integrated Science is caused by the poor quality of teachers, large class sizes, and heterogeneity in terms of students' ability levels, ill-equipped laboratories and over loaded Science syllabuses. This list is however, not exhaustive. Sert, Diken, and Darcin (2008) explained that regarding the concepts taught in science in comparison with other subjects, Science has more interrelated topics emanating from all the natural sciences (i.e., Physics, Chemistry, Biology). This implies that Integrated Science has elements of the other Science concepts subsumed in it. This unique property of Integrated Science makes it typical and hence, a student is good in Integrated Science if and only if he/she has a firm grip of the rudiments of the pure Science subjects (i.e., Chemistry, Biology and Physics).

2. Statement of the Problem

It is incumbent on teachers to provide high-quality instruction and learning in Integrated Science to students so that the students will comprehend fundamental scientific conceptions and function correctly in their environment (Azure, 2015). With time, these will reflect in the scientific knowledge of the entire citizenry. The curriculum of Integrated Science encompasses the core science disciplines of physics, chemistry, biology, and agricultural science. The quality of content knowledge possessed by students and the competency of the teacher are some or the factors that impact quality teaching and learning of Integrated Science (Anamuah-Mensah, Ananga, Wesbrook, & Kankam, 2017). One major factor is inadequate teacher preparation, especially with respect to pedagogical techniques, inconsistent and inappropriate instructional materials (Anamuah-Mensah, Ananga, Wesbrook, & Kankam, 2017). Poorly supervised and monitored teaching in the classroom is also a significant problem. Another critical issue is the student's motivation, since motivation can be impacted by several factors, including classroom size, equipment, lack of respect for the instructor, interest, and attitudes of students (Adu-Gyamfi, 2014; Anamuah-Mensah, Ananga, Wesbrook, & Kankam, 2017; Quansah, Sakyi-Hagan, & Essiam, 2019; Yeboah, Abonyi, & Luguterah, 2019). It is believed that adequate and proper use of quality instructional materials is necessary to

enhance successful Integrated Science teaching and learning. In scientific investigation, learners could apply the five senses if they are taught using appropriate and enough quality instructional materials and teaching methodologies (Adu-Gyamfi, 2014; Opara & Etukudo, 2014; Sakyi-Hagan, & Essiam, 2019). If textbooks are not enough, pupils are forced to study books while teachers explain the concepts to them, in place of teaching activities using an Integrated Science curriculum (Azure, 2015). Children lose the opportunity to become personally invested in their learning due to lack of activities in the teaching and learning of Science (Adu-Gyamfi, 2014; Borich, 2007). That prevents students from gaining any control over their knowledge and understanding (Idiaghe, 2014). Thus, for effective teaching and learning of science, it is very imperative to stress the importance of using quality instructional resources. Consequently, these outcomes arise because as learners participate in hands-on science activities with the materials, they gain a greater understanding of scientific conceptions, which improves their learning and performance. From the foregoing, it is clear that, the challenges associated with the inability of teachers to have access to and use quality and appropriate instructional materials for effective Integrated Science education among Senior High Schools in Ghana prompted this research.

3. Literature Review

3.1 Theoretical Framework

3.1.1 Theories on Instructional Material

The instructional resources used by teachers have a correlation with the learning outcomes of their students, according to instructional material theories. Higher learning skills, quality techniques for learning and performing classroom tasks, and a positive attitude toward learning are among these outcomes. Furthermore, these hypotheses assume that educational materials have the ability to improve the highest order of academic skills in students because they show students how to obey rules/principles and elaborate on concepts in a simple, step-by-step manner, both of these factors help solve novel problems by assessing the circumstance and developing a technique (Gagné, Wager, Golas, & Keller, 2005). According to Gagne et al., teaching and learning resources can be used to promote higher-order learning capabilities in learners through self-teaching or directed learning. This means that the instructional materials for guided discovery learning primarily consist of "eliciting results" and "providing input on performance correctness," as well as "providing learning guidance." Many of Gagne's concepts have far-reaching consequences for high school teachers in Ghana. Many of these concepts accentuate the development of critical thinking and problem-solving skills in learners. The theory, on the other hand, has little to do with whether or not students should think critically about what they're learning or how they can solve a problem on their own. However, it is believed that the aim of educational materials and technology is to stretch students' imaginations and inspire them to creativity and problem-solving capabilities. Similarly, Lev Vygotsky, believed teaching learning resources have the ability to improve learners' higher-order thinking capacities, which is essential in problem-solving activities (Vygotsky, 1978).

3.1.2 Sociocultural Theory of Teaching, Learning, and Development

The second theory that guided this research is the sociocultural theory of teaching, learning, and growth. This theory is largely based on Lev Vygotsky's seminal works, and suggests that human minds do not evolve as a result of any predetermined cognitive constructs that emerge as one matures (Vygotsky, 1978). Human minds, on the other hand, evolve as a result of continuous contacts with the social material environment, according to this theory. According to Vygotsky, people learn from each other and utilise their interactions to make meaning of the resources they work with (Vygotsky, 1978). These interactions are incorporated in 'cultural instruments,' which learners should show mastery in so as to produce specific knowledge and expertise to be able to solve various challenges and, as a result, become proficient in a particular profession. A picture, a model, or a pattern for solving an issue in the classroom are examples of these tools. Human language, on the other hand, is the ideal multi-level tool, combining culturally evolved concepts, sounds, melodies, and communication principles. Using such resources to learn isn't just for the sake of the mind's growth. Rather, this type of learning contributes to the development of new, more complex mental functions. To the extent that they learn complicated techniques like

human language, infants not only get the ability to communicate, but also discover totally new aspects of their thoughts, such as better self-control and attitude. The way this tool is organised (for example, the semantic, pragmatic, and syntactic constructs of language) is what creates, shapes, and forms new facets of the child's mind. Cultural instruments, it's worth noting, aren't just static 'stuff,' but embodiments of specific forms of behaving in human societies. To put it another way, they reflect the purposes and meanings of objects as discovered through cultural practices: In human cultures, they are "objects-that-can-be-used-for-certain-purposes." As a result, a child can only appropriate them by acting on and with them, that is, only by consciously reconstructing their sense and purpose. Such a process of cultural instrument restoration is initially only achievable through cooperation and engagement with other individuals who already have knowledge of a specific cultural tool. A quick description of the sociocultural method is offered here to show that while Gagne's instructional resources help integrate instruction, learning, and cognitive development, the sociocultural method facilitates this confluence and requires no extra help. According to this theory, instructional materials promote cognitive development by mediating learners' reasoning through instruments, and such mediation is the bedrock of mental development (Vygotsky, 1978).

3.2 Empirical Literature

3.2.1 The concept of Teaching and Learning Resources

Teachers use a variety of educational materials in the teaching and learning process, which are referred to as teaching and learning resources. Charts, models, textbooks, maps, the internet, and electronic and audio-visual learning resources such as a tape recorder, radio, cassette, TV, laptops, cell phones, overhead projectors, computers, and classroom improvised materials are just a few examples. Writing resources such as rubbers, pens, crayons, exercise books, chalk, notebooks, drawing books, rulers, pencils, workbooks, slates, and paper supplies are examples of additional learning resources (Blazar & Kraft, 2017; Yeboah, Abonyi, & Luguterah, 2019). Besides, these are technical materials or resources such as a science laboratory with the necessary equipment like a test tube, beaker, volumetric flask, capacitor and insulators. These resources are very important in doing simple demonstrations and practical works. Students need these resources at an individual and classroom level (Ministry of Education, 2003).

Educational tools and aids used in schools to facilitate learning and teaching are teaching and learning materials (Machaba, 2013; Yeboah, Abonyi, & Luguterah, 2019). They are resources and methods used by teachers to apply instructions and offer learners with the achievement of learning objectives during learning activities, which include active learning and measurement. They aid in the concretization of a learning experience, making learning more engaging, energetic, and interesting. Audio, visual, audio-visual, and realia are only a few examples. Textbooks and visual resources were shown as wall charts. As a result, audio learning materials are those that only use the sense of hearing, such as tape recorders and radios. As a result, audio-visual learning materials incorporate both visual and auditory elements, such as computers, movies, and television. Learners should be equipped with problem-solving skills and critical analytical thinking through the materials, which should provide them with the necessary information, skills, and abilities to grow and support institutions (Saad & Sankaran, 2020).

Most countries in Africa experience a shortage of teaching and learning materials with the difference in availability between rural and urban schools (Quansah, Sakyi-Hagan, & Essiam, 2019; Yeboah, Abonyi, & Luguterah, 2019). World Bank (2012) found out that many African countries do not have enough resources to meet the demand for education. This was in a report by all the Sub-Saharan Conference on Education for All, as opined by Obara and Was (2020). The self-discovery of both instructors and learners is aided by teaching and learning resources. They improve child-centered teaching and learning approaches by involving students (Machaba, 2013). Academic success is aided by the use of educational materials. According to the data reported by Ashiono, Mwoma, and Murungi (2018), employing ICT during classroom instruction boosts learners' interest in learning, leading to improved cognitive recall. The results presented by Lyimo, Too, and Kipngetich (2017) assert that teaching learning resources can significantly enhance teaching efficiency, help to identify distinctive requirements for various students, and enrich lesson plans, all of which have an advantageous influence on learners' and school's

achievement. Regardless of how well-staffed a school is, without adequate teaching and learning materials, the school's basic aims, such as teaching and studying Integrated Science in order to achieve outstanding results, can be severely hampered (Saad & Sankaran, 2020). Instructional resources of many forms can be used to encourage development since they excite, stimulate, and hold the attention of Science students.

3.2.2 The Influence of Teaching and Learning Resources on Student Learning

Ibeneme (2000) described teaching resources as those used for sensible reasons such as the teacher and students' demonstration in the class situation. Oluwagbohunmi and Abdu-Raheen (2014) explained that teaching resources simplify explanations and comprehensible subject matter to students. Also, Ajayi and Ayodele (2001) emphasised the significance of instructional materials' availability in attaining effectiveness in the school system's teaching and learning process and supervision (Yeboah, Abonyi, & Luguterah, 2019).

Television and the internet bring learners' attention to the way they appear and to how they sound, which leads to a greater focus on visuals and sounds. Our educational system wouldn't be what it is now without multiple learning tools, such as books, audio and video recordings, as well as the internet. The purpose and function of teaching and learning materials is to help the educational process look more interesting and interesting, to aid in active learning, to aid in development of diverse abilities, and to result in a wider adoption of preferred values and attitudes in learners. To achieve the following objectives, it is critical to clearly identify the circumstances and techniques for utilizing teaching and learning materials in the classroom. A good resource and utilise Science laboratory provide students with the opportunity to learn practical Science. Careful selection of teaching and learning resources contributes to nurturing concepts from Science basic ideas. They also help to download the abstract concepts to an understandable process (Odhiambo, 2007). The effective implementation of curriculum calls for providing adequate and appropriate facilities, equipment and teaching and learning resources for Integrated Science.

Institutions should guarantee that teaching and learning materials are utilised and made accessible to all students, according to Moodley (2013), for learners to be actively involved in the learning and teaching of Integrated Science. Research has shown that the availability of learning resources can have a substantive effect on curriculum implementation since learners remember 90% of what they say, see and do. They also help to download the often-abstract concepts to an understandable process (Maina, 2015).

According to UNESCO (2004), science students require learning resources in forms that are tailored to their specific needs. Students in an inclusive context would require additional materials beyond those offered by the school. Thus, Integrated Science teachers should use locally available resources to promote learning, based on inclusivity (Moodley, 2013). Using local craftsmen to maintain the devices can also assist to alleviate the problem and allow instructors to deliver more effectively. This may improve the retention of learners who are physically challenged in public institutions.

Momoh (2010) investigated the impact of instructional materials on learner achievement in the West African Senior School Certificate Examinations (WASSCE). The resources available for instruction were linked to learner performance in WASSCE. Instructional materials have a considerable impact on student outcomes and retention, according to his findings.

In Kenya, a Government Report on the National Conference of Education for All observed that pupils lack desks and chairs in most primary schools in Kenya. The absence of these has diverse effects on learning (ROK, 1992). Ministry of Education, Science and Technology (2010) observed an inadequate provision of teaching and learning resources for learners with disabilities. The limited availability of curriculum support materials also limited the teachers' ability to employ various content teaching and learning activities for effective curriculum delivery.

Because of their unfavourable learning environment, which is marked by insufficient educational materials and teaching staff, students from public schools fall behind their private primary school peers in terms of achievement (Ongaki & Musa, 2014). According to them, from 2016 to 2018, Gilgil Sub County's overall

achievement was 230.18, 227.81, and 230.16, which is below the national average. Insufficient instructional resources resulted in abstract teaching and passive learning, culminating in low performance (Wambua & Murungi, 2018). With the advancement of technology and new forms of communication, more effort is being put into teaching and learning tools. Consequently, learners in different parts of the world have benefited from this expansion.

According to Bukoye (2018), there is a very substantial beneficial relationship between learning materials and academic performance. Bukoye investigated whether schools with enough resources may provide better results than schools with lesser resources. This backed up the findings of Okongo, Ngao, Rop, and Nyongesa (2015), who found that schools owned by individuals performed well because they had adequate learning and teaching resources.

Accordingly, Adalikwu and Iorkpilgh (2013), opined that the volume and value of learning and teaching resources have an impact on students' performance. The researchers discovered that learning centers with enough facilities, such as textbooks, are better positioned to get good exam marks than schools with inadequate amenities. As a result, poor performance might be linked to a lack of training and learning resources and tools. Parents, sponsors, and the community must continue to emphasize the upkeep and growth of corporeal facilities in learning centers. This is due to the fact that the lack of such amenities obstructs the learning process. The importance of school amenities in relation to quality Science learning was demonstrated by Ndirangu and Udoto (2011). Lecture halls, classrooms, administrative blocks, auditoriums, labs, playgrounds, special rooms such as a clinic, conference halls, learners' hostels, employees' quarters, canteen, kitchen, and toilets are among the physical facilities.

Ndirangu and Udoto (2011) go on to say that having an adequate supply of high-quality physical materials makes learning more productive. Academically, unattractive school buildings, a lack of playing fields, congested classrooms, and an environment devoid of artistic splendour can all contribute to a terrible performance. According to Figueroa, Lim, and Lee (2016), the physical and institutional constraints of the school preclude a society of achievement. To effectively conduct educational programs, the Ministry of Education, Science and Technology (2014) emphasizes the importance of providing enough and appropriate teaching amenities for Integrated Science learning and teaching.

3.2.3 Effective Use of Teaching and Learning Materials in the Science Class

Integrated Science is a necessary element of our everyday lives. It's a college course that emphasizes analytical, environmental, and other mental-processing skills. Integrated Science is a required core subject at the elementary and secondary levels of school. This aims to promote scientific literacy while also guiding the country towards economic growth and prosperity (Tella, 2008). Science is widely acknowledged to be difficult, unintelligible, and uninteresting to some individuals. It is, nevertheless, the major means of enhancing students' logical and higher-order thinking abilities.

According to the Third International Mathematics and Science Study-Repeat, it is an unsettling observation among Filipino kids that they are weak in science (TIMSS-R, 2011). Ghana is not an exception. Thus, students' errors in Integrated Science education are not simply a consequence of ignorance, lack of knowledge, and situational accidents; most students' mistakes are not due to unsureness, carelessness, or unique situational conditions, as was assumed at the beginning of the behavioristic theory of education. Rather, student errors are the outcome or the product of previous experiences in the Science classroom. The extensive remark that numerous students execute poorly in school Science put much effort into the necessity of improved instruction resources. According to Diaz (2016), the student taking up higher Science lacks the prerequisite knowledge and skills. More specifically, they lack conceptual knowledge in Integrated Science. Killpatrick et al. (2001) posited that the students need conceptual understanding for learning Sciences successfully because it enables them to learn new ideas by connecting them to what they already know. This connection helps them to remember, use, and reconstruct those ideas when they need them. Further, Killpatrick et al. (2001) added that students need conceptual understanding to support the Integrated Science concepts as a foundation in solving a scientific problem.

Nowadays, learning Integrated Science has been given the major focus of teachers' efforts. Different strategies and techniques are highlighted for the students to be scientifically proficient. At present, in the Philippine educational system, learning materials are highly regarded as tools for improving students' achievement. Thus, Dahar (2011) stresses that the use of appropriate learning material has a strong relationship with senior high students' academic performance. Learners' involvement in science courses and learning was influenced by the classroom environment inclusivity, according to a study by Leone, Wilson, and Mulcany (2010) on strategies to improve Science instructions for learners in short-term tools in Washington, DC, USA. Learners were able to actively participate in a learning environment that was all-encompassing. This meant that a wide range of educational materials and resources were required. Their willingness to participate in classroom activities was boosted by the employment of educational materials. According to Leone et al. (2010), instructional materials assisted learners in displaying a good attitude towards classroom activities, creating favorable learning environments, and involving learners in activities. It also encouraged them to be curious about the area and piqued their interest in learning more.

In the Tao Te Ching, a book by an ancient Chinese philosopher and writer, Laozi states that when you offer someone a fish, they will eat it for a day. teaching someone how to fish enables them to live on a steady diet for the rest of their lives (Saad & Sankaran, 2020). Resources and facilities are scarce in Africa, making it difficult for students to achieve basic literacy skills (Machaba, 2013). In South Africa, Jojo (2019) discovered that a lack of crucial school materials was linked to poor educational outcomes in Integrated Science. The quality of education is improved by the availability of teaching and learning materials. The lack of books, references, and other academic resource materials, according to Ashiono et al. (2018), is one of the primary issues that contributes to poor performance in many Tanzanian schools. Many Tanzanian schools rely heavily on donors for teaching and learning materials, according to this author. The flow of donor cash is blocked at the time, resulting in a lack of instructional materials. A principal role of schools is to cultivate learners who are capable of successfully and effectively applying their scientific aptitudes, information, and skills for the benefit of both humanity and the nation's industrial growth. As a result, the education sector plays a critical role in aiding the process of developing the workforce required to transform Kenya into a globally competitive country. As a result, the education sector as a whole offers a wide range of learning materials to encourage full engagement in learning and maximize competence acquisition.

Tactile, auditory, and visual components, according to Silverman (2006), aid learners in processing information by minimizing the contribution of visual materials to learning. The majority of studies agree that most learners absorb new knowledge by visualizing the entire subject. There are numerous advantages to using visual learning methods. Visual elements, for example, aid learners in having clear thoughts and ideas, comprehending topics through connections, and integrating knowledge with earlier learning. It also aids the teacher in recognizing student misconceptions. Visual learning also allows for new ways of thinking (Foliaki, 2012). Visual resources, according to Cubillas (2020), are more effective than spoken descriptions in conveying concepts and material to visual pupils. They are significant improvements in Science classroom learning. The addition of diagrams, films, visual representations, charts, maps, pictures, and diagrams to the course content aids learners in easily absorbing it (Kurgatt & Omuna 2016).

Makokha and Wanyonyi (2015) looked into the lack of learning materials accessible and how educators teach Integrated Science abilities using talk and chalk strategies. Teachers conclude that insufficient learning materials are to blame for students' poor performance in Integrated Science skill development. As a result, learning environment experiences have a substantial impact on student performance, as stated by Onchera and Manyasi (2013), who found that extensive observation of what occurs in the classroom is required to provide additional insight into why students achieve the outcomes they do.

3.3 Objectives

1. Examine the difference in access to quality teaching/learning materials between the selected schools
2. Explore students’ views on the TLMs used by Integrated Science Teachers

3.4 Research Questions

1. What is the difference in access to quality teaching/learning materials between the selected schools?
2. What are students' views on the TLMs used by Integrated Science Teachers?

4. Methodology

The researchers investigated the utilisation of quality teaching and learning resources for effective Integrated Science education among selected Senior High schools in Ghana using a quantitative research approach, especially a cross-sectional descriptive survey methodology. The goal of utilising a descriptive survey method was to elicit information from teachers about the availability of high-quality teaching/learning materials and to learn about students' perceptions of the TLMs utilised by Integrated Science teachers. The reason for using a cross-sectional descriptive survey design is that it is more cost-effective. Furthermore, findings are obtained more quickly. Sampling enables for a broader range of information to be collected, as well as a higher level of work quality because more accurate data may be collected under the right conditions.

Questionnaires were used to collect the students' and teachers' needed data. Samples were drawn from six Senior High schools in the Effutu, Agona West and East municipalities of the Central Region. All the selected schools were co-educational with boarding and day students. In all, one hundred and ninety-seven (197) participants were selected using a simple random sampling approach from the six schools to participate in this research. Of the 197 participants, 172 were students and 25 were Integrated Science teachers. The researchers explained the purpose of the study and emphasised that the participants will remain anonymous.

The data gathered were uniformly entered using SPSS. In analysing the data, the researchers also employed quantitative data analysis methods. The frequency count was used to tally data and responses obtained were also converted to percentages. Bar charts were used to correlate the results obtained as well.

5. Results and Discussion

5.1 Background Analysis

Effutu and Agona West Municipals, and Agona East District in the Central Region of Ghana

Data obtained for the research questions were analysed using frequency counts, percentages, and graphs to ascertain information on students' access to teaching and learning resources availability and usage. The following shows the general characteristics of the participants for this study.

Table 1: Gender distribution of students' school attendance rate

Gender	Frequency	Percentage (%)
Students		
Male	84	49
Female	88	51
Total	**172**	**100**

Gender distribution of students showed school attendance rate for females is higher than that of the males. Again, we see a higher number of female teachers in the total participants.

Table 2: Residence status of students

Residence Status	Frequency	Percentage (%)
Day	45	26
Boarding	127	74
Total	**172**	**100**

Residence status of students shows many respondents (74%, n=127) were boarders. A plausible reason why students indicated studying Integrated Science thrice a week. It was noted that day students were usually occupied with house chores which makes it impossible to have enough time to study.

Table 3: Students' programmes of study

Programme of Study	Frequency	Percentage (%)
Science	13	8
Agric	11	6
Home Economics	21	12
General Arts	78	45
Business	34	20
Visual Arts	12	7
Others	3	2
Total	**172**	**100**

Students' programmes of study showed few students (14%, n=24) were Science bias. Majority of the students offer General Arts programmes (45%, n=78).

Data on the number of years (%) teachers have taught in their respective schools are presented in Figure 1. The number of years (%) teachers have taught in their respective schools show a much lower experience with almost half of the teachers indicating an experience below 5 years.

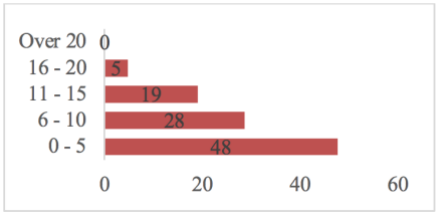

Figure 1: Number of years (%) teachers have taught in their respective schools

5.2 Analysis of Research Questions

Research question 1: What is the difference in access to quality teaching/learning materials between the selected schools?

This section presents the results of respondents' access to quality teaching and learning resources among the selected schools and how it affects the teaching and learning of Integrated Science.

Table 4: Students' responses on TLMs that were available in their schools.

TLMs/Schools	A	B	C	D	E	F	Total
Audio	1	2	0	1	0	0	4
Textbooks and Ref. Materials	18	26	30	29	34	11	148
Audiovisual	1	6	4	3	2	0	16
Visual	0	0	1	1	0	0	2
Others	0	1	0	1	0	0	2
Total	**20**	**35**	**35**	**35**	**36**	**11**	**172**

From Table 4, a great number of students from various schools indicated textbooks and reference materials as available teaching and learning materials in the school. Textbooks and reference materials had 148 (86.5%) of the responses. Textbooks and reference materials are just basic materials for teaching and learning; therefore, it is not strange that we have majority of the students mentioning it. Textbooks and reference materials alone are not enough for effective teaching and learning of Integrated Science. The least available TLM in the various schools in the visual aid. The above therefore indicates that the schools did not have adequate Science TLMs like Visuals 2 (1.2%), and Audio-visuals 16 (9.4%) which play a very important role in the effective teaching and learning of Integrated Science. The same question when posed to the teachers also confirmed what their students said, where 12 (57%) of them said the main TLMs available were textbooks and reference materials, with only 3 (14%) and 6 (29%) going for audio and visuals. This really could have a very negative impact on the teaching and learning of Integrated Science since the subject is more practically based and needs audio, visual and audio-visual for effective teaching and learning of the subject.

Figure 2 presents a graph indicating the available teaching and learning materials of the selected schools based on 36 variables measured using the observation schedule. The schools were rated as having good/adequate, average/inadequate or none/bad materials.

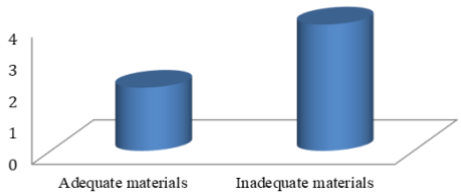

Figure 2: TLMs Rating of all the Selected Schools Against the Number of Schools

Figure 3 indicated that the most common teaching and learning material used in school by the teachers is the textbooks and reference materials (86%) while audio-visual materials are the least (2%).

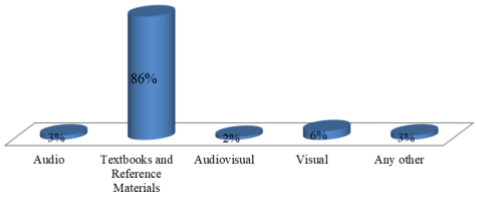

Figure 3: Students' View on TLMs often Used by Science Teachers

Research question 2: What are students view on the TLMs used by Integrated Science Teachers?

The students were asked of their views on the TLMs their teachers used in the teaching and learning of Integrated Science. Their responses were as seen in Table 5

Table 4: Students View on TLMs used by Integrated Science Teachers

Views on TLMs used by teachers	**Frequency**	**Percentage (%)**
Very useful	11	6.40
Useful	69	40.12
Satisfactory	78	45.35
Not useful	14	8.14
Total	**172**	**100.00**

From Table 5, 46.6% of the respondents were happy with the TLMs used by their teachers and therefore said they were useful, 14 (8.1%) of the student respondents were not happy with the TLMs their teachers were using and said it is not useful. A great number, 78 (45.3%), indicated satisfactory for the TLMs their teachers used. The above shows that some of the students' needs were not being met by the use of mainly textbooks and reference materials.

The teachers were asked in the interview whether those materials were easily accessible. Fifty (50%) said the materials were easily accessible whiles the other 50% also said the materials were not easily accessible. In an interview, the teachers were asked how they were making use of the TLMs to achieve their teaching and learning objectives. They responded that they use them when the need arises but not frequent. Eshiet (1987) was of the view that adequate provision and use of instructional materials is an important method that Science teachers can use in promoting skills' acquisition in consonance with the objective of developing manipulative skills in learners.

6. Conclusion

The teaching and learning of Integrated Science have been an important and necessary subject in our national educational endeavour. The effective teaching of Integrated Science encourages students in an active learning process. However, achieving effective teaching and learning of Integrated Science can be fraught with many challenges. In this study, we identified major students' needs in the teaching and learning processes of Integrated Science in two Municipalities and a District in the Central Region of Ghana. The study revealed that students' foundational problems with science concepts at SHS 1 are among the main challenges they face at the SHS 2 level. Inadequate background knowledge about major Integrated Science concepts will negatively impact students' attitudes towards their learning. It was evident that most teachers limit their teaching to lecturing without any better understanding of the subject. There were no adequate TLMs for teaching and learning, and if there were, most teachers did not use them. In totality, it can be concluded that an experimental or activity-based approach is an innovative method to change teaching and learning practices in Integrated Science classrooms. This would foster positive classroom interactions, promote positive attitudes towards science and provide opportunities for developing thinking skills.

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A Critique on Discourse of Language Tests

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Abstract
In the 21st century, with the rise of the popularity of standardized or large-scale tests, their high-stakes have started to be apparent. High-stake tests are not new, but in most cases, their current use as social practice tends to shape individuals' futures. Currently the new trend for their quality discussion aims to critically evaluate tests through the focus on their functions, use and power in their testing discourse, whereas traditionally what was included in this discussion was only their psychometric features. Regarding those tests as social practices, examining the functions, consequences and use of tests in their own discourses is at the heart of this new perspective. Driven by the tenet of such a critical perspective, this study aims to first provide a better understanding of 'discourse of test', and then describe the social dimensions comprising discourse of language tests. Finally, this study concludes with some suggestions for adapting a critical perspective to improve the discourse of tests and enhance their quality.

Keywords: Discourse of Tests, Functions of Tests, Power Relations

1. Introduction

In the 21st century, due to the spread of standardized or large-scale tests in modern societies, it is a bit difficult to find someone who has never taken a high-stakes test. Though high-stake testing is not something new, the use of tests to shape individuals' lives seems to become a fashion in modern societies. In many cases, the use of language tests has life-changing and high-stake consequences. Here, in this study, language tests that have the potential to result in high-stakes refer to large-scale standardized language tests applied in national or international contexts, but not the ones defined as classroom-based language assessment. LaCelle- Peterson (2000) defines standardized tests as the ones "based on the doctrine that identical treatment of what are assumed to be practically homogeneous learners will yield equally accurate and comparable data…treating all students fairly and gaining equally accurate information on all test takers" (p. 31). However, recently what is traced is that testing all individuals equally might bring some unequal treatment by opening the door for some and closing the door for others. It means introduction of standardized tests as reform to achieve equality and improvement is still far (LaCelle-Peterson & Rivera, 1994) Traditionally, such testing practices are tools to determine the current proficiency and knowledge of students, but in most cases they are also used to make high-stake decisions about individuals. Thus, with the advent of critical pedagogy some shifts can be traced in the field of language testing and assessment. In fact, the rootedness of tests in the lives of the test takers results in their impacts on individuals and society at large. Considering their high-stake functions and impact, language tests might have the potential to determine the educational, political,

economic and ideological perspectives of individuals and society (Shohamy, 2001b). Therefore, the current perspective in language testing literature views tests as the powerful tools imposing implicit knowledge, ideas, values and norms rather than just simply as vehicles testing knowledge, proficiency, progress or skills. The major point is that tests as powerful tools are not neutral and isolated practices, but social tools that play a central role in constructing, identifying and legitimizing some values, knowledge, agendas and social classes in social systems (Shohamy, 2013). This means tests can be introduced by politically and educationally empowered parties. Thus, in some testing contexts due to the discursive power which might not be shared equally among all test parties, some high-stake effects and unintended consequences of tests can appear in the testing discourses. That is why, the attention needs to be drawn to the social and cultural discourses of language tests in order to clarify the unintended functions and 'real stories' of the tests. However, very little has been done so far to question the discourse of tests to uncover their power, unintended functions and consequences. At this point, in order to ensure the quality of those tests, it is certainly worth understanding what is meant by discourse of language tests.

2. Background of the Study

In the literature on language testing, one of the popular arguments is to define the quality of tests for good testing in modern societies. And much work has been done so far on constituting quality and good tests that measure knowledge, performance or skills of the individuals accurately. However, considering that tests can be utilized as tools for promoting certain agendas, in the last decades the critical movement in language testing literature aims to question the consequences and impact of language tests in their own discourse (Taylor, 2005; Shohamy, 2013). The current line of research is driven by the idea that tests are embedded in cultural, educational and political discourses that they are constructed, and thus proposes a new line of research questioning the discourses of tests. The earliest studies (Cronbach, 1988; Messick, 1989) done on this issue have evaluated the social sides of language tests by the term of validity, and are criticized due to not being able to move the discussion beyond validity and validation (McNamara & Roever, 2006). In order to go beyond this limited discussion on the social nature of tests, what is required is to identify the social discourse and use of tests from a social critical perspective (McNamara, 2008; McNamara & Roever, 2006).

That is why, Shohamy (2013) expresses that in order to judge the quality of language tests "not only by how well they measure the language knowledge from a measurement perspective, but rather by the motivations of introducing these tests by the educational policy agents, and the consequences that these tests lead to for individuals and groups" (p.226) must be taken into consideration. This means that the quality of tests is also related to their social discourses and dimensions. It is because tests are social and powerful tools serving influential functions in education and society. Indeed, the studies (Cheng, 2008; McNamara & Roever, 2006; Shohamy, 2001b, 2006, 2013) originated in this critical perspective aim to uncover not only the political and ideological intentions and motivations to introduce tests, but also their impact and consequences on individuals, institutions, schools and language and language education policies in various contexts. During the critical examination of tests, the vital point is to reveal their uses to understand their impact on various social, political, educational, ideological and financial circumstances. In the origin of this examination, the power relations need to be questioned because tests are representations of "unequal discourse, that of power" (Shohamy, 2013, p. 227). This means the discourse of tests manifests itself both in the power relations that are embedded in it and in the unintended functions of tests.

3. The Present Study

Viewed from a social perspective, our study which is descriptive and critical in nature relates tests close to their social dimensions and uses in their own discourses. More specially, focusing on describing the term of the *discourse of language tests,* this study contributes to understanding some other variables and dimensions that need to be included to improve the discourses and quality of language testing practices. By the way, the present study aims to

- go over the studies on a social perspective for language tests as social practice in the field of language testing

- introduce the description of *discourse of tests*
- describe what can be included in *discourse of tests*.

Based on those purposes, this study contains two sections and a concluding part. The first section offers some explanations on the starting point of the critical discussion on discourse of tests and highlights the term of test as social practice. The second includes the critique on discourse of tests by giving some details about its dimensions: power relations and functions of tests. In conclusion, some suggestions for test users to improve the discourse of language tests are provided.

4. Starting Points: A Social Perspective for Language Tests as Social Practice

In the 21st century, to outline the current critical movement on language tests, what is required is to "make possible an understanding of the role of language tests in enforcing particular policies and in maintaining the identities and power relations that are characteristic of modern societies" (McNamara & Roever, 2006, p. 40). Indeed, language testing research should have a more critical perspective that can gain the sight of more than a technical field. Thus, in the effectiveness argument, the primary assumption is to examine both their technical quality and functions and power of language tests in wider social relations so as to go beyond the traditional conceptualization.

With a stark contrast to traditional views of testing, some conceptualizations (Bachman, 2005; Filer, 2000; Kunnan, 2005; Lynch, 2001; Shohamy, 1998, 2001a, 2001b, 2007, 2013, 2017a) on the social functions and power of tests dominate reasonable grounds in the current critical movement in language testing literature. One of the crucial conceptualizations is *Critical Language Testing* (CLT). CLT associates tests with their uses in their social, cultural, educational and political contexts, and identifies their consequences, roles and impact on individuals from a more critical and broader perspective. To do so, what is highlighted in this critical perspective is not tests, but their functions and power relations embedded in their contexts (Shohamy, 1998, 2001a, 2001b). Thus, tests are not neutral acts, but products related to complex ideological, political, educational and cultural situations. Another one is the conceptualization of Filer (2000) based on the term of *sociological discourse of tests* critiquing the 'science' of language testing due to power and functions of assessment actions. Considering these two conceptualizations contributing to the development of the backbone of the current critical movement in language testing, it is possible to state that tests are social practices serving undeclared functions in their unique discourses (Karataş & Okan, 2021a).

In fact, regarding language tests as social practice has been a controversial matter. Here, p*ractice* means "the construction and reflection of social realities through actions that invoke identity, ideology, belief, and power" (Young, 2009, p. 1). This means that while performing a practice, individuals construct their own truth. Practice which is the performance of people in certain contexts can be related to all actions and activities of individuals. Social practice constitutes a stronger concept of 'practice' that includes "analysis of social structures to be brought into connection with analysis of social (inter)action" (Fairclough, 2010, p.172). Thus, a social practice is not only what is produced by the participation of all participants (Young, 2012) but also what constructs social identities and circumstances (Fairclough, 2010). This means language tests as social practice have the potential to represent individuals and the world by positioning people and events in their respective situations and discourses. In other words, they are "a set of calculative practices that actively produce the social and organizational realities we live in and which are in turn constantly altered and reproduced by being en-acted in everyday practice" (Jordan & Putz, 2004, p. 347)

Therefore, the core of the critical and social approach to language testing and assessment is to identify the functions and uses of language tests in their own discourses (Filer, 2000). This paradigm proposes a new research line conducting a critical evaluation of language tests in their own contexts to determine the power and uses (Shohamy, 2001b, 2013, 2017a; Young, 2012). Being committed to this new perspective on language testing regarding tests as social practice clearly means dealing with not only the relationship among language tests, social context, tests' consequences and power in the discourse of tests. The last is that language tests are related to their respective

discourses in social life; thus, they are not isolated. Tests need to be evaluated critically considering their strong effects on different social dimensions other than the declared intentions (Shohamy, 2001b, 2013). This means tests as social practice are associated with the identification and construction of individuals, society and discourses.

5. The Discourse of Language Tests

Here, the term of *discourse* generally refers to "a way of talking about a matter that frames what can be said about it" (Filer, 2000, p. 2). Discourses are highly associated with the ways of interacting, understanding, behaving, reacting, thinking, valuing, believing. This means "discourses are ways of being 'people like us.' They are 'ways of being in the world'; they are 'forms of life'; they are socially situated identities. They are, thus, always and everywhere social and products of social histories" (Gee, 2008, p. 3). In the extended meaning of *discourse*, it involves "societal meaning-making systems such as institutional power, social differentiation of groups, and cultural beliefs that create identities for individuals and position them in social relationships" (Young, 2009, p. 2). *Discourse* speculates on some outcomes, use and functions of social practices. It is due to the fact that the social practice approach is grounded in insights concerning discourse and social realities constructed within the discourse. Discourses can operate to sort, identify and represent individuals and society at large (Gee, 2008).

Therefore, the matter prioritized within the discourse of language tests is mostly based on detecting the impact and consequences of language tests. The major argument is to identify and question the use of those tests in relation to their "broad societal realities, ideologies, politics, economics, policy agendas, and diversity" (Shohamy, 2013, p. 226). Additionally, in the construction of discourses, language tests as social practice have great potential to result in profound social, intellectual, political, financial, emotional and ideological modifications in the individuals and the society at large (McNamara, 2001). Hence, the discourse of these tests should be clarified in terms of these shifts (Shohamy, 2001b). To uncover these shifts, the roles and responsibilities of all stakeholders in discourse of tests must be clarified in relation to societal, political, financial, ideological and educational consequences (Shohamy, 2013). Language tests involve three main agents: tester, test takers and the stakeholders other than testers and test takers. Each of those agents can have a variety of roles and interactions in the discourse of tests (Karataş & Okan, 2021a). That is why, one of the major issues that can be discussed in testing discourse is the power relations among these three main agents. It is because the power of tests manifests itself by the power relations among different stakeholders in the discourse of tests.

In addition to power relations among the main stakeholders, another issue prioritized within the discourse of tests is to think over the functions, uses and outcomes of tests. At the centre, there are diverse outcomes and consequences of language testing practices other than the ones defined in their intentions (Shohamy, 2009). The declared intentions and undeclared consequences need to be compared in order to understand the real uses and functions of tests. In order to ensure the quality of tests, their undeclared use and functions should be highlighted. It is because tests can have a wide range of functions significantly influencing the lives of individuals and society. Additionally, using the test results for decision making, tests might have impact on the social systems they take part in (Saville & Khalifa, 2016). Thus, the last decades have changed the way how functions of language tests have been understood. Indeed, language tests are not only tools to measure language knowledge, performance or proficiency, but also instruments to serve various functions other than intended in their respectful discourses including hidden power relations.

5.1. The Power Relations in Discourse of Language Tests

Here, *power* cannot be simply expressed in a single definition, but can refer to social control, dominance and limit exercised by one group over the actions, knowledge and minds of another group. It represents a usual property of relationships among social groups, institutions and organizations, often causing social inequalities. Power shows itself in relationships and interaction. This means power is a form of social control based on socially valued resources (van Dijk, 2008). In most cases, power is used to control the access to precious social benefits such as jobs status, identities and the like. It is a key concept in various social contexts because it acts as a type of relation

between people and a complex issue that shapes others' minds, behaviors and actions. In fact, power can manifest itself in various practices and contexts.

Tests are among such social practices in the discourses of which power mechanisms and relations among three main stakeholders are at work. (Karataş & Okan, 2021a). In most testing discourses, testers or test creators are the first groups including everyone who contributes to the practice of testing. In most testing discourses, those who hold power are testers who have the right to keep the gate through controlling what, how, why, when, and whom to test. Testers pose questions, demand answers and set procedural rules. Thereby, tests have the potential to function as powerful tools to legitimize the desires and expectations of testers. In such discourses, what is expected from test takers who constitute another group in testing discourses is to provide answers and engage in performances that match testers' demands and expectations. Due to attaching great meaning to the doors that can open with doing well in tests, test takers have no other choice but to accept and comply with the agendas, demands and rules of tests. Test takers need to change their behaviors and attitudes along the demands of tests in order to maximize their scores. It was one of the unintended consequences of tests. The shifts in test takers' behaviors and attitudes are a set of the variables that contribute to the construction of the power of tests in the respective testing discourses (Young, 2012). High-stakes implications of tests, power of tester and the meaning attributed to tests by test takers result in the power of tests. Tests having such potential to change behaviors and attitudes of individuals, are nothing new to education, but they are not being questioned by many people. Thus, the others rather than testers and test takers also might make contributions to the development and continuity of tests' power by attributing unchallenged meaning and trust in the results of tests. They expect test takers to comply with the rules and standards set by testers and achieve the knowledge skills and proficiency required by the tests. In such testing discourses, they even judge test takers in accordance with whether they do well or bad in the tests. Therefore, test takers start to regard tests as tools not only to explain themselves to the others in the society but also to form their identities in societies. These power relations embedded in testing discourses make language tests become powerful tools serving various unintended functions (Karataş & Okan, 2019, 2021b).

Considering the power of tests emerging due to the described relationships, it is possible to state that tests as social phenomena are embedded in disciplinary power (Löwenheim & Gazit, 2009, Shohamy, 2001b). In modern societies, tests as social practice are important tools for the construction of power relations. This power is not something that can be a resource of some people, agencies or institutions. In fact, power is the result of "an ongoing relationship that is embodied, produced, and reproduced in various practices and regimes of truth, and these operate within a structure that includes agents who seek to control and construct individuals and populations, as well as those who are controlled and constructed" (Löwenheim & Gazit, 2009, p. 147). Thus, within social contexts, individuals are subjected to this power through the use of some powerful tools like language tests (Foucault, 1995; Shohamy, 2001b). This means understanding the power relations can show how the subjectivity of individuals are constructed and produced.

5.2. Functions of Language Tests

Tests holding power as expressed above might have severe, life-changing, high-stakes and life-ending consequences for individuals and society at large (McNamara & Roever, 2006). When the intentions of tests and uses of tests are compared, it implies that tests are introduced for various functions as stated above. In education systems, the deliberate use of standardized language tests is to collect evidence concerning individuals' language proficiency, performance or knowledge, but language tests might have the potential to change the form and content of the curriculum, pedagogy and evaluation as de facto policies (Menken, 2017).

In addition to such educational functions of tests, in the discourse of tests, they can serve political, financial, ideological and social functions in modern societies. Standardized language tests as one of the central practices of social life can have the power to make the sense of determining social, political and financial realities in the society. So, it necessitates the sociological analysis of language tests as social policy (Broadfoot, 1996; Shohamy, 2001b, 2007).

5.2.1. Educational Functions of Language Tests

Traditionally, the educational outcomes and consequences of tests were defined with the term of *washback* (Hughes, 2003). However, the last decade changed the way the educational functions of language tests have been understood. When the educational functions of tests have been identified, we should bear in mind that language tests are not only tools to measure language knowledge, performance or proficiency, but also instruments embedded in educational settings. Viewing from the current critical perspective on language tests as social practice, the educational experiences of individuals might include numerous high-stakes which are too strong to confine into *washback*. When education system is very test-oriented, standardized language tests held by the powerful body to get some educational outcomes like a license to practice a profession, a job, an entry to tertiary institutions or a diploma a scholarship etc., can have great potential to result in life-changing consequences on the part of test takers. In some cases, individuals constantly prepare for specific standardized tests to have better educational, social or financial circumstances at every level of their education lives. That is why, teachers are expected to prepare their students for tests because in most circumstances how well students perform on the tests might be utilized to determine the performance and effectiveness of the students, teachers and even schools. Thus, "high-stakes tests act as de facto language education policies" (Menken, 2017, p. 387). This means language and language education policies are implicitly embedded within language tests that shape what is happening at the classroom level (Menken, 2008, 2017; Shohamy, 2001b).

Considering the educational functions constituting one aspect of the discourse of language tests, they provide samples of how tests are closely associated with a shift in the educational system. Though language test takers take tests for a variety of purposes, what tests have in common in terms of their educational functions is that they can be used for life-changing decisions. After all, in most cases language tests are capable of creating a modification in the behaviors and attitudes of individuals who make special preparations for tests by covering specific contents and materials included on these language tests. In addition to imposing specific test knowledge, teachers might feel forced to engage in teaching 'test-like' materials and questions in the classroom to make the test takers prepare for these language tests. At this point, these tests hold the power to influence what happens in language classrooms. Those tests can create classes limited to the knowledge, skills and areas included in the tests and even affect the methods and pace of teaching language. For example, if language tests do not offer any sections, knowledge, skills or items for speaking, writing and listening, but grammar, vocabulary and reading with multiple choice question types, test takers tend to ignore the social use of language and follow traditional psychometric methods of measuring isolated pieces of grammar and vocabulary knowledge. Thus, considering the potential of tests to serve educational and national policy as *de facto policy*, it is vital to contextualize language tests in relation to educational language and language education policies by demonstrating how these language tests might be used as de facto language policy. It is because "the messages that are delivered via the testing policies enable testers to use the testing tools to shape language policies in terms of language teaching, learning and language priorities" (Shohamy, 2013, p. 229). This means tests can be used to trigger the system without the need to introduce changes in language and language teaching policies and curriculum by popularizing tests- like teaching and narrowing the curriculum to basic skills and knowledge with demands of tests. Additionally, the knowledge, skills and questions comprising language tests can give various implications about what learning, teaching, language are (Shohamy, 2017b, p. 585). Thus, in education context language tests can be regarded as de facto curriculum and policies (Menken, 2008; Shohamy, 2001b, 2017a).

5.2.2. Social, Ideological, Political and Financial Functions of Language Tests

In addition to the educational functions of language tests, they might serve some political, ideological, financial and social functions, which is among the hot point issues in the discussion of the discourse of language tests. It is due to the fact that some social, political and financial values, knowledge, agendas and ideologies might be embedded in language tests. Ross (2011) states that "different constituencies and stakeholders such as immigrants, government bureaucrats, politicians, citizens, teachers, parents, industrialists, publishers, and examination makers all play a role in influencing language education and language assessment policy" (p.786). Thus, apart from the educational functions of standardized tests, these language tests seem to have profound influences at macro level.

In some cases, these tests might be the sole indicators of language knowledge, skills and proficiencies of individuals. Therefore, these tests are utilized to classify and select people for certain jobs and education chances by stipulating criteria for success and failure of individual test takers. That is why, their results might have detrimental effects because of labelling and judging individuals "winners and losers, successes and failures, rejections and acceptances" (Shohamy, 2001c, p. 113). Even these tests have the potential to be regarded as the symbols of worth, quality and value. These tests have the potential to affect and change test takers' lives for good or for bad. Not only test takers but also teachers, parents and the system itself can be judged by the very performances of the test takers on these tests. Thus, the messages delivered via the results of the tests have a strong impact on the identity of individuals. Thus, Douglas (2010) expresses:

> Tests represent social standards and values determining who shall be allowed to teach, who shall be admitted to educational opportunities, who is making progress in learning, who shall be deemed to have completed educational requirements, and which schools are meeting established standards. Tests in schools clearly serve social, cultural, and political goals (p. 285).

In fact, tests might offer social policy by creating pressure and control; thus, individuals do change their behaviors to maximize test scores. In some discourses, people might deliberately take certain actions and make fundamental changes in the way they perceive themselves and the world along with the agendas included in those tests to get the benefits associated with test results. Tests might also influence their mind including their personal and social knowledge, opinions and social attitudes, ideologies, norms, values and culture. At this point, tests turn into social tools not only structuring modern societies by working for transformations of individual subjects but also capturing the embeddedness and invisibility of the issues of language, culture, race, gender and class in their testing discourse. Indeed, tests can implicitly define and construct a singular and standardized knowledge, culture, ideology and value. Additionally, in some circumstances, by excluding the ones who do not meet singular and standardized perspective criteria embedded in tests they serve gatekeeping functions. Individuals' performance on a test can facilitate or hinder getting access to some various social domains such as education, workplace, institutions, profession. As gatekeepers, tests have the potential to observe, screen and standardize the population. In addition, in some discourses, language tests can promote the prestige and the status of languages in society and determine language priorities, language correctness and language status. Thus, in the discourse of language tests the functions of language tests such as social construction, discrimination, differentiation, judgments, punishment, classification and surveillance etc. must be questioned.

Additionally, in some discourses tests can be linked to different types of financial and political consequences and outcomes. Considering the financial issues embedded in the testing discourse of some language tests, a kind of financial marketing has come out to serve the needs of individuals to maximize their scores. In order to improve the results and scores, individuals spend money to take private tutoring and get some test-like teaching materials to be prepared for taking these tests. In addition to financial dimensions of testing discourses, some tests might be associated with the achievement of specific political actions and goals. Therefore, language tests as political instruments connected to political variables can have a strong impact on education and social order. If tests are introduced as acts of political struggle, they have the great potential to become political subjects in a political context. In such testing discourses, tests as powerful tools affecting language learning and the lives of individuals can be driven by complex political realities and controversies.

6. Conclusion: Suggestions for Improving the Discourse of Language Tests

This study is likely to convince test users – testers, test takers and the others- to question the discourse of language tests by adapting some critical perspectives to eschew high-stakes implications and functions of tests. In the spirit of this new critical perspective on language testing, the main focus is the attempt to achieve a holistic understanding of the discourse of tests originated from their use as social practice. Hence, the argument made above on discourse of tests can be conceptualized within language tests as social practice. The critical approach to language testing is primarily driven by the critical examination of the use and functions of testing practices in their own social and cultural contexts (McNamara & Roever, 2006; Shohamy, 2001b, 2013; Young, 2012). To do so, the new perspective heavily insists on investigating the social dimensions of tests in their own discourses to discuss

their social and socially constructed natures. To do so, "the purpose is not to eliminate tests but rather to see the values behind them as well as their hidden agendas in the area of accountability and the learning of languages and to reflect perspectives of languages in this day and age" (Shohamy, 2017a, p. 451). In fact, understanding the hidden policies, ideologies and power embedded in the discourse of tests is vital for the improvement of tests' quality. It is because of the growing tendency to use language tests as social fabric and policies for the exclusion of some certain knowledge, individuals, values and ideologies, but also legitimizing the others. As Shohamy (2017b) states "tests serve the system; they are not based on how languages ARE used, but on how some think they SHOULD be used" (p. 591). Deeply bound with this tendency, it is possible to state that tests as powerful practices might explicitly or implicitly serve some functions causing various severe and profound impacts on systems. Additionally, tests might bring about rapid and profound change in individuals and society (McNamara, 2001).

As a conclusion, based on the tenet of the critical perspective on language testing regarding tests as socially constructed phenomena, here are some suggestions for test-users to understand and improve the discourse and quality of language tests. First, we need to critically question the uses and functions of tests and the power relations embedded in testing discourse. To do so, it is possible to ask some questions such as what do tests test (knowledge, proficiency, constructs, etc.), does test reflect the current and updated understanding of what is being assessed, how are tests being used, is the test used for regulating, competition, individual control, system control, operation of power relations, knowledge control, system control or gate-keeping function etc. The point is not only to question explicit and implicit reasons, intentions and agendas for introducing tests, but also to be aware of their consequences. Thus, the second suggestion is that to understand the existence of the power of tests in their discourses, test users need to pay attention to the interpretations, comments and experiences of the other stakeholders (Shohamy, 2001b). The third is to increase test users' awareness and social reflexivity in terms of the effect of tests to determine their subject positions in the discourse of language tests. It is because of the fact that for the sake of objectivity, tests might be used as powerful and disciplinary tools to place subjectivity of individuals in a field of surveillance (Foucault, 1995). Thus, the fourth suggestion is to revise testers' roles and responsibilities by asking them to investigate the unintended consequences that tests lead to for individuals and society at large. Testers should guide testing discourses by setting rules and standards that can minimize the misuse of tests and avoid falling into power mechanisms. The last and foremost suggestion is to change the way tests are used to set equal and balanced power relations among the stakeholders for the purpose of democratic testing discourses.

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Problems and Needs Analysis of English for Tourism Industry: A Case of Hotel Staff in Phang Nga Province, Thailand

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Abstract
Tourism is an important industry that has created a lot of income for many nations, including Thailand; therefore, it is essential to increase its potential as a more sustainable and successful industry, in particular to support a sustainable recovery of nations' economies after a tough situation like Covid-19. The present study was carried out to investigate tourism staff's problems and needs for using English at work and to explore their needs for improving English for their work. The participants were 200 hotel staff in Phang Nga Province, Thailand. Data were collected through a 5-point Likert scale questionnaire and a semi-structured interview. Quantitative and qualitative methods were employed for data analysis. The findings showed that in general, the hotel staff's problem in using English at work was at a moderate level (M=2.76, S.D.=1.11). They had English writing problems the most. They found it very difficult to write letters or e-mails in English. Regarding their needs for using English, it was found that every English skill was rated at a high level (M=3.75, S.D.=1.11), and English speaking was the most necessary. The hotel staff reported that they had to speak English to welcome, greet and say good-bye to foreign guests. Pertaining to their needs for improving English, overall, the hotel staff needed to improve their English skills at a high level (M=3.85, S.D.=0.98). They highly needed to improve their English use in every aspect, especially English listening. Based on the interview information, English courses, handbooks or applications relating to English for hotels are truly needed for their English use improvement.

Keywords: English Skills, Hotel Staff, Needs, Problems, Tourism

1. Introduction

The tourism industry is an important industry that can create a lot of income for many nations. It is a significant sector that helps build the growth of countries' economies which can lead to a sustainability and prosperity of those countries, and this is no exception for Thailand since the country has greatly benefited from its tourism industry. Thailand is one of the top 10 most visited destinations by international tourist arrivals (Industrialnews,

2020; Wikipedia, 2021). This is because every region of Thailand has outstanding sites that can attract foreign tourists, such as mountains, waterfalls, beaches, and cultural sites.

The south of Thailand is a region rich in fertile natural resources. Consequently, various types of natural tourist attractions are located here. Provinces in the south of Thailand like Phuket, Krabi and Suratthani are very famous to foreign tourists. Every year thousands of them visit those provinces. Among those famous provinces in the southern part, Phang Nga is an outstanding one. Many places in Phang Nga, such as Khao Lak, Similan Islands and so on, are famous for their uniqueness (Phang Nga Statistical Office, 2017). These tourist attractions have gradually created income and have ultimately made Phang Nga an important province generating a lot of income for Thailand. Phang Nga has been ranked the sixth most visited province in Thailand by foreign tourists (Thansetthakij, 2019). Due to this popularity, the number of foreign tourists visiting Phang Nga is continually increasing. It is, therefore, essential to develop the potential of the people who work in tourism, particularly their language proficiency as this skill is very crucial for effective international communication.

Although the tourism industry in Thailand has been thriving for an extensive period of time, and many efforts have been made to promote the tourism industry, problems pertaining to the incapability of people who work in this sector still obviously exist. Among those problems, an inadequate English ability is observable. The existence of problems in English use and tourism personnel's language insufficiency can be seen in various areas of Thailand tourism, such as food business (Pochakorn & Homhual, 2018), transportation business (Srichaiwong & Chantarawiroj, 2018; Thongsai & Sittipragan, 2019) and accommodation business (Kalasin & Charumanee, 2015; Yutthapirut, Akkarathanawayamon, & Chusai, 2016; Chaichana, Cheawchan, & Thongnen, 2017; Kamwiset, 2017). Moreover, despite an effort to equip people in the tourism industry with the knowledge of various languages, such as Chinese, it is noticeable that English is still the most important and essential language in this sector. Hence, everyone who would like to work or has already worked in this industry tries to develop their English ability for more success.

Phang Nga was chosen for this study because insufficient English proficiency of people who work in Phang Nga tourism has been noted in the development plan for the Andaman coastal provinces in Thailand during 2018-2021 as an important problem that must be solved urgently (The Office of Strategy Management, Andaman, n.d.). Furthermore, Phang Nga has launched the campaign "Phang Nga Prompt," which is a campaign to promote its tourism for the recovery of Thailand's economy (National News Bureau of Thailand, 2021), it is essential to strengthen the people's English proficiency in this industry. Among businesses relating to tourism, the accommodation business is considered important (Wiriya, 2017). If people working in this area are able to use English effectively, it is possible that the management of the business will be successful. A development of the English skills of hotel staff may help increase their confidence and thus can improve the potential of Thailand's tourism industry. In addition, according to the information obtained from some hotel staff working in Phang Nga, it can be concluded that hotel staff still have English communication problems at work although they have worked in this business for a certain period of time; therefore, examining their problems and needs of English use necessary for their work can be very helpful.

Most of the research studies concerning hotel service usually focus on a study of problems and needs of staff who work in the front office section. The present study, hence, investigated problems and needs of the hotel staff from various sections in order to explore whether or not staff from other sections have problems and needs for using English when they are at work. Additionally, as mentioned earlier that Phang Nga tourism needs people with language ability to fulfill its tourism success, this research study was then carried out to examine problems and needs pertaining to the English use of personnel working in Phang Nga tourism. The present study focused on studying the problems and needs of staff working in 1-3 star hotels in Phang Nga since this group of people may lack an opportunity to improve their English proficiency. The results from the study can be used for finding effective methods to develop and prepare these people for the reopening of Thailand tourism. Moreover, the findings can serve as a guideline for developing courses and teaching materials with regard to English for the hotel business and other related fields.

2. Literature Review

The hotel business is one of the industries very important to the success of the tourism industry. Good and effective service provided by people working in hotels can impress foreign tourists. This can result in generating a lot of income. However, findings from a number of studies indicate that the hotel business cannot be fully successful when the people in this business lack language skills, in particular the English language, which is necessary for providing good and effective hotel service. Therefore, studies on problems and needs of English use of people working in this area are necessary since they can help provide precise solutions to the problems. Several studies, hence, were conducted with the objectives of searching for problems encountered by people working in the hotel business and their needs of English use. Some studies can be viewed below.

Kalasin and Charumanee (2015) studied hotel front desk staff's needs for using English. 315 hotel front desk staff in Phuket Province, Koh Samui and Hatyai District participated in a questionnaire session, and 16 hotel front desk managers joined in a semi-structured interview. From the findings, the four English skills were highly needed. Considering each area, it was found that hotel staff who worked in Phuket and Koh Samui needed to use English at work more than those in Hatyai at the 0.05 statistical significance level because most of the foreign tourists used English.

Similarly, Yutthapirut et al. (2016) explored problems in using English at work of hotel front desk staff in Phuket Province. In general, it was found that the hotel front desk staff moderately had problems in using English. A deep analysis revealed that the different educational backgrounds and work experience of the hotel front desk staff caused them to have different levels of problems.

Chaichana et al. (2017) carried out a study using a questionnaire to examine foreign tourists' attitudes toward hotel front desk staff's English communication problems in Nan Province. The samples of the study consisted of 30 foreign tourists. Based on the results, the foreign tourists thought that the hotel front desk staff in Nan Province had high-level problems in English communication. The hotel front desk staff were seen not being able to use correct English on telephone communication, and they were not able to give information about their hotel and tourist attractions in Nan Province. In addition, their English sentences were incomplete, and they failed to understand English spoken by foreign tourists.

In the late 2010s, Prachanant (2018) studied problems in communicating English of hotel staff in order to find proper solutions. The samples of the study were 150 hotel staff in Buriram Province chosen by convenient sampling. A questionnaire was used to collect data from 150 hotel staff, and 20 of them took part in a semi-structured interview. It was found from the findings that hotel staff had problems in listening to English the most. They reported that they were not able to understand the different accents of foreigners from different countries.

Through a questionnaire, Firharmawan and Andika (2019) conducted a survey on the needs and problems of hotel staff when they had to use English for communication. The samples were 20 hotel staff from Meotel Hotel in Indonesia. The findings showed that the hotel staff agreed that English speaking, listening, reading and writing were essential for effective communication. Pertaining to problems in using English, the hotel staff mentioned that their knowledge about English grammar and vocabulary was very limited, so they could not understand foreigners' spoken English.

Kijpoonphol and Linh (2021) explored the need for using English of hotel receptionists in Ubon Ratchathani Province. 16 hotel receptionists, 16 foreign hotel guests and 10 hotel managers participated in the data collection session. Four sets of instruments comprising a self-assessment form, a questionnaire, a needs survey form and a semi-structured interview were used to collect data. From the data analysis, it was found that the hotel receptionists needed to improve their English listening in certain topics, such as guests' requirements and information, their accents and guests' problems. English speaking was also found to be a skill that needed urgent improvement. Based on the findings, the hotel receptionists had to improve their English in greeting and welcoming guests, giving information about hotel rooms and facilities, and recommending tourist destinations and local food.

It can be concluded from the studies above that problems and needs regarding the English use of hotel staff are vital in that they can be great sources for finding appropriate solutions for people working in this area. However, it is noticeable that participants in most of the studies were front desk staff. The present study, hence, would like to investigate the problems and needs of hotel staff working in various hotel sections, not just in a front desk office.

3. Objectives of the Study

The present study was carried out with three objectives which were:
1. To study problems in English use encountered by hotel staff in Phang Nga Province, Thailand.
2. To explore their needs for English use necessary for their work.
3. To investigate their needs for improving their English use at work.

4. Methodology

The present study was a survey research that employed a combination of quantitative and qualitative methods.

4.1 Population and Samples

The population in this study were hotel staff working in 1-3 star hotels in Phang Nga Province, Thailand, ranked by Agoda 2020. The samples of the study were 200 hotel staff working in the mentioned hotels by means of the simple random sampling method. These 200 hotel staff were asked to complete a 5-point Likert scale questionnaire aiming to explore their problems and needs of English use at work as well as their needs for English improvement. 50 out of these 200 hotel staff were further interviewed to get in-depth information about problems and needs of English use, including their needs to develop their English skills.

4.2 Instruments for Data Collection

Two types of instruments were employed to collect the data.

4.2.1 A questionnaire used in the study was adapted from the ones used in the studies of Kalasin and Charumanee (2014, 2015) and Pochakorn, Chantarangkul and Sermsook (2018). It consisted of three parts. The first part focused on hotel staff's personal information, including gender, age, educational background, their workplace and working information, and their English use and English ability. The second part was composed of 5-point Likert scale items relating to hotel staff's problems and needs for the four skills of English used at their workplace. The third part also employed 5-point Likert scale items inquiring about hotel staff's needs to develop their English ability necessary for their work. In this final part, there were also four open-ended items used to let the hotel staff freely express their needs for developing their English listening, speaking, reading and writing skills. Prior to a real distribution of questionnaires to the participants, a questionnaire was verified by three experts to check its content validity through IOC (Index of Item-Objective Congruence), and the IOC value of the questionnaire was 0.98. Moreover, some questionnaires were distributed to 20 hotel staff who were not the participants of the present study. Through the method of Cronbach's alpha reliability, the 20 sets of questionnaires were tested, and the reliability value of the questionnaire was 0.96. These two figures indicated the high validity and reliability of the questionnaire used in the present study.

4.2.2 A semi-structured interview was also employed to obtain in-depth information. The questions for the interview were as follows:

1. Do you have problems in using English at work?
2. What English skill is the most problematic?
3. What English skill is the most necessary?
4. Would you like to improve your English use?
5. How do you think can help improve your English?

These five questions were also verified by the three experts to check their validity and appropriateness.

4.3 Data Collection Procedure

The data collection of the present study comprised two stages.
Stage 1: At each hotel, after getting permission from the manager, questionnaires were distributed to hotel staff. They were given some time to complete the questionnaires. After that, all of the questionnaires were collected by the researchers.
Stage 2: After each hotel staff completed the questionnaire, the researchers asked for interview permission from each hotel staff. Only hotel staff who were available for an interview joined in this stage. The answers from the interview were recorded for further interpretation.

4.4 Data Analysis

The analysis of data was conducted according to the information styles in each part of the questionnaire.
Hotel staff's personal information in the first part of the questionnaire was analyzed using frequency and percentage. Problems and needs of English use and their needs to develop their English ability from the second and third parts respectively were analyzed to obtain means and standard deviations. This information type was later interpreted according to its type as follows:

4.51-5.00	The highest	
3.51-4.50	High	
2.51-3.50	Moderate	
1.51-2.50	Low	
1.00-1.50	The lowest	(Cheenatrakoon, 1995)

Lastly, the information from the third part of the questionnaire in the form of open-ended style questions and information from the semi-structured interview was categorized, interpreted and analyzed through content analysis.

5. Results and Discussion

200 hotel staff consisted of 73 males and 127 females aged between 17 and 62 years old. The biggest part of them (41.50%) held a bachelor's degree. Most of them (31.50%) have had 3-6 years of work experience in the hotel business. Regarding the work section, most of the hotel staff (45.31%) worked in the front desk office, followed by the food and beverages (21.88%) and housekeeping section (17.19%). 105 of them reported that they had to use English every day, but most of them accounting for 45.50% rated their English ability at a fair level. The information from these 200 hotel staff was analyzed and illustrated in accordance with the research objectives as follows:

5.1 Problems in using the four skills of English at their workplace

Table 1: Hotel staff's problems in using the four skills of English

English Skills	*M*(*SD*)	Levels of Problems
Listening	2.77(1.08)	Moderate
Speaking	2.76(1.10)	Moderate
Reading	2.72(1.10)	Moderate
Writing	2.81(1.14)	Moderate
Total	2.76(1.11)	Moderate

The analysis of the information revealed that overall, the hotel staff had a moderate-level problem in using English at work (M=2.76, S.D.=1.11). Considering each skill, the moderate level of the problem was found in every skill of English, and they had English writing problems the most (M=2.81, S.D.=1.14). They found it very difficult to

write letters and emails in English. This finding lends support to Kalasin and Charumanee (2014) and Yutthapirut et al. (2016) whose findings reported that the hotel staff in their studies also moderately had problems in using English. However, their participants marked speaking English as their biggest problem. This difference may be due to the fact that the types of hotel staff in the present study and the previous ones were different. The ones in the present study were the staff from every hotel section, but the ones in Kalasin and Charumanee's (2014) and Yutthapirut et al.'s (2016) were only front desk staff. A reason for this difference is that English speaking and listening skills were frequently used by the hotel staff. Though they encountered problems, they could overcome them because they had opportunities to speak and listen to English. However, for writing, they only had limited chances to use it, so the hotel staff found it hard. Some of them who worked in a reservation section and a management section needed to write emails or reports in English. This is supported by the findings of Ingwersen (2019), which pointed out that people working in a management section often had problems when they had to write in English. The interview information confirmed these findings in that the hotel staff mentioned that they were not able to write grammatically correct sentences because of their deficient English grammar and vocabulary knowledge. This finding was in line with Pochakorn et al. (2018), who reported that their participants faced problems in English writing due to their inadequate grammar and vocabulary knowledge. The findings from the present study and the previous ones point out that grammar and vocabulary are important for creating English sentences for effective communication. As a result, having hotel staff be able to use grammatically correct sentences and correct vocabulary should be taken into account.

Regarding problems in English listening, the hotel staff was not able to understand different accents of foreign customers, especially those with a British accent. This finding can also be found in the studies of Kalasin and Charumanee (2014) and Prachanant (2018). Being able to understand various English accents needs a lot of practice and familiarity; consequently, it is difficult for Thai people to be successful, as claimed by Chumchaiyo (2002). An important point that can be drawn from this finding is that English is an important language in the tourism industry since it is the main language for cross-cultural communication between hotel staff and foreign customers. Therefore, training hotel staff to listen to different English accents is definitely necessary because foreign customers usually use English.

Pertaining to speaking skills, it was found that the hotel staff could not speak English correctly as their sentences were ungrammatical and sometimes resulted in foreign customers' misunderstandings. This finding agrees with the one conducted by Pochakorn et al. (2018,) who reported that English sentences spoken by their participants had some grammatical errors. Ungrammatical English sentences are common mistakes made by Thai people as confirmed by a number of scholars whose studies relate to English errors made by non-native English speakers. Consequently, grammar is still necessary in order to convey the correct meanings of English sentences for effective communication.

English reading was the least problematic skill for the hotel staff. According to the analysis, the hotel staff failed to understand maps and announcements in English the most. This finding differs from those in previous studies, which reported that their participants usually had problems in reading work instructions. It can be concluded from the interview information that the hotel staff rarely read these types of texts, so it was more difficult for them to understand in comparison to other texts types, such as work manuals. Therefore, it can be helpful to have hotel staff get familiar with maps and announcements so that they would be able to assist foreign customers when they need help.

In sum, though the hotel staff's problems were at a moderate level, it cannot be denied that English use improvement is necessary for them to provide a more effective and successful hotel service.

5.2 Needs for using the four skills of English at the workplace

As Phang Nga has been one of the popular destinations for foreign tourists, hotel staff's ability to use correct English is necessary. The results from the questionnaires illustrated in Table 2 can confirm this.

Table 2. Hotel staff's needs for using the four skills of English

English Skills	*M*(*SD*)	Levels of Needs
Listening	3.79(1.07)	High
Speaking	3.86(1.07)	High
Reading	3.69(1.13)	High
Writing	3.67(1.15)	High
Total	3.75(1.11)	High

In general, need for using English at work of the hotel staff was at a high level (M=3.75, S.D.=1.11). The participants of the study reported that they had to use every skill of English at a high level. This finding supports the finding from Kalasin and Charumanee's (2015). The information analysis showed that among the four skills, English speaking was the most necessary (M=3.86, S.D.=1.07). Kalasin and Charumanaee (2015) and Firharmawan and Andika (2019) also reported this in their findings. A deep analysis revealed that the hotel staff had to speak English in order to welcome, greet and say good bye to their customers. This is supported by Piriyasilpa (2014) and Kijpoonphol and Linh (2021) who reported that the hotel staff in their study needed to improve their English for welcoming, greeting and saying good bye as well because these three activities are very first and basic activities that can impress foreign customers (Wiriya, 2017; Sahawatthanapong, 2018).

Listening to English was the second mostly-needed skill with the mean score of 3.79 (S.D.=1.07). The hotel staff needed to listen to customers' requests, questions and doubts, for example, asking about room details and prices or directions. Kijpoonphol and Linh (2021) also found this in their study. To be able to answer customers' questions or doubts is considered common for hotel staff as mentioned by Kamwiset (2017). Therefore, it is necessary that hotel staff be prepared with the English knowledge necessary for their work.

English reading skill was less needed compared to the above-mentioned two skills with the mean score of 3.69 (S.D.=1.13). The hotel staff needed to read emails and documents relating to room reservations. This finding can also be found in the study of Kalasin and Charumanee (2015). It can be concluded from this finding that understanding customers' details from reading is a very first and essential skill for working in the hotel business as mentioned by Kamwiset (2017).

Although English writing was needed the least (M=3.67, S.D.=1.15), it is important since the hotel staff mentioned in the semi-structured interview session that they needed to write messages spoken by foreign customers and to fill up forms for customers. Kalasin and Charumanee (2015) and Kamwiset (2017) also pointed out that English writing skill, such as note taking and form filling was extremely necessary for an effective hotel service.

To conclude, every skill of English is very important and necessary for people working in the hotel business. The level of needs and importance may vary depending on the work types; nevertheless, it is necessary that hotel staff are equipped with English knowledge essential for their work.

5.3 Needs for developing their English use at work

Hotel staff's needs for their English use improvement are considered important because it can provide precise information for finding an effective and right solution. The present study, hence, sought for this information as shown in Table 3.

Table 3: Hotel staff's needs for developing English use at work

English Skills	*M*(*SD*)	Levels of Needs
Listening	3.95(0.91)	High
Speaking	3.89(0.97)	High
Reading	3.82(0.93)	High
Writing	3.84(0.99)	High

Related-to-work vocabulary	3.91(0.93)	High
Grammar usage	3.81(1.02)	High
Correct pronunciation	3.83(1.05)	High
Appropriate tones	3.77(1.01)	High
Total	3.85(0.98)	High

Based on the questionnaire results, it was found that the hotel staff needed to develop their English ability at a high level (M=3.85, S.D.=0.98), and they would like to develop every English skill at a high level. This finding agrees with those from a considerable number of studies that reported that their participants would like to develop every English skill at a high level (Thanwapitak, Nilmanee, & Poonkaew, 2013; Pochakorn et al., 2018; Kijpoonphol & Linh, 2021). Considering each skill, the hotel staff wanted to improve their English listening the most, followed by English speaking. This discovery is also in line with the one from the previous studies (Thanwapitak et al., 2013; Firharmawan & Andika, 2019; Kijpoonphol & Linh, 2021). The information from the interview and the open-ended questionnaires also agree with these findings in that the hotel staff reported that they wanted to improve their English speaking and listening. An interesting point that can be drawn from these results is that English listening and speaking skills are considered essential for hotel staff since they are skills which hotel staff have to perform at a time once they need to deal with foreign customers within a little or no time of preparation in a face-to-face communication as pointed out by Aunruen (2005) and Dejkunjorn (2005). Therefore, the hotel staff would like to improve these two skills once they had a chance. Additionally, English vocabulary and grammar are other issues that cannot be overlooked since the hotel staff mentioned that they were of importance for their effective and correct English use. Moreover, the ability to use correct pronunciation and proper tone is also vital because these two things are able to make them be more professional English users. This finding agrees with Hymes (1972), who mentioned that being able to pronounce English words correctly in a natural tone can lead to more effective and successful communication in English.

To ensure the information about the hotel staff's needs for developing their English use at work, a semi-structured interview was carried out in order to cross-check the obtained information, and the information from the interview was consistent with the one from the questionnaires in that the hotel staff said that they highly needed to improve their English use though they used it every day at work because they thought that their English was not good enough, and they wanted to improve it in order to use English more confidently and effectively. Although they had a limited chance to use English after the explosion of Covid-19, they mentioned that they still had to practice using the four skills of English in order to prepare themselves for the reopening of international tourism. They, therefore, proposed that they wanted concerned parties to organize English courses taught by native English speakers since they believed that they could get familiar with English and be more confident when using the language. Furthermore, handbooks or applications containing English for hotel service were other alternatives for staff who were not convenient to attend an English course.

Although the tourism industry has been dramatically affected by Covid-19, a development of English proficiency is still necessary because once the country reopens for international tourist arrivals, hotel staff have to be ready to welcome and service foreign tourists. As a result, English handbooks or applications would be very useful for their self-study at their convenience.

6. Conclusion

The present study aimed to investigate problems and needs for English use at work of hotel staff, including their needs for improving English use. The participants of the study were 200 hotel staff working in 1-3 star hotels in Phang Nga Province, Thailand. Data collection was done using a questionnaire and a semi-structured interview. The statistics for data analysis were frequency, percentage, means, standard deviations and content analysis. The findings showed that the hotel staff had overall problems at a moderated level, and they had English writing problems the most. Regarding their needs for using English, it was found that the hotel staff needed to use English at work at a high level. They reported that English speaking was the most needed. Moreover, according to the analysis, English listening was the skill which was needed to be improved urgently together with English speaking

skill. The information from the semi-structured interview indicated that the hotel staff needed concerned parties to organize courses for their English improvement. In addition, handbooks or applications relating to English at work were truly needed for their self-study at anytime and anywhere. The findings from the present study also contribute to the design of courses and teaching materials relating to English for hotel service in order to equip students with the necessary knowledge before entering into the world of real work.

7. Suggestions

1. Based on the findings, it is observable that English trainings or courses containing common English contents, such as greeting, welcoming or saying good-bye will be useful for hotel staff working in every section because these are basic sentences that can be used to impress foreign customers. Although these sentences are basic, without practicing using them, hotel staff, especially those who are not in the front desk office, may be too shy and unconfident to say them.
2. English handbooks or applications can fulfill hotel staff's needs for improving their English use. Having a handbook or an application with them can let hotel staff study English on their own at their convenience.
3. Hotel staff working in different sections need to use English no matter what section they are in; therefore, it is necessary to have them be trained in English use appropriate for their work. If every hotel staff member can use effective English, it is likely that a hotel service can be successful.
4. The findings can be useful for developing English courses and teaching materials in order to prepare students who are aiming to work in the hotel business.
5. As the current study involves 200 hotel staff in a questionnaire session and only 50 of them in a semi-structured interview session, it may have some limitations. Therefore, further studies may include more participants and more methods, such as an observation or an English proficiency testing. This may help provide more reliable information.

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The Effect of Internal Marketing on Job Performance of Academic Staff in The Faculty of Sport Sciences

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Abstract
In this study, the effect of internal marketing practices on the job performance of academic staff in the sample of faculties of sports sciences was examined. The data were obtained from the academic staff working in the faculties of sports sciences in Turkish Universities. Internal marketing and job performance scales, which have high reliability, were used in the study. The effect of internal marketing on job performance was examined by hierarchical regression analysis. As a result of the analysis, a significant and positive effect of internal marketing practices on job performance was found. Within the framework of this result, it can be suggested that higher education institutions that want to provide an effective service should strategically provide internal marketing practices in order to have academic staff with high job performance.

Keywords: Internal Marketing, Job Performance, Academic Staff, Faculty of Sport Sciences

1. Introduction

In recent years, examining the internal and external factors that affect the performance of enterprises has become more of a topic in academic studies. While human resources, physical facilities, and production processes, etc. constitute internal factors, competing enterprises, customers, etc. constitute external factors. In this study, the internal marketing approach and job performance relationship are focused on in the context of the concept of human resources, which is one of the internal factors.

In today's constantly developing competitive environment, enterprises are trying to develop more strategies so that they can show more efficiency in the market (Greene, Walls, and Schrest, 1994). The most important of these is to increase the service quality and ensure the satisfaction of the customers who buy the product (Sureshchandar, Rajendran, and Anantharaman, 2002; Zeithaml, Berry, and Parasuraman, 1996). Recent studies have found a close relationship between customer satisfaction and employee performance (Otto, Szymanski, and Varadarajan, 2020; Williams and Naumann, 2011; Van der Wiele, Boselie, and Hesselink, 2002). Studies in the service marketing literature have shown that meeting the expectations and needs of enterprise employees will increase customer satisfaction (Chi and Gursoy, 2009). In the context of human resources management, an important tool in achieving employee satisfaction is emphasized, which is the concept of internal marketing (Ewing and Caruana, 1999).

Internal marketing is an approach that sees its employees as a customer and calls them internal customers. In this context, in order to reach the satisfaction of external customers, which are at the focal point of the enterprises, it primarily aims to reach the satisfaction of its employees. This framework, primarily emphasizes the effort to meet the expectations and needs of the employees and argues that the resulting satisfaction will provide external customer satisfaction. In short, internal marketing gives importance to its employees (internal customers) as much as it gives importance to its external customers, and underlines that the high performance of the enterprise depends on the happiness of its employees (Berry, 1981; Gounaris, 2006; Ferdous and Polonsky, 2014; Lings, 2004; Sasser and Arbeit, 1976).

The internal marketing approach strives to increase motivation by providing high-quality work opportunities to employees within the enterprise (Pitt and Foreman, 1999). The enterprise, which creates high motivation in its employees, integrates with its employees, so employees are more willing to satisfy the needs of external customers (Barnes, Fox, and Morris, 2004). Berry (1981) defines internal marketing as "meeting the expectations and needs of internal customers in achieving the goals of the business by seeing employees as internal customers and business as internal products." In this framework, employees are considered as internal market elements (Rafiq and Ahmed, 1993). Foreman and Money (1995) suggest that training and development of employees, rewarding and presenting a vision are internal marketing elements. Different from these studies, Yildiz and Kara (2017) discussed the internal marketing elements more inclusively. These include offering attractive physical opportunities to employees, meeting basic needs, empowering employees, providing and supporting reasonable workloads, vision, training and development opportunities, career opportunities, equal treatment of employees, open communication channels, seeking employee opinions, and rewarding (Yildiz, 2017).

There are many phenomena that internal marketing affects, one of them is the job performance of the employees. Schermerhorn et al., (2012) define job performance as "a concept that quantitatively and qualitatively indicates to what extent an individual or a group doing a job has achieved the purpose of that job." Studies in the literature show that the high performance of employees is one of the main factors in increasing customer satisfaction of the enterprise (Netemeyer, Maxham, and Lichtenstein, 2010). In this case, the internal marketing approach becomes important in ensuring the job performance of the employees. In this study, it is aimed to examine the effect of internal marketing on the job performance of academic staff in the context of higher education. There are very few studies examining the relationship between both variables, especially on academic staff working in faculties of sports sciences. In this respect, the findings of this study will contribute to the literature.

2. Method

2.1. Sample Size and Procedure

The academic staff in the faculties of sports sciences in various universities in Turkey participated in the study. A simple random method was preferred in the study, and electronic communication tools were used in communication with the participants. First, an invitation letter was sent to the participants explaining the purpose of the research, and then those who volunteered were given one week to fill out the questionnaire. The number of questionnaires returned after one week was 143.

2.2. Measurement Instruments

Two scales were used as a measurement tool. One is the internal marketing scale developed by Yildiz and Kara (2017). This scale has 11 items and is one-dimensional. The measurement was made with a 5-point Likert-type scale (1 = strongly disagree, 5 = strongly agree). The other scale is the job performance scale developed by Sigler and Pearson (2000). The scale has 5 items and is one-dimensional. The measurement was made with a 7-point Likert-type scale (1 = strongly disagree, 7 = strongly agree).

2.3. Statistical Statistics

Frequency and percentage calculations were used in the analysis of demographic characteristics, correlation analysis in the relations between the variables, and hierarchical regression analysis was used to determine the effect of the independent variable on the dependent variable.

3. Results

3.1. Sample Characteristics

Most of the participants are men (59.4%) and married (60.1%). Most of the age range is 46-55 years old (31.5%). The vast majority of respondents have a doctoral degree (83.9%). Assistant professors showed the highest participation (25.2%). Most respondents have 1-5 years of employment (28.7%), (Table 1).

Table 1: Demographic characteristics

Variables		**f**	**%**
Age	Female	58	40.6
	Male	85	59.4
Marital status	Married	86	60.1
	Single	57	39.9
Age	25 and less	12	8.4
	26-35	36	25.2
	36-45	42	29.4
	46-55	45	31.5
	56 and more	8	5.6
Education	Undergraduate	7	4.9
	Graduate	16	11.2
	Doctorate	120	83.9
Title	Research Assistant	35	24.5
	Instructor	9	6.3
	Assistant Professor	36	25.2
	Associate Professor	35	24.5
	Professor	28	19.6
Tenure	1-5 years	41	28.7
	6-10 years	20	14
	11-15 years	21	14.7
	16-20 years	17	11.9
	21-25 years	29	20.3
	26 years and more	15	10.5

3.2. Reliability Values of the Scales

Since both scales were found to be valid in many studies, only the reliability values were examined in this study. As a result of the analysis, the reliability value of internal marketing was found to be 0.925, and the reliability value of job performance was found to be 0.853. These values showed that both scales were highly reliable.

3.3. Correlation Analysis

According to the results of the correlation analysis, job performance is positively and significantly related to the title ($r=0.181$; $p<0.05$). As the title increases, the job performance of the academic staff also increases. Job

performance is also associated with internal marketing (r=0.224; p<0.01). As internal marketing practices increase, the job performance of academic staff also increases (Table 2).

Table 2: Results of correlation analysis

Variables	1	2	3	4	5
1. Age	1				
2. Education	.413**	1			
3. Title	.734**	.507**	1		
4. Tenure	.828**	.382**	.778**	1	
5. Internal marketing	.197*	-.039	.235**	.281**	1
6. Job performance	.154	.158	.181*	.049	.224**

*P<0.05; **P<0.01

3.4. Hierarchical Regression Analysis

According to the hierarchical regression analysis results, internal marketing affects job performance significantly and positively (*B*=0.255; p<0.01). In other words, as the internal marketing practices of higher education institutions increase the job performance of academic staff increases (Table 3).

Table 3: The results of the hierarchical regression analysis

Independent variables	**Job Performance**					
	Step 1			**Step 2**		
	Beta	***t***	***p***	***Beta***	***t***	***p***
1. Age	.267	1.763	.080	.293*	1.985	.049
2. Education	.067	.705	.482	.119	1.259	.210
3. Title	.268	1.883	.062	.225	1.615	.109
4. Tenure	-.407	-2.489	.014	-.486**	-3.016	.003
5. Internal marketing	-	-	-	.255**	3.025	.003
F	3.030			4.397		
R^2	.081			.138		
Adjusted R^2	.054			.107		

Note: Standardized beta values were used *P<0.05 **P<0.01

4. Discussion and Conclusion

This study was carried out to examine the effect of internal marketing on the job performance of academic staff in faculties of sports sciences. The findings of our study showed that internal marketing has a significant and positive effect on higher educational institutions' performance (β=0.255; P<0.01). This study will contribute to the literature since studies on the academic staff of faculties of sports sciences to determine the relationship between both variables are limited.

There are many studies conducted in various sectors to determine the effect of internal marketing on many variables. These studies show that internal marketing has a significant and positive effect on service quality and customer satisfaction (De Burin, Roberts-Lombard and De Meyer-Heydenrych, 2021), while internal marketing has significant and positive effects on employees' organizational commitment (Ismail and Sheriff, 2017; Yildiz, 2011) and organizational citizenship behaviors (Grego-Plane, 2019). These effects increase the overall performance of the enterprises (Panigyrakis and Theodoridis, 2009).

Similar effects of internal marketing on some variables were also observed in the higher education sector (Altarifi, 2014). For example, internal marketing has a positive effect on employee satisfaction (Shabbir and Salaria, 2014),

organizational commitment (Ting, 2010), and organizational culture (Vieira-dos Santos and Gonçalves, 2018). Although limited, the literature has similar studies on the sample of academic staff working in faculties of sports sciences. One of them is Yildiz's (2016a) studies that examine the effect of internal marketing on academic staff's organizational citizenship behavior, and the other is Yildiz's (2016b) studies that examine the effect of internal marketing on academic staff's engagement. In both studies, positive and significant relationships were found between the variables. The results of these studies support the results of our study.

Researches in the literature reveal that the impact of internal marketing practices on employees and also on the overall performance of businesses is very important. Considering the researches in the literature and the results of our study, we argue that it is necessary to provide internal marketing practices for academic staff in faculties of sports sciences within higher education institutions. The motivation of the academic staff working in the faculties of sports sciences will increase through internal marketing practices. Increasing motivation will bring job satisfaction so that improvement effects can be seen in terms of student satisfaction, the satisfaction of other employees, and quality and quantity in academic publications.

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The Concept of Social Justice from the Perspective of University Students

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Abstract
The aim of this study is to reveal how university students conceptualize their perceptions of social justice. 393 university students were included as the sample of the research. An interview form was sent to the students online. The content analysis technique was used in the analysis of the data. As results, it was stated that every student is equal, opportunities are provided equally, there is no discrimination, social activities are equally benefited, every student is given the same rights, interests and needs are cared for, and every student is treated fairly. They expressed as the most unjust incidents are "necessity of distance education due to the Covid-19 pandemic," "getting unworthy points," "discrimination," "lack of justice in scoring," "unfair scholarship distribution" and "no course exemption." In addition, since it is not in the literature, a scale can be developed regarding the social justice perception levels of students studying in higher education.

Keywords: Social Justice, Equal Opportunity, Covid-19, Nepotism, University, Students

1. Introduction

Justice, as a concept, has a social character as a moral act, it expresses the position of the individual against the law in a democratic claim of rights. The concept appears to people in many areas of social life. One of the most important concepts that reinforce the existence of justice is equality. First, the members of a society must be politically equal. The differences between the wealth, races, colors, beliefs, and cultures of the members of the society should not disrupt the equality between individuals in political participation and decision-making processes. To talk about the concept of political equality, everyone who is affected by the decisions taken and who is a party to this process should have the freedom to express their opinions or make their voices heard. Equality under the law is very important in terms of building a just social order (Polat, 2007; Sunal, 2011).

Although it is quite difficult to define social justice, it is explained as the fairness of a society where resources are distributed equally, and all members are safe in terms of physical, mental, and social aspects. Social justice, in the simplest terms, is the fair distribution of blessings and burdens in the society. In other words, everybody in the society has a general opinion that there is a fair sharing (Bell, 2007; Sunal, 2011).

Social justice is the state of being just and equal to all its citizens in terms of fundamental rights and opportunities, which allows all members of a society to access the same level of protection, equal opportunities, obligations, social assistance equally and fairly (Barker, 1999; Craig, 2002). Social justice can be achieved through social welfare-oriented decisions made by individuals, institutions, and societies. As can be understood from this feature, social justice is done and maintained by people. Therefore, all processes can be objected, and the decisions taken may be disrupted (Todd, 2015).

In the development of pluralist democratic societies, social justice steps in the elimination of unfair and discriminatory practices that individuals face in social life and the creation of a more democratic society. Social justice understanding is effective in keeping people away from pressure with its liberating side (Boyles, Carusi, & Attick, 2009). The understanding of social justice, which is at the basis of the welfare states, aims to provide a minimum standard of living for everyone in the society. Social justice is fundamentally based on the redistribution of social resources and services. Not every individual in the society is in an equal position in accessing these services. For this reason, welfare states benefit from the professional knowledge and value of the social work discipline in the distribution of these resources and services in a way that ensures equal opportunity (Kaynak, 2017). However, according to the data of the World Bank, which includes the development indicators of the countries, today many countries, especially poor countries, experience various problems related to social justice. Considering fair distribution and social minimums, the average daily consumption in the world is around one dollar. There are many poor families living with an income below this value. Poverty lines, especially in economically weak countries, generally remain at a level that can provide basic nutritional support and living requirements. Particularly inadequate training opportunities: It causes children and young people to inequality of opportunity and to be unable to use their rights in social life due to poverty and gender prejudices. Millions of children around the world are out of school. While poor children are unlikely to enroll in school, most children in affluent households in poor developing countries do not attend any school. Although educational opportunities for girls are expanding, gender bias is greater in low-income countries. Poor families have had to reduce their children's school expenses and consumption expenditures on food and health resources (World Bank, 2010).

The common point that can be sought in the relationship between education and justice stems from the characteristics of both being a social phenomenon, that is, aiming / creating a democratic common good in the society. At this point, the relationship between education and social justice is established spontaneously, and social justice in education refers to the fair use of education as a democratic right at both individual and social levels. Despite the egalitarian claims of modern societies, education is based on inequalities in many aspects, and in a system based on inequalities, it is important not what it is but what kind of meaning will be attributed to "social justice" in education. The basic point of conceptualizing social justice in education is that everyone should receive education according to their abilities and needs. Social justice in education is often expressed as equal education for all. An approach to giving equal / same / one-on-one education to everyone is neither realistic nor meaningful. For example, it would be unfair to the detriment of such students to give special education students the same education as everyone else. Social justice in education refers to the ability to freely develop the creative power of the individual based on human differences, that is, to realize emancipatory education (Polat, 2007).

The belief of individuals in the society in justice and equality within the framework of social justice is very important for the health and continuity of that society. The development of social justice understanding will contribute to the establishment of a sense of peace and justice among the individuals that make up the society, thus contributing to the formation of healthy living environments. At this point, the relationship between social justice

and education becomes important. Because individuals' state of having social justice beliefs is directly related to how and to what extent social justice awareness is given during the education process (Demirkaya & Ünal, 2018). In addition, the fact that there are cultural, social, economic, ethnic, racial, and religious differences in the society, the individual needs of each student are different, and the necessity of respecting and tolerating these differences, that is, teaching democracy, requires social justice in schools. Undoubtedly, the most important duty and responsibility in ensuring social justice in schools fall on administrators and teachers. Social justice should be the mainstay of all educators in their efforts to make students global citizens (Bogotch & Shields, 2014).

In the globalization process, the diversity of the differences in the society has revealed the necessity of adopting new values and approaches in education. The increase in population mobility within and between countries, the increase in pluralism in schools because of this increasing mobility, the necessity to prepare children for participation in the democratic process in multicultural societies, and the awareness of the effects of continuing socioeconomic differences on students' academic achievement have led to the focus on social justice practices in education (Furman & Shields, 2003; Rapp, 2002).

All goals and policies related to education should be based on a set of values such as equality, solidarity, and justice (Şişman, 2006). Internationalization in education makes universities more important in terms of social justice. University education broadens individuals' horizons, paves the way for new ideas and plays an active role in shaping the future. Universities emerge as institutions where knowledge is produced, reproduced, and spread. It is one of the main duties of the state to provide an order in which all members of the society can benefit from these environments without discrimination in universities, which provide students with environments where they can gain the necessary equipment to have a professional profession (Kalyon, 2012). Balanced distribution of opportunities and income plays an important role in ensuring social justice, which is one of the elements of the social rule of law (Çetin, 2015). Thus, the motivation of university students in the school environment in line with their belief in social justice will increase. Motivation for university students is extremely important for both students and teachers (Sakallı, Borazan, Korkmaz, & Eser, 2015). As a matter of fact, universities are institutions that shape the future of countries, train various professionals who have an important place in the society, enable the emergence of entrepreneurial individuals, and aim these individuals to be beneficial to the society in every sense.

1.1. Purpose of the Research

The aim of this study is to reveal how university students conceptualize their perceptions of social justice through their views. In this context, the answers to the following research questions were sought.

According to university students:

1. What does social justice mean?
2. What would a socially fair university look like? What are the characteristics of a socially equitable university?
3. If you were to do something to improve social justice in universities, what would you do?
4. Can you tell us about the most unfair event that happened to you in your university life?
5. How can these injustices be prevented?

2. Method

2.1. Research Model

Since the perceptions and meanings of social justice are examined in-depth, the phenomenological design, one of the qualitative research designs, was used in the study. Qualitative data analysis is defined as a process where the researcher organizes the data, analyzes, and synthesizes, reveals patterns, becomes aware of important variables, and decides which

information will be reflected in the report (Bogdan & Biklen, 1992). Phenomenology is the conscious experience of people's own life worlds, that is, their daily life and social action (Schram, 2003). The basis of phenomenology (phenomenology), which is the basis of studies that aim to investigate phenomena that are not completely alien to us, but whose meanings are not fully understood, is that everyone perceives the external world in a unique way (Yıldırım & Şimşek, 2016). In studies carried out with a phenomenological design, the cognitive structures existing in their minds are tried to be revealed by examining the comments of the research participants about the facts they have personally experienced (Creswell, 2014). Phenomenology research is a research design that aims to highlight the perceptions and experiences of individuals from their own point of view (Ersoy, 2016). Phenomenology is an elaborate and in-depth description of how people experience phenomena (Patton, 2014).

2.2. Study Group of the Research

One of the purposeful sampling methods, the easily accessible situation sampling method, was used in determining the study group. With this technique, people who are easily accessible by the researcher are generally used in determining the participants (Yıldırım & Şimşek, 2016). Participants of this study were determined as university students studying at Muş Alparslan University and 446 university students were reached. However, 53 forms that did not express an opinion on social justice were eliminated, as a result, they consisted of 393 people.

Table 1: Demographic Information of the Participants

Variables	**Category**	**N**	**%**
Gender	Female	125	31,7
	Male	268	68,3
The class	1st grade	130	33,1
	2nd grade	92	23,4
	3rd grade	66	16,8
	4th grade	105	26,7
Total Number of Students		**393**	**100**

2.3. Collection of Data

In this study, which aims to reach the perceptions of university students studying at Muş Alparslan University on the concept of social justice, a form consisting of two parts was created online. In the first part, they were asked to answer the personal information form asking about demographic characteristics, and in the second part, the structured interview form with five questions. The prepared forms were sent online and collected in the same way.

In this study, data were collected using a structured interview form. The interview form was created after taking the opinions of the experts in this field and scanning this area. In this way, the content validity of the interview form was tried to be increased. There is a section with personal information and a section with interview questions in the interview form. In the section with personal information, the information of the people participating in the research was kept confidential and codes were created. Before starting the research, pilot applications were carried out and the validity of the interview was tested by taking the opinions of the experts and it was seen that there was no problem.

While creating the interview form, firstly, questions were prepared by scanning the literature and taking expert opinions. Later, the form was presented to expert opinion and arranged. A pilot application was carried out with 10 students and the interview form was finalized. In this way, the content validity of the interview form was tried to be ensured. To determine the profiles of the participants in the study, a personal information section was added to the interview form,

but this information was kept confidential by the researcher in accordance with the principle of confidentiality. Five questions were determined in the interview form to be asked to the participant. Interview forms were conducted by seeking answers to questions such as what social justice means, how a fair university is, what the characteristics of a fair university are, what to do to improve social justice, how they talk about the most unfair incident that happened to them and how these injustices can be prevented.

2.4. Data Analysis

Content analysis was used in the analysis of the data obtained in the study. According to Patton (2014), content analysis requires reviewing repetitive words and themes in the text. In other words, content analysis is a term used for efforts to make sense of data by identifying basic meanings and consistencies when evaluating a comprehensive qualitative material. In this research process, it was aimed to reveal the concepts that can best reflect the meaning while coding the meaningful parts obtained from the data. To find themes, common aspects between codes are evaluated and categorized. At this stage, to ensure internal and external consistency, it has been paid attention to whether the emerging themes are different from each other but form a meaningful whole among them. The data obtained by organizing the codes and themes are explained to the reader in a language open to the reader. During the definition and interpretation of the findings, the findings were described in detail and the results were interpreted, and the resulting results were explained, and content analysis was carried out by considering the definitions.

2.5. Validity and Reliability

First, each interview form was coded as S1, S2… for students. In qualitative research, validity and reliability studies are carried out with the processes of credibility, transferability, consistency, and verifiability (Erlandson, Harris, Skipper, & Allen, 1993; Yıldırım & Şimşek, 2016). Care was taken to ensure that the validity and reliability criteria chosen in this study reflect the different realities in the participants' minds to the research findings in a fair and complete manner.

To ensure credibility, the data collection tool, the raw data obtained because of the interviews, the codes created because of the analysis, and the research results were presented to the examination of an expert in the field of educational sciences.

In ensuring the transferability, Erlandson et al. (1993), the detailed description technique by the emphasis was used. Identification of the participants, collection, and analysis of data is explained in detail. Efforts have been made to ensure transferability by making direct quotations from participants' views to provide a detailed description.

Within the scope of the reliability studies of the research, a consistency analysis was carried out and special attention was paid to ensure verifiability.

3. Results

3.1. Findings Regarding the First Sub-Problem

In this part of the research, the first sub-problem "What does social justice mean for you?" opinions were given depending on the sub-themes related to the sub-problem. Thematic codes created based on the students' views on what social justice means are shown in Table 2.

Table 2: Students; "What does social justice mean to you? Opinions on the Question"

Theme	Thematic code	Frequency	Total Frequency
What does social justice mean to you?	Equality	121	378
	Equal rights and freedom	57	
	Equality of opportunity	57	
	Be fair	20	
	Do not violate rights	18	
	Act according to need	10	
	Freedom of thought	9	
	Non-discrimination	9	
	Searching and using your right	6	
	Harmony between individual and society	5	
	Empathy	5	
	Communication	4	
	Common good and order	4	
	Accuracy	4	
	Balance	4	
	Valuing	3	
	Conscience	3	
	Respect	3	
	Togetherness	3	
	Social relationship	3	
	Democracy belief	2	
	Individual	2	
	Be nice to the student	2	
	Everyone's happiness	2	

When Table 2 is examined, according to university students, social justice; equality, equal rights and freedom, equality of opportunity, acting fairly, not violating rights, acting according to needs, freedom of thought, non-discrimination, seeking and exercising one's right, the harmony of individual and society, empathy, communication, common good and order, righteousness, balance It was found that it refers to facts such as valuing, conscience, respect, togetherness, social relationship, belief in democracy, individual, good treatment of the student, and happiness of everyone. Also, 22 students stated that there is no social justice. Some opinions on the subject are expressed as follows.

S12: "Everyone can get an equal education and be equal in all subjects, seeking and exercising their rights."

S15: "Social justice is to create the order that will enable everyone to continue their lives under equal conditions, considering the situations we are in."

S24: "It means that individuals living in the same society have the same opportunities and are treated with the same treatment. It also expresses that each individual is valuable, and that each individual's interests and needs are met. "

S41: "The whole society is regarded as equal in all respects; it is thought that one is neither inferior nor superior to the other."

S45: "Social justice is to offer everyone an equal, just living standard. A fair life means being egalitarian, having full faith in democracy. "

S60: "It is to give everyone what they deserve as it should be. The greatest justice is to do whatever conditions and environments require. "

S68: "Social justice means that everyone is educated equally and should benefit from their rights and responsibilities equally."

S149: "Social justice means that individuals in a society have equal rights in areas such as education, health, economy, and politics."

S335: "Social justice means "freedom" for me. Because, where there is injustice, people have limitations in reaching their goals, sustaining their lives, and realizing themselves, and they cannot realize them. "

3.2. Findings Regarding the Second Sub-Problem

In this section, "What would a socially fair university look like? What are the characteristics of a socially equitable university? " Opinions were tried to be given depending on the sub-themes of the second sub-problem. Thematic codes created based on students' views on the expression of the socially just university are shown in Table 3.

Table 3: Students; "What would a socially fair university look like? What are the characteristics of a socially equitable university? " Opinions on the Question

Theme	Thematic code	Frequency	Total Frequency
What would a socially fair university look like? What are the characteristics of a socially equitable university?	Every student is equal	81	521
	Equal opportunity provided	57	
	Indiscriminate	38	
	Benefited from social activities	33	
	Same rights for every student	30	
	Cares about interests and needs	22	
	Suitable for every student's needs	17	
	Fair to every student	17	
	Same education for every student	16	
	Evaluation according to the student's ability and characteristics	14	
	Without torpedo	13	
	Technological tool support	13	
	Programs to support events	12	
	Have freedom of expression	12	
	Considering the student	11	
	Financial and moral support	11	
	Same conditions as other universities	10	
	Worth every student	10	
	Fair teachers	9	

Taking every student's opinion	8
That value ideas	7
Protecting students' rights	6
Who does not despise students	6
Student communication is strong	6
Students from all walks of life will be comfortable	6
Support for every student	5
Empathetic	5
Libertarian	5
Respectful	5
Giving everyone what they deserve	4
Equal importance to every part	4
Solving the student's problems	4
Freedom to use social space	3
Free material for each section	3
Reassuring	3
Fair in scoring	3
Offering what the department requires	2
Independent of politics	2
Conscientious	2
Student supporter	2
Support for socialization	2
Able to distinguish between successful and unsuccessful	2

When Table 3 is examined, it is a socially fair university according to university students; Every student is equal, equal opportunity is provided, there is no discrimination, every student is equally benefited from social activities, every student is given the same rights, interests and needs are cared for, appropriate for each student's needs, every student is treated fairly, every student is the same education, evaluation according to the student's ability and characteristics, No favoritism, technological tool support, programs that support activities, freedom of expression, student-minded, financial and moral support, the same conditions as other universities, valuing every student, fair teachers, taking every student's opinion, valuing ideas, protecting students' rights, despising students It was found that there would be people who were blind. Some opinions on the subject are expressed as follows.

S160: "By providing equal rights and equal social activities to every department."

S166: "In a fair university, every student should be treated equally, and nepotism should not be done according to the department they study."

S182: "A university where every department is treated equally without discrimination and everyone is given equal usage rights."

S231: "A socially fair university: I believe that with its fair management, all employees, educators, students, and staff, who are aware of their responsibilities, can achieve more by fulfilling their job properly. I think the characteristics of a socially fair university are; fair behavior, nepotism, protection of rights, the ability of those who deserve to come to the places they deserve, the presence of competent people in the fields

they are competent to, equality of opportunity, correct identification of problems and implementation of correct solutions, educating educators and students who are competent in education and training concepts, especially " To prevent the concept of "torpedo" being used both verbally and as dhikr, it is to prevent the parts of this concept that are used in the verb.

S233: "Everyone should be supported with a support program suitable for their own conditions. It is important to establish sincere dialogues with students to eliminate the gap between students. Eating, drinking, and education expenses should be supported by all the facilities of the school. The scholarship may not be available to all students. The school should have its own scholarship program. And the scholarships should be free. "

S296: "Every student should be treated equally, every student's problems should be helped, psychologically helped."

S351: "A socially fair university should be a space where individuals can freely express their opinions and thoughts."

S393: "The university, which recognizes that student differences are taken into consideration and that not everyone can read under equal conditions, and tries to correct this, provides social justice to some extent."

3.3. Findings Regarding the Third Sub-Problem

In this section, "What would you do if you were to do something to improve social justice in universities?" Opinions were tried to be given depending on the sub-themes related to the third sub-problem. Thematic codes created based on the opinions of the students regarding the statement of what to do to improve social justice are shown in Table 4.

Table 4: Students; "What would you do if you were to do something to improve social justice in universities?" Opinions on the Question

Theme	Thematic code	Frequency	Total Frequency
What would you do if you were to do something to improve social justice in universities?	Social activities	44	325
	Ensuring equality	32	
	Financial support	31	
	Providing the same opportunities for everyone	20	
	Learning student ideas	19	
	Raising awareness of management and teachers	16	
	Be fair	14	
	Indiscrimination	12	
	Listen to all students' problems	11	
	Determination of interest and needs	10	
	Solving student problems	10	
	Right to speak to students	9	
	Ensuring freedom of expression	9	
	Group activities	9	
	Technological tool support	8	
	Increasing teacher-student interaction	8	
	Reaching all individuals	8	

Reducing the differences between other universities	7
Do not empathize	6
Ensuring student satisfaction	6
Understanding for students	6
Organizing sessions with important figures	5
Observing student rights	5
Social areas	5
Freedom	3
Audit	3
Increasing the quality of academicians	3
Getting a job	2
Including students in management	2
Conscientiousness	2

When Table 4 is examined, the findings regarding what university students can do to improve social justice are as follows: Social activities, ensuring equality, financial aid, providing the same opportunities to everyone, learning student ideas, raising awareness of management and teachers, acting fairly, not discriminating, listening to the problems of all students, identifying interests and needs, solving student problems, giving students the right to speak, providing freedom of expression, group activities, technological tool support, increasing teacher-student interaction, reaching all individuals, reducing the differences with other universities, empathizing. Some of the opinions expressed on the subject are as follows.

S18: "I would reduce the lesson hours and do things to increase the interaction between the student and the teacher."

S186: "I would ensure that the person is treated equally, regardless of the high position of the person, and I would raise the awareness of the authorized people about this.

S216: "First of all, I would design programs where all students in the university will be encouraged and have fun with knowledgeable and quality times."

S233: "I would identify needy students and bring them to a position where they could have at least the same opportunities as other students. I would try to support both financially and culturally. "

S346: "I would try to meet all the financial and moral needs of the students. Because meeting the basic needs of the student is a priority. Without meeting these needs, the student cannot fully focus on the education life.

3.4. Findings Regarding the Fourth Sub-Problem

In this section, "Could you tell us about the most unfair incident in your university life?" For the fourth sub-problem, university students were given opinions according to their sub-themes. Thematic codes formed based on the opinions of the students regarding the unfair incident statement you have experienced are shown in Table 5.

Table 5: Students; "Can you tell us about the most unfair event that happened to you in your university life?" Opinions on the Question

Theme	Thematic code	Frequency	Total Frequency
Can you tell us about the most unfair event that happened to you in your university life?	Distance education obligation due to the pandemic	32	176
	Getting the score, I do not deserve	26	
	Discrimination	23	
	Lack of fairness in scoring	17	
	Unfair scholarship distribution	6	
	No course exemption	5	
	Technical problems	5	
	Inadequacy of the instructor entering the lesson	4	
	Being despised for different thoughts	4	
	Being mobbed	4	
	Be scolded for nothing	4	
	Not having the same opportunities	3	
	Not being treated fairly	3	
	Lack of understanding for necessary reasons	3	
	To be tried for wearing	3	
	Being exposed to prejudice	3	
	Not aiding the needy	3	
	Reflecting events on a note	3	
	No reward	2	
	Do not keep the employee and the one who does not work	2	
	Being weaker than other universities	2	
	Lack of application opportunity	2	
	Being blamed for something I have not done	2	
	Disrespect of the teachers	2	
	Lack of speech	2	
	Being exposed to the lesson and teacher I have not chosen	1	
	Failing lesson for minutes	1	
	Difference between departments	1	
	Grade system	1	
	Selecting the representative by the teacher	1	
	Missing chapter books in the library	1	
	Same type of teaching to learners in different ways	1	
	The office of unqualified persons	1	
	Disabled people not being privileged	1	
	Treating those sitting in the back like mischief	1	
	Staying when I should not be absent	1	

When Table 5 is analyzed, the most unfair incident that happened to university students; expressed the necessity of distance education due to the pandemic, getting an undeserved score, discrimination, lack of justice in scoring, unfair scholarship distribution, no course exemption, and technical problems. Some of the opinions expressed on the subject are as follows.

S34: "Teachers keeping employees and non-employees at the same level"

S59: "Teachers behave biased, different teachers not forcing one class while another teacher does not force another class in elective courses, and there is an unbalanced scoring between two classes, teachers evaluate homework without any evaluation criteria while assigning the same task to everyone, and the employee and the employee get the same score, or the employee falls below the non-working person. "

S63: "My teacher gives more points to another activity even though he chose the activity as the best activity as he said. Our teacher does not behave equally among my classmates and I do not feel worthless. "

S107: "In this pandemic process we are experiencing right now, even though everyone does not have a comfortable home environment and trouble-free internet and technological tools, it is important to continue education in this way and to take the exam, homework, etc. being subjected is the greatest injustice I have experienced in my university life. In addition, the biggest injustice in my university life is that I coincide with a period where everything is valued but education is not valued. "

S175: "A teacher who hurt me because I am studying at my second university is saying that you cannot come to school and finish school."

S231: "I applied to work part-time. Although I did not receive any scholarships or loans, I needed them very much and I started this during the interview phase, but it was one of the most unfair situations I have encountered in the university, and this is not just me. It happened to a few of my friends the same year. "

S264: "I could not answer because the microphone was broken during the live lesson. When someone else answered, he got +10 points for the final grade."

S281: "I can say that what I am living now unfairly is education due to the pandemic. I would love to have live lessons. It would both contribute to me academically and to learn something. Some friends live in the countryside and cannot access the internet, so live classes are not held. I consider it a great injustice to try to learn by reading myself with documents. We have valuable teachers. If we cannot get face-to-face training from them, I would love to study at least with life lessons. This makes me sad. "

S306: "While a friend of mine who is studying at the same department with me at another university can increase his interest in his departments by doing experiments in a virtual laboratory established by his teachers over the internet, in my department there are surprise lectures or grades taken without meeting with the student, we have teachers unaware of their students. I just want to read the chapter properly. This is my only wish to be able to understand the lessons not by randomly memorized notes but by digesting them. "

S335: "Since I am a disabled person, my situation is not taken into account due to my disability in my arm and I will not be constantly exposed to injustice about the way and duration of the exams."

3.5. *Findings Regarding the Fifth Sub-Problem*

In this section, "How can these injustices be prevented? Can you share your views? " Opinions were given depending on the sub-themes related to the fifth sub-problem. Thematic codes created based on the opinions of the students on how to prevent injustices are shown in Table 6.

Table 6: Students; “How can these injustices be prevented? Can you share your views? " Opinions on the Question

Theme	Thematic code	Frequency	Total Frequency
How can these injustices be prevented? Can you share your views?	Treating everyone equally	26	297
	If equal opportunities are provided for everyone	18	
	By switching to face-to-face training	18	
	By empathy	14	
	Without discrimination	14	
	Acting fairly	13	
	Paying attention to student thoughts	13	
	Caring for each individual	13	
	By improving teacher student relations	13	
	With the education system	10	
	Consciences resting	10	
	By bringing in competent persons	9	
	Dealing with student problems	8	
	By training the teachers	8	
	Understanding	7	
	With the right managers	7	
	By improving the humanity of people	6	
	Control	6	
	Paying attention to love and respect	6	
	Considering student requests	6	
	Defending your right	5	
	Respecting different thoughts	5	
	By not being unfair	5	
	Thinking that everyone's circumstances are different	5	
	With more activities	5	
	Using common sense	5	
	Not doing the behavior we do not want ourselves to do	5	
	By removing the unfair from the system	4	
	If everyone does his duty properly	3	
	Breaking prejudices	3	
	With financial support	3	
	Doing the right thing even if it goes against your interests	3	
	Taking responsibility	3	
	If everyone likes their job	2	
	Neutrally	2	
	By ensuring freedom of expression	2	

Respecting labor	2
By seeing and not ignoring	2
Unnecessarily	2
In good faith	1
By awarding	1
With effort	1
By producing solutions	1
With penalties and sanctions	1
By improving yourself	1

When Table 6 is examined, the statements of university students on how to prevent injustice are as follows: Treating everyone equally, providing equal opportunities to everyone, starting face-to-face education, establishing empathy, non-discrimination, being fair, valuing student thoughts, giving importance to each individual, developing teacher-student relations, they expressed their views as listening to the conscience and bringing competent people. Some opinions on the subject are expressed as follows.

S37: "In a world where there are respect and love and no favoritism, there will be justice."

S44: "The more conscious individuals are and the more empathy they develop, the less injustice will be. We must read and become conscious. We should not do something that we do not want ourselves to do to someone else. I think the event is about how conscious we are and as a society we should attach great importance to this issue.

S83: "It cannot be prevented. No matter how many suggestions I make, my writing always remains in the discourse. Peyami Safa has a very nice saying that does not act. I wish everyone could internalize it "It is easier to blame than to understand. Because if you understand, you must change." people prefer to blame rather than renew and update themselves, but they are the losers. However, people who accept their mistakes and learn from them are individuals who have discovered themselves and have been able to define themselves. "

S105: "It is necessary to gather everyone's opinion on a certain denominator, to open a presentation in a pool, to declare the responsibilities, and to take action."

S241: "This injustice can only be prevented by solving the original injustice. Torpedo is prevented when nepotism is over and when people who do their job properly are in the positions they deserve. "

S393: "Ensuring justice is above all a matter of conscience. Therefore, it is necessary to be a conscientious individual and society first. After that, it is necessary to meet the needs of every individual fairly."

4. Conclusion, Discussion and Recommendations

"What does social justice mean for you?", "What would a socially fair university look like?" What are the characteristics of a socially just university?", "What would you do if you were to do something to improve social justice in universities?", "Can you tell the most unfair incident in your university life?", "How can these injustices be prevented? Can you share your views? " Their answers to open-ended questions were evaluated. The social justice of the university students participating in the research is mostly; Equality, equal rights and freedom, equality of opportunity, fair treatment, not violating rights, acting according to needs, freedom of thought, and non-discrimination. In addition, in the responses obtained, it was determined that the students interpreted social justice with expressions that can be evaluated within the scope of social justice principles, social minimum, equal citizenship, equal opportunity, fair distribution principles of David Miller's (2005). With the results of the study,

Miller's approach to social justice is supported. In addition, it was determined that the students used the concepts of social justice and equality together. This perception points to the concept of egalitarian social justice. Bursa (2015) found in his study that most of the participants defined social justice as justice and equality. Based on this, it can be said that the concepts of equality and social justice are intertwined. İdin and Aydoğdu (2017) also reached similar findings in their studies.

In his study, Yıldırım (2011) emphasized that university students should be equal, benefit all individuals equally without discrimination, equal opportunities in education, and an egalitarian free society. It also found that they define social justice generally in the context of equal opportunity. Accordingly, Turhan (2007) emphasizes the necessity of regulating Turkish education system policies in a way that either refuses or eliminates the differences.

In the research, a socially fair university according to university students; It was stated that every student will be a place where equal opportunities are provided, there is no discrimination, social activities are equally benefited, every student is given the same rights, interests, and needs are cared for, and every student will be treated fairly. Polat (2007), in his study on social justice in school, mentions that school administrators are responsible for the realization of social justice at school. According to Chiu and Walker (2007), school administrators should demonstrate leadership that solves injustice and inequality in school to ensure social justice in the school.

University students' views on what can be done to improve social justice; social activities, providing equality, financial aid, providing the same opportunities to everyone, learning student ideas, raising awareness of management and teachers, acting fairly, non-discrimination, listening to all students' problems, determining interests and needs, solving student problems, right to speak to students, expression providing freedom, group activities, technological tool support, increasing teacher-student interaction, reaching all individuals and reducing the differences between other universities. Similarly, Akkuş (2019) in his research; In order to improve social justice in schools, students should be treated more fairly, student opinions should be consulted, attention should be paid to student demands, equal opportunities and opportunities should be provided, infrastructure should be equalized, physical and financial opportunities should be equalized in schools, more financial support should be given to students in need, it has reached the conclusion that everyone should be treated equally.

The most unfair thing that happened to university students; They expressed the necessity of distance education due to the pandemic, getting an undeserved score, discrimination, lack of justice in scoring, unfair scholarship distribution, and no course exemption. Dündar's (2010) issue of the conversion of equality in education and at work in the example of post-modern context, Turkey has identified 54 documents examined. He examined the students' having equal opportunities in the process. In this context, He emphasized that factors such as teacher quality, equipment quality, transportation facilities, and use of technology, school culture, orientation processes, psychological and social support, investments, and environment are included in the scope of equality in education. McConney and Perry (2010) determined in their study that more equal socio-economic conditions should be provided to schools to increase student success.

The statements of university students on how to prevent injustice are as follows. By treating everyone equally, if everyone is provided with equal opportunities, by transitioning to face-to-face education, by establishing empathy, not discriminating, treating fairly, caring for student thoughts, caring for each individual, developing teacher-student relations, by listening to conscience, by bringing competent people. The students stated that they should be treated fairly but being fair does not mean treating everyone the same. Being fair requires positive discrimination (Akkuş, 2019). Students emphasized the necessity of positive discrimination in ensuring social justice. While some students want to be given as much as they deserve based on performance, it is understood that they favor positive discrimination. Tomul (2009), in his study with 147 school administrators, identified the obstacles that negatively affect social justice practices and social justice in schools. As a result of the study, it has been determined that the most important obstacle in front of the works aimed at ensuring social justice is seen as

the lack of resources. Polat (2007), based on the distribution of teachers among schools in Turkey, there are disparities in the distribution of financial resources and physical infrastructure. Filiz (2020), Turkey and both countries in a study comparing Spain state's role in ensuring social justice, and it is a great responsibility, it is emphasized that an unbiased way as a mechanism to ensure equality and justice. In addition, the study found that the concept of injustice in the perception of most individuals is identified with economic and political systematic problems. While individuals define social justice in the ideal environment, they use the concept of social justice; When they talked about the injustices in their own life experiences while attributing to the changes in the individual sphere, to the fairness and behavior of others, they complained about many problems with the political and economic system, such as the unequal division of labor in society, and unfair economic distribution. In order to solve all these problems, the state should provide democratic attitude and moral maturity to all individuals in cooperation with school and family from an early age (Akan & Tatık, 2020). Thus, students will be trained with the awareness of moral values and democracy starting from basic education. As a matter of fact, while the understanding of democracy is treating everyone equally in practices, moral values will direct people to behave justly.

In terms of ensuring social justice based on the results of the research; Club activities that can improve social justice in schools can be emphasized. It may be suggested to give activities involving the concepts of social justice with undergraduate courses or elective courses on social justice. Policies can be produced to improve the conditions of schools in the disadvantaged regions of Turkey and to compete on equal terms. This research was conducted using qualitative research methods. In addition, studies can be carried out with quantitative or mixed methods. This study is a research conducted at the higher education level. Research can be done at different levels. A scale can be developed regarding the social justice perception levels of students studying in higher education.

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The Opinions of Mathematics Teachers about Using Mathematical Modeling in the Solution of Daily Life Problems and an Application of the Chinese Remainder Theorem

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Abstract
The opinions of mathematics teachers about using mathematical modeling (MM) in daily life problems and their use of MM in solving a daily life problem were examined within the scope of the graduate-level MM course in this study. The research was designed as a case study. Participants are five mathematics teachers selected by the purposive sampling method. The data were obtained through a structured form containing questions about a daily life problem and using MM in a daily life problem. Teachers were given one week to answer the questions on this form. Descriptive analysis was performed on the data obtained from the teachers' problem solving, and content analysis was carried out on the data containing the teachers' opinions. The findings determined that although the modeling processes were generally used appropriately by the teachers in solving a daily life problem, the process of understanding the problem was quickly mentioned, the teachers had difficulties in giving the most effective solution during the evaluation stage, and the communication stage was mostly ignored. It was also found out that MM could be beneficial in many ways in solving daily life problems. On the other hand, it was indicated that there may be difficulties in terms of student-teacher-environment and that teachers give very limited space to MM in classroom practices. It can be stated that the tendency of teachers to use the approaches they are accustomed to instead of MM in the solution of daily life problems is effective in the emergence of this situation.

Keywords: Mathematical Modeling, Daily Life Problems, Problem-Solving, Teacher Training

1. Introduction

Today, studies to solve daily life problems gain importance in mathematics education. Factors such as the encouragement of the use of different representations (verbal, symbolic, graphic, and table) of daily life problems, the possibility of students to experience these problems, and the fact that they can be presented in many different contexts (The National Council of Teachers of Mathematics [NCTM], 2000) have been effective in the emergence

of this situation. In support of this, the indicator of mathematical competence in the mathematics curriculum is associated with solving daily life problems (Ministry of National Education [MoNE], 2018).

In many studies in the literature, it is emphasized that daily life problems should be used in mathematics teaching (e.g., Karataş, & Güven, 2010; Verschaffel et al., 2000). On the other hand, it is stated that students experience many difficulties in solving daily life problems (Berenger, 2018; İncikabı, Ayanoğlu, & Uysal, 2020; Vijayan, & Joshith, 2018).

An attempt to overcome the difficulties experienced in solving daily life problems in mathematics education constitutes the motivation of this study. One way to overcome this problem is suggested to be mathematical modeling (MM).

It is a known fact that MM has a close relationship with daily life problems (Ang, 2009). It was justified in many studies that MM offers a way to solve daily life problems (e.g., Berry, & Nyman, 1998; Haines, & Crouch, 2007; Schroeder, & Lester, 1989). On the other hand, the prerequisite for the effective use of MM in real-life problems in mathematics education lies in teachers' experiences and perceptions of MM. It is important to note that MM education is included as a compulsory course at the undergraduate level in teacher education programs renewed in 2018 in Turkey to raise this awareness (Demir, Ertem Akbaş, & Gök, 2021). Therefore, in the following chapters of the study, the relationship of MM with daily life problems and the use of MM in daily life problems in the context of teacher education are analyzed.

1.1 Relationship of Mathematical Modeling with Daily Life Problems

Mathematical modeling (MM) can be briefly defined as the art of applying mathematics to real-life problems to better understand a particular problem (Ang, 2009). In this context, it offers an effective approach in revealing the relationship between mathematics and real-life (Heymann, 2003).

The use of the MM approach in teaching is designed by MM activities. These activities are generally studied as problems of daily life. In other words, modeling activities should include situations that can be encountered and interpreted in real life (Bukova-Güzel, Tekin-Dede, Hıdıroğlu, Kula-Ünver, & Özaltun-Çelik, 2016). Thus, MM activities offer students a way to realize and understand different aspects of mathematics in real life, in addition to learning mathematics (Lingefjärd & Holmquist, 2005).

When MM processes are examined, it is seen that mathematical modeling is an important approach for problem-solving (PS). It also provides a new perspective for PS (Lesh, & Zawojewski, 2007). In this regard, school mathematics emphasizes that students should use mathematical relations and use mathematical models in PS processes (NCTM, 2000). In support of this, Han and Kim (2020) accepted MM proficiency as a subcomponent of mathematical PS proficiency. To this end, it can be concluded that modeling is part of the PS process (Hartono, 2020).

Distinguished mathematician George Polya (1973) conceptualized the PS process as four steps: understand the problem, devise a plan, carry out the plan, and look back. As a PS approach, the MM process was cascaded in different ways by different researchers (e.g., Ang, 2001; Berry, & Houston, 1995; Blum, & Leiß, 2007; Doerr, & Pratt, 2008; Hıdıroğlu, 2012; Mason, 1988). In line with the approach suggested by De Corte, Verschaffel, and Greer (2000), the steps of the modeling process are shown in Figure 1 within the scope of this study, which are understanding, modeling, mathematical analysis, interpretation, evaluation, and communication.

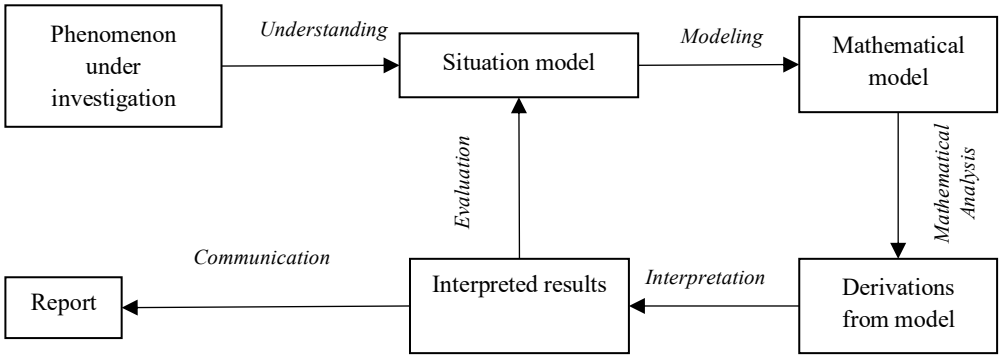

Figure 1: Schematic diagram of the modeling process (De Corte, Verschafeller, & Greer, 2000)

According to this approach, students first decide which elements specified in the problem to understand the phenomenon under investigation are necessary or less important. In this direction, they develop a situation model. In the next stage, the situation model is modeled by expressing it with mathematical equations according to the relevant elements, relations, and conditions, and thus a mathematical model is created. Then, mathematical analyzes are conducted on the mathematical model, and the derivations from the model are revealed. The results of the analysis are interpreted according to the problem situation, and interpreted results are obtained. It is evaluated by checking whether the interpreted mathematical results are appropriate and reasonable for the problem situation. Finally, the solution to the problem is reported at the communication stage.

1.2 Use of Mathematical Modeling in Daily Life Problems in The Context of Teacher Education

When the literature is reviewed, although MM offers a PS-oriented approach in general regarding teachers' use of MM in solving daily life problems (Hartono, 2020; Heymann, 2003; Lesh, & Zawojewski, 2007), there are difficulties experienced in the MM process (e.g., Hıdıroğlu et al., 2017; Işık, & Mercan, 2015; Kertil, Erbaş, & Çetinkaya, 2017). In this direction, in the research conducted by Aztekin and Taşpınar-Şeker (2015), it was determined that most of the studies on MM in Turkey were carried out with prospective teachers.

For example, Hıdıroğlu et al. (2017) examined the modeling process in seven stages (understanding the problem, choosing variables and making assumptions, mathematizing, constructing mathematical models and correlating them, working mathematically, interpreting solutions, validating the model) and found that prospective teachers had difficulties in many stages of MM in PS. Similarly, Kertil et al. (2017) concluded that prospective teachers had difficulties in interpreting the mathematical relationship in the MM process. In another study, it was found that secondary school mathematics teachers had general knowledge about models and modeling; however, it was observed that there were deficiencies in their knowledge about which examples can be qualified as models (Işık & Mercan, 2015).

In a study that reports how middle school mathematics teachers explain models, it is shown that teachers can have multiple model understandings that are active at different times and reflect various perspectives (Wilkerson et al., 2018). Furthermore, Anhalt and Cortez (2016) asserted that prospective teachers could develop an understanding of correct modeling with the given education.

When the literature is reviewed, it is understood that it is important to experience the MM approach by the teachers and reveal the solution processes and their opinions on the process. From this point of view, this study aims to examine the situations of mathematics teachers in solving a daily life problem within the scope of MM education they have received at the graduate level and investigate their opinions on the use of the MM approach in solving daily life problems.

The research questions to be answered in line with the purpose of the research are as follows:
1) What is the process of solving a daily life problem of mathematics teachers with MM?
2) What are the opinions of mathematics teachers about examining daily life problems in the context of MM?

2. Method

A case study, one of the qualitative research methods, was used in the study in which a solution to a daily life problem was sought through MM after MM training, and the opinions of teachers on the use of MM in the solution of daily life problems were expected to be revealed. A case study is defined as an in-depth description and examination of a limited system (Merriam, 2013). Thus, the unit of analysis in the study is the perceptions of teachers about using MM in daily life problems.

2.1 Study Group

The study participants consisted of teachers who took the MM course, and the participants were selected by purposive sampling (Christensen, Johnson & Turner, 2015). Mayring (2011) noted that a small number of participants in such studies allows researchers to quickly understand the event that needs to be described and analyze it faster. Therefore, in this study, data on the perceptions of five mathematics teachers were collected in line with the analysis unit. Table 1 contains participant demographics.

Table 1: Participant demographics

Participant Code	Gender	Graduated High School	Graduation Area	Type of Employed School	Graduated Faculty	Professional Experience
P1	Female	Anatolian High School	Science	Middle School	Faculty of Education	Two years
P2	Female	Anatolian Teacher Training High School	Science	Middle School	Faculty of Education	Five years
P3	Female	Anatolian Teacher Training High School	Science	Middle School	Faculty of Education	Two and half years
P4	Female	Anatolian High School	Science	Middle School	Faculty of Education	Three years
P5	Male	Anatolian Teacher Training High School	Science	Middle School	Faculty of Education	Three years

When the participants are examined, it can be assumed that they reflect a homogeneous group. Although this does not show that the inferences about the investigated phenomenon can be generalized, it can be argued that it can strengthen the inferences that can be obtained.

2.2 Application Process

In the application process of the study, the participants stated that they wanted to take part in the research voluntarily in the context of the MM course. Therefore, with regards to this course, what MM is, MM competencies, its process and components, and the models presented by researchers about MM from past to present are examined. Accordingly, sample applications involving daily life problems are included. In this process, a book about MM and the activities in it were used (Bukova-Güzel et al., 2016).

2.3 Data Collection Tools and Application

A structured form was developed by one of the researchers to collect the teachers' opinions about the use of MM in the solution of daily life problems. A pilot study was conducted by applying this form to one teacher. This pilot study was examined by two expert researchers, and arrangements were made for a clearer understanding of the questions in the form. This form consists of demographics, questions about the use of MM in daily life problems, and a daily life problem. Participant teachers were given one week to answer the structured interview form. The research data were obtained using this form. In case of studies, it is frequently used to test the validity of the data obtained for the investigated phenomenon. In this context, teachers were asked to solve a daily life problem in a structured form in the context of MM, and the validity of their opinions on this topic was examined.

The research problem used in the study was adapted from Gök (2020). In this study, four different ways to solve this problem are given. This shows that teachers have multiple ways to solve the problem. Besides, by giving a long period of time, such as one week, to solve the problem, teachers are provided with the opportunity to solve the problem in multiple ways. The data obtained in the study were collected through

- A daily life problem and
- An interview form about MM in solving daily life problems in the structured form.

The problem given to the teachers in the structured form is presented below.

How many people will be at the meal?

Students from secondary schools A, B, and C came to a scout camp. Although it is not known how many students from each school attended the camp, the estimated numbers from the form filled in by the students at their school before the camp (attending, not sure, or not attending) were determined as follows:

- Minimum 30 and maximum 45 from school A,
- Minimum 50 and maximum 90 from school B,
- Minimum 25 and maximum 75 from school C,

A nature trip was organized for all the students participating in the camp to explore the environment. In this nature trip, students crossed a suspension bridge and got on a boat and a cable car. A maximum of 3 students can cross side by side on the suspension bridge. A maximum of 5 students can fit on the boat and 7 students on the cable car. Since this nature tour is aimed to be completed as soon as possible, students crossed the bridge in threes, got on the boat in fives, and boarded the cable car in sevens. However, this rule was not followed for the students who stayed in the last row of this trip. In this process, it is known that

- 1 student remained at the end of the suspension bridge,
- 2 students on the last trip of the boat, and
- 4 students on the last trip of the cable car.

At the end of the trip, the cook must know the exact number of students to prepare a meal. However, the cook of the camp is undecided about what to do about how many people he will cook with this information. In light of this information, could you help the cook of the camp regarding the number of students participating in the trip?

First, the daily life problem reflects an application of the Chinese Remainder Theorem mathematically. Secondly, the interview questions of teachers regarding the use of MM in solving daily life problems include "What are the benefits of MM in solving daily life problems?" "What are the difficulties that may arise if MM is used in solving daily life problems?" and "Do you use MM to solve daily life problems in your classroom? Explain with examples."

2.4 Data Analysis

In the study, a daily life problem was analyzed with descriptive analysis in the analysis of the data obtained from the solution approaches of teachers through MM, and the data containing the teachers' opinions on the examination of daily life problems with MM were analyzed through content analysis.

Descriptive analyzes were carried out based on De Corte, Verschafeller, and Greer's (2000) model. The processes in this model (such as understanding, modeling, and mathematical analysis) are classified as complete, incomplete, and no explanation. For example, if the participant teachers perform the process completely, it is coded as complete, making it in a single direction or incompletely was coded as incomplete, and not providing any explanation or stating it incorrectly was coded as no explanation.

For the data analysis of the teachers' opinions, the data was first transferred to the computer. Then, content analysis of the data was carried out by two experts. In this context, codes were created, and themes were obtained from these codes through reduction and combination (Saldaña, 2011). In the findings, the results were supported using the themes and direct quotations from the teachers' opinions on these themes.

2.5 Validity and Reliability

The research validity was ensured using more than one data collection tool, presenting the findings with evidence, and analyzing the data according to a specific approach. In this direction, the use of MM in daily life problems was not only limited to a sample application but also reflected whether the teachers actually used the modeling processes or not. The consensus among coders regarding the analyzes performed was calculated (Miles, & Huberman, 1994). The intercoder agreement was determined as 94%. This result indicates that the analysis performed is reliable. Additionally, in terms of providing the credibility criteria put forward by Lincoln and Guba (1985) for case studies, the data were studied for a long time, the emerging issues were constantly observed, the data were checked with the participants, different methods were used in the data analysis, the findings were systematically tested, the findings were reviewed by the other expert, the findings were presented in detail, and the results were kept open to audit.

3. Results

This research aims to investigate the case of mathematics teachers in solving a daily life problem within the scope of MM education they have received at the graduate level and reveal their perceptions regarding the use of MM in such problems. In this context, the findings are presented under two sub-headings: "the processes of solving a daily life problem with MM" and "the opinions of mathematics teachers about examining daily life problems in the context of MM."

3.1 The Mathematics Teachers' Processes of Solving a Daily Life Problem with MM

Within the scope of this study, the solution of a daily life problem by mathematics teachers with MM was analyzed with the themes of understanding, modeling, mathematical analysis, interpretation, evaluation, and communication in line with the approach suggested by De Corte, Verschaffel, and Greer (2000). Findings related to solution processes are presented in Table 2.

Table 2: Modeling processes that teachers use in solving a daily life problem

Themes	Criteria	P1	P2	P3	P4	P5
Understanding	Complete		✓	✓		
	Incomplete	✓			✓	
	No explanation					✓
Modeling	Complete	✓	✓	✓	✓	✓

	Incomplete					
	No explanation					
Mathematical Analysis	Complete	✓	✓	✓	✓	✓
	Incomplete					
	No explanation					
Interpretation	Complete	✓	✓	✓	✓	✓
	Incomplete					
	No explanation					
Evaluation	Complete		✓			
	Incomplete	✓		✓	✓	✓
	No explanation					
Communication	Complete				✓	
	Incomplete					
	No explanation	✓	✓	✓		✓

It is observed that teachers generally include MM processes in solving the processes of a daily life problem. Besides, it was determined that especially modeling, mathematical analysis, and interpretation processes were fully implemented, but some teachers provided incomplete explanations about other processes. The understanding process is usually found to be implicit because it is not possible for other processes to emerge fully without understanding. It is an indication of this that teachers show a correct approach until the evaluation in the following processes. However, the deficiencies in the evaluation and communication stages are remarkable. During the evaluation process, it is observed that the teachers only make attempts to check the solution they offer. Nevertheless, it was observed that they could not propose different solutions and had difficulty in developing an argument about why their own solution was the ideal way. Similarly, the explanation regarding the communication process was given by only one teacher. Based on this data, it can be deduced that in the solution of daily life problems, teachers hastily start solving the problem without paying the necessary attention to the stage of understanding the solution of the problem. Besides, it is understood that the evaluations about why the solutions offered for the daily life problem are the most effective are lacking. These inferences can be observed more clearly in the citations of teachers in the modeling processes.

> P1: Since I was familiar with the problem situation, I had no trouble understanding it. First, I formulated the problem after understanding the problem. (*understanding stage-incomplete explanation*)
>
> P4: While solving the problem, I first determined what was given and what was requested. (*understanding stage-incomplete explanation*)
>
> P3: I fully understood the problem when I read it for the second time. First of all, I found out the maximum and the minimum number of students who participated in the trip. Then I realized how many trips the suspension bridge, boat, and cable car made and realized that the number of students passing through all of them would be equal. (*understanding stage - complete explanation*)

Based on these quotations, it can be stated that although P1 and P4 teachers expressed that they understood the problem, they did not clearly reveal the conditions in the problem and what was requested. On the contrary, the P3 teacher offered explanations that fully express the conditions given in the problem and what is asked for.

It was determined that the teachers presented similar explanations with slight differences in the modeling, mathematical analysis, and interpretation stages. Explanations on this subject are given in the excerpts below.

> P4: The mathematical model I used is the equations I wrote to find the common term of three different number patterns in a particular range [105, 210]. (*modeling stage-complete explanation*)
>
> P1: To solve the inequality I created, I brought the algebraic expressions to the multiples by adding 38 to each algebraic expression and expanded the LCMs of the coefficients by 2 to fall within the inequality range. (*mathematical analysis-complete explanation*)

> P5: Considering both conditions, the number of students could be 67, 172, 277, 382, … (3 minus 2, 5, 8, and 11 multiples of 35). Based on the estimation of the students' numbers, the number of students should be 172. (*interpretation stage-complete explanation*)

It is seen that teachers produce similar arguments in the modeling, mathematical analysis, and interpretation stages of the modeling process, albeit in different ways. This solution bears the traces of an approach commonly used in the curriculum. In this context, teachers determined the range of the estimated number of the group. Additionally, they set up three different equations from the given ones and focused on their common solutions.

In the evaluation and communication stages, it is observed that only one teacher could give a complete explanation, and the others gave incomplete or no explanation. Therefore, the teachers' opinions on this subject are given below.

> P2: 172 is between 105 and 210, 1 plus of 3 multiples, 2 plus of 5 multiples, and 4 plus of 7 multiples. The suitability of the result found for the given cases can be verified… However, I added 38 to be an exact multiple of 3, 5, and 7. There may be a mathematical process to doing this, and the mod technique can be used. This is what I can recall now. The mod technique could be used twice. Maybe it could be solved according to the remainder. T= {...1, 4, 7, 10, 13.....}. I don't think there is any need for this solution. It could be used for larger numbers. (*evaluation stage-complete explanation*)
>
> P1: I had difficulty in the verification stage of the mathematical modeling in solving this problem because I could not find a way to verify the result I found, other than re-do the mathematical analysis. If the result was verifiable from other sources, the verification step would be easier for me. (*evaluation stage-incomplete explanation*)
>
> P4: Report: The cook needs to cook for 172 students. If you want to be sure of the result I have reached, the control part in the solution I have sent will help you. (*Communication- complete explanation*)
>
> P2 indicates that there can be an arithmetic solution. In this context, an attempt to support her solution with a different solution is highlighted. Teacher P4 tried to establish a relationship between the result and the situation as an indication of the idea of helping a client by associating the result she found with the given problem situation. This situation reflects the need to use modeling processes related to the given problem.

It can be stated that teachers can generally use modeling processes appropriately in solving daily life problems. On the other hand, it was determined that the process of understanding the problem was skipped quickly, the teachers had difficulties in giving the most effective solution during the evaluation stage, and the communication stage was mainly ignored.

3.2 The Opinions of Mathematics Teachers about Examining Daily Life Problems in the Context of MM

The opinions of the mathematics teachers about the examination of daily life problems in the context of MM were collected in line with the knowledge and experience they gained within the scope of MM education they received at the graduate level. In this context, first of all, the teacher's opinions about the benefits of using MM in solving daily life problems are given in Figure 2.

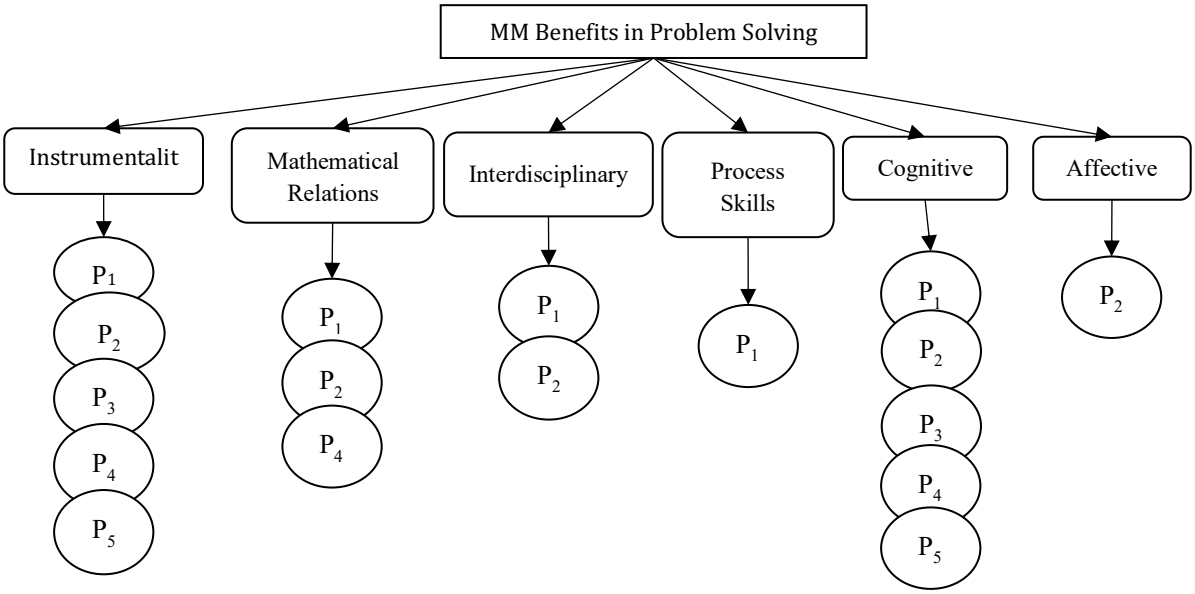

Figure 2: Themes regarding the benefits of teachers' use of MM in PS

Figure 2 indicates that teachers activate especially cognitive skills in MM in the solution of daily life problems, and it can be used as a tool in solving the problem. On the other hand, it was pointed out that they have the potential to notice mathematical relationships in daily life problems, establish connections between different disciplines, activate mathematical process skills, and affect affective skills positively. Relationships to these themes are clearly seen in the teachers' opinions given below.

> P3: We benefit greatly from modeling when transferring abstract concepts to younger students. (*Instrumentality*)
>
> P1: The mathematical modeling process allows the teacher to understand, simplify, interpret, and verify the problem he encounters in daily life more than a teacher who does not know the process. (*Mathematical Relations*)
>
> P2: As individuals who can model, we realize the importance of the relationship between mathematics and other disciplines, and we can cooperate with other teachers. (*Interdisciplinary*)
>
> P5: It makes learning permanent. (*Cognitive*)
>
> P1: Using mathematical modeling in the classroom as a tool for problem-solving will push individuals to think actively. (*Cognitive*)
>
> P1: Using mathematical modeling in problem-solving will bring mathematics to daily life; thus, it will make the problems interesting and make individuals want to study. (*Affective*)

MM is a way of teaching abstract concepts in the solution of teachers' daily life problems, and it can be used to perceive and analyze mathematical relations in these problems. This approach also activates the thinking processes of the students and allows creating a connection of mathematics with other disciplines. While emphasizing that permanent learning emerges at the end of this process, it is referred to the potential to positively affect student interest, primarily associating problems with daily life.

The teachers' opinions about the problems they may encounter in the process of using MM in the solution of daily life problems were collected. The analysis of the data obtained in this context is presented in Figure 3.

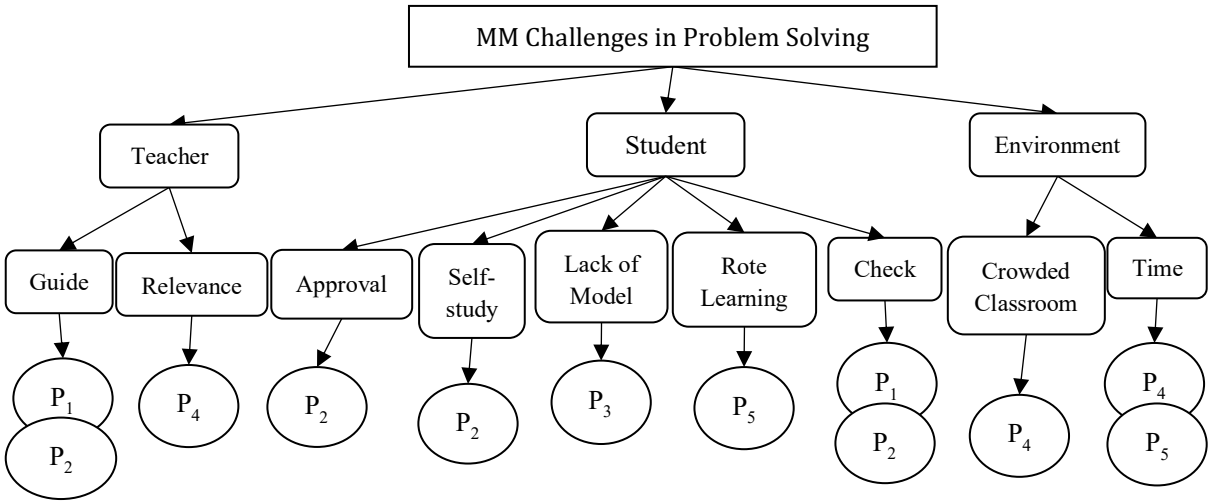

Figure 3: Challenges faced by teachers regarding MM in PS

The challenges that teachers may encounter regarding the use of MM in daily life problems are categorized under the perspective of teacher, student, and environment. It was suggested that most of these difficulties might arise related to the student stakeholder. Regarding the student's use of MM in PS, the desire to get approval for the solution performed, seeking an individual solution and self-study by not participating in the group, not being able to find a suitable model for the desired situation, inability to adapt to the use of MM due to the traditional teaching method being used to rote learning, and failure to control what is achieved by following a results-oriented approach rather than a process are shown as the prominent challenges. In terms of the teacher, it was expressed that the organization may be inadequate in problem-solving, and there may be problems with the problem being appropriate for the grade level. Finally, it is explained that sufficient time in crowded classrooms may pose a problem in solving such problems. These explanations can be seen in more detail in the following teacher quotations.

> P2: Students may try to get approval from the teacher in this process. They may also want to get information about the correctness of the solution. (*Getting approval*)
>
> P2: Students may prefer self-study; thus, there may be problems in group work. (*Self-study*)
>
> P3: Sometimes, mathematical models can be more challenging to understand than the problem. This may be due to the difficulty in finding a suitable mathematical model for the problem. (*Lack of model*)
>
> P5: It can be challenging and time-consuming for students who previously used memorizing and rote learning rules. (*Rote learning*)
>
> P2: Students proceed towards the result and do not usually check the correctness of the solution. (*Check*)
>
> P4: I think that the only difficulty that can be caused by using mathematical modeling in problem-solving may be the balance of time-class size. (*Crowded classroom-Time*)

Based on these explanations, teachers implied that students might want to receive feedback from the teacher regarding the correctness of their actions regarding the use of MM in solving daily life problems, have difficulty in finding a suitable model, it is not easy to establish MM as a method, and this step can be ignored in MM because the solution is not checked in the solution approach that students are normally used to. Besides, it was emphasized that the teacher should consider the students' level in the selection of the problem, present it by making the necessary adaptations in the problem, and give appropriate feedback where necessary during the solution process. Finally, it was noted that the implementation of such applications in crowded classrooms might cause problems in terms of time.

Teachers were asked about their use of MM in solving daily life problems and how they used it. The analysis of the data obtained in this context is presented in Figure 4.

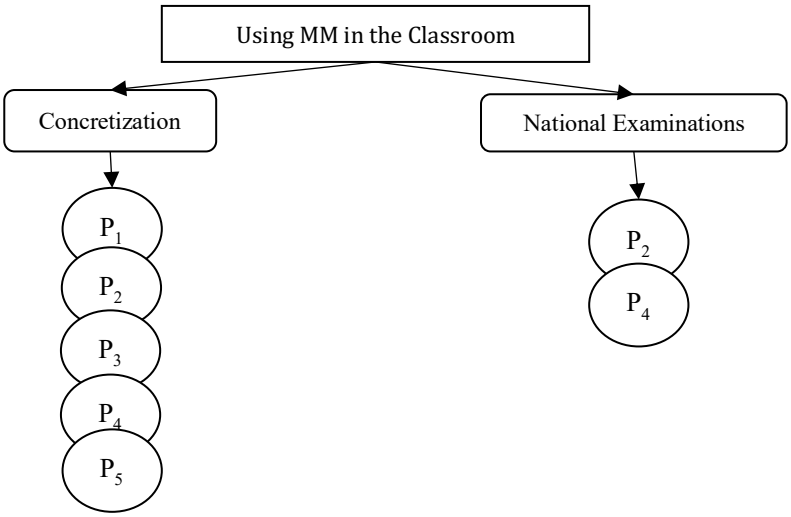

Figure 4: Teachers' use of MM in the classroom

It is understood that teachers use MM in two contexts in their classrooms. These are expressed as examining and concretizing the problems in the national exams called the high school entrance exam (LGS). The following excerpts provide clues about how teachers use MM in the classroom in these contexts.

> P2: Obviously, the LGS exam, in which "new generation" questions are asked, requires proficiency in solving complex problems such as reading comprehension, interpretation, and solution development in a practical way. In this process, we include questions that we can use mathematical modeling in the classrooms. (*National Examinations*)
>
> P4: For example, we follow a modeling process with paper activities to discover identities in the textbook. (*Concretization*)
>
> P5: I use it not only with concrete materials or models with figure content but also with verbal expressions. (*Concretization*)

It is understood that teachers use MM in their classrooms to prepare for national examinations with complex questions and with the idea of concretizing abstract mathematical objects. Hence, teachers use MM for very limited purposes in their classroom practices. For example, a practical method for solving complex questions, empirical demonstration of the correctness of identity, and verbal explanations can be considered useful in this context.

4. Discussion

The results obtained in the study are presented under two sections: "The results of the mathematics teachers' processes of solving a daily life problem with MM" and "the results of the opinions of mathematics teachers about examining daily life problems in the context of MM."

4.1 The Results of the Mathematics Teachers' Processes of Solving a Daily Life Problem with MM

When the solutions of mathematics teachers for a daily life problem were examined in the context of the MM process, it was seen that they generally performed the modeling, mathematical analysis, and interpretation processes adequately. However, they had problems in other processes (understanding, evaluation, and communication) due to deficiencies in content knowledge or not paying attention to MM processes.

First of all, the rapid skip of the comprehension process suggests that this process may have taken place implicitly. The proof of this situation can be explained as the correct application of the next three processes by the teachers. It is underlined that a problem in the transition from the phenomenon under investigation, which reflects the first process of the modeling, to the situation model negatively affects other stages. In support of this, it is stated in different studies that problems in the first steps of modeling have negative effects on the next steps (e.g., Deniz,

& Akgün, 2018; Hıdıroğlu et al., 2014). It is important to note that since a context is created for teachers to help a client, although teachers should provide explanations showing that they are aware of this process, only P2 and P3 teachers fully reflect this process. It was determined that other teachers quickly moved to other steps with no explanation or insufficient explanations regarding whether they understood the problem. To this end, the research results are partially similar to those of studies (Hıdıroğlu et al., 2017; Peter-Koop, 2004) that indicate that there is no difficulty in understanding the problem in studies that seek solutions to daily life problems with a modeling approach. On the other hand, in different studies, it was seen that the participants (prospective teachers and teachers) were deficient in understanding modeling activities and tended to take the easy way out (e.g., Duran et al., 2016; Ural, 2014; Urhan, & Dost, 2016). In this study, in addition to these results, it was determined that some teachers moved on to other processes without providing any explanation that they understood the problem they were familiar with. This may be due to the fact that the participants are used to solving problems directly without thinking too much about them (Blum, & Borromeo-Ferri, 2009; Eraslan, & Kant, 2015). In this study, teachers' rapid transition to the solution can be associated with their familiar approaches to PS or their carelessness about understanding from modeling processes.

In the evaluation process, only one teacher expressed that there could be different solution methods by giving examples and made a complete evaluation about the correctness of her solution. It was observed that other participants did not include explanations that there might be different solutions during the evaluation stage and were limited to checking the mathematical operations in their solutions. Therefore, it was out of the question for teachers to take the initiatives to reveal the most effective solution among different solutions. Although there are multiple solutions to the problem presented to the teachers, the fact that almost all of them similarly solved the problem can be explained by the fact that this solution is dominant in the curriculum. However, the absence of other solutions can be interpreted as the teachers' content knowledge and their inability to use the connections between mathematical concepts effectively. This result shows parallelism with the results of previous studies that there may be deficiencies in interpreting mathematical results based on the actual situation in the evaluation process (e.g., Berry, & Houston, 1995; Çakmak-Gürel, & Işık; 2018; Duran et al., 2016; Hıdıroğlu et al., 2014; Hıdıroğlu et al., 2017; Kapur, 1982; Peter-Koop, 2004; Sekerak, 2010; Tekin-Dede, & Yılmaz, 2013). Different models or solutions were developed by the participants in different studies; that is, there is no single correct model or solution in MM (Hıdıroğlu et al., 2017; Yanagimoto, 2005). In this respect, it is noteworthy that for a problem with multiple answers (Gök, 2020), creative solutions are not found at the end of the process, and even a different solution is not even proposed. This deficiency in the evaluation process may be an effect of the traditional rote-learning approach, or it may be due to the lack of content knowledge or the insufficient internalization of the modeling process. Hence, Tanju (2020) concluded that prospective teachers had memorized information about the mathematical concepts in the given problem, and they failed in model creation activity.

The fact that teachers solve the problem in a single way may also be due to their lack of group work. In this study, the teachers individually sought a solution to the daily life problem with the MM approach. In other words, group work was not allowed. Group work has the potential to create a rich environment for problems by enabling participants to express their ideas more quickly, close each other's gaps, and develop different perspectives (Ärlebäck, 2009; Karaci-Yasa, & Karataş, 2018; Korkmaz, 2010; Peter-Koop, 2004). In this direction, the fact that different solutions are not presented may also be due to individual work rather than group work.

In the communication stage, only one participant wrote a report that responded to the client by associating the result with the given problem situation. This step was ignored by the other participants. This may be another indicator of their inability to internalize the modeling processes. This lack of internalization can be seen as a result of not giving enough place to MM in school mathematics. Additionally, in parallel with the results obtained in different studies on the MM process, it was observed that prospective teachers were unsuccessful in using verbal explanations (Tekin-Dede, & Yılmaz, 2013; Kertil, 2008).

Consequently, teachers can generally use modeling processes appropriately in solving a daily life problem; however, some teachers have deficiencies in the stages of understanding, evaluation, and communication.

4.2 The Results of the Opinions of Mathematics Teachers about Examining Daily Life Problems in the Context of MM

It was found out that all teachers agree on using MM in solving daily life problems, activating cognitive skills, and using it as a tool in PS. Besides, teachers noted that the use of MM in daily life problems could be beneficial in terms of recognizing mathematical relationships, establishing interdisciplinary links, activating mathematical process skills, and developing affective skills. In past studies in literature, it was concluded that the association of MM with daily life led to positive development in terms of the activation of cognitive and affective skills (Doruk, & Umay, 2010; Işık, & Mercan, 2015; İncikabı, & Biber, 2020; Muşlu, & Çiltaş, 2016; Özer, & Bukova-Güzel, 2016; Şahin, & Eraslan, 2019; Şahin et al., 2019; Türker et al., 2010; Urhan, & Dost, 2016; Zbiek, & Conner, 2006), being a tool for solving daily life problems (Hartono, 2020; Heymann, 2003; Kertil, 2008; Lesh, & Zawojewski, 2007; Tekin-Dede, & Bukova-Güzel, 2013) and establishing interdisciplinary cooperation and communication by developing interdisciplinary skills (Deniz, & Akgün, 2017; Kertil, 2008; Suh et al., 2021; Şahin, & Eraslan, 2019; Takaoğlu, 2015; Tekin-Dede, & Bukova-Güzel, 2013). In this context, the research results show parallelism with the studies in the literature.

As another result of this study, the challenges of MM in solving daily life problems emerged as the desire for approval, seeking individual solutions by not participating in the group, not being able to find a suitable model, not adapting due to the traditional teaching's use of rote learning, and not checking the solution due to being result-oriented. In parallel with the research results, different studies also suggested group work (Deniz, & Akgün, 2017; Şahin, & Eraslan, 2019), inability to find a suitable model (Zulkarnaen, 2018), and the continuation of the traditional-rote learning approach (Kertil, 2008; Urhan, & Dost, 2016) as the difficulties of MM. To this end, the desire for approval, difficulties in working with the group, and the lack of check by acting result-oriented can reflect the traditional approach. In this direction, the source of the difficulties that may be experienced in terms of students is the tendency to use the traditional method widely in the teaching environment.

The challenges of MM for teachers in solving daily life problems are expressed as the inadequacy of the organization and the inability to develop activities suitable for the grade level. In the literature, it was highlighted that it is vital for teachers to organize the modeling process (such as planning and guidance) (Borromeo-Ferri, 2013; Yanık et al., 2017) and that MM activity should be chosen according to the level and readiness of the student (Işık, & Mercan, 2015; Urhan, & Dost, 2016). In this regard, the results show parallelism with the results of previous studies.

The challenges of MM in terms of the environment in solving daily life problems are expressed as classroom size and course time. Similarly, in the study conducted by Şahin and Eraslan (2019), it was found out that MM adversely affects classroom management in crowded classrooms and that the long-time activities may create a problem in practice. Additionally, the fact that the intensity in the curriculum is expressed as a factor that makes the use of MM in terms of time difficult in many studies (Akgün et al. 2013; İncikabı, & Biber, 2020; Özdemir, & Işık, 2015; Tekin-Dede, & Bukova-Güzel, 2013; Urhan, & Dost, 2016); Yanık et al., 2017; Yu, & Chang, 2009) support this study's results.

Teachers emphasized that MM is used for two purposes in the teaching environment, namely concretization and national examinations. First, the results of this study show parallelism with the results in the literature reporting that MM is mainly used for concretization in textbooks (Çavuş-Erdem et al., 2017; Tekin-Dede, & Bukova-Guzel, 2013), and teachers tend to use MM to concretize (Işık, & Mercan, 2015). Secondly, Şahin and Eraslan (2019) underlined that MM could be used in preparation for the Program for International Student Assessment (PISA) and Trends in International Mathematics and Science Study (TIMSS) exams. In this study, the results of the studies differ in terms of expressing the use of MM in preparation for national examinations. The basis of this difference may be due to the addition of MM skills to the curriculum (MoNE, 2018) and that, unlike the TEOG exam, the LGS is similar in terms of mathematical skills measured in PISA and TIMSS exams. (Kırnap Dönmez, & Dede, 2020). It can be said that this situation encourages teachers to use MM in classroom practices in solving daily life problems.

In the research results, it is critical to note that teachers use MM in their classroom practices at a minimal level. In different studies, it was argued that teachers do not have sufficient knowledge about MM, and they encounter many difficulties in practice (Akgün et al., 2013; Doğan-Temur, 2012). To this end, it can be deduced that teachers do not have sufficient knowledge and experience in practice about the application of MM in solving problems.

As a result, it was understood from the teachers' opinions that the MM approach has many benefits in solving daily life problems, albeit significant difficulties experienced or experienced in practice.

This study reflects the opinions of five mathematics teachers regarding the use of the MM approach in daily life problems and the extent to which teachers actually use MM processes in an application. In this study, indications were obtained that even if the teachers had MM education, they partially acted in accordance with the MM processes, tended to use the approaches they are accustomed to in daily life problems, and had difficulties in some MM processes. However, these indicators need to be tested in larger groups of teachers in different problem situations (with teachers with or without familiarity) and in the context of different modeling approaches. It is expected that the studies to be conducted in this direction will open new doors for the effective use of MM in problem-solving from the perspective of teacher training.

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Meranao ESL Students' Experiences in Online Learning in Time of COVID19 Pandemic

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Abstract
COVID19 pandemic has compelled educational institutions to re-navigate their learning modalities to that of fully online learning, thus, generating a totally new experience for teachers and learners who are novices in the flexible or blended learning. This study, therefore, attempted to explore the students' experiences of online learning in time of COVID19 via in-depth quantitative method. A total of 171 students from secondary, tertiary, to graduate levels engaged in online learning were selected as participants using purposive sampling technique. The researchers-made questionnaire focusing on students' satisfaction and dissatisfaction with online learning, as well as their desired improvement, was distributed online to these students from which responses were collected. Based on the results, the most common environment and methods for participating classes were student homes and mobile phones (touchscreen/android). Students indicated that they are satisfied with the following features of online classes: selecting a quiet place for online learning, quality classes at home, and being with the family at home while doing online learning. In contrast, students are dissatisfied about the internet connectivity, not getting full attention from teachers, and have difficulty in sharing ideas. Areas that need improvement according to the students were closely related to the causes of complaints, such as improving network connectivity, microphone and sound quality, and smooth communication during online classes. These findings imply that students' educational environments are important and the quality of interactions can vary depending on the teachers and technology used. This study recommends that an improved and effective online learning system, maintaining academic achievement similar to traditional classroom teaching can be designed in preparation for any possible future crisis like COVID19.

Keywords: Online Learning, Students, Experiences, Technology, COVID19

I. INTRODUCTION

COVID19 pandemic has changed the lifestyles throughout the world. Social distancing has been mandated, and authorities have exhorted people to reduce travel as much as possible. Similar safety measures apply to education. The Philippines then led the development of learning and supplementary learning materials through the Learn at

Home menu on the Department of Education (DepEd) that recommends the use of Google meet, Google class, and Zoom platform for online learning, which various schools are currently using.
Colleges have sovereignty in decision-making, but protecting students and faculty from COVID19 is important. Rather than conducting face-to-face classes, colleges utilized online learning to protect the safety of their students and faculty. Administrators, faculty, and students are conforming to the innovative online learning environment in a range of ways.

However, online learning has not been implemented only as a response to the crisis. Ever since the increasing improvement of the internet and technology, learners were able to study regardless of their location. Thus, making online learning a commendable substitute to face-to-face learning (Stacey, Peter, & Barty, 2004). A subgroup of online learning like video-based distance learning, which facilitates two-way intercommunication between different classrooms using remote imaging, has been in widespread use since the 1990s (Jeong, 2010). However, unlike existing online courses, which are conducted by following planned course designs, education in colleges follows a form of emergency remote instruction. This is a substitute and temporary approach of teaching that derives in response to a specific crisis situation (Wang, Zhang, Zhao, Zhanh, & Jianh (2020), which strictly differs from typical distance education. “Subsequently, distance education serves as the distance in time and/or location between learners and learning resources while remote education is classified as spatial distance.

Distance education deals with distance within the context of different angles and strives to define it through transactional distance” (Bozkurt & Sharma, 2020). Nonetheless, according to Means, Bakia, and Murphy, (2014) effective online learning should consider several factors, including pacing, student-teacher ratio, modality, pedagogy, the role of students, the role of the teacher, online communication synchrony, the role of online assessments, and feedback. Considering present class designs are understood to be only provisional responses to the emergency needed for remote teaching, and with the greater authority given to administrators than professors in designing, developing, and implementing curricula, these classes do not indicate sufficient aspect (Affouneh, Salha, & Khlaif, 2020; Hodges, Moore, Lockee, Trust, & Bond, 2020).

Furthermore, both teachers and learners have the struggle to conform to emergency remote teaching, as it does not have an outline class design in the way that actual online learning does. Schools that are implementing emergency remote teaching should grant support this is easy to access, effective, and address factors of distance learning. These factors consist of interactions with students and their parents or guardians, prescribed infrastructure, the strength of the personnel to engage emergency remote learning, meeting the needs for learning, handling difficulty experienced by students and personnel, and the outcomes, achievement, and assessment of students and staff (Hodges et al., 2020).

In addition, the process of emergency remote teaching vary from college to college, and some colleges have now equipped with the online learning system, which has led to various perceptions of the process and effectiveness of learning among students, who are ultimately the consumer of education. Additionally, other uncertain changes in the surroundings may occur, such as warfare, regional competition, and other natural catastrophes. Therefore, the need to prepare and implement education using a remote imaging system should persist (Bozkurt & Sharma, 2020).

Review of Related Literature and Studies

Consequently, there were studies done focusing on online class experiences. The results of one of these studies indicate that academic achievements at online schools are better than those at similar traditional schools (Shoaf, 2007). Barnett-Queen, Blair, and Merrick (2005) found numerous students to be competent to learn in online discussion and that such discussions are not adherent to those in a traditional face-to-face meetings. Qui and McDougall, (2013) reported that in small online discussions, students do not spend a lot of time socializing as they would in traditional face to face classes, allowing them to remain fixate, and text-based online subgroup discussions lead students to focus on more discussions because they are all recorded. These discusses about the environment and understanding of online classes. Students have been found to be convinced with the flexibility they participate in remote learning, where they do not have to concern about what to wear for school, are not

burdened by commuting, and can accustom their progress to apply their own trot and schedule (Alexander, Truell, & Zhao, 2012).
For studies that take negative characteristics of online classes into account, findings indicate that students may misunderstand assignments when classes are not face-to-face, they have trouble when technical problems occur, and can be distracted by engaging in activities not related to classes, such as engaging in Facebook while taking online classes. Also, it has been noted that class problem may exist and the need for self-discipline and determination has grown (Alexander et al., 2012).

A study showed that unlike traditional education, students could not participate in online classes that require cooperation, and interaction between students and professors. Additionally, students cannot participate in discussions with varied groups of learners (Dumford & Miller, 2018).

A study of online discussion that was supervise with graduate students did produce positive and confident responses to online instruction but also reported that when given a choice, students preferred face-to-face discussions, and they considered online discussions to be a useful and helpful supplemental approach of having discussions but that they could not change face-to-face and direct discussions (Tiene, 2000).

As presented, there have been researches demonstrating both negative-positive aspects of doing online classes. Therefore, this study analyzed the experience of students undergoing online learning due to COVID19, focusing satisfaction, dissatisfaction, and the needs for improvement that can lead to further development in online learning.

II. METHODS AND MATERIALS

This study adopted a flexible and in-depth quantitative method.

Respondents

The respondents of the study were students who experience online learning during COVID19 selected by purposive sampling technique. A questionnaire was distributed online and a total of 171 students responded. The 171 respondents were 13 senior high students, 109 undergraduate students, 35 MA students, and 14 doctorate students. In total, there were 36 males and 135 females.

Research Process

To obtain the respondents' experience of online learning, a survey was conducted with questionnaire that contained the following three questions: "What features of online learning do the respondents are satisfied with?", "What features of online learning do the respondents are dissatisfied with?", and "What features of online learning do the respondents want to improve on?"

III. RESULTS AND DISCUSSION

Results

Use of Virtual platform (google class/google meet/zoom)

Locale of classes

A total of 215 responses were received to the question of what location students used to participate in online learning. They identified their homes as the most common location, with 161 responses (74.88%), followed by café with 25 (11.5%), office with 15 (6.98%) responses, dormitory with 13 (6.06%) and reading room with only 1 (0.49%) response.

Technology used to take classes

A total of 253 responses were given to the question of what technology students used for participating in online learning. Mobile phones (touchscreen/android) were identified as the most commonly used means, with 153 responses (60.47%), followed by laptops with 86 (34%) responses, personal computers/desktop with 9 (3.55%) responses and tablet/iPad with 5 (1.98%) responses.

Table 1: Areas of satisfaction in online learning

	SD	D	U	A	SA	Mean	INTERPRETATION
1. I can select a quiet place for my online learning	3 (1.8%)	20 (11.7%)	9 (5.3%)	117 (68.4%)	22 (12.9%)	3.79	AGREE
2. I am taking quality classes at home	7 (4.1%)	39 (22.8%)	18 (10.5%)	96 (56.1%)	11 (6.4%)	3.40	AGREE
3. I can be with my family at home while doing my online learning	2 (1.2%)	14 (8.2%)	8 (4.7%)	102 (59.6%)	45 (26.3%)	4.02	AGREE
4. I can save the time commuting from home to school because I do my online classes at home	1 (0.6%)	6 (3.5%)	6 (3.5%)	80 (46.8%)	78 (45.6%)	4.33	STRONGLY AGREE
5. I can take my online classes immediately after waking up.	2 (1.2%)	18 (10.5%)	13 (7.6%)	103 (60.2%)	35 (20.5%)	3.88	AGREE
6. I can make good use of my time in-between classes.	3 (1.8%)	19 (11.1%)	24 (14.0%)	110 (64.3%)	15 (8.8%)	3.67	AGREE
7. I have improved communication with my teachers through the chat window.	7 (4.1%)	34 (19.9%)	22 (12.9%)	98 (57.3%)	10 (5.8%)	3.41	AGREE
8. I improved expressing my opinions due to reduced pressure in face to face communication.	10 (5.8%)	34 (19.9%)	13 (7.6%)	99 (57.9%)	15 (8.8%)	3.44	AGREE
9. I can have one on one conversation in my online classes.	6 (3.5%)	27 (15.8%)	24 (14%)	105 (61.4%)	9 (5.3%)	3.49	AGREE
10. I am safe from COVID19 because classes are conducted online	0 (0%)	5 (2.9%)	3 (1.8%)	56 (32.7%)	107 (62.6%)	4.55	STRONGLY AGREE
11. Lecture contents in our online classes can be recorded.	2 (1.2%)	7 (4.1%)	10 (5.8%)	116 (67.8%)	36 (21.1%)	4.04	AGREE
12. I can immediately search additional references in my online classes.	1 (0.6%)	6 (3.5%)	10 (5.8%)	123 (71.9%)	31 (18.1%)	4.04	AGREE
13. I can talk comfortably in our online classes.	2 (1.2%)	26 (15.2%)	22 (12.9%)	114 (66.7%)	7 (4.1%)	3.57	AGREE
14. I have good communication with my teachers during remote learning.	5 (2.9%)	28 (16.4%)	18 (10.5%)	114 (66.7%)	6 (3.5%)	3.51	AGREE
15. Online classes save my travel cost, as I do not travel from home to school	1 (0.6%)	2 (1.2%)	8 (4.7%)	66 (38.6%)	94 (55.0%)	4.46	STRONGLY AGREE
GRAND AVERAGE						3.84	AGREE

Online learning experiences

Advantages of online learning

Students identified multiple advantages of using google class/google meet/zoom for online learning. A total of 171 responses, and one of the most commonly identified advantages was 'comfortable educational environment,' such as students who can select a quiet place for online learning with 68.4% (117), students can take quality classes at home with 56.1% (96), and students can be with family at home while doing their online learning with 59.6% (102).

'Time utilization' such as students can save time commuting from home to school because they can do online classes at home with response rate of 46.8% (80), students can take classes immediately after waking up 60.2% (103), and students can make good use of time in-between classes with 64.3% (110) were considered significant.

Other notable advantages were smooth communication such as students improved communication with teachers through chat window, students improved expressing their opinions due to reduced pressure in face to face communication and can have one on one conversation in online classes, as they could chat frequently through chat rooms, allowing them to speak comfortably with each other without needing to bother about what other people would feel of them. As well as, social distancing, data utilization, psychological stability and transportation cost reduction.

Table 2: Areas of dissatisfaction in online learning

	SD	**D**	**U**	**A**	**SA**	**Mean**	**Interpretation**
1. I get disturbed from my online classes because of internet problem.	2 (1.2%)	0 (0%)	9 (5.3%)	48 (28.1)	112 (65.5%)	4.57	Strongly Agree
2. I feel like I am not getting full attention from teachers in my online classes.	1 (0.6%)	15 (8.8%)	22 (12.9%)	106 (62%)	27 (15.8%)	3.84	Agree
3. I feel difficulty in sharing my ideas.	1 (0.6%)	15 (8.8%)	21 (12.3%)	115 (67.3%)	19 (11.1%)	3.80	Agree
4. I feel difficulty asking questions after class.	3 (1.8%)	19 (11.1%)	12 (7.0%)	114 (66.7%)	23 (13.5%)	3.79	Agree
5. I can't concentrate due to long period of time in my online classes	3 (1.8%)	17 (9.9%)	30 (17.5%)	106 (62%)	15 (8.8%)	3.66	Agree
6. Group activities are inconvenient in my online classes.	2 (1.2%)	12 (7.0%)	15 (8.8%)	94 (55%)	48 (28.1%)	4.02	Agree
7. Lack of sense of belonging and sense of fellowship	2 (1.2%)	26 (15.2%)	29 (17.0%)	87 (50.9%)	27 (15.8%)	3.65	Agree
8. I am more actively engaged in face-to-face classes than in my online classes	0 (0%)	7 (4.1%)	14 (8.2%)	62 (36.3%)	88 (51.5%)	4.35	Strongly Agree
Grand Average						3.96	Agree

Shortcomings in online learning

The most frequent complaint was 'network instability'. Students get disturbed from online classes because of internet problem which appeared 65.5% (112) responses as shown in Table 2.

Another complaint was 'unilateral interaction', such as students feel like they are not getting full attention in online classes with 62% (106) responses, feel difficulty in sharing ideas 67.3% (115) responses, and feel difficulty asking questions after class with 66.7% (114) response rate.

Another complaint was 'reduce concentration', such as students cannot concentrate due to long period of time in online classes with 62% (106) responses, group activities are inconvenient in online classes with 55% (94) responses; and lack of sense of belonging and fellowship with 50.9% (87) response rate.

Other complaints were reduced academic achievement where in students are more actively engaged in face to face classes than in online classes with 51.5% (88) response rate.

Table 3: Opinions on the improvement of online learning

	SD	D	U	A	SA	Mean	Interpretation
1. Network connectivity should be improved	2 (1.2%)	1 (0.6%)	0 (0%)	36 (21.1%)	132 (77.2%)	4.73	Strongly Agree
2. Teachers' microphone and sound quality state should be improved	1 (0.6%)	2 (1.2%)	3 (1.8%)	61 (35.7%)	104 (60.8%)	4.55	Strongly Agree
3. Sharing of recorded version of classes/uploading of recorded version	1 (0.6%)	2 (1.2%)	4 (2.3%)	71 (41.5%)	93 (54.4%)	4.48	Strongly Agree
4. Smooth communication with students is necessary in online classes.	1 (0.6%)	1 (0.6%)	8 (4.7%)	63 (36.8%)	98 (57.3%)	4.50	Strongly Agree
5. Teachers should provide opportunities for active feedback.	1 (0.6%)	0 (0%)	3 (1.8%)	73 (42.7%)	94 (55.0%)	4.51	Strongly Agree
6. Plan for fair calculation of grades should be presented	0 (0%)	1 (0.6%)	8 (4.7%)	53 (31%)	109 (63.7%)	4.58	Strongly Agree
7. The quality of online teaching materials should be improved	2 (1.2%)	1 (0.6%)	6 (3.5%)	71 (41.5%)	91 (53.2%)	4.45	Strongly Agree
8. Classes replaced by assignments should be improved.	2 (1.2%)	0 (0%)	11 (6.4%)	85 (49.7%)	73 (42.7%)	4.33	Strongly Agree
9. Activities with students in online classes should be improved.	2 (1.2%)	6 (3.5%)	21 (12.3%)	83 (48.5%)	59 (34.5%)	4.12	Agree
GRAND AVERAGE						4.47	Strongly Agree

Desired improvements in online learning

Students cited 'network stabilization' as an area for improvement, such as network connectivity should be improved with 77.2% (132) responses and microphone and sound quality should be improved with 60.8% (104) responses as shown in Table 3. In addition, 54.4% (93) responses expressed a desire to sharing of recorded version of classes/uploading of recorded version to activation of interaction such as smooth communication with students is necessary in online classes with 57.3% (98), teachers should provide opportunities for active feedback with 55.0% (94) responses, and plan for fair calculation of grades should be presented with 63.7% (109) responses. Other suggested included were the quality of teaching material should be improved, classes replaced by assignments should be improved and activities in students in online classes should be improved.

Discussion

Learning environment

Students' homes were the most common locale for participating in online learning during COVID19 pandemic. Students noted being able to learn in personalized space is a great advantage to distance learning. According to Earthman (2002), schools or classroom spaces that are too complex or are crowded can create various problems lowering students' academic achievement. The result of the study shows that the online learning environment is comfortable and convenient to most students, which can be an important element that can positively affect academic achievement.

To empower successful intellectual achievement, it is crucial to find how learners exercise different means for study (Surry & Ensminger, 2001). On the other hand, mobile phones were the most frequently used device for

classes. Learning outcomes may rely on students' approach to high quality media, and that can differ by economic status. Students face challenges because of poorly designed classes in crisis, and they become dissatisfied with the lack of perceived fairness in education and difficulty in obtaining educational resources (Affouneh et al., 2020). Thereupon, measures of developing access to necessary educational materials should be considered to ensure that students' academic achievement is not negatively impacted by their economic situation.

Satisfaction with online learning

Students who participated in this study were satisfied with the available and comfortable educational environment offered by online learning. El Mansour and Mupinga (2007) exhibited that one interest of online learning is that students can take classes from any location, so long as they have access to computer. According to Daymont, Blau, and Campbell (2011), students who adopt online classes were impressed on factors such as flexibility and convenience. This has similarity with the findings of this study that the ability to choose freely one's environment for taking classes is a great advantage for online learning.

In particular, face-to-face classes have the convenience of emotional content, efficiency, fluidity, comfort, ability to read non-verbal signs, and more immediate evaluation, while online classes have the advantages of allowing students to take their time to think and reflect to find and analyzed more in-depth information and being better suited for more introverted students (Meyer, 2007). Nonetheless, students understand the advantages of both face-to-face classes and online classes because free contact is made possible through a chatroom. Expression of opinions in the chatroom enables communication with the professor that can take place individually as well as communication with all participants, making intimate communication possible even with the value of media, and the certainty that communication practicing texts allows time to think is also premeditated an advantage.

Students were also satisfied with the fact that online learning allowed them to reduce their commuting time to school, and letting them use that time for other activities. Although students were unable to select freely their class time, they were still satisfied with the fact that they could purposely use the time they had once had to invest in commuting between face-to-face classes. In addition, some students reported that they can focus better studying alone. Wedemeyer (1981) demonstrated that independent, timely environments that fit the students and provided a sense of individuality and responsibility are major important characteristics of online learning (as cited by Simonson, Schosser & Hanson, 1999). Moreover, Buchanan (1999) stated that the qualities for success in online learning include independence, understanding of data, and the ability to manage time. These qualities may vary by student, but with advantages of online learning in relation to academic achievement as demonstrated in this study, it is important to provide students with necessary information and skills to better approach and take advantage of online learning.

Furthermore, students in this study showed satisfaction with real time online teaching because it made them feel like they were taking one-on-one classes. Hence, it is a new finding and a potential solution to the aforementioned issue. Therefore, the advantages of this form of teaching method for students are worth preserving for possible future combination with face-to-face classes.

Dissatisfaction with online learning and improvement

Students suggested improvements around areas of dissatisfaction, such as improving network instability, activating interactions through the improvement of unilateral interactions and conducting face-to-face for hands-on classroom activities.

The largest dissatisfaction in online learning according to students' experiences is related to network difficulties that disrupted their classes. In online learning, networks are both a means of disturbing educational materials and a means of promoting communication between the teacher and students or among students (Trentin, 2007). Therefore, networks are important to the online learning environment and one of the most significant areas of improvement.

Dissatisfaction with the interaction in online learning included poor interaction with the instructor as well as lack of effectively collaborating with classmates and a lack of possible feedback to be exchanged with students. According to Tu and McIsaac (2002), online communication can vary with typing skills. They added that because appropriate communication is difficult if typing is insufficient, teachers should access the levels of this skill in their classes. This determine the demand for additional, valuable resources that can be administered to students enabling to progress technical skills involved in online learning.

In addition, results show that interactions are determine more by the personal characteristics of the students than by the system of online teaching. As a result, teachers and learners consider themselves fulfilled with interactions only when they are able to master the functions of online platforms and exercise them seamlessly, cooperate actively, and invest sufficient time in communication. According to Kathleen and Christopher (2020), the most important driver of students' intellectual progress is their peers in the same class, and the online academic scheme thus comes at a huge loss. Therefore, measures to enable smooth interactions among peer through online media should be improvise, and teachers' dexterity to lead such interactions should be advanced.

Concentration is another significant argument that students object about, affirming that long classes and need of sense of belonging or fellowship drive to reduced levels of concentration. According to Wei (2020), adapting the pace of online classes can lessen concentration issue along with being able to deliver class content more effectively. Further, Kathleen and Christopher (2020) shows that in the case of online classes, not only are students incapable to achieve specialized skills, but also they cannot enhance their level of comprehension and do not feel that they are engaged in their classes. Therefore, innovative teaching methods should be pursued to create more effective learning environment in online teaching. The performance of teachers and learners are meaningful for improving the effectiveness of online learning. Students seek to be administered with the crucial tools for classes to take place in a practical environment that allows for smooth participation and active teaching.

Furthermore, online learning is challenging for both teachers and students. According to Trust and Whalen (2020), teachers also sense burdened and unaware for online schooling and endure from internet connectivity issues and vague educational policies, similar to their students. Therefore, to improve online learning, the difficulties experienced by both students and faculties should be understood, and ways should be sought to solve them.

According to Schlesselman (2020), the probable for forthcoming crises, requiring the implementation of online classes is high. For this reason, it is timely to prepare online learning environments where students can passionately cooperate in place of the poor class designs presently being used. In addition, Cavanaugh (2005) stated that online learning takes more time to strengthen, improve, and interact with than face-to-face classes. Therefore, a more systematic and effectively planned online learning system should be devised tackling the disadvantages of online learning presented in this study.

IV. CONCLUSION AND RECOMMENDATIONS

The contiguous data of students' experiences of online learning indicate that students have high interest in learning especially in utilizing this new educational system to perform well academically. To aid students learning and achievement, a proper academic environment and system that promote educational development must be prepared. Further, it is crucial to provide an easily clear, efficient manual for teachers and students, as they are unaccustomed with this academic approach, and make further progress in effective class designs, improving the disadvantages, strengthening the existing advantages and all mentioned in this study for a more successful online learning teaching moving forward.

In the light of the data and outcome, the following are recommended.

1. Further studies focusing on other variables about students' experiences of online learning due to COVID19 pandemic may be done;

2. It is further suggested to the future researchers relating their focus in this study to have a deep scope on matters promoting a better explanation of natures about students' experiences of online learning due to COVID19 pandemic;
3. It is highly recommended to the readers to observe all values and lessons in this study and take a deep comprehension on it. It is recommended to have further explorations to uplift the ideas that they meet in this research.

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A Perspective on the Flipped Learning Pedagogy in Thai Undergraduate Education

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Abstract
The world is changing at a much faster pace than in the past and has become more connected than ever before. This has led to increasing levels of economic competition and socio-political-cultural transformation. The necessity for Thailand to compete internationally is based on the creation of quality graduates. The rapid changes in Information and Communication Technology (ICT) are transforming the ways people think, live, learn, and interact. These rapid changes have implications in all spheres of national development and higher education learning. For Thailand to remain competitive in an age of global movement and uncertainty, a knowledge-based society, i.e., a society that generates innovations through creativity and shared and utilized knowledge, must be developed. The flipped classroom approach has a recognized record of delivering the active learning pedagogy to the modern classroom. This practitioners' perspective provides further insights into why Thailand's higher education system would benefit from adapting to this innovative active learning pedagogy.

Keywords: Flipped Classroom, Inverted Learning, Higher Education, Thailand, Active Learning

1. Introduction

The scope, quality, and importance of web-based learning in higher education have increased remarkably over the last decade (Fuchs, 2021a). Fuchs (2021a) states that "the trend is largely triggered by new educational technologies and pedagogical approaches" (p. 18). The flipped classroom approach is not a new concept, though it has gained tremendous popularity in recent years. It is noteworthy that the term 'inverted learning' was first mentioned in the literature by Johnson (1923) and Brooks (1924), who conducted psychology experiments with university students, focusing on their reading ability and seeking a possible correlation between reading ability and the students' intelligence. Approximately one hundred years later, we can see an abundance of laboratory notes and research reports that claim different perspectives on the usefulness of inverted learning, or the flipped classroom.

This statement is supported through an inquiry in the abstracting/indexing database Scopus®. The author conducted a TITLE-ABS-KEY search with the syntax ["flipped classroom" or "flipped learning" or "inverted learning" or "inverted classroom"] that yielded 7,944 articles on 20th June 2021. The concept gained more momentum since the early 2010's, which coincides with the amplified use of ICT at the time, and henceforth, ICT serves as a catalyst for the flipped classroom concept as we know it today. Another notable observation is the distribution of the previously mentioned 7,944 publications. While the first research about inverted learning is

mentioned a hundred years ago, approximately half of the publications since then (45%; n=3,585) originated only in the last three years.

2. Flipping Classrooms as Pedagogy

In recent years, there has been a change in the way lectures in higher education are delivered, going from the traditional instructor-based teaching model to active and student-centered learning experiences that generate engagement and contribute to the acquisition of both knowledge and the skills necessary to enter the labor market (Yen, 2020; Lestari, 2021). Under the traditional approach, the main actor in the teaching-learning process is the lecturer, while students play a passive role. The flipped classroom emphasizes the role of the student in the center of the learning environment and facilities an active learning pedagogy (Gelgoot, Bulakowski, & Worrell, 2020; Lestari, 2021; Fuchs, 2021a) as seen in the exemplary model below (Figure 1).

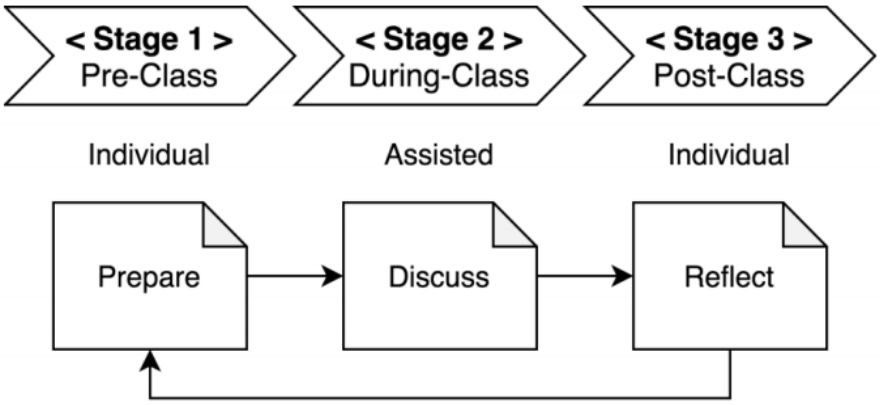

Figure 1: The three-staged conceptual model of a flipped classroom (adopted from Fuchs, 2021b)

To reiterate, the flipped learning concept is gaining popularity and the model redesigns the usual classroom paradigm in that students learn initial course concepts outside the classroom, while class time is used for active problem-based learning and practice activities (Lestari, 2021). The flipped classroom has been viewed as an active learning methodology that encourages higher-order thinking and active participation by students. Furthermore, it involves the flexibility of teaching spaces, taking advantage of the multiple possibilities offered by technology and interaction (Yen, 2020). The flipped classroom approach utilizes blended methods, whereby virtual resources, such as videos or reading content (i.e., online articles or e-book chapters), are used to transmit knowledge, and face-to-face classes are used to consolidate knowledge through interactive activities, such as problem-solving, role-playing games, discussions, and collaborative work dynamics (Gelgoot, Bulakowski, & Worrell, 2020; Yen, 2020).

3. Undergraduate Education in Thailand

At present, Thailand's university system essentially follows the model and principles of most developed Western economies in a three-tiered system (e.g., undergraduate degrees, graduate degrees, and postgraduate degrees). Unless the student is pursuing a specialized profession, most undergraduate degrees are taught as four-year, full-time programs (Schiller & Liefner, 2007; Bovonsiri, Uampuang, & Fry, 2018). Following the trend of higher education reformation in the 1990s, there was a gradual shift toward private higher education in Thailand. At the same time, Thailand saw rapid growth in the number of private higher education programs (Yousapronpaiboon, 2014). Yousapronpaiboon (2014) adds that the number of private higher education institutions has continued to rise since the beginning of the 21st century.

Thailand has over 170 institutions of higher education, both public and private, offering 4,100 curricula (Kew et al., 2018). Kew et al. (2018) add that many public universities receive financial support from the government for

research purposes. The majority of the provinces have government-run Rajabhat Universities, which were traditionally teacher-training colleges (Watson, 2018). Another characteristic of Thai universities is that they do not score highly in the Quacquarelli Symonds (QS) World University rankings and are continuously losing ground as compared to other Asian universities (Top Universities, n.d.). For example, Thailand's top three universities—Chulalongkorn, Mahidol, and Thammasat—have been trending down since 2016 (Top Universities, n.d.). However, Thailand is known for producing quality graduate students in the fields of medicine, science, and technical engineering (Watson, 2018).

4. Thoughts on Flipped Learning in Thailand

Students in Thailand regularly complain about excessive homework, while teachers criticize the time pressure and difficulty in teaching inactive students. The flipped classroom approach is an attempt to mitigate these issues (Santikarn & Wichadee, 2018). Santikarn and Wichadee (2018) further state that "the flipped classroom can motivate and engage students in activities" It can also enhance the students' active learning through this new pedagogy (Santikarn & Wichadee, 2018). This model categorizes the learning experience in a variety of settings both inside and outside the classroom. Despite the limited amount of relevant research in Thai higher education related to the flipped classroom, the conducted studies (Maneeratana et al., 2016; Santikarn & Wichadee, 2018; Pattanaphanchai, 2019; Srisuwan & Panjaburee, 2020) revealed positive outcomes in terms of the behaviors and outlooks of students learning using the flipped classroom method.

For example, Pattanaphanchai (2019) conducted a comparative research project in Thailand to evaluate the impact on students' learning based on the traditional versus flipped learning approach. The study includes e-learning, traditional learning, blended learning, and flipped learning. It revealed that the flipped learning approach yielded the best results amongst the Thai students concerning student assessment and reaching the course's learning objectives (Pattanaphanchai, 2019). However, Pattanaphanchai (2019) adds that "in Thailand, merely a few studies have been conveyed regarding students who encountered flipped learning approaches during their higher level and university level education."

A case study by Srisuwan and Panjaburee (2020) aimed to develop information literacy for undergraduate students at a university in Thailand and to assist with flipped classroom implementation, using both traditional and customized ubiquitous educational models. Their database recorded the profiles of students while also offering them exam papers and registering their answers to access performance reports. This helps elevate the performances of students in an in-class learning system, where they can participate in active exercises, discussions, gaming activities, and teamwork. The study revealed that students could utilize flipped learning when it is combined with customized ubiquitous learning schemes. These approaches help them enhance their learning performances and develop their information literacy. Moreover, the teachers reported improved motivation, test scores, and self-efficacy among students (Srisuwan & Panjaburee, 2020).

Turan and Göktaş (2018) investigated how students' motivation is impacted by the flipped-classroom approach, using a preliminary computer course. During the first session, a group of students was educated using the traditional lecture-related approach. Another session was conducted in which a group of students learned the same module using an experimental flipped-classroom method. In the latter scenario, the students were allowed to watch the practical implementation of the module in a video before attending the class. The study showed that the students who were in the flipped-classroom learning system showed more motivation to learn compared to traditional ones. Through game-based approaches, teamwork, and practical activities, the motivation of students increased significantly (Turan & Göktaş, 2018).

In engineering education groups, flipped classroom systems have become enormously popular in recent years (Mason, Shuman, & Cook, 2013). The teaching method enhanced academic performance, while the number of student dropouts reduced with the involvement of flipped learning models among the students in the Mechanical Engineering Department (Maneeratana et al., 2014). Online resources and the Learning Management System (LMS) helped undergraduate students regularly rank in the top three Courseville LMS activities (Temiyasathit,

Punyabukkana, & Suchato, 2016). Flipped classrooms, especially in the Mechanical Engineering Department, helped enhance the management and conducting of courses, as well as the academic performance of the participants (Maneeratana, Singhanart, & Singhatanadgid, 2016). The benefits of flipped classroom implementation at Thai universities are: enhanced self-efficacy in independent education, improved participation in learning, increased amounts of self-paced learning, and higher grades in general (Gilboy, Heinerichs, & Pazzaglia, 2015).

5. Conclusion

The literature contains a vast amount of evidence about the merits and shortcomings of inverted learning, and flipped classroom pedagogy in particular. While the flipped classroom method is not free of shortcomings, it arguably offers educators an alternative method for engaging and motivating students. Evidence indicates that the innovative approach works in Thailand, but the unanswered question is: Why is this approach not being used more frequently by educators in Thailand's higher education systems, or at least why does the literature lack the corresponding evidence?

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The Effect of Verbatim and Generative Notes Taken by Hand and Keyboard at University Level on Success and Persistence

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Abstract
The lecturing instruction method stands out as the most used education method in university classrooms. Students and researchers have developed study techniques to reduce the disadvantages of this method to increase success at the undergraduate level. The most important, common, and traditional of them is taking note. The verbatim notetaking, which is widely used outside of the lesson, is seen as well as it is also seen that the note takers take it by generating them in their own way. With the development of technology in the notetaking process, it is seen that digital tools have become widespread in addition to the pen. In this study, the effects of generative and verbatim taking notes on success and its persistence were examined. The study group of the study consists of 116 education faculty students studying in Turkish and Social Sciences education programs. Within the scope of the research, demographic information will be presented to the participants in a way that does not violate personal privacy; In the analysis of the opinions, utmost attention was paid to the rules of scientific and research ethics, assuring that the participants will be coded in a way that does not evoke identity information. A pre-experimental study was conducted with four groups of 29 students. The groups made the verbatim and generative note taking with pen and keyboard. The first and second post-tests were applied to measure the success of taking notes during the lesson and its persistence. According to the results of the study, it was determined that taking notes with a pen by the generative method has more positive effects than using the keyboard or taking verbatim notes on both success and persistence.

Keywords: Handwriting, Keyboard Writing, Note Taking, Success, University Student

1. Introduction

The lecturing method is still the most widely used teaching method in universities (Wirt et al., 2001; Carrier, Williams & Dalagard, 1988, p. 223; Shaughnessy, 2001). Although there were various criticisms, students and other stakeholders sought methods and techniques that could gain more efficiency in university classrooms where the traditional lecturing method was used. For this purpose, students have always used strategies and techniques for learning and remembering more during lecturing, such as active listening, developing note taking strategies, focusing attention, and recording. Among these, students mostly used note taking and found it suitable for lecturing (Palmatier & Bennett, 1974; Dunkel & Davy, 1989; Carrier 1983; Moin, Magiera, & Zigmond, 2009), because it has been determined that students who take notes are more successful in the cognitive process related to remembering later (Dunlosky, Rawson, Marsh, Nathan & Willingham, 2013).

Note-taking, which is a method that increases student achievement in a lecturing environment (Armbruster, 2009), is inherently related to the methods and tools used in writing skill. While note taking with a pen was a favorite - maybe the only option - in the past, recent developments in technology and the lifestyle associated with it have also changed notetaking habits. Therefore, the computer dimension has been added to recent notetaking studies (Bauer & Koedinger, 2006; Crooks, White, & Barnard, 2007; Igo, Bruning, & McCrudden, 2005; McQuiggan, Goth, Ha, Rowe, & Lester, 2008). In this study, the success and recall of information in various notetaking methods using hand and keyboard typing were examined.

1.1 Comparison of Writing Process and Note-Taking Tools

The story of human's writing, which begins with the pictures drawn on the cave walls, is a process that includes the invention of writing, the invention of the printing house, the invention of the typewriter, the invention of the computer, and the development of keyboards (Cortada, 2015). It is seen that the desire and need of the human to learn, understand, and explain have not changed-basically- throughout the ages, but the tools and techniques used have changed. In this context, there are discussions and researches about writing with the keyboard and writing with handwriting - pen-,, which has increased in recent years.

With the introduction of computers into human life, the development of writing programs, and the widespread use of digital devices, the use of these programs and tools in writing instead of writing with a pen has intensified (Cochran-Smith, 1991; Freedman, Hull, Higgs and Booten, 2016). Accordingly, the use of the keyboard, which has become widespread in schools and in school-related writing tasks, was compared, and the pen-keyboard found a place in both administrative regulations and academic literature and discussions. For example, UNESCO stated in its reports that if schools do not switch from paper pedagogy to digital pedagogy in order to comply with the digital age, they will not be able to adapt to digital tools (Cornu, 2011) and expressed its view that keyboard writing should be preferred to pen for the age we are in. Spiro (2004), Leu, Forzani, Burlingame, Kulikowich, Sedransk, Coiro, & Kennedy (2013) and Kordigel Aberšek, Dolenc, Flogie & Koritnik, (2015), defending technologies known as online, digital or high technology, made reading or writing with technology more prominent or preferred than handwriting. In the context of these studies and the studies that support them, it can be concluded that "keyboard use or digitization is inevitable, even replacing writing with a pen and can be preferred instead of writing with a pen."

However, in the process of learning to read and write, which is the first step, it has been found that before starting to write competently, while learning to read and write, their ability to remember and recognize letters is more developed when they write by hand and children learn to read by handwriting more easily (Naka, 1998; Naka & Naoi, 1995; Cunningham & Stanovich, 1990). It has also been found that the high-level mental processes required for reading in children develop better in handwriting (Graham & Weintraub, 1996). In addition, writing, which is one of the ways of expressing oneself, is also used to monitor or evaluate what students have learned (Applebee, 1981; Graves, 1989). As reading and writing are very interrelated skills, they develop together and in relation to mental and physiological aspects (Fitzgerald & Shanahan, 2000). Therefore, it can be said with the literature review that handwriting should be preferred more in the literacy learning process.

In addition to these, there are also studies in the literature that found that writing with a pen is more efficient in some aspects, especially in terms of learning. For example, Mueller and Oppenheimer (2014) determined in their study with university students that students who take notes by hand learn better than those who write on the keyboard. In this context, although computerized education has been glorified - relatively - in recent years, it has been observed that reframing while taking notes with handwriting, the effort to reflect one's opinion, produce interpretation, and establish relationships increases learning and better coding into memory. In this context, activation areas were formed differently in brain imaging studies with keyboard and handwriting. Therefore, when the part of brain studies with writing was examined, it was found that there was a difference between the use of the keyboard and the use of the pen, both in-process and result. Willis (2011) stated that handwriting intensifies the brain's attention focuses more on the lesson and homework, activates the long-term memory, and brings the brain to the highest activity. In the same direction, in another study, remembering words written with handwriting

occurred more than words typed with a keyboard. In addition, other studies (Smoker, Murphy & Rockwell, 2009; Mangen et al., 2015; Mueller & Oppenheimer, 2014) found that handwriting was mentally more active and more effective in learning than typing with the keyboard.

To summarize, although the use of keyboard has increased recently, the importance of handwriting and writing is still acknowledged, and it is stated that pen and paper are still more accessible, affordable and portable, and more efficient in learning (Graham, 2009/2010; Mueller & Oppenheimer, 2014).

1.2 Note Taking

Notes are taken for many purposes, from the simplest to-do list to learning, remembering, organizing, and planning what was said during the lesson. The history of studies that reveal findings that taking note increases academic achievement in academic studies on learning can be traced back to the beginning of the last century (Crawford, 1925). First of all, notetaking is a conscious and demanding action to achieve the goal. In other words, it takes place within the framework of the note taker's will, technique and individuality and in order to be successful (Kiewra, Dubois, Christian, McShane, Meyerhoffer & Roskelley, 1991). On the other hand, notetaking in academic settings usually encodes what is spoken under time pressure or the effect awakened on them. In other words, taking notes by listening is done to listen carefully to what is heard and important points and to remember them later (Zohrabi & Esfandyari, 2014). In other words, the notetaking process is a cognitive process since its auditive, sensory-motor, visual and cognitive perceptive tasks reveal a written product (Daneman & Merikler, 1996) with understanding (van Dijk & Klintsch, 1983) that takes place within a certain time limit (Piolat, olive, & Kellogg, 2005). In this context, cognitive activities such as attention, choosing the necessary information, re-expressing with their own expressions, and remembering in the notetaking process occur in various dimensions (Steimle, Brdiczka, & Mühlhäuser, 2009; Stefanou, Hoffman, & Vielee, 2008; Einstein, Morris & Smith, 1985). Therefore, it can be said that note taking consists of multidimensional cognitive processes and is the most used study activity by students.

Kiewra (1985) divides the functions of note taking into two: the “process” by which information is encoded and the “product” categories by which information is reused. In the process part, the student records what is told in a unique way, using tactics such as active listening, relating, summarizing, determining important points (O'Hara, 2005), and relating to previous information (Peverly, 2006). In the product category, the student uses the notes he/she has taken as “external storage.” In other words, he/she uses the information in his/her notes to review and remember. Although both categories are considered important in notetaking, there are also studies showing that not taking notes but having and working on them brings academic success (Carter and Van Matre, 1975). In this context, studying notes reduces the negative effect of time on memory loss and familiarity on the subject (Kiewra, 1985).

The quality of notes taken during a course depends on the cognitive load during note taking (Baddeley, Chincotta and Adlam, 2001). The main cognitive processes used in this context are comprehension, accuracy, complexity, metacognition, and memorization. More cognitive load in note taking means more success. In particular, metacognitive generation is generally effective on academic achievement, as it is an efficient learning strategy (Sperling, Howard, Staley, & DuBois, 2004; Hacker, Dunlosky, & Graesser, 1998). Note takers record and learn information according to their own competence and characteristics with a way of taking notes suitable for them. It is also stated that this is a metacognitive activity since it supervises their own thoughts and products in terms of remembering information (White & Frederiksen, 1998).

Note taking with the keyboard is more advantageous than writing with a pen, especially in terms of speed (Brown, 1988). Therefore, it has more information storage capacity in this way. In some studies (Peverly et al., 2007; Peverly & Sumowski, 2012), it was found that there is a positive relationship between taking text notes/taking course notes and writing speed. As more details mean more information, the content and quality of the notes are important, as well as the speed of note taking (Armbruster, 2009; Mueller & Oppenheimer, 2014). From this point of view, it is advantageous as it is faster to take notes with the keyboard and contains more details and information.

In this study, handwriting and typing with a keyboard were compared with an experimental pattern, which was investigated and compared in various aspects in the literature, and the efficiency of hand typing on notetaking techniques was compared. Verbatim notetaking was taken as complete recordings word by word; generative notetaking was taken to summarize and take notes with the student's own style. In the study, the qualifications of the notes are beyond the scope of the study, and the focus has been on success and persistence. For persistence, it is limited to the measurement made at the end of a week.

2. Method

In this study, the effect of the note taking styles students use on their achievement was examined. In this study conducted with 116 university students, the effects of their notetaking style on their achievement were examined, as well as the effects of pen-keyboard notetaking styles on their success and persistence. In this direction, the problems of the study are as follows:

1. What is the effect of note taking styles on success?
2. What is the effect of note taking styles on persistence in learning?

This study was carried out using a pre-experimental design with four groups without a control group. The visual expression of the pattern is as follows.

Groups (randomly assigned)	**pretest**	**Application (X)**	**Success test**	**Time interval**	**Persistence**
D1(n=29)	O1	Verbatim notetaking with a pen (x1)	O2	One week	O3
D2(n=29)	O1	Verbatim notetaking with a keyboard (x2)	O2	One week	O3
D3(n=29)	O1	Generative note taking with a pen (X3)	O2	One week	O3
D4(n=29)	O1	Generative note taking with a keyboard (X4)	O2	One week	O3

2.1 Participants

116 (n=116) students from Gaziantep University Faculty of Education participated in this study. Sixty of these students who study in the Turkish Language Arts and Social Studies Teaching departments of the faculty are male, and 56 of them are female. Since the effect of notetaking styles on achievement and persistence of information was investigated in the study, four experimental groups to apply verbatim and generative notetaking techniques using pen and keyboard were randomly assigned from among these students. In these groups, the practice groups of verbatim note taking with a pen, verbatim note taking with keyboard, generative note taking with a pen, and generative note taking with the keyboard were determined as 29 people.

According to the questionnaire forms given to the students participating in the study, all of them consider themselves competent in typing with the keyboard, and all of them have stated that they have worked with computers since their secondary school years. All of these students also stated that they used the keyboard in some way. That is, they wrote with their cell phones, laptops, or tablets and used at least one of them daily. In the study, a list of science fields was given for the students to choose a subject with a high level of knowledge that is outside of their current field of study, and the field of zoology, which no student thought of and selected as a subject of interest and study, was used in the selection of the subject to be discussed in practice for this study.

2.2 Procedure And Measurements

In this study, the results on the success and persistence of verbatim and generative note taking techniques taken using pen and keyboard were compared. At the beginning of the study, a pretest of 30 questions including general zoological information, was applied to all groups. Later, the groups took notes with the notetaking technique determined for them and listened to the lesson in lecturing in two lesson hours provided that they were from the same teacher. The course is intensive in terms of information, and sixty questions were produced from the course content in the tests. Thirty of these questions were asked in the exam two hours after the notetaking exercise, while the other 30 were asked in the exam one week later. In the distribution of the questions to two tests, the opinions and suggestions of the three field experts were taken to ensure that the difficulty levels of the tests were equal, and accordingly, the distribution of the questions in the tests was determined. Each question's value in the tests was determined as one point, so evaluations were made over 30 full points. The chance factor was tried to be minimized by using the fill-in-the-gap questions in all tests, including the pretest. In addition, within the scope of the research, demographic information will be presented in a way that does not violate personal privacy; In the analysis of the opinions, utmost attention was paid to scientific and research ethics rules, assuring that the participants would be coded in a way that would not evoke their identity information.

3. Results

Firstly, in the study, whether the groups are equal or not, was tested with a pretest. Descriptive statistics of pretest scores of 30 questions and ANOVA test results were examined.

Descriptives

Pretest-O1

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
X1	29	2.3448	1.26140	.23424	1.8650	2.8246	.00	5.00
X2	29	2.3448	.89745	.16665	2.0035	2.6862	1.00	4.00
X3	29	2.1724	.96618	.17941	1.8049	2.5399	.00	4.00
X4	29	2.3448	1.17339	.21789	1.8985	2.7912	.00	5.00
Total	116	2.3017	1.07315	.09964	2.1044	2.4991	.00	5.00

ANOVA

Pretest-O1

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.647	3	.216	.183	.908
Within Groups	131.793	112	1.177		
Total	132.440	115			

As can be seen in the tables, it was determined that the arithmetic means in the descriptive statistics of the pretests were very close to each other, and there was no significant difference at the 0.05 significance level in the Anova test. With these results, it can be said that the groups are equal.

3.1 Findings and results regarding the first problem

In the first problem of the study, the effect of verbatim and generative note taking on student achievement using pen and keyboard was examined. For this purpose, test (O2) scores right after the lesson, descriptive statistics, and ANOVA test results were used to determine the success of the groups.

Descriptives

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
X1	29	15.1724	4.92855	.91521	13.2977	17.0471	5.00	24.00
X2	29	11.1379	3.52262	.65413	9.7980	12.4779	6.00	21.00
X3	29	18.9655	4.57854	.85021	17.2239	20.7071	9.00	27.00
X4	29	16.9310	3.32664	.61774	15.6657	18.1964	12.00	23.00
Total	116	15.5517	5.01015	.46518	14.6303	16.4732	5.00	27.00

ANOVA					
Post-test					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	962.276	3	320.759	18.668	.000
Within Groups	1924.414	112	17.182		
Total	2886.690	115			

As seen in the table, it was observed that students who took notes by the generative method with a pen in the achievement test performed right after the lesson were the highest, while the averages of students who took notes by the generative method were higher than those who took verbatim notes. It was seen from the ANOVA test results of the groups that there was a significant difference at the 0.05 significance level.

3.2 Findings and results regarding the second problem

In the second problem of the study, the effect of notetaking styles on persistence was investigated. For this purpose, the second achievement test results, which measure the persistence of the information made one week after the lecture, were examined by descriptive statistics and ANOVA tests. Then, the difference between the success and persistence tests was examined with the Mann Whitney U Test.

Descriptives

Persistence

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
X1	29	13.0000	5.11999	.95076	11.0525	14.9475	3.00	22.00
X2	29	8.8621	3.43016	.63697	7.5573	10.1668	4.00	17.00
X3	29	17.5862	4.73978	.88016	15.7833	19.3891	6.00	24.00
X4	29	13.8621	2.50320	.46483	12.9099	14.8142	10.00	21.00
Total	116	13.3276	5.09352	.47292	12.3908	14.2644	3.00	24.00

ANOVA

Persistence

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1115.621	3	371.874	22.297	.000
Within Groups	1867.931	112	16.678		
Total	2983.552	115			

Considering the ANOVA results of the persistence tests, it is seen that there are significant differences between the groups, and in descriptive statistics, the highest success score according to the arithmetic average is in the generative handwriting method.

In the Mann Whitney U test, the analysis was made using the differences between the success (O2) and persistence (O3) tests of the groups. According to the results of the test, it was determined that the highest persistence was in generative taking notes by handwriting.

Ranks

	Group	N	Mean Rank
O2 -O3 persistence	X1	29	57.74
	X2	29	64.41
	X3	29	41.21
	X4	29	70.64
	Total	116	

Test Statistics[a,b]

	O2-O3 Persistence
Chi-Square	12.880
df	3
Asymp. Sig.	.005

a. Kruskal Wallis Test

b. Grouping Variable: Group

In this study, the effect of students' different notetaking styles on their achievement and persistence of information was compared. Success tests applied as a result of generative and verbatim note taking processes using keyboard and pen were compared with success with the first test and the persistence of information with the second one. Considering the study results as a whole, it was concluded that generative note taking with handwriting is more efficient in both success and persistence than other note taking types. In this context, it was revealed as another result of the study that besides the note taking technique, writing by hand is more effective in learning and persistence. In addition, considering the results of the study in terms of writing education, it was found that more efficient results were obtained on the learning and persistence of information by handwriting.

4. Discussion and Recommendations

In this study, the efficiency of verbatim and generative note taking techniques that students take with handwriting and keyboard during the lecture, which is taught with the lecturing technique, was examined. In the study, persistence test scores in learning were compared with the achievement test done right after the lesson and the tests performed after a while. Generative note taking by handwriting has been found to be the most efficient note taking technique for both success and persistence.

All of the students in the study group in which this study was conducted used handwriting mainly from the literacy learning process until they came to university, except for a few courses. In the primary and secondary school curricula in our country, the obligation of using a computer or using a keyboard is almost non-existent. Therefore, the keyboard-computer competencies of the student group studied for this study are based on their own acceptance and declaration. But there is no student study group whose competencies have been measured in concrete and standard terms. Therefore, it should be assumed that the students in the study group have relatively little use of the keyboard or computer in the school environment. The effect of students' computer use background should also be considered on the results of the study by doing the study with groups in countries that have received more computer

or keyboard training and are used more frequently. It is clear that in this way, more holistic and more valid results will be obtained.

Although there are studies on which handwriting and keyboard use is efficient in the literature, it has been observed that there is no consensus on one of them (Longcamp, Zerbato-Poudou & Velay, 2005; Sülzenbrück, Hegele, Rinkenauer & Heuer, 2011). However, studies have determined that both have some advantages and disadvantages. Keyboard note taking stands out as the main advantage of writing faster and more words and taking more detailed notes. In handwriting note taking, it has come to the fore as the main advantage in which more cognitive processes are activated. In this study, unlike many studies in the literature, verbatim and generative note taking techniques with the use of handwriting and keyboard were compared. In the study, students were asked to use the note taking technique determined by the researchers for the group from which they were chosen while choosing a topic from an area of interest. The literature on this subject should be developed by studying the types of note taking that students consider themselves competent in the courses of their interest.

Estibaliz et al. (2016) compared health science students' note taking with pen and computer in their study. They found that the notes taken using the computer were more successful in spelling, word count, and sentence studies. It was observed that students who took notes by hand were better at recall studies and were more successful than students who took notes with a computer in terms of success. In this study, since it was seen that students who took handwriting grades had higher success and higher permanence test results, while it was seen to support Estibaliz et al.'s work, it also improved their work with both knowledge and persistence tests.

Aguilar-Roca, Williams and O'Dowd (2012) examined the free zone created to use notebooks and student success in their study. In some of their studies, they found that those who took notes using pen and paper were more successful in biology lessons than those who took notes with a notebook. Although the main purpose of that study was to examine student success in notebook free zones, this study supports their findings on the effect of taking paper and notebook notes on success.

Increasing student success in schools is the biggest goal of all education system stakeholders. In this context, while the way of taking notes and progressive techniques during the lesson is available as an independent lesson only in some faculties and high schools in some countries, they are mostly left to the individual interests and development of the students in a random manner. The situation is the same in our country. Educational activities or courses should be given to increase students' competence in this regard, and deliberate and competency-oriented education should be given.

Writing can be accomplished in a very well coordinated manner, regardless of the means and ways, such as motor, cognitive skills, and perception. Many theoretical and practical studies have compared the use of a pen or keyboard (Connelly, Gee, & Walsh, 2007; Crook & Bennet, 2007). In many of these studies, writing using a pen in the basal reading stage was seen as advantageous in many ways. In the more advanced classes, the writing was compared in both ways in the studies, some of which are mentioned above. In such discussions for a long time, many detections and complaints that the handwriting is now obsolete and has lost its importance or complaints have been seen (Baron, 2009; Konnikova, 2014; Dijck, Ketelaar, & Neef, 2006; Hensher, 2012). Educators and researchers should seek methods that can take advantage of both ways of writing, with good coordination and programs, instead of competing with these two styles of writing or rejecting one completely.

Ethic Information

In the individual interviews conducted by the researchers with the participants, it was announced that the collected data would only be used for this study. Within the scope of the research, demographic information will be presented in a way that does not violate personal privacy; In the analysis of the opinions, utmost attention was paid to scientific and research ethics rules, assuring that the participants would be coded in a way that would not evoke their identity information. In this article, the journal writing rules, publication principles, research and publication

ethics, and journal ethical rules were followed. The responsibility belongs to the author (s) for any violations that may arise regarding the article.

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Environmental Factors for Motivation of First-Generation Hmong American College Students in Academic Attainment

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Abstract
This qualitative thematic analysis study examined the motivations of first-generation college graduate Hmong American students in their educational attainment. Currently, Hmong American students are facing cultural and institutional barriers which continue to impact access to and achievement in college. Although there is an educational disparity, for some within the Hmong American student community, there is resilience to overcome and graduate from institutions of higher education which is important to understand. Culturally Engaging Campus Environment Model underpinned the one-on-one in-depth interviews of purposively sampled first-generation college graduate Hmong American students who attended the University of California, Merced. The findings from the study highlighted ways family supports, role models, breaking culturally normed gender roles, Hmong Student Associations (HSAs), and intentional holistic campus supports are important motivational environmental factors in Hmong American students' higher education journey.

Keywords: Hmong American, First-Generation College Student, Educational Attainment, Cultural and Institutional Barriers, Culturally Engaging Campus Environment Model, Hmong Student Organizations, Model Minority Myth

1. Introduction

The Hmong people came into the United States as refugees in 1975 along with other Southeast Asian groups such as Vietnamese, Cambodian, and Lao (Ngo & Lee, 2007). According to the Pew Research Center (PRC, 2021) about 327,000 Hmong Americans are living across the 50 states, with four of the top 10 metropolitan areas in California. Specifically, California's Central Valley, including Fresno, Sacramento, Merced, and Stockton, are home to 75,000 Hmong Americans (PRC, 2021) who continue to live at higher rates of poverty and with lower rates of higher education attainment than other Asian Americans and Americans as a whole (e.g., Xiong & Lee, 2011; PRC, 2021). This disparity is especially concerning as Hmong families place great value in pursuing higher education for economic stability since many arrived in the US with nontransferable work experiences which plagued families with decades of poverty in the US (Mao, Deenanath, & Xiong, 2012; Xiong & Lam, 2013). This is only exacerbated with limited English language skills that lead to high drop-out rates from secondary school

(Ngo & Lee, 2007). Xiong (2012) found that even Hmong students who are born in the US with access to English from an early age are overrepresented as English Learners in K-12 public schools and are reported as the third largest limited English proficient (LEP) group in the country. These circumstances unfold into further institutionalized oppression as Hmong Americans are less likely to have advocating voices or involvement in civic issues at the local, state, or national levels (Museus, Yi, & Saelua, 2017).

Moreover, Hmong students have been racially stereotyped by educators in contradicting, but both equally as damaging, ways. An early study by Ngo and Lee (2007) uncovered teachers tended to perceive Hmong high school students as dropouts, gang members, and welfare dependents who did not deserve government assistance compared to other ethnic minority students (Ngo & Lee, 2007). In contrast, Hmong Americans are also held to the Model Minority Myth (MMM) which assumes all Asians are academically gifted and from wealthy "foreign" circumstances above other minorities where special assistance in not needed (Her, 2014; Ngo & Lee, 2007; Poon et al., 2016). The MMM negatively affects Hmong American students at all levels of education, who are not able to meet standards and left without supports to do so, as well as being tracked into lower-level courses, not preparing them for the rigor of college (Her, 2014; Kim & Lee, 2014; Poon et al., 2016). The MMM also opens the door for microaggressions, which Kwan (2015) illustrates, as Hmong American students being labeled as "exotic" and feel misunderstood by instructors, counselors and peers in higher education. Without disaggregated data to better understand the contexts of ethnic minorities within the Asian American population, circumstances are overlooked, and needs are denied (Takahashi & Nottbohm, 2019).

Cultural norms and traditional practices can also hinder a Hmong student's journey to educational success (Xiong & Lam, 2013). Since the Hmong culture is patriarchal, families hold higher educational expectations for their sons than their daughters (Cha, 2010; Her & Gloria, 2016). This reality has highlighted pressure for male Hmong students who feel they must carefully balance their education alongside their family's high expectations leading to increased dropout rates (Cha, 2010). In contrast, Hmong daughters, who are viewed culturally with lesser value than sons but critical to childbearing and maintaining the home, receive minimal family support for their educational attainment (Cha, 2010; Her & Gloria, 2016). Ngo and Lee (2007) estimated that 90% of Hmong females high school students dropout due to the practices of early marriage and early childbearing. Furthermore, Peng and Solheim (2015) found that the gendered role expectations within Hmong families can greatly impede Hmong female students' ability to access necessary extracurricular supports in college which can be a barrier to graduation. These intergenerational cultural rifts within the Hmong American population continue to increase, negatively impacting school satisfaction, performance, and attendance at all levels (Truong & Miller, 2018; Ngo & Lee, 2007).

Although these challenges exist in the community, many Hmong American students overcome these circumstances and pursue higher education with success (Takahashii & Nottbohm, 2019; Vang, 2018; Lee & Author, 2020). For example, at Fresno State, a large minority serving public institution within the California State system, Hmong student enrollment increased 32% from 2012 to 2018 (Takahashii & Nottbohm, 2019). Similarly, at a sister university, Sacramento State, Vang (2018) reported at 602% increase in Hmong student enrollment from 153 in 2005 to 1,075 in 2016. Additionally, Hmong American female's graduation rates at these universities have increased steadily over the past 20 years (Ngo & Lee, 2007; Takahashii & Nottbohm, 2019; Vang, 2018;). These statistics indicate that Hmong American students can find educational success despite institutional barriers. Lee and Author (2020) suggest that, along with self-advocacy, Hmong American students can achieve academic success in college with access to student organizations, an inclusive and culturally responsive campus environment, and academic supports. The small body of literature available on academically successful Hmong students also highlights the critical need for scholars to further uncover educational and societal inequities to unearth positive contexts in which these counter-narratives exist to change future realities.

1.1 Conceptual Framework–Culturally Engaging Campus Environment (CECE) Model

In order to understand what drives these successful Hmong American students in their educational attainment, it is essential to uncover the supports and motivations accessed to overcome the aforementioned barriers. This need

was met through the Culturally Engaging Campus Environment (CECE) Model (Museus, 2014; Museus, et al., 2017), as it conceptually frames the campus environment along with internal and external factors which impact a student's college education. The CECE Model is underpinned by the belief that culturally engaging campus environments directly and indirectly relate to a higher likelihood of student persistence to succeed. Furthermore, the more institutions foster and maintain culturally engaging campus environments, the more likely their environments will allow their diverse student populations to thrive in college (Museus, 2014; Museus, et al., 2017). The nine characteristics organized into two subgroups of Cultural Relevance and Cultural Responsiveness outlined in the CECE Model framed the study's initial inquiry into the participants' narratives, and the external influences, pre-college inputs, and individual inputs framed the second analytic phase (see Figure 1).

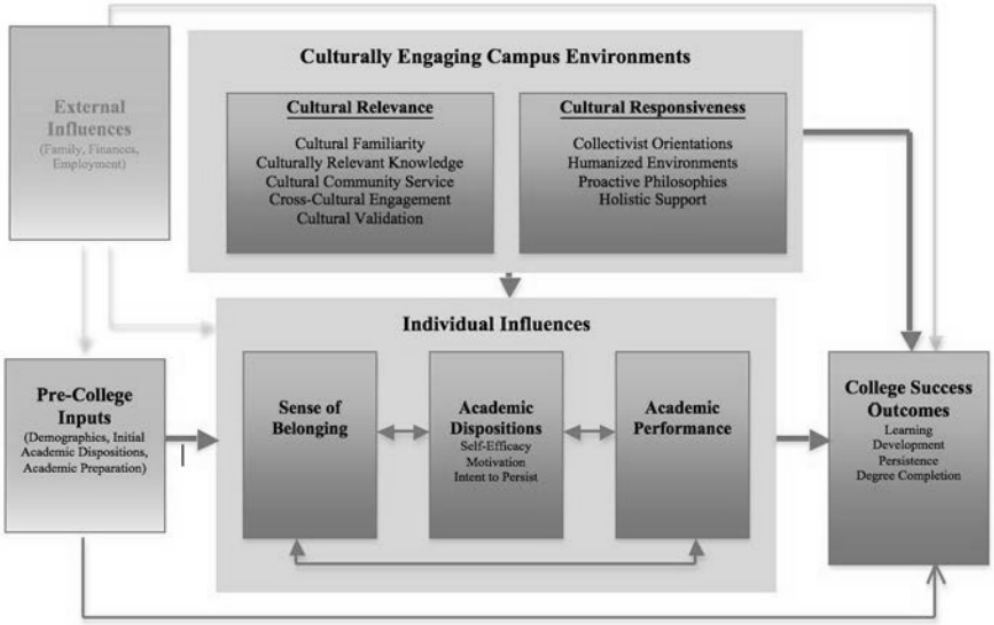

Figure 1: *The Culturally Engaging Campus Environments (CECE) Model of College Success.* Source: Museus, et. al (2017, p.193) © John Hopkins University Press. Adapted from Museus (2014) ©Springer Nature. Reprinted with permissions.

1.2 Purpose Statement and Research Questions

The purpose of this qualitative thematic analysis was to understand the motivational factors first-generation Hmong American students have which motivated them towards educational success through college graduation. Implications from this study will be used to understand ways to consider supporting other Hmong American students in reaching their educational goals in an effort to find equity for this Asian American ethnic minority. The following research questions guided the study exploration:

(1) *What are the environmental factors which motivate first-generation college graduate Hmong American students in their educational attainment?*
(2) *How have these Hmong American college graduates leveraged environmental factors to overcome institutional barriers and achieve educational success?*

2. Method

This study followed a qualitative thematic analysis using individual in-depth semi-structured interviews of purposively sampled volunteer participants. Researcher reflexivity as was central to the design, particularly for one Hmong American researcher to quickly establish rapport with participants and provide an analytic lens in which only someone with lived experience can provide.

2.1 Researcher Reflexivity

Growing up as a child of refugees, researcher one understood the struggles of obtaining a higher education for the Hmong community. Many of the researcher's peers and family members also had challenges navigating the educational system as first-generation students. However, the researcher grew up as a second-generation Hmong American college graduating woman, so she did not experience as many struggles as her first-generation college going family and peers. Despite that, the educational challenges of the researcher's community motivated her to conduct this study to discover a resolution to the problem. By comparing their experiences with hers, the researcher was able to identify the inequities and privileges that were perpetuating the educational system. Since the researcher had previous knowledge on the educational challenges first-generation Hmong students encounter from prior experience, this may have led the participants into a particular answer or idea depending on how the researcher asked the questions. Also, all of the participants and the researcher attended UC Merced together were each a part of the Hmong Student Association. This was helpful to gain close to instantaneous rapport during each of the respective interviews.

The second researcher, as the research advisor, is a white female ally with close to 20 years of experience teaching and leading in public K-12 schools and higher educational settings. She is an advocate for research and programs involving empowerment of marginalized communities, finding intersectionality in overcoming barriers to education as the oldest child of a single-mother who, after years of working in the service sector, completed her higher educational goals later in life. This positionality allowed for analytic checking and probing of the data and initial findings at each step of the analytic process with researcher one who was so closely connected to the study purpose and outcomes.

2.2 Participant Characteristics

Participants were selected based on purposeful sampling (Lochmiller & Lester, 2017) with criteria for inclusion as follows: first-generation college graduate from the University of California, Merced (UC Merced) identifying as Hmong. This campus was selected from which to draw participants as UC Merced has one of the highest first-generation college student rates (73.2%; University of California, Merced, 2019) and one of the largest Hmong student populations in the University of California system (University of California, n.d.). This study obtained six first-generation college graduate Hmong identifying participants in total. Gender was balanced with three women and three men and the age range for this group was between 25 to 28 years. All attended UC Merced between 2010-2017 earning a Bachelor's Degree.

2.3 Recruitment Procedures

For recruitment of the six interviewees, researcher one made initial informal requests to alumni from the UC Merced Hmong Student Association to be contacted formally with an email invitation to participate in the study. Potential recruits were asked to send interest via email to this researcher before formally being invited to participate in the study. After the responses were received, individual one-on-one interviews were scheduled with each participant. The interview questions and protocol were given to each participant ahead of time via email to allow for preparation of the answers and comfort in the process. The interview protocol informed them of the purpose of the study, and reasons why they were invited to participate. The participants were also provided with a copy of the informed consent for their reference and to sign and discuss upon interviews. Compensation of a $5 Starbucks gift card was also offered to every study participant.

2.4 Data Collection – Individual Interviews

The data was collected through individual interviews. Each interview took approximately 30 minutes in a safe location where the confidentiality of the participant and study was protected. The interviews were audiotaped with permission from the participant and later submitted through an online transcription service. Field notes were also taken to make note of any observations about the researcher's thoughts or ideas (Lochmiller & Lester, 2017). The

audio files and transcripts were securely stored in a password protected computer hard drive. There was a master list of each participant with their pseudonyms to ensure confidentiality. From there on, the assigned pseudonyms were used to identify the participants.

2.4.1 Interview Protocol

During the interview, participants were first given the letter of consent to read and sign. Next, if consent was obtained, the researcher asked 13 open-ended questions about their educational experiences from primary, intermediate, secondary, and postsecondary education. As framed by the characteristics of the CECE Model (Museus, et al., 2017), the participants were also asked to share stories on personal environmental factors which they believed influenced their decision to attend college and success to graduation. The factors centered around topics of socio-economic backgrounds, academic experiences, challenging circumstances, and other notable life experiences as adapted from Lor (2008). The purpose of these inquiry questions was to explore and understand the environmental factors which both contributed to and created barriers with which to overcome in their successfully navigation of the public schooling through to college graduation. The interviews were semi-structured to provide the researcher the flexibility to conduct the interview conversationally and to allow for follow up as needed (Korstjens & Moser, 2017).

2.4.2 Data Analysis

The interview audio files were transcribed with an online service to expedite the process and to ensure the participant's exact words were accounted for prior to analysis. After the data had been transcribed, the interviewing researcher developed initial analytic ideas (Lochmiller & Lester, 2017) in association to their field notes and based on the CCEE Model characteristics (Museus, et al., 2017). Memos were utilized to record analytic ideas and emerging findings from the transcriptions. From there, the data was analyzed by using descriptive codes which lent to sorting into categories where assigned meanings about their relationship, differences, similarities, or interactions were determined (Lochmiller & Lester, 2017). Lastly, common emerging patterns and themes in alignment with the research question were identified until saturation of data has been reached. At each stage in the process, the second researcher provided analytic cross-checking with follow-up discussion to increase trustworthiness of the findings (Moser & Korstjens, 2018).

3. Findings

To answer the research questions, participant narratives were coded and grounded in the CECE Model (Museus, 2014; Museus, et al., 2017). The researchers first focused on the indicators related to culturally engaging campus environments – *cultural relevance* and *cultural responsiveness* – for initial thematic analysis. Next, the extended CECE Model indicators were utilized respective to participant narratives – *individual influences, external influences*, and *precollege inputs* – to complete the analyses.

3.1 Thematic Analysis by CECE Sections of Cultural Relevance and Cultural Responsiveness

To understand how the participants' experiences with their institution fostered and maintained culturally engaging campus environments to thrive in college (Museus, 2014; Museus, et al., 2017), the initial thematic analysis was guided by the two campus factors within the CECE Model: *Cultural Relevance of the Campus Environment* and *Cultural Responsiveness of Campus Supports*. After initial categorizing using the nine indicators within these two sections, the responses related to six indicators, three in each factor. The responses were coded and then considered in association to one another to allow the theme to emerge. Table 1 delineates the indicators with their codes and the respective emergent themes by CECE section.

Table 1: Codes, themes, and example statements for indicators within the primary CECE sections

CECE Sections	Indicator # and Title	Code	Theme	Example Statements
Cultural Relevance of Campus Environment	(1) Cultural Familiarity	peer support	positive sense of belonging	- *I was part of the Hmong Student Association over there and for a really long time they were the friends that I considered as my support throughout college…*
	(2) Cultural Relevant Knowledge	co-curricular opportunities		- *...I joined the Hmong Student Association the following semester and I participated in that organization until I graduated. I think being a part of that organization just helped me to be able to socialize a lot more, especially with Hmong people, and not only that but create an academic support system as well.*
	(3) Cultural Community Service	opportunities for students to give back		- *I was involved in the Hmong student association at UC Merced. And we did a lot of stuff, engaging with high school students and the Hmong community.*
Cultural Responsiveness of Campus Support Systems	(7) Humanized Educational Environments	care and commitment to student success	holistic supports foster belief in academic success	- *I did really well, and I think it was because of a teacher. He really encouraged me to learn and he walked me through the steps, and he made sure that I understood what I was doing within each step of solving problems.*
	(8) Proactive Philosophies	proactive in connecting students with supports		- *I had a counselor, he was pretty supportive too. He would call me in once every few months or so, and he would talk to me how I was doing. He would look at my grade, and if he saw that I was failing in one subject, he would offer help.*
	(9) Holistic Support	providing support beyond academics		- *My dad had a stroke and it really took a toll on me...being able to talk to all my advisors about it, they helped me. They helped me get through a hardship that I probably couldn't have by myself.*
CECE Sections	Indicator # and Title	Code	Theme	Example Statements
Cultural Relevance of Campus Environment	(4) Cultural Familiarity	peer support	positive sense of belonging	- *I was part of the Hmong Student Association over there and for a really long time they were the friends that I considered as my support throughout college…*
	(5) Cultural Relevant Knowledge	co-curricular opportunities		- *...I joined the Hmong Student Association the following semester and I participated in that organization until I graduated. I think being a part of that organization just helped me to be able to socialize a lot more, especially with Hmong people, and not only that but create an academic support system as well.*
	(6) Cultural Community Service	opportunities for students to give back		- *I was involved in the Hmong student association at UC Merced. And we did a lot of stuff, engaging*

				with high school students and the Hmong community.
	(10) Humanized Educational Environments	care and commitment to student success		- *I did really well, and I think it was because of a teacher. He really encouraged me to learn and he walked me through the steps, and he made sure that I understood what I was doing within each step of solving problems.*
Cultural Responsiveness of Campus Support Systems	(11) Proactive Philosophies	proactive in connecting students with supports	holistic supports foster belief in academic success	- *I had a counselor, he was pretty supportive too. He would call me in once every few months or so, and he would talk to me how I was doing. He would look at my grade, and if he saw that I was failing in one subject, he would offer help.*
	(12) Holistic Support	providing support beyond academics		- *My dad had a stroke and it really took a toll on me...being able to talk to all my advisors about it, they helped me. They helped me get through a hardship that I probably couldn't have by myself.*

The emergent theme regarding *cultural relevance of the campus environment* as a factor of college educational attainment was a positive sense of belonging on campus. Six out of six participants mentioned having a campus space where they were able to connect with peers who understood their cultural backgrounds, identities, and experiences. For example, Participant 2 noted, "I was part of the Hmong Student Association (HSA) over there and for a really long time they were the friends that I considered as my support throughout college." Next, all of the participants mentioned being a part of a co-curricular activity such as the Hmong Student Association (HSA) at UC Merced to learn about their own cultural communities. For example, Participant 4 mentioned, "I think being a part of that organization just helped me to be able to socialize a lot more, especially with Hmong people, and not only that but create an academic support system as well. Moreover, all six of the participants were provided with opportunities to give back to their community. For example, Participant 5 stated, "I was involved in the Hmong student association at UC Merced. And we did a lot of stuff, engaging with high school students and the Hmong community."

Regarding *cultural responsiveness of campus support systems*, the emergent theme was proactive holistic supports foster belief in academic success. For example, five out of six participants mentioned having opportunities to develop a relationship with staff or faculty members who cared and were committed to the student's success which, in turn, provided a sense of ability to succeed in those courses. The opposite was also noted, when Participant 4 shared how, because of a previous negative high school experience with her AP Chemistry teacher leaving her feeling "unintelligent," she avoided seeking out professor support. However, supports were also experienced beyond self-initiated. Two out of six participants expressed having a staff member proactively seek them out about different opportunities or support services. For example, Participant 3 expressed how her counselor would call her into his office every few months to see how she was doing academically and inform her of available services to help her succeed. On the other hand, Participant 5 had the opposite experience. He discussed how he felt the professors were "too busy with their research or work with the university" to check in on their students' well-being or academic needs.

3.2 Thematic Analysis by CECE Sections of External and Individual Influences and Pre-College Inputs

To understand factors of the participants' life and educational experiences which motivated their college success, the subsequent thematic analysis was guided by the CECE Model (Museus, 2014; Museus, et al., 2017) extended indicators: *external influences*, *internal influences*, and *pre-college inputs*. Again, the responses were coded and then considered in association to one another to find the emergent theme (Lochmiller & Lester, 2017).

3.2.1 External influences

Related to the external influences which motivated these first-generation Hmong American College students' academic attainment, responses revealed the theme *family support to motivate success*. Table 2 delineates the codes, respective emergent theme, and example statements by CECE Model extended section indicators.

Table 2:Codes, themes, and example statements for external influences

CECE Sections	Code	Theme	Example Statements
External Influences	parents siblings role models significant other	family support to motivate success	- *My parents, even though they didn't have much education, always encouraged me…* - *…the sisters who were able to drop down everything and just helped me, whatever I needed, helped me get through.* - *I was involved in the Hmong student association at UC Merced. And we did a lot of stuff, engaging with high school students and the Hmong community.* - *My boyfriend was always my emotional support, always there to listen to whatever I had to say to get through things with school…*

Responses highlighted support from those participants considered as *family* which included parents, siblings, extended family-members role models, and significant others. For example, Participant 1 mentioned his parents as his "backbone that propelled [him] in [his] education." They were able to financially support him with as much as they can despite being financially unstable themselves. Most importantly, all of the participants mentioned having emotional support from their family members as an influence on their education. Participant 4, for instance, explained her significant other was "[her] emotional support…always there to listen to anything about school and encourage [her]." Participant 2, shared that even though his father "did not know how to support [him] in his homework, [his] father still reminded [him] to complete homework every day after school."

3.2.2 Internal influences

Intrinsic motivation to remain resilient emerged as a salient theme from responses regarding individual influences on the academic dispositions believed to increase motivation towards graduation. These academic dispositions included academic self-efficacy, academic motivation, and intent to persist. All six of the participants recognized intrinsic dispositions which influenced their motivation for educational attainment. Table 3 presents the codes, major theme, and example statements.

Table 3: Codes, themes, and example statements for internal influences

Internal Influences	academic self-efficacy academic motivation intent to persist	intrinsic motivation to remain resilient	- *I knew I could do [school] and if I wasn't doing well, I was just being lazy….* - *My own personal ambition, along with wanting to make sure that my family is well off in the future and so that in the future, I don't want my kids to face the same struggles.* - *My motivation was thinking, 'I can prove you wrong. I can graduate.'*

To illustrate the findings, Participant 4 expressed how being "placed in a special English class as a second language learner in High School" made her feel "different from other students" because she was "not as good as [the native English speakers]." However, she explained how she harnessed "the differences to motivate [her] to strive to do better in school in order to be placed in a regular English classroom" and she kept that skill with her into college.

Another example from Participant 2 highlighted a similar intrinsically motivated drive. In this case, Participant 2 shared how he had an epiphany when school became "hard," realizing he had "to push through with or without the support of anyone else" since "[he] was getting an education for [himself] and own goals."

3.2.3 Pre-college inputs

Responses surrounding the motivating factors of pre-college inputs revealed the *overcoming barriers* in the context of growing up in a marginalized community as the salient theme. Table 4 presents an overview of the codes, major theme, and example statements for pre-college inputs.

Table 4: Codes, themes, and example statements for pre-college inputs

Pre-College Inputs	race/ethnicity	Overcoming barriers of marginalized community	- *People would say, 'What are you? Are you Chinese?' and then you tell them your're Hmong and they're like, 'What's Hmong?'*
	socio-economic status		- *I was in a Title I school, you know, a school labeled for being in a poor area…and we didn't receive supplies for home like pens or pencils."*
	parent education level		- *My parents both have little education. My mom graduated high school, but my dad never did. He had to go to adult night school later.*
	academic preparation		- *I was put in classes that did not help me for college, like because I was Hmong, I might not even go to college so why would I need those types of classes…*

Responses were deeply personal yet commonly connected through illustrations of pre-college inputs as barriers related to race/ethnicity, socio-economic circumstances, limited parent education, and an overall lack of feeling academically prepared. Overcoming these barriers seemed to be a driving force, however, for attaining education. To further explain, three out of six participants expressed experiencing race-related discrimination as a child and into college. For example, Participant 2 "moved around the Central Valley a few times during childhood" and "treated differently because of being Hmong and the lack of awareness about the Hmong [people] due to the small population at that time." After seeing and interacting with more Hmong students from middle to high school, he was able to "develop a sense of belonging, which helped [him] persist in education."

Two out of six participants mentioned low socio-economic status as a "disadvantage" in their upbringing that became a motivation for continued school success. Participant 6, for example, expressed how she "attended a poor school where there were too many kids per each teacher…students had to share desks and were crammed together in tiny rooms" so she wanted to experience "something more." Another participant shared how they "had limited supplies and things compared to other kids" which "felt like a constant disadvantage to beat."

Although each participant, due to the study selection criteria, had parents with little to no formal education, only three out of six participants noted their parents' lack of education as a pre-college input barrier to overcome. Participant 5 specifically mentioned how "[his] dad attended school for a short time in Laos" while "[his] mom did not attend school at all" and this context meant he had to "navigate school on [his] own." Another participant (4) shared that "since [her] parents didn't go to school in the US, they couldn't really help me figure things out like other kids' parents could…but this made [her] want to try harder in school, for [her parents]…and for [her family]" overall. Participant 1 expressed how "because [he] was the first in the family to attend college, [he] had to navigate the educational system [on his own]." He felt the challenge was being "unaware of what [he] wanted in terms of a major or resources available at school" which became "a motivation for [him] to learn and seek out." Lastly, five out of six participants shared feeling unprepared academically for college rooted in a lack of access to college-going supports or class placement in high school due to being Hmong and from a lower socio-economically serving school. For example, Participant 6 explained that "being at a high school where it's very low income, the graduation rate is really low too, and a lot of staff and faculty attention is more on sports…is really tough as a student who really wanted to go to college. There was no time where the school provided…a time to

sign up to go to a college to view the campus and everything like that" but she persisted anyway because she was set on going to college. Participant 2 shared how the high school education he received with the courses the counselors put him in "didn't help transition us to this post education, in a sense" because "college is such a faster pace." He also recognized that other students did seem prepared for the rigor college and that it seemed he was put into less challenging courses in high school because he "was Hmong." Realizing this as a pre-college input as barrier to overcome was a motivating factor to make college graduation a reality.

4. Discussion

The CECE Model (Museus, 2014; Museus, et al., 2017) framed this qualitative study and grounded the thematic analyses to understand participant experiences as academically attaining first-generation Hmong American college students. By understanding the factors which motivated these students towards educational success through college graduation, implications from this study alongside previous research findings and the CECE Model can provide institutions of higher education considerations when supporting other Hmong American students in reaching their educational goals in an effort to find equity for this Asian American ethnic minority.

Overall, the results of the study highlighted that access to familial support along with self-advocacy were environmental factors with a positive impact on the motivation of these Hmong American students to persist in higher education. The findings also suggest that these Hmong American students leveraged culturally relevant and responsive college campus environmental factors to overcome institutional barriers and achieve educational success. The most salient campus factors in this context are the Hmong Student Association and intentional holistic campus student supports.

4.1 Encouraging and Supportive Family Network

According to the study findings and in alignment with the Hmong cultural values (e.g., Xiong & Lam, 2013), these student participants deeply appreciated the role of family in motivating their educational attainment. The results from a higher education context extended similar findings from Lor's (2008) research on the benefits of a supportive family in Hmong children's educational experience. Additionally, all participants had parents with little to no formal education in the US or otherwise. Their parents, none-the-less, encouraged and supported each of these participants in ways which motivated success in higher education. This finding corresponds with the Vang (2005), who concluded that supportive family behaviors, such as showing interest and encouragement towards education, are the most critical contributions a family can make in helping Hmong American children find success in school. Furthermore, similar to the findings of Mao, Deenanath, and Xiong, (2012) and Xiong and Lam (2013), many of the participants mentioned parents instilled the vision of higher education as being the key to financial stability and social mobility to increase opportunities for the entire family.

4.2 Finding Aspirations in Family Role Models

Another important motivating factor in persisting through higher education for these Hmong American participants were role models. Seeing other family members and friends attend and graduate college, particularly for Hmong American females, also emerged as an inspiring factor. Female participants noted how they viewed these women as trailblazers in shifting traditional cultural norms and mindsets making college graduation a concrete reality. This finding is consistent with Lee's (1997) research on the ways nontraditional Hmong American women impacted young Hmong females as role models especially for continued education and achieving other life aspirations beyond cultural gender-normed roles. Neither female nor male participants, as Hmong college graduates, mentioned intergenerational rifts or traditional expectations as challenging their educational journey, which suggests that the inverse of previous research (Cha, 2010; Her & Gloria, 2015; Ngo & Lee, 2007; Peng & Solheim, 2015; Truong & Miller, 2018) on these topics may also be true–family support with acceptance of potential traditional cultural shifts through the educational experience of female and male Hmong American students was important in persisting through school, even under the most challenging and marginalizing contexts.

4.3 Break from Traditional Gender Roles

Traditional cultural norms can create educational barriers for Hmong Americans, in particular to women (Lee, 1997; Ngo & Lee, 2007; Peng & Solheim, 2015). Typical gendered roles for women include maintaining only aspirations of becoming a childbearing wife (Lee, 1997; Ngo & Lee, 2007) and, thus, educational support going to sons more so than to daughters (Cha, 2010; Her & Gloria, 2016) increasing barriers to graduation from high school and even attending college (Peng & Solheim, 2015). However, in this study, female participants did not mention these types of gender role struggles. Instead, female participant responses highlighted the ways in which parents encouraged their pursuit of higher education. These findings are similar to Vang's (2018) study on the ecological factors in Hmong American students' educational success and a shift in the numbers for Hmong females versus males enrolling in higher education as well as the work of Takahashii and Nottbohm (2019) illustrating a significant increase college graduation rates for Hmong females as compared to their male counterparts. These study findings do not, however, illuminate how Hmong American male college graduation attainment was impacted by respective gendered expectations.

4.4 Importance of Hmong Student Associations to Foster Cultural Relevance

Each of the study participants emphasized their participation with their University's Hmong Student Association (HSA). Findings suggest that experiences and time within HSAs are valuable in providing a sense of belonging which is a key component of fostering cultural relevance within the CECE Model (Museus, 2014; Museus, et al., 2017). This included participants feeling motivated to persist in college as the HSA provided a space to connect with like-minded peers with similar values, struggles, and life goals. The HSA also provided participants with mentors with whom they felt comfortable to discuss challenging situations related to school and the Hmong student experience. For some participants, this mentor relationship kept them from dropping out of college entirely. Furthermore, being of Hmong descent, they understood the struggles of their community and HSA empowered them to contribute to the community by working with local Hmong high school students and the campus by hosting cultural events for increasing overall awareness of the Hmong culture and people. In these ways, the HSA also cultivated cultural relevance through the areas of cultural community service and familiarity which again led to a deeper sense of belonging which motivated these students in reaching their educational goals in higher education. The inverse was also emerged as true for these students throughout campus. In other campus contexts, these Hmong American students, in alignment with the Model Minority Myth (e.g., Her, 2014; Kwan, 2015; Ngo & Lee, 2007; Poon et al., 2016), felt marginalized, misunderstood, and overlooked when other students and faculty seemed unaware of the Hmong culture and language or how their experiences and needs may be different from other Asian American groups. The findings of this study, then, suggest that the HSA provided a level of cultural relevance to motivate these Hmong American students when cultural responsiveness was lacking; however, this is noted with hesitance since it is not suggested that campuses only need an HSA, or similar organizations, to meet the needs of marginalized students without working to cultivate an overall more inclusive environment across campus. Instead, it should be understood that the HSA is an important component to an overall system of support in a culturally engaging campus environment to motivate student such as the ones in this study to persist through to college graduation.

4.5 Culturally Responsive Holistic Campus Supports

The study findings highlighted the ways in which the campus environment, when culturally responsive holistic supports are provided to students, can assist Hmong students greatly in overcoming barriers to education. Along with the availability of the HSA, participants noted a range of campus supports, from counseling social-emotional needs and guiding academic decision making as critical to their educational attainment in higher education. Furthermore, students also expressed how campus spaces without a culturally responsive environment created additional barriers which had to be overcome through previously mentioned external and internal factors. These findings contribute to the small body of literature which illustrates how campuses can shape environments which positively impact Hmong American enrollment and graduation rates (Takahashii & Nottbohm, 2019; Vang, 2018)

when fostering a sense of belonging and providing accessible and welcoming academic supports (Ngo & Lee, 2007; Lee & Author, 2020).

While the HSA was one way campus environments cultivated a sense of belonging for these Hmong American students, the responses also suggest that increasing access to Hmong staff and faculty would also aid in deepening cultural relevance of the campus environment. These findings are supported by the work of Takahashi and Nottbohm's (2019) where Hmong student sense of belonging on campus was positively associated with intentional efforts to increase number of Hmong faculty and staff from entry-level to administrative leaders on its campus over the years. Thus, campuses with Hmong American populations should not only work to institute a thriving HSA but also consider how to develop cultural relevance through hiring practices for increasing Hmong staff and faculty.

5. Conclusion

The results of this study were consistent with previous literature regarding the relationship between support systems and educational barriers with the academic attainment first-generation Hmong American college students. As illustrated by Lee (1997) and Vang (2005) having a supportive family, role models, and a sense of belonging on campus impacted student motivation to persist in school (Vang, 2005; Lee, 1997). While barriers such as poverty, discrimination, and family education level can impede educational attainment for these traditionally marginalized students (Paik, 2007; Lee, 1997; Xiong, 2012), the academically attaining Hmong American students in this study used intrinsic and extrinsic factors to overcome these barriers (pre-college inputs) and graduate from college. Specifically, participants drew upon academic and personal dispositions along with family support networks to remain resilient and motivated during their academic journey through higher education. The study findings reinforce the importance of internal and external factors–supportive family, seeing success through family role models, breaking gender roles–in the educationally attaining Hmong American students' higher education journey. The results also highlight the continued marginalization of Hmong American students through various pre-college inputs and campus experiences which continue to reinforce the MMM and create institutional barriers to educational attainment. Hmong Student Associations (HSAs), and intentional holistic campus supports emerged as important motivational campus environmental factors for these first-generation Hmong American college graduates and could have potential to provide the same support for similar students in other higher educational contexts. Further research into successful Hmong experiences in education would continue social justice advocacy for this Southeast Asian community within the US and globally.

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Notes

Note 1. This is an example.

Note 2. This is an example for note 2.

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A Look at the Processes of Developing Math Activities: Pre-service Primary Teachers

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Abstract
Activities, which are defined as activities that support students' mathematical learning and increase their levels of mathematic learning, enable the individual to be active by mentally and physically engaging in an action, to establish a cause-effect relationship, and to satisfy his/her curiosity. In this respect, activities have an important effect on the attitude towards mathematics. For this reason, it was aimed to examine the math activity preparation processes of pre-school primary teachers in the current study. To this end, the study was designed in accordance with the case study design, one of the qualitative research methods. In the analysis of the collected data, content analysis was employed. As a result of the study, it was found that the pre-service teachers prepared the activities themselves, they used books and the internet during the development process, and they prepared the activities for the introduction and ending sections of the lesson. In addition, it was observed that while preparing the activity, they considered its suitability for the level of the students and for the purpose of the lesson, they did not take into account individual differences while preparing the activities, and they made use of daily life examples in the activities. The pre-service teachers stated that they had difficulties in preparing activities suitable for the level of the students and stated that they did not consider themselves adequate in preparing activities. Therefore, more emphasis should be placed on improving the skills of developing activities suitable for primary school mathematics lessons in teacher training faculties.

Keywords: Activity, Activity Preparing, Primary School Mathematics, Pre-Service Primary Teacher

1. Introduction

Over time, social, economic and technological changes have brought about changes in educational paradigms and made it necessary to experience various developments. In the educational process, it has become important for the student to take part in a process related to the targeted content, to reach and construct the information himself/herself, and therefore to present experiences to the student. It is possible for the student to be an active participant in the learning-teaching process through learning activities. Activities and simulations and activity-based lessons are teaching techniques that support the constructivist philosophy (Garfield, 1995; Garfield & Ahlgren, 1988; as cited in Miller, 2002). The reason for this is that activities support the student to be mentally and physically active in the learning process and contribute to the learning process by making them engaged in an

action (Özgen & Alkan, 2014). Activities are works that are developed with educational activities and educational suggestions and that adults think are effective in learning (Burgess, 1971). MacDonald (2008), on the other hand, defines activity as a set of tasks on which learning is based, that support students' learning and increase the learning level in general. Activity production is a process that requires creativity along with the habit of thinking differently. Therefore, superficial thinking, asking a simple question, or solving a simple problem is not an activity (Bukova Güzel & Alkan, 2005). For a work to be an activity in the learning process, it must have certain characteristics. Doyle (1988) explained the prominent features of the concept of activity as follows:

- Activity should include interesting and important educational work,
- Activity includes a set of works carried out using some tools and resources,
- Activity aims to obtain a product that meets the pre-determined targets,
- Activity requires students to participate actively by taking responsibility.

It is undoubtedly important in the context of every lesson that students take responsibility for their own learning and actively engage in some activities in line with the target. However, it can be stated that activity-based learning has a special importance especially in mathematics lessons. Mathematics requires effort (National Mathematics Advisory Panel, 2008; as cited in Van de Walle, Karp & Bay-Williams 2013). According to Simon et al. (2010), children learn from an early age by participating in various activities such as counting, matching and sharing. Therefore, it is necessary to learn mathematics through activities. Math activities are at the centre of students' learning as they give messages to students about what mathematics is and what mathematics requires (National Council of Teachers of Mathematics [NCTM], 1991; as cited in Henningsen & Stein, 1997). In this context, math activity is defined as the goal-oriented mental and physical actions of students trying to achieve a certain math task (Simon et al., 2010).

Students' learning is affected by math activities (Christiansen and Walther 1986). Therefore, math activities play an important role in students' opportunities to learn mathematics (Stylianides & Stylianides, 2008). Students get primary opportunities to experience mathematics as a discipline in the classroom activities they participate in (Henningsen & Stein; 1997). Math activities that require higher order thinking and include interpretation and analysis enable students to reason about mathematical ideas (Van de Walle et al., 2013). Thus, students develop their perceptions of what it means to 'do the math' from their actual experiences with mathematics (Henningsen & Stein, 1997). Given the importance of math activities in learning mathematics, it can be said that math activities positively affect learning by supporting doing mathematics.

When the studies on this subject, which is important in learning mathematics, are examined, it is seen that the activities in the mathematics textbooks have been examined (Arslan & Özpınar, 2009; Kerpic, 2011), the effect of the teacher on the quality of math activities has been investigated (Açıl, 2011; Bozkurt, 2012; Guberman & Leikin, 2013; Leikin & Levav-Waynberg, 2007; Karakuş & Yeşilpınar, 2013; Özgen, 2019; Özgen & Alkan, 2011; Özgen & Alkan, 2014; Öztürk & Işık, 2018; Toprak, Uğurel & Tuncer, 2014; Uğurel, Bukova- Güzel & Kula, 2010) and the activities have been examined from the eyes of students (Yorulmaz, Kılıç, Ünsal & Çokçalışkan, 2020; Kılıç, Ünsal & Yorulmaz, 2020). When the studies are generally evaluated, it is seen that the textbooks are not capable of supporting higher order thinking skills, and that the studies in which math activities are investigated in the context of teachers are mostly done with mathematics teachers and pre-service mathematics teachers. On the other hand, the number of studies conducted with the participation of primary school teachers and pre-service primary teachers is low.

However, since students learn mathematics through mental and physical activities in classroom environments based on doing mathematics, class teachers are the most important determinant of a qualified mathematics education (Simon et al., 2010). According to Thompson (1992), the situation that embodies a teacher's understanding of mathematics, learning mathematics and how he/she can teach it is the way through which a math activity is presented, developed, studied and brought to a conclusion. Developing and implementing a good and effective activity for students is important in terms of increasing students' motivation towards the lesson and creating an enjoyable environment especially for primary school students. For this reason, the design of pre-service

teachers' math activities and the examination of their opinions during the design process have an important place in terms of providing information about the practices they will do as a teacher in the future. In this connection, in the current study, it is aimed to examine the math activity preparation processes of pre-service primary teachers. To this end, the research problem of the study is worded as follows; "How are the activity preparation processes of pre-service primary teachers?"

2. Method

2.1 Research Design

In the current study, which was carried out to evaluate the mathematics activities prepared by the pre-service primary teachers within the context of their undergraduate education, the case study design, one of the qualitative research designs, was used. Case study is used to obtain in-depth information about the research topic and to make it possible to understand it in its all aspects (Merriam, 1998). It is a method in which case-based data collection methods are examined in depth. Since the data were obtained based on the math activities prepared in the current study, the study was carried out using the holistic single case design.

2.2 Participant

In the current study, which was carried out to evaluate the math activities prepared by the pre-service primary teachers within the context of their undergraduate education, the study group was constructed by using purposive sampling. The study group of the current research is comprised of a total of 16 senior pre-service teachers (11 females and 5 males) attending the Department of Primary School Teaching of two state universities located in the Aegean and Black Sea Regions of Turkey in the spring semester of the 2020-2021 academic year. The criteria used in the selection of the participants were being a senior student in the Department of Primary School Teaching and being easily accessible. Before the study, voluntary consent forms were obtained from the 16 pre-service primary teachers who participated in the study.

2.3 Data Collection Tools

In the study, data were collected with a semi-structured interview form and activity plans. The interview form was preferred because it is a powerful method in revealing the knowledge, experience, feelings and perceptions of individuals. In order to prepare the data collection tool to be used in the study in line with the purpose of the study, a literature review was conducted, and it was determined that the semi-structured interview form used by Öztürk and Işık (2018) would be appropriate and would serve the purpose. The necessary permissions for the semi-structured interview form to be used were obtained from the researchers. The semi-structured interview form consists of 12 questions aiming to reveal the knowledge and experiences of the pre-service teachers regarding the activity preparation process. The layout of the activity plans used in the research process was prepared by the researchers in order for it to be more understandable by the participants and given to the pre-service teachers to prepare the activity. The layout of the activity plan consists of the name of the activity, the objective of the activity, the purpose of the activity, the duration of the activity, the type of the activity, the place where the activity will be held, the materials to be used and the activity process.

2.4. *Data Collection Procedures*

The data collection process of the study, which was conducted to determine the math activities prepared by the pre-service primary teachers, was carried out in two stages. First, the pre-service primary teachers were informed about the purpose of the study, a study group was randomly formed among those who wanted to participate, and participant consent forms were obtained. In the first stage of the data collection process, activity plan templates prepared electronically were sent to the 16 pre-service primary teachers who participated in the study. The pre-service primary teachers were given six days between April 28 and May 4, 2021 to prepare three activities in line with the determined objectives. The determined 8 objectives are included in the geometry learning area in the

primary school mathematics curriculum at each grade level, and each objective was given to two pre-service teachers. The pre-service teachers prepared three different activities related to the given objective. The prepared activities were collected from the pre-service teachers via electronic media. After the activities prepared by the pre-service primary teachers were completed, the second stage of the data collection process was initiated. At this stage, the semi-structured interview form was applied to the participants by the researchers. Interviews were conducted with the pre-service teachers by both researchers between 5 and 8 May 2021. Appointments were made for the interviews to be conducted to reveal the preparation process of the activities with the participants for the appropriate times and one-on-one interviews were made with each pre-service teacher using remote interview technologies and they were recorded. The average duration of the interviews was 11 minutes and 25 seconds. Then the interview records were transcribed by the researchers.

2.5. Data Analysis

Content analysis was used in the analysis of the data collected during the research process. The reason for using content analysis is to reveal the concepts and the relationships between these concepts in the explanation of the data and to express the data with the themes (Yıldırım & Şimşek, 2016; Patton, 2014). Before starting the analysis process, the real names of the participants were hidden and the codes "Ö1, Ö2, Ö3, …" were given. In the current study, written documents consisting of raw data containing the data obtained in line with the questions in the interview form were analyzed separately by two researchers and draft themes and codes were created. The inter-coder reliability of the generated codes was calculated using the formula "Agreement / (Agreement + Disagreement) x 100" proposed by Miles and Huberman (1994), and the value of 86% was found, which is at an acceptable level. The researchers carried out the reanalysis process on the different encodings and arrived at an agreement. The codes and themes obtained are presented in tables in the findings section in line with the interview questions. In order to ensure reader confirmation, the opinions related to the coding are given as quotations.

3. Results

The findings obtained with the interview form in the current study, which was carried out with the aim of evaluating the activity preparation processes of pre-service primary teachers for primary school mathematics, are given below. The findings obtained from the question asked to determine the preferences of the pre-service primary teachers in the activity preparation process are given in Table 1.

Table 1: The pre-service primary teachers' opinions about their preferences in the activity preparation process

Category	Code	Pre-service primary teacher	f
Activity preparation	Original activity	Ö1, Ö4, Ö5, Ö6, Ö12, Ö13, Ö14, Ö15	8
	Performing effective teaching	Ö6, Ö8, Ö9, Ö10	4
	Lack of ready-made activities	Ö3, Ö7	2
Using ready-made activities	Activity preparation takes long time	Ö2	1
	Existence of activities suitable for the subject	Ö11	1

According to Table 1, while preparing the math activities, 14 of the pre-service primary teachers preferred to create the activities themselves and 2 of them preferred to use ready-made activities. It is seen that 8 of the pre-service primary teachers preferred to create their own activities as they wanted to present an original activity to their students, 4 of them preferred to create their own activities to perform effective teaching and 2 of them preferred to create their own activities because they could not find ready-made activities. The reasons stated by the pre-service teachers for their using ready-made activities are that preparing activities takes long time (f=1) and that there are activities suitable for the subject to be taught (f=1). The pre-service teacher coded as Ö5 expressed that he/she created his/her own materials to present original activities to students as follows: "*I did not copy the activities directly from the internet. I wanted to think about it because as a pre-service teacher we need to develop ourselves, so I wanted to create my own activities. Thus, I wanted to add new activities to the existing ones. The*

reason why I preferred this was to create original activities to avoid repeating what had already been done. Before creating the activities, I first examined the pre-created activities related to the topic I would teach. I created my activities by analyzing which activity would be more suitable for the student level." The pre-service primary teacher coded as Ö2 explained that he/she used ready-made activities because the preparation of the activities would take a long time as follows; *"I used ready-made materials because I did not have enough time to create a large number of creative activities. Thus, I looked at the relevant parts from a book that I had purchased before, which included activities for all math objectives of different grade levels."* The findings related the resources that the pre-service primary teachers used during the activity preparation process are given in Table 2.

Table 2: The pre-service primary teachers' opinions about the resources they used in the activity preparation process

Category	Code	Pre-service primary teacher	f
Internet	Websites	Ö1, Ö5, Ö6, Ö7, Ö8, Ö10, Ö11, Ö12, Ö14, Ö15, Ö16	11
Book	Math textbook	Ö3, Ö4, Ö11, Ö13, Ö14, Ö16	6
	Math curriculum	Ö6, Ö7, Ö13, Ö15, Ö16	5
	Math teaching book	Ö2, Ö6	2
Close circle	Friend	Ö15	1
I did not use any resource	I did not use	Ö9	1

According to Table 2, 11 of the pre-service primary teachers benefited from the internet, 13 from books, and 1 from their close circle during the activity preparation process. One pre-service teacher stated that he/she did not use any resources while preparing the activity. All of the pre-service primary teachers who used the internet in preparing the activity stated that they benefited from websites; of the pre-service teachers using books, 6 used mathematics textbooks, 5 mathematics curriculum and 2 mathematics teaching book, and the pre-service teacher who stated that he/she got help from his/her close circle got help from a friend. The pre-service teacher coded as Ö8 explained how he/she used websites in preparing activities as follows; "*Before creating my activities, I looked at the activities that had been done on this subject before. I looked at these from websites such as eğitim hane, YouTube, pinterest. After looking at the activities in these websites, I created my own activity in my mind. I made sure that my activity would be appropriate for the level of the student. In this process, I tried to create simple but effective activities so that the students could get the most out of the activity."* The pre-service teacher coded as Ö13 expressed how he/she used the mathematics curriculum and textbook as follows; *"I examined the objectives in the mathematics curriculum and textbook."* The findings related to the aims of the activities prepared by the pre-service primary teachers are given in Table 3.

Table 3: The pre-service primary teachers' opinions about the aims of the activities they prepared

Category	Code	1st Activity	2nd Activity	3rd Activity	f
Introduction to the lesson	Comprehension	Ö1, Ö2, Ö3, Ö4, Ö5, Ö9, Ö12, Ö13, Ö15, Ö16	Ö1, Ö5, Ö6, Ö8, Ö9, Ö11, Ö12, Ö14	Ö1, Ö7	20
	Concretization	Ö7, Ö8, Ö11, Ö14	Ö4, Ö7	Ö3, Ö11, Ö14	9
Ending the lesson	Reinforcement	Ö6	Ö3, Ö15	Ö2, Ö6, Ö13	6
	Evaluation	Ö10	Ö2, Ö8, Ö13, Ö16	Ö4, Ö5, Ö8, Ö12, Ö15, Ö16	11
	Interdisciplinary transfer			Ö9	1

When the three math activities written by the pre-service primary teachers are examined in Table 3, it is seen that they wrote 29 introduction activities and 18 ending activities. When the instruction activities were examined, it was determined that the aim of 20 activities is comprehension and that of 9 activities is concretization. When the aim of the ending activities was examined, it was seen that 11 were prepared for evaluation, 6 for reinforcement

and 1 for interdisciplinary transfer. It was revealed that the math activities written by the pre-service primary teachers are more oriented towards comprehension and evaluation. When the aim of the three activities was examined, it was seen that the first activities written by the pre-service primary teachers are mostly oriented towards comprehension and the third activities are oriented towards evaluation. The pre-service teacher coded as Ö15 explained that the aim of the first activity is comprehension as follows; *"Students explore the cube, square and rectangular prisms around them and find common and different aspects of them."* The pre-service teacher coded as Ö7 explained that the aim of the second activity is concretization as follows; *"Draws shapes according to the line of symmetry."* The pre-service teacher coded as Ö15 explained that the aim of the second activity is concretization as follows; *"Students find the elements of cube, square and rectangular prisms and discover similar and different aspects based on their properties."* The pre-service teacher coded as Ö15 explained that the aim of the third activity is evaluation as follows; *"Students examine cube, square and rectangular prisms through animations and write their properties on the table to find similar and different aspects."* The findings related to the situations that the pre-service primary teachers considered in the activity preparation process are given in Table 4.

Table 4: The pre-service primary teachers' opinions about the situations they considered in the activity preparation process

Opinions	**Pre-service primary teachers**	**f**
Student level	Ö1, Ö3, Ö4, Ö5, Ö6, Ö7, Ö8, Ö9, Ö11, Ö13, Ö14, Ö15, Ö16	13
Compliance with the purpose	Ö1, Ö4, Ö6, Ö7, Ö8, Ö10, Ö12, Ö13	8
Being interesting	Ö3, Ö4, Ö8, Ö9, Ö10, Ö12	6
The student's being active	Ö3, Ö5, Ö6, Ö13, Ö15	5
Making effective teaching possible	Ö1, Ö16	2
Being applicable in the educational environment	Ö2, Ö8	2
Being related to daily life	Ö3	1
Including concrete materials	Ö7	1

When the situations taken into consideration by the pre-service primary teachers participating in the current study in the process of preparing mathematics activities were examined, it was found that the student's level was the situation most taken into consideration (f=13). The other situations taken into consideration in the activity preparation process are compliance with the purpose (f=8), their being interesting (f=6), the student's being active (f=5), making effective teaching possible (f=2), being applicable in the educational environment (f=2), being related to daily life (f=1) and including concrete materials (f=1). In the prepared math activities, the pre-service primary teachers paid more attention to the level of the student, their compliance with the purpose, their attractiveness and the student's being active.

The pre-service teacher coded as Ö1 explained that the student level, compliance with the purpose and being interesting should be taken into consideration while preparing activity as follows; *"Students' levels, the effectiveness of the activity I will prepare and its compliance with the purpose."* The pre-service teacher coded as Ö5 explained that the student level and the student's being active should be taken into consideration while preparing an activity as follows; *"I made sure it was suitable for the student level and simple but effective."* The pre-service teacher coded as Ö8 explained what should be taken into consideration in the activity preparation process as follows; *"I paid attention to what the given objective wanted me to give to students. I took the student level into consideration. I made sure that the activity I was going to do would be applicable. At the same time, I considered whether it would be found interesting by the student."* The findings regarding the works performed by the pre-service primary teachers to determine the appropriateness of the activities they prepared for the level of the student are given in Table 5.

Table 5: The pre-service primary teachers' opinions about the works they did in order to determine the suitability of the activities they prepared for the level of the student

Category	Code	Pre-service primary teachers	f
Book	Mathematics curriculum	Ö5, Ö6, Ö8, Ö13, Ö15, Ö16	6
	Mathematics teaching book	Ö9, Ö11, Ö12	3
	Mathematics textbook	Ö2, Ö3	2
Close circle	Sibling	Ö3, Ö4	2
	Friend	Ö6	1
Internet	Education platforms	Ö3, Ö7, Ö15	3
Finding materials	Concrete materials for the level	Ö1, Ö7	2
I did not look at the suitability for the level	I did not do any activity	Ö10, Ö14	2

As can be seen in Table 5, the pre-service primary teachers paid attention to books (f=11), close circle (f=3), internet (f=3) and finding materials (f=2) in order to determine whether the math activities they prepared are suitable for the student level. In the book category, it was determined that 6 pre-service teachers used the mathematics curriculum, 3 pre-service teachers used the mathematics teaching book and 2 pre-service teachers used the mathematics textbook. Two of the pre-service teachers in the close circle category aimed to determine the suitability of the activity for the level of the student with the help of their siblings and 1 with the help of a friend. In addition, it was revealed that 2 pre-service primary teachers did not perform any work in order to determine the suitability for the student level in the mathematics activities they prepared. The pre-service teacher coded as Ö4 explained how he/she attempted to determine the suitability of the activities prepared for the student level as follows; *"Since my brother is a 3rd grader, I had short conversations with him/her and tested whether he/she liked it."* The pre-service teacher coded as Ö15 explained his/her opinion as follows; *"I conducted research on grade levels and objectives. I searched for similar activities on the internet."* The pre-service teacher coded as Ö11 explained his/her opinion as follows; *"I resorted to mathematics teaching books."* The findings related to what the pre-service primary teachers did to take into account individual differences during the activity preparation process are given in Table 6.

Table 6: The pre-service primary teachers' opinions about taking individual differences into account in the activity preparation process

Opinions	Pre-service primary teachers	f
I did not take into consideration	Ö3, Ö7, Ö9, Ö11, Ö12, Ö14, Ö15, Ö16	8
Forming groups in compliance with the students' levels	Ö1, Ö4, Ö5	3
Activities fostering multiple intelligences	Ö2, Ö8, Ö13	3
Activating multiple sense organs	Ö6, Ö10	2
Using concrete materials	Ö1	1

When the pre-service teachers' state of taking individual differences into consideration is examined in Table 6, it is seen that many of them did not take individual differences into consideration (f=8). The remaining pre-service teachers took individual differences into consideration in the activity preparation process, by forming groups in compliance with the students' levels (f=3), using activities that foster multiple intelligences (f=3), activating multiple sense organs (f=2) and using concrete materials (f=1). The pre-service teacher coded as Ö4 explained that he/she did not take individual differences into consideration in the prepared activities as follows; *"Frankly, I do not have direct information about the developmental characteristics and individual differences of the students in my class, since I am not in face-to-face contact with the class. That's why I prepared the activity on the basis of my general knowledge."* The pre-service teacher coded as Ö8 explained his/her opinions as follows; *"Considering intelligence, I prepared an activity that includes visual, verbal, physical and social intelligence.* The pre-service teacher coded as Ö10 explained his/her opinion as follows; *"I prepared the activities in such a way as to take into account the individual differences of the students and paid attention for the activities to appeal to different sense*

organs." The findings regarding what the pre-service primary teachers did to make the activities they prepared related to daily life are given in Table 7.

Table 7: The pre-service primary teachers' opinions about what they did to make the activities they prepared related to daily life

Opinions	**Pre-service primary teachers**	**f**
Daily life examples	Ö1, Ö3, Ö4, Ö6, Ö7, Ö8, Ö15, Ö16	8
Daily life materials	Ö3, Ö4, Ö5, Ö6, Ö9, Ö10, Ö14, Ö16	8
Daily life problems	Ö12, Ö13	2
I did not relate the activities to daily life	Ö2, Ö11	2

As can be seen in Table 7, the pre-service primary teachers used daily life examples (f=8), daily life materials (f=8) and daily life problems (f=2) to relate mathematics activities to daily life. Daily life examples and materials were used a lot in activities created by the pre-service teachers to relate the activities to daily life. On the other hand, 2 pre-service primary teachers stated that they could not establish a relationship with daily life in the mathematics activities they prepared. The pre-service teacher coded as Ö9 explained how he/she related the activities to daily life materials as follows; *"I chose materials that students use in daily life. I have increased retention with the materials that they may encounter in their daily lives."* The pre-service teacher coded as Ö15 explained how he/she related the activities to daily life as follows; *"I wanted the students to establish relationships with the places they live and give examples from their own homes."*, and the pre-service teacher coded as Ö5 explained his/her opinion as follows; *"In one of my activities, I showed one of the pictures they created in daily life. This was a simple picture they drew in their visual arts class."* The findings regarding the determination of the situations in which students may experience difficulties and misconceptions in the activities prepared by the pre-service primary teachers are given in Table 8.

Table 8: The pre-service primary teachers' opinions about the determination of the situations in which students might experience difficulties and misconceptions in the activities they prepared

Opinions	**Pre-service primary teachers**	**f**
I used my knowledge and experience	Ö1, Ö2, Ö4, Ö5, Ö6, Ö7, Ö8, Ö9, Ö12, Ö13, Ö14, Ö16	12
They would not experience difficulty and misconception	Ö3, Ö10, Ö11, Ö15	4

As can be seen in Table 8, the pre-service primary teachers used their knowledge and experience (f=12) in determining what difficulties and misconceptions students might experience in the mathematics activities they developed. On the other hand, 4 pre-service primary teachers stated that they were sure that the students would not experience difficulties and misconceptions in the mathematics activities they prepared. The pre-service teacher coded as Ö15 explained his/her opinion about the determination of the difficulties and misconceptions the students might experience as follows; *"I preferred to give separate instructions rather than giving them as a whole so that the students would not feel confused."* The pre-service teacher coded as Ö3 explained his/her opinion as follows; *"If there had been a situation where a misconception would occur in the activity, I could have immediately noticed it and given feedback."*

The findings related to the classroom organization preferred by the pre-service primary teachers to implement the activities they prepared are given in Table 9.

Table 9: The pre-service primary teachers' opinions about the classroom organization preferred by them to implement the activities they prepared

Category	1st Activity	2nd Activity	3rd Activity	f	Reasons
Individual work	Ö1, Ö3, Ö4, Ö9, Ö10, Ö11, Ö15	Ö3, Ö5, Ö7, Ö9, Ö10, Ö11, Ö13, Ö15	Ö1, Ö4, Ö8, Ö9, Ö10, Ö12, Ö13, Ö15	23	Individual differences (Ö1, Ö3, Ö4, Ö8, Ö9, Ö10, Ö12, Ö15)
Group work	Ö2, Ö5, Ö6, Ö7, Ö8, Ö12, Ö13, Ö14	Ö1, Ö2, Ö4, Ö6, Ö8, Ö14	Ö2, Ö3, Ö5, Ö6, Ö7, Ö11, Ö14	21	Cooperation/solidarity (Ö1, Ö3, Ö5, Ö7, Ö8, Ö11) Peer teaching (Ö4, Ö12, Ö13) Developing information technologies (Ö5) Taking responsibility (Ö6)
Whole class work	Ö16	Ö12, Ö16	Ö16	4	Easier management of the instructional process (Ö16)

As can be seen in Table 9, the highest number of activities prepared by the pre-service primary teachers included individual work organization (f=23). The pre-service primary teachers also included group work organization (f=21) and whole class organization (f=4) in their activities. The reason for the inclusion of individual work organization in the activities was shown to be individual differences by the pre-service teachers. The reasons for the inclusion of group work organization were shown to be cooperation/solidarity, peer teaching, developing communication skills and taking responsibility. The reason for the inclusion of whole class organization was shown to be easier management of the instructional process. The pre-service teacher coded as Ö9 explained his/her opinion as follows; *"My activities require working individually. I aimed to make it easier for each student in the classroom to engage in the materials individually and to facilitate their learning."*; the pre-service teacher coded as Ö4 explained his/her opinion as follows; *"My aim in preparing individual activities was that they were suitable for everyone. In the group work, I wanted my students to benefit from peer teaching."* and the pre-service teacher coded as Ö6 explained his/her opinion as follows; *"I want students to take responsibility not only for their own work but also for their friends' work."* The findings related to the difficulties encountered by the pre-service primary teachers during the activity preparation process are given in Table 10.

Table 10: The pre-service teachers' opinions about the difficulties they encountered in the activity preparation process

Opinions	Pre-service primary teachers	f
Preparing activities suitable for the student level	Ö3, Ö11, Ö12	3
Preparing creative activities	Ö3, Ö7, Ö15	3
Finding economical materials for activities	Ö5, Ö7	2
Producing activities	Ö10, Ö14	2
Preparing activities addressing different skills	Ö2	1
Preparing activities complying with the objective	Ö3	1
Preparing activities attractive for students	Ö6	1
I did not encounter any difficulty in preparing activity	Ö1, Ö4, Ö8, Ö9, Ö13, Ö16	6

As can be seen in Table 10, the pre-service primary teachers experienced difficulties in preparing activities suitable for the student level (f=3), preparing creative activities (f=3), finding economical materials for activities (f=2), producing activities (f=2), preparing activities addressing different skills (f=1), preparing activities complying with the objective (f=1) and preparing activities attractive for students. It can be said that the pre-service teachers experienced the greatest difficulty in preparing activities suitable for the student level and preparing creative activities. In addition, 6 pre-service primary teachers stated that they did not have any difficulties in preparing mathematics activities. The pre-service teacher coded as Ö3 explained his/her opinion about the difficulties experienced as follows; *"I experienced difficulties in finding answers to such questions as "If I use this, will it be suitable for their level, will it be creative or will it be in compliance with the objective?"*. The pre-service teacher

coded as Ö7 explained his/her opinion as follows; *"I have difficulties in finding materials, games related to some objectives. There might be times when we need to use our creativity. Then, I watch videos teaching the subject. I search for relevant games. Then, I add some creativity, then I have a good activity."* Findings related to the pre-service primary teachers' self-evaluation in relation to the activity preparation process are presented in Table 11.

Table 11: The pre-service primary teachers' self-evaluation in relation to the activity preparation process

Opinions	**Pre-service primary teachers**	**f**
Adequate	Ö1, Ö2, Ö4, Ö5, Ö6, Ö7, Ö14	7
Partially adequate/inadequate	Ö3, Ö8, Ö10	3
Inadequate	Ö9, Ö11, Ö12, Ö13, Ö15, Ö16	6

As can be seen in Table 11, 7 of the pre-service primary teachers see themselves as adequate, 3 as partially adequate/inadequate and 6 as inadequate in the activity preparation process. Thus, fewer than half of the pre-service primary teachers consider themselves fully adequate. The pre-service teacher coded as Ö7 explained his/her opinion in terms of seeing himself/herself adequate as follows; *"I think I am good at preparing activities. I can come up with creative ideas."* The pre-service teacher coded as Ö8 explained his/her opinion as follows; *"I think I am inadequate. I need to do research to conduct better activities."* and the pre-service teacher coded as Ö12 explained his/her opinion as follows; *"I cannot tell that I have adequate knowledge about preparing activities but with this study, I have become more interested in this issue, when the necessary information is given, skills and abilities can be revealed."* The findings related to the adequacy of the undergraduate education in terms of training pre-service teachers in activity preparation obtained are given in Table 12.

Table 12: The pre-service primary teachers' opinions about the adequacy of the undergraduate education in terms of activity preparation

Opinions"	**Pre-service primary teachers**	**f**
Adequate	Ö1, Ö2, Ö3, Ö4, Ö5, Ö6, Ö7, Ö14	8
Partially adequate/inadequate	Ö8, Ö9, Ö10, Ö16	4
Inadequate	Ö11, Ö12, Ö13, Ö15	4

As can be seen in Table 12, 8 of the pre-service primary teachers see their undergraduate education as adequate in terms of training them in activity preparation, 4 as partially adequate/inadequate and 4 as inadequate. Thus, it can be said that half of the pre-service primary teachers see their undergraduate education as adequate, while the remaining half see it partially adequate or inadequate. The findings related to suggestions of the pre-service primary teachers to make their undergraduate education better in terms of activity preparation are given in Table 13.

Table 13: The pre-service primary teachers' suggestions to make their undergraduate education better in terms of activity preparation

Opinions	**Pre-service primary teachers**	**f**
The number of practice-oriented studies should be increased	Ö9, Ö11, Ö13, Ö15	4
The time allocated to preparing activities in undergraduate courses should be increased	Ö12, Ö15	2
More research should be conducted on activity writing	Ö8, Ö10	2
Articles and books should be read about how to prepare math activities	Ö13	1
Individual motivation of students should be increased	Ö16	1

As can be seen in Table 13, the pre-service teachers suggested that the number of practice-oriented studies should be increased (f=4), the time allocated to preparing activities in undergraduate courses should be increased (f=2), more research should be conducted on activity writing (f=2), articles and books should be read about how to prepare math activities (f=1) and individual motivation of students should be increased (f=1) to make their

undergraduate education more adequate in terms of training them in activity preparation. The pre-service teacher coded as Ö8 explained his/her opinion about how to develop the process as follows; *"At the university where I studied, they often emphasized such skills in order to for us to master them. Since we were asked to do studies and tasks, I gained knowledge and experience. I don't think I'm inadequate, but I can do better activities by doing research."* The pre-service teacher coded as Ö15 explained his/her opinion as follows; *"I think the time allocated to practicum teaching is not enough. I think that in order to plan an activity, it is necessary to understand the classroom environment thoroughly. We need to be in constant interaction with the class in order to apply the activities in the class and get their feedback."* and the pre-service teacher coded as Ö10 explained his/her opinion as follows; *"So I don't remember getting a training on how to prepare an activity, but we were encouraged to do research on this and I think it worked."*

4. Discussion

The current study employing the case study design, one of the qualitative research designs, was conducted with the participation of 16 pre-service primary teachers in order to evaluate the mathematics activities they prepared within the context of their undergraduate education. The majority of the pre-service primary teachers preferred to create mathematics activities themselves in order to present original activities to their students and to increase the efficiency of teaching. According to the results of the study, which examined the ability of pre-service mathematics teachers to create activities for the concept of function, it was concluded that pre-service teachers were able to develop activities (Özgen & Alkan, 2014). The reason why the results of the two studies are different can be attributed to the differences between the study groups. In the current study, the reason why the pre-service teachers preferred to create the activities themselves might be because they wanted their activities to be specific to the group, they thought that the activity needs of each group may be different and effective learning methods of different groups can be different.

While preparing the mathematics activities, the pre-service primary teachers mostly benefited from the books, then the internet, and the least from their close circles. While the pre-service teachers who benefited from the book benefited more from the mathematics textbook and the mathematics curriculum, those who used the internet used the websites. Toptaş (2008) found in his study on primary teachers that teachers generally use the activities in the textbooks and workbooks in geometry lessons without making students think. The findings of the two studies are similar. Based on this similarity, it can be said that the content of mathematics textbooks, which are one of the most effective guides in the preparation of activities, should be richer and contribute to the development of students' creativity and encourage them to think. However, the mathematical activities students encounter often focus on rote learning or "low cognitive tasks" (Henningsen & Stein, 1997).

When the three activities prepared by the pre-service teachers are examined, it is seen that they mostly prepared them for the purpose of introduction to the lesson and secondly for the purpose of ending the lesson. It is seen that the majority of the introduction activities for comprehension, and the majority of the ending activities are for evaluation. It was stated by the pre-service teachers that the activities prepared for understanding the subject and teaching the subject in general were intended to be used in the main stage of the lesson. In their study, Öztürk and Işık (2018) found that the aims of the pre-service mathematics teachers to develop activities are to comprehend, concretize and evaluate the subject, respectively. According to Özgen and Alkan (2014), the reason for pre-service teachers' designing mathematical activities for comprehension purposes was their theoretical closeness to the subject.

While preparing the mathematics activities, the pre-service primary teachers paid attention to their being suitable for the level of the student, being in compliance with the purpose and being attractive to students. It has been stated in different studies that the suitability of the activities used in the lessons for the level of the student is one of the most important points to be taken into account, and that it is one of the most important elements for students to accomplish the objectives in order to reach the targeted goal (Ainley, Pratt & Hansen, 2006; Stylianides & Stylianides, 2008; Toptaş, 2008). Özgen (2017), on the other hand, argues that the activities developed should be suitable for teaching purposes. According to Hannibal (1996), students should be subjected to the activities suitable

for their developmental level. If these studies are evaluated as a whole, it is seen that the pre-service teachers take into account important aspects such as suitability for the curriculum, suitability for the purpose and suitability for the level of the student during the activity preparation processes. Therefore, it can be said that pre-service teachers have knowledge about preparing activities.

The pre-service primary teachers participating in the current study mostly used books, then their close circle and the internet to determine whether the mathematics activities they prepared are appropriate for the level of the students. The pre-service teachers mostly used the mathematics curriculum and the mathematics teaching books in the category of books. Ainley, Pratt, and Hansen (2006) explained that the first of the three situations to be considered in the process of creating activities in the mathematics lesson is the consideration of the curriculum. Toprak et al. (2014) also found that pre-service teachers benefited from the curriculum the most when designing activities. Thus, it can be said that the curriculum and mathematics textbooks are important in guiding the activities prepared by teachers and pre-service teachers.

While the majority of the pre-service primary teachers did not take individual differences into account while preparing activities, the pre-service teachers who took individual differences into consideration did this by forming groups in compliance with the level of students and by preparing activities that active multiple intelligences. Öztürk and Işık (2018) found in their study that pre-service mathematics teachers did not consider individual differences in the activity preparation process. Although the study groups were in different branches, the findings similar to those of the current study could be interpreted as the lack of knowledge of the pre-service teachers about preparing activities. Brooks and Brooks (1999) state that it is a requirement for teachers to create activities suitable for the individual by considering student differences. Duran, Sidekli and Yorulmaz (2018) concluded in their study that there is a significant difference between primary school fourth grade students' attitudes towards mathematics activities and their mathematics exam grades. Thus, it can be stated that the mathematical activities prepared should appeal to students from all groups.

The pre-service primary teachers who participated in the current study mostly used daily life examples and materials to relate the activities to daily life. Some of the pre-service teachers used daily life problems to associate the activities with real life. In the study by Özgen (2019), in which pre-service teachers' skills of designing activities to associate mathematics with different disciplines were examined, it was concluded that the pre-service teachers had difficulties and that they associated mathematics in a single context. In addition, there were pre-service teachers who did not relate the activities to daily life, which is parallel to the finding of Yorulmaz and Çokçalışkan (2017) stating that mathematics could not be associated with daily life. Stein, Grover and Henningsen (1996) stated that most of the mathematical activities are not associated with daily life and remain in the abstract world of mathematics.

The majority of the pre-service teachers used their knowledge and experience in determining what difficulties and misconceptions students might experience in math activities. On the other hand, there were also pre-service teachers who thought that students would not experience difficulties and misconceptions. A similar finding was obtained in the study conducted by Öztürk and Işık (2018). Önal and Aydın (2018) stated that the causes of misconceptions that might occur in students' minds should be noticed by teachers at first, and this supports the conclusion that teachers should have knowledge and experience.

The pre-service primary teachers prepared the activities that included individual work the most, followed by the activities including group work and whole class organizations. In the study conducted on pre-service secondary school mathematics teachers, it was concluded that the pre-service teachers preferred small group work that requires collaboration and then individual work (Toprak et al., 2014). In a study in which mathematical activities were analyzed, it was stated that the majority of the activities encouraged participation in group work and whole class organizations (Stein et al., 1996). Yorulmaz et al. (2020) in their study examining the activities in primary school from the perspective of fourth grade students concluded that the students wanted to take part in activities based on group work with their peers. While the pre-service teachers pointed to individual differences as the reason for their preferring individual work organization, they pointed to cooperation/solidarity, peer teaching, developing

communication skills and taking responsibility as the reasons for their preferring group work organization and they pointed to the easier classroom management of the teaching process as the reason for their preferring whole class organization. According to Deshpande and Ahmed (2019), group or class activities are a student-centered approach that allows students to collaborate. This might have affected the pre-service primary teachers preferring to develop activities based on group work. Therefore, it can be said that the pre-service teachers have knowledge about the contributions they will make to the students with the activities they have developed.

When the pre-service teachers' opinions about the difficulties they encountered while preparing math activities were examined, it was concluded that they encountered difficulties in preparing activities suitable for the student level, in preparing creative activities, in finding economical materials to prepare activities, in preparing activities addressing different skills, in preparing activities in compliance with the objective and in preparing activities interesting to students. Özgen and Alkan (2014) stated that they encountered reflections indicating that pre-service mathematics teachers had difficulties in the activity development process. The fact that the pre-service teachers experienced different kinds of difficulties while preparing activities might indicate that they do not have enough knowledge.

Most of the pre-service primary teachers considered themselves as "partially adequate/inadequate" or "inadequate" in terms of preparing math activities. Fewer than half of the pre-service teachers considered themselves fully adequate. On the other hand, half of the pre-service primary teachers participating in the current study considered their undergraduate education adequate in terms of the activity preparation process, while the remaining pre-service teachers considered it "partially adequate/inadequate" and "inadequate." In this connection, the pre-service teachers suggested that the number of practice-oriented studies should be increased, the time allocated to preparing activities in the undergraduate courses should be increased, more research should be done on activity writing, articles and books should be read about how to prepare activities and individual motivation should be increased to improve the activity preparation process in math classes.

In light of the findings of the current study, it can be said that more importance should be given to the studies aimed at improving the activity development skills of pre-service primary teachers in their undergraduate years in accordance with the subjects of primary school mathematics curriculum. The limitation of the current study is the preparation of activities in compliance with the objectives of the geometry learning area. Within the scope of the primary school mathematics curriculum, further research in which activities suitable for other learning areas are prepared can be conducted. In further research, pre-service teachers can be given the opportunity to practice the activities they have developed for the mathematics lesson in a real classroom environment and then their opinions can be investigated.

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Social Media in the Eye of Parents

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Abstract
The purpose of this study is to identify the views of parents about social media. In accordance with phenomenological research design, one of qualitative research methods, the data was collected with semi-structured interview questions developed by the researcher under the control of experts. In the determination of the work group of the study the criterion sampling was used. The data was collected by recording the interviews and analysed by using the content analysis. In the findings of the study, the opinions of the parents about the effects of social median on students' behaviours were grouped as positive and negative behaviours. While parents stated that "gathering information about the lessons" and "positive shares" are important positive behaviours, students' "wasting time" and "causing violence" were stated as negative behaviours. An important ratio of the parents stated that social media may improve students academically, however, more than half of the parents stated that social media could not improve students school success as students waste their time on social media and do not use it for educational purposes. According to parents, social media supports education by providing easiness to reach information and including so many sources. Causing waste of time and being exposed to undesirable content are accepted as obstacles to education. In order to have a more educative social media, parents suggest that we should raise awareness of using social media healthily. People should share more educational sources on social media and a mechanism to supervise social median must be developed.

Keywords: Social Media, Academic Success, Supportive Social Media, Obstructer Social Media, Social Media and Education

1. Introduction

It is not possible to define educational institutions and the environmental factors that affect their functioning with sharp lines. For this reason, it is difficult to determine the boundaries of educational institutions with a very complex environment and to determine the dimensions of the environment of educational institutions. Educational institutions are in constant interaction with their environment, and the structure and characteristics of this environment are important in terms of education (Aydoğan, 2006:122). Social media, which we can define as one of the new environmental elements of the school today, is an example of this environment where it is not possible to determine the boundaries. Stating that students acquire new learning styles with the innovations brought by technology, Bynum (2011) recommends that students be taught how to use social media correctly.

By increasing the interaction between students, social media develops the necessary inquiry and research skills in educational processes such as problem solving, sharing content, interacting with teachers and fellow students, problem solving, cooperation and creative learning (Gülbahar, Kalelioğlu, & Madran, 2010). Now, students can create and share content on social media without having too much technical knowledge (Düvenci, 2012: 46). For this reason, content in social media emerges as an environmental element that is difficult to control. It is considered important to carry out studies on the use of social media, which is one of the inevitable phenomena of our age, in educational processes. It is seen that the studies conducted mainly examine the commercial use of social media and as a political instrument that can direct societies, and studies in terms of education are limited. Argın (2013), who believes that social networks can be turned into an opportunity in terms of education, stated that students spend a significant part of their time on social networks. Şahin (2021) also asserted that social media had been used as a medium for communication among the students and instructors during Covid-19 pandemic and this new crisis increased the use of social media as a means of instruction or a medium to learn school topics.

Advocating similar views, Ellison (2008) stated that social networks have the potential to support educational activities, and that users can connect to each other and support different learning styles that can develop inside or outside the classroom. Social media can support education by improving communication and interaction in many ways (Anderson, 2004). Social media can provide important contributions such as cooperation among participants, distribution of tasks, effective and fast communication, and instant answers to questions. It has been stated by many researchers (Mazman, 2009; Anderson, 2004; Ellison, 2008; Munoz & Towner, 2009) that social media can be an important tool in organizing educational activities and has pedagogical features.

It is desired that social media, which has the characteristics of being used in many different fields from trade to politics, can also be used as an educational supporting element in the education and training activities. Social media, which is easy to use with technological devices that are very easy to reach by phones and tablets, especially when the students are interested in digital technology, has many different features that students can use in their education processes. Although social media has advantages such as ease of use make it attractive, concerns about the shared content and student profile, age depended dangers like being deceived easily, it is thought that it may contain significant risks. For this reason, it is necessary to reduce the risks by supporting the use of social media for educational purposes by developing new methods and techniques.

This research is important in terms of determining the views of parents who have students in secondary and high school schools about social media. It is aimed to develop some suggestions in line with the research findings and the opinions of the parents. This study is considered important, especially since the determination of opinions and suggestions for the effective use of social media as an educational tool in line with the opinions of the parents will affect the concrete studies to be done in this direction.

The study sought answers to the following questions:

1. What are the parents' opinions on the effect of social media on students' behavior?
2. What are the parents' opinions on the effect of social media on academic achievement?
3. What are the parents'opinionsn on the features of social media that support and hinder education?
4. What are the parents' suggestions regarding the educational use of social media?

2. Method

2.1 Research Pattern

In this study, which was designed in accordance with the phenomenology pattern, one of the qualitative research designs, it was aimed to determine the views of the parents on social media. Langridge (2007: 10) defined phenomenology as a field that studies how people perceive phenomena and their experiences. Phenomenology, whose founder is accepted as Husserl (Groenewald, 2004; Langridge, 2007), has been described by Husserl as "pure phenomenon" (Eagleton, 1983:56). Phenomenology, which is prominent in doctoral thesis studies (Simon & Goes, 2011: 1) and social science fields, examines the essence of people's experiences and examines the

structure of this experience (Yıldırım & Şimşek, 2011; Christensen, Johson & Turner, 2010; Langridge, 2007; Patton , 2014). In this study, a phenomenological design was used to reveal the essence of the parents' experiences regarding the social media phenomenon and to obtain a more holistic perspective.

2.2 Working Group

In qualitative research, the aim is not to generalize to the universe, but to investigate the central phenomenon in depth (Creswell, 2012: 206). In qualitative research, a sample is not randomly selected from a representative population. Instead, the researcher carefully and purposefully selects participants who can present rich situation information (Patton, 2014: 46). In phenomenological studies, the participant group consists of people who can reflect their experiences and experiences about the phenomenon that the study focuses on (Yıldırım & Şimşek, 2011: 74). The participants of this research consist of parents who have students in public and private secondary and high schools affiliated to the Provincial Directorate of National Education within the provincial borders of Tokat. In the determination of the parents, the criteria of having a student in secondary and high school level, having at least one social media account of the parent and the student, and having the opportunity to connect to the internet at home were taken into consideration.

Table 1: Participant Parents' Features

No	*Gender*			*Income*	*Educational Status* 0.Illiterate 1.Primary 2.Secondary 3.High 4.Undergradute 5.Master 6.Doctorate	*Student' school type*				*Code*
	Age	Fem	Male			*Public Second-*	*High*	*Private High*	*Second-*	
1	37	+		4000	4	+				P1
2	38	+		2000	3	+			+	P2
3	48		+	6000	4	+				P3
4	47		+	4300	5		+			P4
5	59		+	3500	4		+			P5
6	38	+		4000	4	+	+			P6
7	49		+	3500	4	+	+			P7
8	40	+		1450	2				+	P8
9	46		+	4000	4				+	P9
10	52		+	3000	3		+			P10
11	56		+	3000	1		+			P11
12	53		+	4000	2	+	+			P12
13	35	+		3000	3				+	P13
14	33	+		3000	4	+				P14
15	41		+	4500	4	+				P15
16	42		+	2900	3	+				P16
17	53		+	2500	3		+			P17
18	48		+	5000	6	+				P18
19	44		+	3000	4	+				P30
20	40		+	5000	6			+	+	P20
21	42	+		12bin	6			+		P21
22	38		+	6000	5			+		P22
23	50		+	4000	4	+				P23
24	47		+	3000	4	+				P24
25	40		+	2500	3	+				P25
26	40	+		3500	4			+		P26
27	40		+	3000	4	+	+			P27
28	50		+	4000	4	+	+			P28
29	43	+		3500	3			+	+	P29
30	45		+	3900	4			+		P30

Reaching a certain saturation regarding the number of participants and repetition of participant views is a rule agreed upon by many researchers (Patton, 2014; Yıldırım & Şimşek, 2011). In line with this rule, 30 parents were interviewed in this study. Table 1 shows the characteristics of the parents participating in the study. When Table 1 is examined, it is seen that 9 of the participating parents are female and 21 are male, a total of 30 people, 10 of these parents' children attend a private secondary or high school, and 20 parents' children attend public secondary or high schools. Although the average monthly income of the parents varies between 12 thousand (1387$) and 1450 (167$), 3901 (450$) Turkish liras is the average. Educational levels of the parents as the table shows, 1 parent has primary school, 2 of them have secondary, 7 of them have high school, 14 of them have undergraduate, 3 of them have master's degree and 3 of them have doctorate level education.

2.3 Data Collection Tools

In phenomenology method, data are collected by interviewing the Individuals who experience the phenomenon (Simon & Goes, 2011: 1; Creswell, 2013: 79). Collecting data on the experiences of the participants by interviewing is a method frequently used in phenomenological studies (Creswell: 2013: 162). For this reason, data collection by a semi-structured interview method was deemed appropriate in this study. In semi-structured interviews, the researcher can ask additional questions to the previously prepared questions (Yıldırım & Şimşek, 2011). In accordance with the purpose of the research, a semi-structured interview form was prepared by the researcher benefiting from the studies on the subject in the literature and the views of 2 faculty members from the Education Administration and Supervision Department and 1 from the Education Programs Department.

The Expert Opinion Form, which was prepared to test the comprehensiveness, clarity, relevance and adequacy of the questions, was sent to 16 academic staff working at Tokat Gaziosmanpaşa University and their opinions were received. Then the suggestions were evaluated, necessary changes were made on the questions and the semi-structured interview form was given its final form. Questions describing the personal characteristics of the interviewees such as age, educational status and school type that their children continue were also included on the forms. The following questions were asked to the parents in order to determine their views on social media:

1. Do you think social media has an impact on your child's behavior? What kinds of behaviors does it enable your child to acquire?
2. How might your child's use of social media affect his/her academic success? What do you think about this subject?
3. Considering the aims of education, what do you think are the aspects of social media that support education?
4. Considering the aims of education, what do you think are the aspects of social media that hinder education?
5. What can be done so that social media can support the education given in schools, in other words, the expected behavioral changes in children?

A pilot study was conducted with a group of seven participants in order to determine the required time and possible problems for the interviews with the participants and to gain experience. In the pilot application, it was observed that the participants sometimes gave answers to other questions beforehand and the question was not repeated. It was determined that a question was misunderstood, and the question was rearranged. As a result of the pilot application, it was seen that the interviews lasted 15-25 minutes on average.

2.4 Data Collection

In this study, the researcher interviewed the participants through social media networks due to Covid-19 conditions. The interviews took place in the form of correspondence in the form of questions and answers. In order to prevent data loss, the researcher edited the answers given by each participant and sent them again, and received the participant's consent for the data recorded in writing.

2.5 Analysis of Qualitative Data

Before the analysis of the data collected in the semi-structured interview form, the interviews made through social media accounts were converted into MS Word files. A text consisting of 58 pages and 29759 words was obtained, which was created with 12-point font size and Times New Roman writing style of the interviews with the parents. The researcher made his analysis on this text. Content analysis method, which is a "systematic and repeatable technique,," in which inferences are made by defining the message given in a text through coding based on certain rules, and some words are summarized as small content groups (Büyüköztürk, Kılıç, Çakmak, Akgün, Karadeniz, & Demirel, 2009: 269), used to analyze the data.

After a field expert and researcher made open coding, analyzes were made. With the open coding method, the meaning of the data pieces has been tried to be revealed (Berg, 2001). With this method, all data is accepted and no data is left outside (Jones and Alony, 2011: 10). The effect of consensus and disagreement on the reliability of the study was calculated by using the formula of Miles and Huberman (1994: 64) for the coding results in which two different coders were used to ensure the reliability of the encoder. The consensus correlation between the two coders was calculated as 89.9%. The fact that this rate is above 70% is considered sufficient for the research to be considered reliable (Miles & Huberman, 1994: 64). The codes and themes obtained through content analysis were converted into tables with percentages and frequencies. The themes and codes in the tables were supported by direct quotations from the participants' views, and the findings obtained as a result of the participant's opinions were interpreted.

3. Results

In this section, the findings obtained as a result of the research are given.

3.1 Parents' Views on the Effect of Social Media on Students' Behaviors

The first question in the research was, "What are the parents' views on the effect of social media on students' behavior?" Considering that parents are the closest people to their children who can observe whether there is a change in the behavior of students who use social media or not, parents are asked to answer the questions "How does social media affect the behavior of your children, what kind of positive or negative behaviors have you observed?" The opinions of the parents were divided into two main themes as “positive behaviors” and “negative behaviors” and a content analysis was conducted and the result of the content analysis is summarized in the table below.

Table 2**:** Parent views on the effect of social media on students' behaviors

	Parents' Opinions	*Participant Codes*	*f*	*%*
Positive Behaviors	Self-development.	P5, P7, P8, P16, P20, P21, P23, P30	8	27
	Gathering infomation about lessons.	P2, P6, P13, P14, P17	5	17
	Sharing positive posts.	P6, P13, P18, P24	4	13
	Ability to communicate.	P5, P13, P25	3	10
	Communicating with those far away.	P5, P12,	3	10
	Socialization.	P12, P16	2	7
	Following the good things they see.	P21, P23	2	7
	Exchanging ideas.	P6	1	3
	Affecting positively.	P28	1	3
Negative	Wasting time.	P9, P11, P12, P13, P15, P17, P24	7	23
	Fighting/violence	P2, P6, P8, P19, P27, P29	6	20
	Barrier to socialization.	P4, P5, P14, P26, P29	5	17
	Not studying.	P6, P9, P14, P17, P19	5	17

Don’t know.	P1, P7, P10, P11, P29	5	17
Miscommunication in the family.	P4, P14, P26, P29	4	13
Modeling others (clothing, speech etc.).	P8, P20, P22	3	10
Seeing unwanted images and views.	P6, P18, P23	3	10
Inappropriate sharing.	P6, P9, P18	3	10
Using for entertainment.	P2, P24, P30	3	10
Creating addiction.	P15, P24	2	7
Using bad language.	P2, P3	2	7
Communicating with foreigners.	P6, P14	1	3
Causing individualism.	P26	1	3

When Table 2 is examined, it is seen that parents' views on the effects of social media on students' behaviors are grouped under two themes, positive and negative. According to the parents, the most important (f=8, 27%) positive effect of social media is that it leads “self-development.” The second positive behavior was expressed as "gathering information about the lessons" (f=5, 17%) and third important behavior is students "sharing positive posts" (f=4, 14%). Some of the parents' statements on the subject are as follows:

> At least it's good at getting information quickly and briefly. Today, it is easy to reach information, but the important thing is to use that information correctly; it is not possible to say anything clear about this (P5).
> My son is very good at exchanging ideas with friends on social media (P6).
> My communication has become more comfortable with him. But apart from that, there are no serious sites for information purposes such as those that he receives information from, he uses Facebook and WhatsApp to communicate with his friends, there are educational sites, well-prepared programs, I have not seen a situation that reflects very positively (P13).
> Positive, for example, a lecture note, you can instantly find something that is not in the book. It's very helpful in that way. For example, the child does not have a book, he cannot buy it at that moment (P14).
> I did not observe any negative behavior. He watches things that will improve his dexterity positively and tries to apply them later. He is making, doing, trying to do… Today, for example, he learned to make dough, got up and made dough (P21).

Parent statements given above also support the information in Table 2. It is seen that the participants with the code P5 and P14 emphasized that social media makes it very fast and easy to access information. Easy access to information by students is important for the continuity of educational activities. Although it is so easy to access information, this participant says that the information is not used correctly. In addition to these, participant P14 draws attention to the importance of instant access to information that is not included in the books. Some participants (P6 and P21) stated that they developed themselves through social media. The parent coded P21 stated that he developed himself by watching videos that would improve his child's hand skills. In addition, P13 coded parent, who supported the view that communication skills and abilities increased thanks to social media, stated that social media increased their child's communication skills by saying "my communication became easier."

When the negative behaviors in Table 2 are examined, the opinion of "wasting time" (f=7, 24%) is in the first place. The most important problems of parents are that their children use time uncontrollably and therefore they do not have time to study. Second negative behavior is “fighting, violence and getting angry” (f=6, 21%). Many parents stated that when their children started to use social media, they started to become irritable, disobedient, and their tendency to violence increased. Third, the parents stated that social media is a "barier to socialization" (f=5, 17%). Apart from these views, it is seen that some other negative behaviors expressed by the parents such as "not studying, lack of communication within the family, modelling others, seeing undesirable images and news, and inappropriate sharin.".

Considering the age and interests of students using social media, it can be accepted that students of this age can be overly curious. However, the fact that social media, whose purpose is to socialize people, does not serve this

basic thesis, should be examined further as an important phenomenon. The statement of the participant coded P4 below as “we can no longer spend time even in front of the TV” is important. This situation needs to be examined in more depth. Some of the parents' views are quoted below:

> It messed up our family chemistry. We can no longer spend time with our children, even in front of the TV. Even it is not a good view being a family watching TV and sharing nothing, we missed that view. There is a lack of communication in this aspect. The child is messaging for water from his room to kitchen (P4).
> First of all, children become lonely; they don't talk to anyone and mostly the children's desire to talk is decreasing, in this sense, I can say that it is negative (P5).
> He got angrier. When he was living a normal puberty term, he suddenly started to experience explosions. He had tantrums. His school life was affected completely negatively. He got into the wrong friend groups. In other words, he was in a friend environment that I would not approve of, which contradicted our family identity (P6).
> My son gave his Facebook account to someone else. A girlfriend shared inappropriate photos there. When he enters Face, the lesson or anything is forgotten (P9).
> The social media does no guide them to study. Social media takes children away from family issues and customs. The child becomes introverted. Because it stays connected to electronics. There is no sharing with parents (P14).

When the above statements exemplifying the negative behaviors seen in social media are examined, it is seen that these statements support the negative behaviors in Table 2. There is a need for serious studies on the negative impact of social media on students. The fact that students spend a lot of time especially on social networks, have difficulties in communicating with friends or family members next to them, and use social media at the level of addiction are issues that threaten our future and will cause serious problems very soon, even if they seem virtual. For this reason, the society can be educated in the direction of conscious use of social media by giving priority to the efforts to turn the negative effects of social media into positive behaviors.

Numerous studies on school-parent cooperation have revealed findings such as that school-parent cooperation increases the academic success of students positively (Çelenk, 2003; Berkyürek, 2008; Altun, 2009) and reduces the disciplinary problems at school (Çalık, 2007). An effective school-family cooperation will increase both the motivation of teachers and the development of academic success and positive behaviors in children. Parents have as much influence on the education of the child as the teachers. For this reason, the opinions of the parents were considered important in revealing the contribution of social media to the academic success and skill development of students. Therefore, the parents were asked to answer. The question "How do you think social media affects your students' academic success?" Content analysis of the parents' answers was made and given in Table 3 below.

Table 3: Parent views on the contribution of social media to academic achievement

	Parents Opinions	*Participant Codes*	*f*	*%*
Positive Effects	Can improve academic success.	P1, P4, P5, P8, P10, P12, P13, P14, P16, P18, P21, P23, P26	13	43
	Lecture presentations and videos	P4, P8, P10, P13, P16, P26	6	20
	Ease of accessing information.	P4, P8, P18, P23	4	13
	Developing child’s perception.	P14, P26, P30	3	10
	Developing communication ability.	P14	1	3
	Problem solving.	P10	1	3
	Developing visual intelligence.	P13	1	3
	Opportunity to repeat the course.	P8	1	3
	Different lessons with different lecturers.	P12	1	3
	Reading.	P14	1	3

	Talking about the lessons.	P4	1	3
	Learning technology.	P18	1	3
Negative Effects	Mostly affects negatively.	P2, P6, P7, P9, P11, P15, P17, P19, P22, P23, P24, P25, P27, P28, P29	15	50
	Wasting time.	P5, P7, P9, P12, P19, P20, P29	7	23
	Not using for education	P1, P12, P23, P28	4	13
	Decreasing motivation to study.	P15, P22, P29	3	10
	Being antisocial	P2, P14, P30	3	10
	Not reading books.	P22	1	3
	Causing distraction.	P15	1	3
	Increasing addiction.	P22,	1	3
	Relying on ready-made information	P26	1	3

When Table 3 is examined, the effects of social media on academic achievement are grouped under two main themes as positive and negative effects. According to a significant portion of parents (f=13, 45%), social media “can improve academic success.” According to parents, "lecture presentations and videos" (f=6, 21%) come first among the positive effects of social media on academic achievement. Secondly, "ease of accessing information" (f=4, 14%) and thirdly, "development of the child's perception" (f=2, 7%). In addition, it is seen that the development of students' communication skills, problem solving, repetition, and reading books can affect students’ academic achievement.

According to Table 3, half of the participants (50%) state that social media negatively affects students’ academic achievement. One of the negative effects of social media on academic success is "wasting time" (f=7, 23%). In the second opinion is “not using it for educational purposes" (f=4, 13% and "decreasing motivation to study" (f=3, 10%). Apart from these opinions, the participants said that social media makes students "asocial, keep not reading books, distraction, some undesirable behaviors such as addiction.” Some parents’ statements are as follows:

> In other words, they become antisocial, they do not know what is going out and playing in the park. They only spend their free time on the Internet, in front of the computer or phone (P2).
> They have established a communication network regarding the courses. Sometimes, they can either download videos about their lessons, or download and review articles and so on. At the moment, there is a serious spectrum of social media in terms of accessing a resource (P4).
> Eyüp looks at Facebook account for an hour, two hours sometimes, he looks like this. My son, I say enough. That's enough. He can't stop surfing on the net though I've said it over and over. It is negative in this aspect (P7).
> It's affecting a lot positively. Because he took the lessons there, because he read, I don't know, I think it helps. It helps with the lesson (P8).
> It had a huge impact on the course study. He generally takes tests and uses for lessons mainly (V10).
> It affects the child's perception. Social media affects differently, they become better in communication. But too much social media causes sleep disorder, introversion They also find friends on the Internet. In this respect, it affects the child differently (P14).
> What I can say is the most negative, maybe if we do not control it, it can lead to waste of time. Of course, we limit the time the child uses the social media and internet (P20).

The above statements support the analysis given in Table 3. Some participants highlighted the positive effects of social media (P7, P8, P10), and expressed that students study and solve tests by making use of social media. However, some participants also stated that social media kills socialization (P2) and leads to negativities such as wasting too much time (P2, P7, P20). While social media has the potential to eliminate the inequality arising from social and economic imbalances that can seriously affect the academic success of students, it should be emphasized once again that these views, which show that children do not use social media sufficiently, should be examined in

detail and the society, parents, teachers and students should be made aware of the use of social media for educational purposes.

3.2 Parents' Views on the Supporting and Obstructing Features of Social Media in Education

Considering that the parents closest to the children have a significant advantage in observing the behaviors of their children, it was thought that the parents' views on the aspects of social media that support and hinder education may be important, considering that the parents can observe the priorities, change and development in the student's life. What are the features of social media that support education when you consider its aims?" and "When you consider the aims of education, what are the features of social media that hinder education?" The questions were asked separately and the answers given by the participants were analyzed with the content analysis method and the analysis results are given in Table 4.

Table 4: Parents' views on the features of social media that support and obstruct education

	Parents' Opinions	*Participant Codes*	*f*	*%*
Supporting Features	Ease to access information	P1, P4, P5, P6, P7, P8, P10, P12, P16, P18, P20, P23, P24, P28, P29	15	50
	Providing abundant data.	P4, P7, P18, P24, P28, P29	6	20
	Sharing resources.	P7, P9, P16, P24, P28	5	17
	Time saving/speed.	P7, P12, P23, P24, P27	5	17
	Useful for communication.	P14, P21, P23, P26, P28	5	17
	Following up to date information.	P1, P4, P7, P8	4	13
	Helpful for doing homework.	P8, P17, P18	3	10
	Improving technology use.	P12, P18, P30	3	10
	Downloading and solving questions.	P7, P28	2	7
	Useful video and presentations.	P15, P18	2	7
	Motivating.	P20	1	3
	Useful if used for educational purposes.	P2,	1	3
	Supports culturally.	P3	1	3
Obstructing Features	Waste of time.	P1, P2, P3. P4, P5, P6, P7, P11, P12, P13, P18, P19, P20, P28	14	47
	Exposure to unwanted content.	P4, P9, P10, P17, P21, P25, P29, P30	8	27
	Facilitate access to inappropriate content.	P4, P9, P10, P25, P29	5	17
	Causing addiction.	P6, P18, P22, P26	4	13
	Not playing outdoor games.	P1, P16, P18, P28	4	13
	Causing information pollution.	P23, P24, P26	3	10
	Not studying.	P11, P19, P20	3	10
	Not socializing.	P4, P5, P13	3	10
	Negatively affecting.	P1, P4, P30	2	7
	Not used for educational purposes.	P2, P22	2	7
	easing to disconnect from education.	P7, P26	2	7
	Leading malicious organizations.	P14, P29	2	7
	Having wrong friendships.	P10, P29	2	7
	Lack of up-to-date data.	P15	1	3
	Fastening spread of malicious things.	P27	1	3
	Getting used to ready-made information.	P19	1	3

Affecting mental development.	P16	1	3
Causing mal use of language.	P13	1	3
Bad content videos.	P9	1	3
Harming cultural values.	P3	1	3
Disrupting communication.	P13,	1	3

From the parents' point of view, the "supporting and obstructing features" of social media are given in Table 4. According to this table, "ease of accessing information" (f=15, 50%) takes the first place among the features of social media that support education. Accessing all kinds of sources easily through social media is considered important in terms of education. According to the parents, the second important feature is that social media "provides abundant data sources" (f=6, 20%). The third important feature supporting education in the table is “sharing resources” (f=5, 17%). As other supportive features, parents express such features as speed in accessing information, facilitating communication, and following up-to-date information. Some parents' opinions regarding the supportive features of social media are given below:

> In fact, there are very serious data sources prepared in electronic environment. That is, both visually and in written forms. Being able to access those resources easily means being informed about more people and thus there is more information flow mutually.... In other words, teachers, parents and students can reach them. In other words, social media has a side that supports education in this aspect (P4).
> There is definitely a benefit, we cannot say that there is no; but it is necessary to bring a measure, a limit. For example, in the past, it was necessary to look at hundreds of books to research a subject; but now it's all just a click away. It is very beautiful in this sense; but I think it will be useful if used without spending much time (P5).
> Social media fills a huge gap in children's education, especially in the variety of questions used as resources, materials and subsequently as an evaluation tool. I think it is beneficial both in terms of information and ease and speed of accessing information (P7).
> It had many aspects, for example, you learn a subject without going to the library. You find it on social media by shortcut (P10).
> Of course, they can find the books they can't find in their city easily. So, in this way I think media supports education, students reach the books and other sources easily (P29).

Looking at the statements given above, it is seen that the parents used expressions that support the themes in Table 4. Parents were also asked about the features of social media that obstructs/hinders education. In the second part of the table, the content analysis of the parents' opinions in terms of inhibitory features was made. The most important obstructing feature in the table is "waste of time" (f = 14, 47%). According to the parents, the second important barrier is the view of “exposure to unwanted content” (f=8, 27%). The third opinion is “facilitating access to inappropriate content” (f=5, 17%). In addition, the parents stated that social media is causing addiction, not playing outdoor games, causing information pollution, causing laziness and being asocial. Parents expressed the obstructive features of social media with the following words:

> It's a waste of time and very damaging to cultural values. In other words, someone gives a lot of harmful things on social media that we do not want to give to our children (P3).
> The obstructing features is that there are so many materials with negative-content that children can act recklessly at the point of reaching them, and this leads to their wrong spiritual upbringing. It also negatively affects their studies. Instead of spending time for their lessons or socializing in the normal sense, introverted types of individuals may emerge. Unfortunately, a youth whom we do not considered to have can emerge. That is, there is another trainer educating our children, that is social media, or the internet. You, me, and the teacher are all ineffective (P4).
> Once they start using social media, they become deprive of sleep for two, three or more hours, but ultimately, they learning nothing (P6).
> There are also malicious aspects. For example, they make friends on the Internet and enters inaccessible and unsuitable places... (P10).

> It can be a serious waste of time. Human relations have been moved to the virtual environment. We live far from speaking Turkish. We use body language more with symbols. Or the child is sending a message to his mother from the other room instead of saying welcome to my mother (P13).
> Well, I can't say that it does not support education in Turkey but it must support. There is nothing about social media in schools, as far as we know, there is nothing in the curriculum, there is no aspect of social media that supports education. Education-related things are not shared much, and they do not contribute much to education (P22).

As can be seen in the statements above, social media causes a serious loss of time (P3, P6, P13 and P22). According to the parents, once students log into their social media accounts, they can spend hours here without realizing the time has passed. Exposure to undesirable content and ease of access to inappropriate content, which are other important barriers, disturb the parents. The participant with the code P3 expresses this situation as "Someone gives a lot of harmful things on social media that we do not want to give to our children ". The fact that images, videos or information that children should never encounter or see under normal conditions can be viewed by students without any restrictions may negatively affect their academic life as well as their physical and psychological development. P3, P4 and P10 coded participants seem to have statements that support this idea. Although we try to protect our children from certain things and prevent them from learning bad things, “there is another trainer educating our children, that is social media, or the internet. You, me, and the teacher are all ineffective” (P4).

The supportive and preventive features indicated in Table 4 actually warn educators and families about raising awareness about the use of social media and taking some precautions. For example, children at primary school level, whose consciousness level we can consider to be very low, may be completely prohibited or restricted from opening and using social media accounts. Social media literacy course can be given to students and within the scope of this course, examples can be given to show how social media can be used for educational purposes.

3.3 Suggestions for Parents on the Use of Social Media for Educational Purposes

In the interviews, many parents mentioned that their children spend a significant part of their time on the Internet or on their social media accounts. We asked parents, who we think may have very good observations about their children's use of social media, "What would you recommend for social media to support the education given at school more?" Content analysis of the responses of the participants was made and the results of the content analysis are given in Table 5.

Table 5: Suggestions of parents regarding the educational use of social media

Parents' Opinions	*Participant Codes*	*f*	*%*
Enlightening people.	V2, V4, V5,V7,V10,V14,V15, V18, V19, V20, V21, V22, V30	13	43
Sharing useful content.	V1, V9, V11, V12, V13, V15, V17, V20, V21, V22, V25	11	37
Developing control mechanisms.	V4, V9, V14, V15, V21, V23, V25, V27, V28	9	30
Giving social media education.	V2, V7,V15,V18,V19, V22, V24	7	23
Monitoring children's social media use.	V3, V4, V5, V23	4	13
Establishing peer solidarity.	V1, V20, V21, V28	4	13
Sharing correct information.	V23, V25, V26	3	10
No suggestion.	V6, V16	2	7
Making teachers be aware of the educational materials.	V4, V18	2	7
Using images and videos in class.	V4	1	3
Making legal arrangements.	V4	1	3

Helping students about their courses on social media.	V8	1	3
Age-appropriate sharing	V15	1	3
Increasing Wi-Fi speed of schools.	V18	1	3
Schools should have social media accounts.	V18	1	3
Instead of prohibiting, should be used more effectively.	V20	1	3
Not charging fee for some educational programs.	V24	1	3
Given live lessons to students at home.	V29	1	3

According to the results of the content analysis of the parents' suggestions regarding the use of social media for educational purposes, a significant part of the parents (f=13, 43%) suggested that "people should be enlightened." In the interviews, many people, including administrators and teachers, have limited information about the use of social media. For this reason, it may be beneficial to raise awareness of the society, especially among teachers and students, about the use of social media. The second important suggestion is “sharing useful content” (f=11, 37%). Social media has many uses. Entertainment, communication, trade, and education are just a few of them. Increasing the share of educational content naturally means more educational materials in the content that students will be exposed to. Thirdly, the parents suggested “developing control mechanisms” (f=9, 30%). The fact that social media has so many uses and there is no control over the shared content naturally worries some parents and they suggest the development of a control mechanism. As in all areas, control must be applied systematically in social media. It would be beneficial to have a control in social media, as in television broadcasts, in order not to mislead the generations making up our future with random inappropriate posts and to develop their physical and psychological development appropriately. With a control mechanism to be developed, negative features should be minimized.

Other important suggestions of parents are "giving social media education" and "monitoring use of social media." Social media education should be carried out in all layers of the society, especially starting from schools, and the level of awareness should be increased. In addition to all these, administrators, parents and teachers should be sensitive to students' use of social media and try to monitor whether they use social media appropriately. The suggestions of some parents regarding the educational use of social media are as follows:

> Children should be made aware. They have computer class one hour a week and I don't think it's used for educational purposes. I think that children should be well educated on this issue (P2).
> There are visual, audio and written materials that you can reach very seriously on social media. Teachers should be made aware. So, there are training materials developed. Integrating social media into the educational process will increase the quality of education and will result in more permanent information in the child's world. Now, there are bad hands that can reach our children, defenseless and unconscious, on social media, legal regulations need to be made in this sense (P4).
> Currently, it is not possible to detach our children from social media; but they can use it consciously. Otherwise, things like banning the internet and the phone are not correct (P5).
> In order for this to be effective, children must first be told about the harms. He should take a lesson about it, how social media can be used. I think children are unaware of this. Education on this use should be given in schools (P19).
> Yes, filtering is a must. I want the posts to be realistic, related to education, reflect the truth that will open people's horizons, do not distinguish between religion, race or sect, be better for our children and our future, and have educational purposes (P25).
> There must be a very good control mechanism so that their use of social media can be controlled and they can be protected from the harms (P27).

When the statements given above are examined, it is seen that the statements of parents regarding the use of social media for educational purposes support the information given in Table 5. Since it is not possible to completely

isolate students from social media, social media can be used in educational activities by taking some precautions. In order to do this, the main issue that parents focus on is raising awareness at all levels, including students, teachers, administrators and parents.

4. Discussion and Conclusion

According to statistics, more than half of the world's population is connected to the internet, and there are approximately four and a half billion active social media users. While 65.8 million people are connected to the internet in Turkey, 60 million people can actively use social media. 36 million people access their social media accounts using mobile devices such as mobile phones. Social media is used for 2 hours and 57 minutes per person per day (Digital Ajans, 2021). According to Düvenci (2012), the internet has made the world even smaller due to its functions. The Internet and social media have reduced the need for libraries, books, television, radio, people, friends, grocery stores, greengrocers and tailors.

It seems possible to use social media in the field of education, which has a very common usage area. Particularly created groups, shared materials, sharing of books, documents, video applications, and video and audio applications have made it possible to learn everywhere. In this study, it is clearly stated that social media is effective in acquiring some positive and negative behaviors. Students' self-development, finding information and resources about the lessons, positive sharing, developing human relations and socializing are expressed as positive contributions of social media to students' behaviors. “Wasting time,” “fighting, violence and getting angry” and “obstructing socialization” were stated as negative behaviors. While the majority of parents share the view that social media affects education negatively, nearly half of them believe that social media also supports educational activities. Parents expressed features such as "easing access to information, providing abundant data sources, sharing resources, "increasing the speed in accessing information, facilitating communication and following up-to-date information" as features that support education. It was observed that the views of "wasting time, exposure to unwanted content, and "facilitating access to inappropriate content" were expressed as features that hinder education.

The findings of the study are similar to many studies (Tanriverdi & Sağır, 2014; Mazman, 2009; Özmen et al., 2011; Koç & Karabatak, 2011; Düvenci, 2012). Yuen and Yuen (2008) and Sounders (2008) included statements that support the ease of accessing information and resources, which are important findings of the study. According to Tanrıverdi and Sağır (2014), social media can be used to maintain communication and friendship relations, provided that they are not dependent. Social media's negative effects on education, such as wasting time and causing addiction, are issues that other researchers emphasize (Zafarmand, 2010; Tanrıverdi & Sağır, 2014; Şimşek, 2012).

As a result of this study, in which the place of social media in education is discussed from the perspective of parents, there are important warnings to educators and families about increasing the level of awareness about the use of social media and taking some precautions. While social media has very important features that support education, it also has many features that can hinder education. Just as a knife can be an innocent tool that we use in the kitchen to peel fruit, chop and cut something in an adult's hand, it can also turn into a weapon that can kill a person in the hands of an unconscious person in a fight. Based on this knife metaphor, it may be necessary to take some precautions regarding the use of social media. For example, children at primary school level, whose consciousness level we can be accepted to be insufficient to consider bad and good, may be completely prohibited or restricted to open and use social media accounts.

Social media literacy course can be given to students and within the scope of this course examples can be given to clarify how to use social media for good purposes, like education, learning useful things. By creating a closed-circuit social media network with useful posts for students development without being exposed to undesirable content can be helpful to increase conscious use of social media. In order to limit the time spent on social media

and to prevent access to the inappropriate content shared, such sharing can be blocked by the service provider, the account can be automatically closed and access again during that day can be prevented by setting a daily limit on the account entered. As with television, images related to violence and inappropriate content can be labeled as not suitable for children, preventing access to those under the age of 18. As a result, instead of completely avoiding and banning social media, it is possible to take advantage of the educational supporting features of social media by taking more constructive measures.

These awareness-raising activities can be carried out under a different topic, either by placing a social media course or in computer or guidance courses. Social media tools, what educational materials can be shared through them, how they can be shared, how they can get help from social media about the subjects they study, how to create groups for specific interests, membership in groups are determined and the topics that are thought to be beneficial to students can be determined and presented as a separate course in the curriculum or as a unit added within an existing course. It may be beneficial to carry out information and awareness activities on the use of social media, especially among students, by supporting such trainings with seminars or conferences.

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The Investigation of Social Studies Prospective Teachers' Environmental Education Self-Efficacy in Terms of Various Variables

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Abstract
The aim of this study is to investigate prospective teachers' environmental education self-efficacy in terms of various variables. Survey method was applied in the study, and the data were collected in the 2015-2016 academic year. The study group of the paper consisted of 172 prospective teachers from each grade level who are studying in Social Studies Department, Faculty of Education, Afyon Kocatepe University. The data of the study were collected with the environmental education self-efficacy scale developed by Özdemir, Aydın and Akar-Vural. (2009). The 5-point Likert scale consisted of 15 items and had four sub-dimensions. As a result of the analyses, it was concluded that prospective teachers' self-efficacy perceptions of environmental education were moderate and prospective teachers' self-efficacy perception levels did not show a significant difference according to gender and grade level variables.

Keywords: Environmental Education, Self-Efficacy, Social Studies

1. Introduction

Many concepts such as the environment, environmental problems, environmental literacy, environmental education and environmental awareness have come to the fore as a result of the rapid consumption of natural resources, the increase in production wastes and people unconsciously harming nature. (Karatekin 2011; Seçgin, Yalvaç and Çetin 2010). Increased industrialization, population growth, wasting natural resources and lack of education have caused environmental problems to increase rapidly, and this situation has begun to threaten human life and the future of the world. Increasing environmental problems have brought along solution proposals. At this point, the importance of environmental education has emerged (Atasoy, 2006; Başal, 2003). The human being who has a great impact on the environment in the ongoing life, will stop consuming when they gain the awareness of how this effect will return to them in a negative way and they will take the importance of sustainable resources into consideration. Recently, with the industrialization and the increasing population, environmental problems

have increased rapidly and reached a degree of destroying human life and the future of the world. Increased environmental safety has brought solution suggestions with it. Especially in recent years, the relationship between education and environmental problems has started to be re-examined (Atasoy, 2006; Başal, 2003). While the protection of the environment in which we interact for health and the future is an issue that all people should feel responsible for, more responsibility is on educators who carry this responsibility and who are responsible for raising conscious and qualified people. Because education is the most effective way for individuals to develop this awareness and responsibility towards the environment (Şahinpınar, 2018; Kaya, 2014).

Today, rapidly increasing environmental problems constitute a serious danger for the whole world. Studies on this subject are gaining momentum in order to ensure the continuity of the world and leave a livable world to future generations. The common opinion formed as a result of the studies carried out is that the most important step to be taken in order to prevent environmental problems is to raise awareness of people, to raise environmental awareness and to give individuals a healthy and sound environmental education. (Özlü, 2012; Ek, Öğdüm, Kılıç, Düzgün & Şeker, 2009; Yazıcı, Kaya & Ekiz, 2018). Environmental education is defined as "the process by which individuals acquire the knowledge and skills necessary to present ideas about the solution of environmental problems and to exhibit positive behaviours towards the environment, and to educate them on environmental issues in order to increase their motivation and attitudes" (UNESCO, 1977). The main purpose of environmental education is to educate environmental literate individuals who are aware of the environmental problems facing the world and know how to solve these problems. In this way, by improving the environmental awareness of individuals, to increase their sensitivity to the environment and to contribute to the creation of a livable environment. (Konakcı, 2019; Hsu, 2004; Roth, 1992).

The awareness and positive attitude that will be formed in individuals with environmental education will have an important effect on the solution of environmental problems. From this point of view, when the role of teachers in the education of individuals is considered, teachers have very serious responsibilities in solving environmental problems. In order to fulfill these responsibilities, teachers must first have a high self-efficacy belief in environmental education. The high sensitivity of teachers to environmental problems will ensure that students who take themselves as an example will also have a high sensitivity to the environment. (Özlü, Özer-Keskin & Gül, 2013; Özdemir & Yapıcı, 2010; Güler, 2009). The ability of teachers and prospective teachers to carry out the competencies required by the teaching profession and to use them effectively depend on their belief that they have a good education and that they can fulfill their duties and responsibilities. Perhaps the most important and effective of these beliefs is self-efficacy belief (Kahyaoğlu, 2011). It has great importance that teachers have full self-efficacy beliefs in order to overcome their responsibilities and to perform their duties successfully and selflessly. The concept of self-efficacy beliefs that Bandura proposes does not reflect one's ability to do a job, but his belief in himself to achieve it. Individuals who do not have sufficient skills to perform an activity but have high self-efficacy spend efforts until they succeed in this job, but individuals who have low self-esteem, even if they dominate the subject, fail and give up quickly (Bandura, 1997). The perception of self-efficacy comes into existence with the influence of the environment on the individual and affects his / her communication with the environment as feedback. In other words, the experiences of individuals throughout their lives affect one's behavior and therefore self-efficacy (Bandura, 1997).

The importance of the relationship between self-efficacy perception and teaching skills is becoming more evident day by day. Studies show that the high self-efficacy level of teachers positively affects every stage of teaching. The level of self-efficacy has a great importance in applying the curriculum, in carrying out the curriculum effectively, in teaching a course or subject, and in taking risks. (Gorski, Davis & Reiter, 2012; Tschannen-Moran & Hoy, 2007; Tschannen-Moren & Hoy, 2001). Teachers with higher self-efficacy beliefs are more willing in the classroom. They can plan their times better and work longer. This situation increases the students' performance. In other words, the success of the teacher brings along the success of the students. Self-efficacy beliefs of successful students will increase accordingly (Schunk, 2014; Aydın, 2008; Leithwood ve Jantzi, 2008). Therefore, teachers or prospective teachers' self-efficacy beliefs about environmental education are very important for effective environmental education (Kahyaoğlu, 2011). When the curricula are examined, it is seen that the content of environmental education in schools is mostly loaded with science lessons (Çetkin, 2019). However,

environmental education subjects and achievements are also encountered in the curricula of different courses. Especially when the social studies curriculum is examined, it is seen that there are many subjects and acquisitions related to the environment. When the studies on the subject are examined in the literature, it is seen that although there are studies on environmental education self-efficacy of teacher candidates (Erkol & Erbasan, 2018; Okumuş & Bozkurt, 2019; Yıldırım, Kışoğlu & Salman, 2018), studies with social studies teacher candidates are limited (Apaydın- Timur, 2020; Öcal, 2013). For this reason, it is important to investigate the environmental education self-efficacy of social studies teacher candidates in terms of contribution to the field.

Purpose of the Research

The general purpose of this study is to examine the prospective teachers' perceptions of environmental education self-efficacy in terms of various variables. In order to achieve the aim of the research, the answers to the following questions were sought.

1. What is the level of self-efficacy perceptions of social studies prospective teachers?
2. Do prospective teachers' perceptions of environmental education self-efficacy show significant differences in terms of gender?
3. Do prospective teachers' perceptions of environmental education self-efficacy show a significant difference in terms of grade level?

2. Method

In this study, which was conducted to measure the environmental education self-efficacy perceptions of social studies teacher candidates, the scanning model, which is one of the quantitative research approaches, was used. Scanning model is a research approach that aims to describe the past or present situation as it is (Karasar, 2012). In survey studies, the subject, event or phenomenon studied is tried to be examined without any intervention of researchers (Sönmez & Alacapınar, 2011).

2.1 Study Group

The population of the study consists of prospective social studies teachers studying at Afyon Kocatepe University's Faculty of Education. The sample of the study was formed by using maximum sampling techniques. The purpose of this technique is to reflect the views of individuals with different attitudes in the universe to the study (Yıldırım and Şimşek, 2013). Volunteer students from all grade levels participated in the study. The sample group of the study consisted of 172 students, 98 female and 74 male.

2.2 Data collection tool

In order to determine prospective teachers' perceptions of environmental education self-efficacy, Environmental Education Self-Efficacy Perception Scale which was developed by Özdemir, Aydın and Akar-Vural (2009) was used. The scale consists of two parts: In the first part, there are questions that reveal the demographic information of the participants. In the second part, there are items aiming to reveal the participants' perceptions of environmental education self-efficacy. The scale consists of 4 dimensions; academic competence, responsibility perception, instructional competence and orientation perception. The Cronbach Alpha coefficient of the original scale was found to be 0.76. Responses to the scale developed in the five-point Likert type are ranked as "I disagree, disagree, agree, agree a little and agree completely." The lowest score that can be obtained from the scale is 15 and the highest score is 75. Increasing scores indicate positive perceptions of self-efficacy on environmental education. Within the scope of this study, the Cronbach's alpha value for the scale was calculated as 0.88.

2.3 Analysis of Data

Mean, t-test and one-way analysis of variance were performed on the data obtained from the administration of the data collection tool to 172 prospective teachers. ANOVA (one-way analysis of variance) and t-test were used to

determine whether the prospective teachers' tendencies towards the environment differed in terms of grade level and gender. The following cut-off points were taken into consideration in the interpretation of the general average of the scale;
Low for 24 and below
Medium for 25-49 and
High for 50-75.

3. Findings

What is the level of self-efficacy perceptions of prospective social studies teachers?

Table 1: Levels of Social Studies Prospective Teacher Perceptions of Environmental Education Self-Efficacy

Environmental Education Self-Efficacy Perception	N	X	SS	Min.	Max.
	172	46,67	7,66	19	67

According to the information given in Table 1, mean of the scores obtained from 172 pre-service teachers is 46.67. According to this finding, the level of perceptions of social studies prospective teachers on environmental education self-efficacy is medium.

Do prospective teachers' perceptions of environmental education self-efficacy differ significantly by gender?

Table 2: T-Test Results of Environmental Education Self-Efficacy Perceptions in Terms of Gender

Perception of Environmental Self-Efficacy	Gender	N	X	SS	T	P
Academic Competent	Female	90	18,52	3,90	,671	,503
	Male	71	18,07	4,63		
Responsibility	Female	98	9,12	3,04	,145	,885
	Male	74	9,05	3,10		
Instructive Competent	Female	97	11,25	1,85	,421	,675
	Male	73	11,11	2,42		
Guidance Perception	Female	98	8,59	2,42	1,677	0,95
	Male	72	7,93	2,69		
Total	Female	98	47,34	7,23	1,308	,193
	Male	74	45,80	8,16		

Table 2 shows the t-test results of social studies prospective teachers' perceptions of environmental education self-efficacy in terms of gender. According to the information given in the table, the differences in the perceptions prospective teachers on environmental education in sub-dimensions of self-efficacy isn't statistically significant in terms of gender. According to the same table; the average of female prospective teachers (47.34) is higher than the total average of male prospective teachers (45.80). The statistical significance results show that the difference between the mean scores of male and female prospective teachers is not significant. In other words, there is no significant relationship between gender and environmental education self-efficacy perceptions.

Do prospective teachers' perceptions of environmental education self-efficacy show a significant difference in terms of grade level?

Table 3: Anova Results of Environmental Education Self-Efficacy Perceptions in terms of Grade Level

Perception of Environmental Education Self-Efficacy	Source of Variance	Sum of squares	Sd	Mean Squares	F	P	Significant difference
Academic Competent	**Intergroup**	6,36	3	2,12	,117	,950	----
	In Group	2858,84	157	18,20			
	Total	2865,20	160				
Responsibility	**Intergroup**	36,84	3	12,28	1,320	,270	----
	In Group	1563,66	168	9,30			
	Total	1600,51	171				
Instructive Competent	**Intergroup**	7,77	3	2,59	,578	,630	----
	In group	744,20	166	4,48			
	Total	751,97	169				
Guidance Perception	**Intergroup**	23,41	3	7,80	1,201	,311	----
	In group	1079,06	166	6,50			
	Total	1102,47	169				
Total	**Intergroup**	76,35	3	25,45	,429	,732	----
	In group	9959,40	168	59,28			
	Total	10035,76	171				

Table 3 shows the results of the ANOVA test on whether prospective teachers' perceptions of environmental education self-efficacy differ in terms of grade level. According to the information in the table, sub-dimensions of self-efficacy perception of environmental education do not show significant differences in terms of grade level. According to the same table, it was found that the total scores of social studies prospective teachers' perceptions of environmental education self-efficacy did not differ in terms of grade level. In other words, there is no significant relationship between prospective teachers' classroom levels and self-efficacy perceptions of environmental education [$F(3, 173)= 1,789$ $p< 0.05$].

4. Conclusion Discussion and Suggestions

As a result of the analyses, it was determined that prospective teachers' self-efficacy perceptions of environmental education were moderate in the scale in general and in academic competence perception, responsibility perception, instructional competence perception and directing perception sub-dimensions. This result supports the studies of Kahyaoğlu (2011), Gökmen, Ekici and Öztürk (2012) and Zayimoğlu Öztürk, Öztürk and Şahin (2015). In these studies, it was concluded that prospective teachers' perceptions of environmental education self-efficacy were moderate. In addition, high level of environmental education self-efficacy was found by Özlü et al. (2011) and Tungaç (2015) with science teachers, Çimen et al. (2011) with biology prospective teachers, Erkol and Erbasan (2018) with classroom teachers and Yüksel & Kaya (2019) with teacher candidates in their studies.

When the prospective teachers' self-efficacy perception levels were examined according to gender variable, it was determined that female students scored higher in the overall and sub-dimensions of the scale. According to the t-test results, it was concluded that there was no significant difference between male and female students. Aydın (2008), Çimen, Gökmen, Altunsoy, Ekici ve Yılmaz (2011), Kahyaoğlu (2011), Gökmen, Ekici ve Öztürk (2012), Zayimoğlu Öztürk, Öztürk ve Şahin (2015), Yüksel & Kaya (2019) and Erkol and Erbasan (2018) found that environmental education self-efficacy beliefs did not show a significant difference in terms of gender variable in their studies.

When the environmental education self-efficacy perception levels of teacher candidates are examined according to the grade level, there is no significant difference in terms of environmental education self-efficacy perception, the overall scale and its sub-dimensions. This result shows parallelism with some studies in the literature. Konakçı (2019) states that there is no significant difference in environmental education self-efficacy scores of science teachers candidates according to age groups in his study. Likewise, Şahin and Doğu (2018), Akyol (2014), Güven, Yurdatapan, Parlak and Şahin (2013), Özgen (2012) stated in their studies that the attitudes of teacher candidates towards environmental problems do not differ according to grade level. In the studies conducted by Altunçekiç, Yaman and Koray (2005) and Gökmen, Ekici and Öztürk (2012), it is seen that there is a significant difference according to grade levels, and the difference is in favor of upper classes.

According to the findings obtained above, the following recommendations can be made:

1. Environmental education courses and course hours can be increased.
2. More practices can be given for effective environmental education.
3. No matter how well-informed individuals are in a field, they cannot be expected to be productive unless their self-efficacy is high and positive. For this reason, activities can be organized to increase the prospective teachers' self-efficacy beliefs in environmental education.
4. Activities that will increase the self-efficacy of teachers and instructors who will give environmental education courses can be done.

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Language and Education Policies Based on National/Plurilingual Identity in Autonomous Republics: A Case Study of the Gagauzia Autonomous Region

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Abstract
Autonomous Republics, although situated within the borders of a state, have the right to govern themselves within their own borders. The most concrete indicator of a state's autonomy is its flag, its national language, its national culture and its national education. In this context, the language and education policies come into play in the building of a new political union and a national identity. For example, Gagauzia (or Gagauzia Autonomous Region), which was shaped by many historical periods from the Ottoman Empire (from the 16th century until 1812) to the Russian Empire (1721-1917) and to the Union of Soviet Socialist Republics (1922-1991), is nowadays within the borders of the Republic of Moldova. It is an autonomous republic with the right to self-government. This paper aims to analyze the language and education policies determined and applied for the Gagauz Turks in Moldova. It is possible to argue that there is a relationship between the notions of "autonomous republic" and "language and education policy." In the autonomous republic, this policy will be described as a policy-based not only on the national identity, but also the plurilingualism.

Keywords: Language Policy, Education Policy, National Identity, Plurilingualism, Autonomous Republic, Gagauzia

Introduction

The research on the language and education policies date back to the 1960s, but the theoretical framework of these research remains problematic (Eren, 2018): These policies were initially discussed in the (socio- or applied) linguistics, but the problems point to the need to address this topic in many aspects nowadays. The language and education policies cover especially different areas such as: the law, the political science, the economics, the sociology, the philosophy, the psychology, etc. (Garibova, 2013). If it is difficult to draw the limitations of a research in the social sciences, it is so important to ask how the problematic will be formulated and how the notions will be discussed in the research. For example, there is a relationship between the notions of "language policy," "education policy" and "nation" that will be discussed in this study.

The language and education policies are the basic principles of state administration and thus, these policies are based on the nation-building policies. The aim of the language and education policies is not only the unification of the people ("nation") within the borders of a state, but also the identification and the acquisition of national, regional, minority or foreign language(s) as official(s) language(s) through the national education institutions (Council of Europe, 2007a). The notion of "education policy" refers to the principles and the decisions applied to educate individuals with social patterns and to shape a nation according to the educational culture accepted in the state (Beacco and al., 2005). It is the transmission of educational cultures through a unique sociopolitical reproduction tool (Bourdieu and Passeron, 1970). The nation, as "heir and developer of socio-political values," is placed at the center of this reproduction (Bourdieu and Passeron, 1964).

The notion of "nation" is qualified as "the most confused notion in the political dictionary" (Tilly, 2001). That is why, it is difficult to define this notion which is not only based on the language, the religion or the community of interest, but also on a large-scale solidarity constituted by the sharing of common past and the cooperation for the future (Renan, 1882, p. 28). This notion refers to a community formed by a common language, a culture and an history (Orhan, 2017). The nation is a sociocultural entity, while the nation-state is a geopolitical entity or a form of government that should be imagined both in sovereignty and in some geopolitical borders. As one of the form of governments, for example, the autonomous republics are situated within the borders of a state, but they have the right to govern themselves within their own borders. The most concrete indicator of a state's autonomy is its flag, its national language, its national culture and its national education.

In this context, the language and education policies come into play in the building of a new political union and a national identity ("nation-building process"). The birth of these policies is directly linked to the emergence of nation: The language that is described as a "core of national unity" (Welch, 1993), is the first tool used in the nation-building process (Şendeniz, 2014). As for the education, it provides the unity of nation through the language transmission in this process (Adem, 1997). Therefore, the language and education policies are considered as "effective tools of nationalization" (Özdoğan, 2015) and as "sociopolitical reproduction tool" of nation (Bourdieu and Passeron, 1970). These sociocultural and sociopolitical factors are important to ensure the continuity of nation, particularly with the presence of a national language, a national culture and a national education institution.

The present paper aims to analyze the language and education policies that are determined and are applied for the Gagauz Turks ("Gagauz" is derived from "Gökoğuz") live in the Republic of Moldova. The Gagauzia (officially called "Gagauzia Autonomous Region" in English and "Gagavuz Yeri Özerk Bölgesi" in Turkish), which was shaped by many historical periods from the Ottoman Empire (from 16th century until 1812) to the Russian Empire (1721-1917) and to the Union of Soviet Socialist Republics (1922-1991), is nowadays within the borders of the Republic of Moldova. It is an autonomous republic with the right to self-government. It is possible to argue that the autonomous republic depends on the national language and education policies. In the context of "autonomy," these policies will be described as nation-building policies (namely, the policies based on the national identity).

1. Problematic of Language and Education Policies Based on National Identity in Autonomous Republics: Focus on Monolingualism or Plurilingualism Policies?

The notion of "autonomy" is polysemous due to the complexity, the diversity and the variability of contexts in which the autonomy process occurs differently (Lafargue, 1881). The autonomous republics are the result of a historical and sociopolitical phenomenon that should be considered in terms of national language, national culture and national education (Cavalli and al., 2009). It is important to mention that each specific context is plurilingual (pluricultural) in its own way and that it is why, it is extremely rare to identify totally comparable monolingual or plurilingual contexts (Coste and al., 2009). Since the autonomous republics are confronted inevitably with many languages and many cultures, the language and education policies differ considerably from one state to another, with a focus on the monolingualism or the plurilingualism. The difference between these policies stems from the fact that the states recognize the monolingualism (the opposite of plurilingualism) or the plurilingualism (or the multilingualism) policy officially in the specific context (Beacco and al., 2016).

However, the plurilingualism-based language and education policies are indispensable for the social cohesion within the borders of a state. These policies should promote absolutely the plurilingual (and not monolingual) and intercultural education with the respect to the "education for plurilingualism" and the "education for plurilingual awareness" in the specific context of autonomy (Council of Europe, 2007b). The complexity and the variability of the contexts lead to a "sociolinguistic and sociocultural diversity" (a kind of a "linguistic and sociocultural variety in a society") which needs to be considered within their specific contexts. The "plurilingualism" as a result of this diversity, is defined in the following way: It is "the ability to use languages for the purposes of communication and intercultural interaction, where a person viewed as a social agent, has proficiency of varying degrees in several languages and has experience of several cultures" (Council of Europe, 2001).

As a matter of fact, the problematic of language and education policies is certainly related to the plurilingualism policies (not to the monolingualism policies) in the autonomous republics. The "sustainable plurilingualism" is the process of ensuring the harmonious coexistence of language (and so culture) for the social cohesion within the borders of a state (Bodean-Vozian and Soltan, 2014). The plurilingual language and education policies are effective in the nation-building process, in the sense that these policies contribute directly to the maintenance of the national language through the national education institutions and consequently, to the construction of national identity and the "national consciousness" within the borders of a state (for example, in the autonomous republics). In the present study, the plurilingualism-based language and education policies are described explicitly as the precondition for the building and the maintenance of autonomous republics:

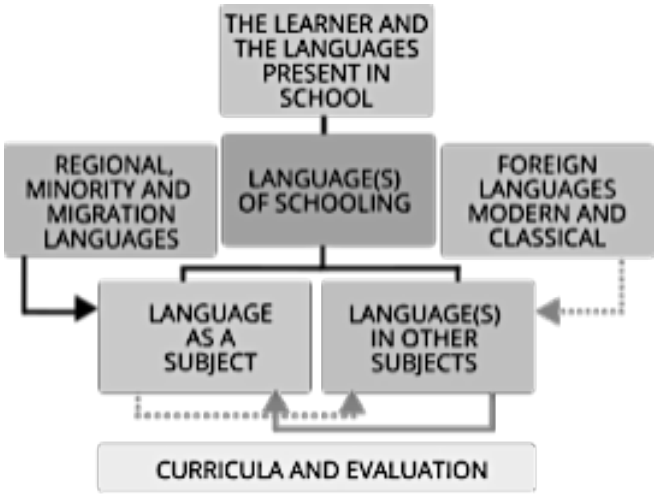

Figure 1. Platform of resources and references for plurilingual and intercultural education

Note. Council of Europe. *Platform of Resources and References for Plurilingual and Intercultural Education.* https://www.coe.int/en/web/language-policy/platform, (Accessed June 17, 2021).

As seen in the figure above, the plurilingualism and the interculturalism-based education policies include not only the language acquisition within the framework of "the curricula and the evaluation process" (it is about "the learner and the languages present in school: In other words, the language-s- of schooling") and then, the use of these different languages as "the regional, the minority or the migrations languages" or as the "foreign languages modern and classical" in the autonomous republics, but also the plurilingualism promotion through the national educational programs (like "the language as a subject or the language-s- in other subjects"). These policies are developed for a "minority" which has usually the national identification with the nation-state and the national consciousness (Council of Europe, 2007b). Certainly, this is the impact of the contextual particularities on the language and education policies (with a focus rarely on the monolingualism, but frequently on the plurilingualism) that will be analyzed in the context of Gagauz Turks in Moldova. The aim of the present paper is to ask what particularities this context presented in the determination and the application of language and education policies for the Gagauz Turks.

2. Gagauzia as a plurilingual and intercultural context: meeting point of Balkans culture

Moldova or officially the Republic of Moldova, which is situated in the Eastern Europe (in the Balkans), is a state bordered by the Romania to the west and by the Ukraine to the north, the east and the south. Due to the politico-historical conjuncture, Moldova (or called at the time, the Principality of Moldovia) was respectively under the administration of the Ottoman Empire (from the 16th century until 1812), the Russian Empire (1721-1917) and finally, the Russian Soviet Federative Socialist Republic (1922-1991). The unification and the re-unification of Moldova and Romania was/is always a part of the foreign policy priorities (Jelavich, 2013). After the dissolution of the Soviet Union (1988-1991), the Moldavian Soviet Socialist Republic declared its independence, henceforth having taken the name of Moldova. As a parliamentary republic with a president as the head of state (its constitution was adopted in 1994), Moldova is now a member state of many international organizations, principally such as the United Nations since 1992, the Council of Europe since 1995, the Organization for Security and Cooperation in Europe since 1992, the Organization of the Black Sea Economic Cooperation since 1992, etc.

"Making or breaking the Republic of Moldova?" (Wöber, 2013). The complexity and the particularity of Moldova stem from the fact that the state was/is the meeting point of many Balkans Culture that shaped inevitably the context: The presence of Moldovans, Romanians, Ukrainians, Gagauz, Russians, Bulgarians, Romanis, Poles, and others (King, 1992). As a result, the Republic of Moldova is divided administratively into thirty-two districts, three municipalities and consequently, an autonomous region that is recognized and called the Gagauzia and another that is unrecognized and called the Transnistria (Spinner, 2003). As for the Republic of Turkey, the state is one of the first one which recognizes the independence of the Republic of Moldova (Oran, 2003). Since the declaration of independence (1991), the international relations between the Republic of Turkey and the Republic of Moldova have been based not only on the geopolitical cooperation agreements such as the Organization of the Black Sea Economic Cooperation since 1992, but also on the main presence of Gagauz Turks within the borders of Moldova, undoubtedly in a sociohistorical and sociocultural perspective of the compatriotism (Adanır and Faroqhi, 2011).

The Gagauzia Autonomous Region in English or "Gagavuz Yeri Özerk Bölgesi" in Turkish, is an autonomous republic which declared its independence in 1990 at the end of the Soviet Union and which reached an autonomy agreement with the Republic of Moldova in 1994 (Neukirch, 2002). The Gagauz Turks or the Gökoğuz that constitute nearly six percent of Moldovan population, have the particularity to be culturally; Christians of Turk origin. Although the Gagauzia Autonomous Region is situated within the borders of Republic of Moldova as an integral part of the state, this autonomous region has the right to govern itself within its own borders as a form of self-determination of the Gagauz Turks (Todorova, 2003). There are three provinces that are situated within the borders of the Gagauzia Autonomous Region, such as Comrat, Çadır-Lunga and Vulcanesti. The most concrete indicators of this autonomous region are its flag (the "Coat of arms"; the three provinces are represented by the three stars) and its motto ("Yaşasın Gagauzia!" in Turkish or "Long live Gagauzia!" in English), its capital (Comrat) and its national language, its national culture and its national education (Argunşah and Güngör, 1991) that will be discussed in terms of the language and education policies in the Gagauzian Context.

3. Importance of language policies in the Gagauzian context: focus on plurilingualism policies

"The language of politics and the politics of language: (…) Identity" (King, 1992). The "politics of language" or the language policies are linked directly to the sociopolitical reproduction tool of nation. Since the aim of the language policy was particularly to be used as a sociopolitical reproduction tool in the nation-building process, the declaration of an autonomous region (the Gagauzia Autonomous Region in the present study) was certainly supported by the construction and the maintenance of a national identity and a national consciousness through the language policies based on the plurilingualism: In this specific context, the official languages are the Gagauz Turkish (or the Gagauzian), the Russian and the Moldavian (so the Romanian). The Gagauz Turks who live within their own borders in Moldova, differ from the other Turks by the fact that their language is the closest to the "Turkey Turkish" in terms of the grammar, the syntax and the vocabulary (Gaydarci and al., 1991). Besides the Azerbaijani Turkish, the Turkmen Turkish and the Turkey Turkish, the Gagauz Turkish forms the Oghuz Sub-Branch of the Turkic Language Family (Ergin, 2006).

Nevertheless, according to the complexity and the particularity of the Gagauzian Context, the Gagauz Turkish (or the Gagauzian) was/is inevitably confronted with and then, influenced by many languages/cultures such as the Russian, the Bulgarian, the Moldavian and the Romanian (Özkan, 2002). That is the importance of the language policies that should be determined and be applicated with a focus on the plurilingualism policies, particularly within the context of an autonomous region which results in the meeting of many cultures (as the Balkans culture in the context of the Gagauzia). Although the language policies are naturally based on the national language as the core of national unity of the context, the autonomous regions have the possibility to grant the right to use different official language within their own borders. In this perspective, the Gagauzia Autonomous Region recognizes officially three different languages: Principally its national language as the Gagauz Turkish and other official languages as the Russian and the Moldavian (the Romanian). The teaching and the learning (or the acquisition) of these official languages will be analyzed within the framework of plurilingual education policies in the next part of the paper.

In the Gagauzian Context, the main problem of language policies lied in the fact that Gagauz Turks did not have officially their own alphabet and their own written language until 1957 (Türk, 2016). They used the Greek Alphabet that was not adopted neither phonetically nor orthographically to the Gagauz Turkish. It seems very important to mention that the first Gagauz Alphabet which was created under the inspiration of the Cyrillic Alphabet (on July 30, 1957), ensured the first literary, the first educational and the first press publications that were entirely written in the Gagauz Turkish as a trace of the national language (Bulgar, 2006). Therefore, the adoption of this new alphabet is considered as a turning point in the determination and in the application of language policies based on the national identity in the Gagauzia Autonomous Region: “Does the language determinate the nation? Or does the nation determinate the language? The impact is certainly mutual: The real creation of a nation is seen in its language policy, because each language policy has its own national form distinct from another” (İnal, 2012). This is also a decision from an autonomous region.

On the other hand, the use of different language as a result undoubtedly of the sociocultural diversity in the Gagauzia Autonomous Region, explains the importance of plurilingualism-based language policies that ensure the harmonious coexistence of language (and so culture) for the social cohesion within the borders of this autonomous region. Considering the importance of politico-historical traces of the Soviet Union, it is obvious that these plurilingual policies are indispensable so that the Russian, for example, is still used at several levels in the social life: The Russian appellation of the Gagauz Turks, the geographical indications, the educational institutions, etc. In the same way, the Gagauzian Media promotes the plurilingualism-based language policies: The “Gagauzia Radio and Television” or called frequently, “GRT”; “Gagauziya Radio Televizionu” in the Gagauz Turkish, which cooperates with the “Turkish Radio and Television Corporation,” “TRT,” broadcasts in three different official languages: The Gagauz Turkish, the Russian and the Moldavian (the Romanian). It can be argued that all these plurilingualism-based language policies applications are promoted through the plurilingual and intercultural education institutions, reflecting the education policies based principally on the national identity in the Gagauzian Context.

4. Importance of education policies in the Gagauzian context: plurilingual and intercultural education

It should be remembered that the education policy is considered as an effective tool of nationalization in the specific context of autonomy, because this policy comes into play as a core of the national unity in the building of this new political union. Furthermore, the notion of education policy should promote the development of a plurilingual and an intercultural education that takes various sociocultural forms depending on the teaching context (Cavalli and al., 2009). This is indispensable for the social cohesion and for the intercultural dialogue between different languages (and so different cultures) inherited in the specific context. As for the Gagauzia Autonomous Region, after the dissolution of the Soviet Union (1991) and thereby, the declaration of its autonomy (1994), the nation-building process of Gagauz Turks was supported by the priority given to the language and education policies that took place at two different level, respectively the national identity and the plurilingualism and the interculturalism. In this perspective, for example Mustafa Kemal Atatürk, attached a great importance to them in

1930 (Bulut, 2016) and particularly to their own sociolinguistic and to their own socio-educational needs that undoubtedly guaranteed the construction and the maintenance of their national identity in the Gagauzian Context. There are 55 schools that provide the education services at the primary, the secondary and the high school levels: 28 high schools, one private vocational high school, 24 secondary schools and two primary schools (Argunşah and Güngör, 1991). Among of these educational institutions, the Comrat State University which is founded in 1991 as the Gagauz National University, is financially supported by the Republic of Turkey and particularly by the Yunus Emre Institute and the Turkish Cooperation and Coordination Agency ("TİKA" in Turkish). As "more of a political question than ever before," for example, the choice of the language of instruction according to the teaching context, is at the center of debates on the education policies (Akkari and Coste, 2015). To question the language of instruction means to describe the language diversity present in the context of teaching (Coste, 2009). Within the framework of education policies in the Gagauzia Autonomous Region, the languages of instruction are the Gagauz Turkish, the Russian and the Moldavian (so the Romanian), certainly contributing all these languages to the development of plurilingual and intercultural education (Bulgar, 2006). In other words, the teaching of the official languages and of the foreign languages as the English, the Bulgarian and the Ukrainian, are a crucial part of the plurilingual and the intercultural educational programs in the Gagauzian Context.

In this specific context, that is the importance of the education policies that should be analyzed also in terms of the national educational system. The Law that is called "About Education" ("Eğitim Üzerine" in Turkish), is accepted in 2016 in the Gagauzia Autonomous Region. According to this law that emphasizes on the national language and the national education of Gagauz Turks, the National Education General Directorate grant the right to determine and to apply the education policies for the planning, the management and the development of their own national educational system: The building and the maintenance of the Gagauzian national identity depend largely on this constitutional basis of the national educational system. Nowadays, the Gagauzian educational system is also adapted to the European educational criteria such as the "Bologna Process," the International Mobility or Exchange Programs, the European Credit Transfer and Accumulation System (ECTS), the accreditation of educational programs, etc. These criteria ensure the comparability in the standards and in the quality of education qualifications in Europe (Wöber, 2013). As a matter of fact, the curricula and the evaluation process are determinate and are applied in a plurilingual and the intercultural perspective in the Gagauzian Context.

Conclusion and Discussion: national but plurilingual language and education policies?

"The birth of the first language leaded to the separation of nations. The most important indicator of a nation is its language (policy). As for the nation, the most important indicator is not its physical appearance such as its skull shape, its hair color: But it is its language that serves to distinguish the nations from another and vice versa. That is why, the language is the appearance and the soul of a nation" (İnal, 2012).

The present study emphasizes the need to consider the language and the education policies based on the national identity in the sociocultural diversity of autonomous regions: These contexts accepted as the "natural terrains" (Giné, 2003), inevitably are confronted with and thereby influenced by many languages and many cultures. What particularities the autonomous regions present in the determination and in the application process of language and education policies? Since these policies are the decisions that are taken in the nation-building process, they have been a real reflection of the politico-historical conjuncture of a given state. As the conjuncture changes, the identity changes also as a sociopolitical reproduction tool of the nation in question: The identity is thus a sociopolitical perception that helps an ethnic group to become a nation. For example, the Gagauzia (or the Gagauzia Autonomous Region), which was shaped by many historical periods from the Ottoman Empire (from the 16th century until 1812) to the Russian Empire (1721-1917) and to the Union of Soviet Socialist Republics (1922-1991), require to be analyzed according to their particularities or in other words, to their sociopolitical practices.

The complexity and the particularity of the Gagauzian Context leads to a wide range of identity perceptions such as the Gagauzian, the Russian, the Bulgarian, the Moldavian and the Romanian. Although the language and the education policies are directly linked to the national identity, these policies do not oscillate between the

plurilingualism or the monolingualism: The choice of the plurilingualism and the interculturalism-based language and education policies is supported by the nation-building policies (Eren, 2020). Certainly, this sociopolitical reproduction tool is indispensable to ensure the continuity of the Gagauz Turks, particularly with the presence of their national language, their national culture and their national education institutions: The building and the maintenance of their national identity depend largely on the constitutional basis of the national educational system which has the particularity to promote the social cohesion and the intercultural dialogue in the Gagauzia Autonomous Region. That is the importance of the language and the education policies that should be determined and be applicated with a focus not only on the nation-building policies, but also on the plurilingualism and the interculturalism policies as a result of the meeting of Balkans culture in this specific context of the Gagauzia.

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Examination of Patience Tendency Levels of University Students: An Intercultural Comparison

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Abstract
In this research, it was aimed to interculturally research the value of patience with the data obtained from the students who participated in the study from two different countries. The research was designed as a mixture of quantitative and qualitative methods. Accordingly, the Traditional Screening Technique based on quantitative data and the Phenomenological Technique based on qualitative data were used together in the research. In this study, the patience levels of university students were generally calculated high. The patience levels of Turkish students were discovered to be lower than those of Kyrgyz students. According to the results of the interviews, there are differences in Turkish and Kyrgyz students' understanding of patience. It is seen that Turkish students attribute the value of patience to religion, believing that patience is transferred to Turks from religion, while Kyrgyz students associate patience with their cultural traditions. It is thought that this study will contribute to values and character education, especially to the literature on patience. The relationship and differences between the patience levels of university students and different variables and their effects on each other can be researched. Programs can be developed to increase the patience levels of university students.

Keywords: Patience, University Students, Comparison, Culture

1. Introduction

A moment of patience can prevent a big disaster.
A moment of impatience can ruin a whole life.
(Chinese Proverb)

Following the Second World War, the discipline of Psychology focused more on pathological conditions such as the treatment of damages on human functions, causing the negligence of positive psychology. According to Seligman and Csikszentmihalyi (2000), Positive Psychology aims at not only treating pathological conditions, but also creating positive qualities and virtues. In other words, positive psychology, which is a complement of traditional psychology concentrating on what is wrong in life in its own history, tries to make people's lives more livable by focusing on the examination of positive personality traits and positive emotions such as happiness, tolerance and patience (Seligman, 2010; Seligman, et al., 2005). There is a limited number of studies in the

literature with respect to the virtue of patience, which is especially one of the research areas of Positive Psychology and also the subject of this research (Schnitker, et al., 2017). The value of patience is a virtue which enables societies to live happier and with higher self-control and teaches people to allow everything to happen in their own time (Shapiro, et al., 2002).

People always have to make a preference in their work lives, family lives or every situation, in brief, in every aspect of the social life. Sometimes, they hurry up in conditions when they can have positive gains or in favorable options that appear, and sometimes, they want to wait and make a choice at a better time. In such cases, patience is defined as the ability of people to control themselves and wait (Stevens & Stephens, 2008). It sometimes seems more logical for people in a dilemma to choose the earliest alternative whereas the next option may produce greater and better results. This situation, which can be defined as delayed satisfaction, is about people's control over their emotions and desires (Read, et al., 2013).

People have to wait when there is traffic jam, they are connecting to the operator on phone calls or waiting at the cashier while doing shopping, briefly, in every aspect of life. For this reason, living means waiting on the one hand. Living means being in relation and interaction with people, being in continuous interaction with family, colleagues and social environment. Since each person is different and behaves differently, annoying situations that require patience emerge (Carolyn, 2016). Life does not always mean positive and beautiful moments for anybody. Sometimes, patience of people is tested with upsetting, annoying and patience-testing circumstances or due to an inconsiderate boss, insensitive friend, problematic partner and problematic roommate. For this reason, patience also refers to the presence of negative, unpleasant situations for people (Johnson, 2016).

Patience is intertwined with different values like other virtues and also requires hope, belief, love, humility and fortitude. Specifically, there is a special relationship between patience and hope. The reason is that patience bears the hope that, in case of a problem, that problem will be overcome. Patience is only possible for those who have hope, and if there is no hope, then patience also disappears (Hughes, 2016). For instance, university students accept failure if they think that the exam week is permanent and will never come to an end. Belief in impermanence of bad times and hope help people be patient. Thus, it is realized that the power underlying patience is hope and patience will continue as long as hope exists (Copeland, 1992).

Adam Smith (1759) says that, in this world, people should control themselves by avoiding pleasure and bearing the current problems for the time being in order to obtain greater gains and pleasure in the future. According to this viewpoint, the source of happiness in the world is the control of people over themselves and being patient. This is also related to the neurological structure of humans. Recently, the results of brain imaging technology have demonstrated that the control of people over themselves and being patient depend on the frontal cortex of the brain. The frontal cortex develops with age and very young children also have it. Hence, patience is also correlated with the biological and hereditary structure of humans. In other words, whereas the children of the patient parents become patient, the children of the impatient parents also become impatient (Haldane, 2010). In another study (McClure, et al., 2004), it was discovered that patient behaviors were associated with the activity in the frontal cortex, and impatient behavior was related to the Limbic (midbrain or Dopamine) system, which is a separate section of the brain. Psychopathology containing patience generally emerges with endless waiting and chronic hastiness (Akhtar, 2015). In such a case, impatience goes beyond normal conditions and becomes a disorder.

Patience is also related to people's ages and thus experiences throughout their lives. The fact that young children immediately start to cry when something they want does not come true shows that children are more impatient than adults. In some studies, conducted on patience (Gül, 2018; Bettinger, 2007; Harbaugh, et al., 2002; Levin, et al., 2007; Brockhoff, et al., 2015), it was revealed that patience changed in line with age, and that patience increased as the age increased. In this respect, it is understood that patience does not remain constant throughout the life of people and changes in parallel with the negative situations experienced continuously.

Sometimes, a person who can be patient in a very difficult situation may not be patient in a less troublesome situation at a different time. This indicates that the mood of people can also affect patience. There is also a

correlation between behavior and patience; patience affects behavior. Impatient students are more likely to spend money on alcohol and cigarettes and violate school rules of conduct compared to patient students, and impatient students have lower success in education (Sutter, et al., 2013).

While Peterson and Seligman (2004) consider patience as the mixture of different virtues such as tolerance, open-mindedness and self-control/adjustment, Schnitker and Emmons (2007) have revealed that patience is a different value with its own characteristics. Schnitker (2012) defines patience as *A person's tendency to calmly wait in case of disappointment, distress or pain.*

In this study, it was aimed to test the patience levels of the university students in Turkey and Kyrgyzstan and to compare them in terms of some variables. In this context, the question "What is the comparison of patience levels of the university students in Turkey and Kyrgyzstan?" was considered as the main problem of the research. Additionally, interviews were conducted with a specific study group to obtain more in-depth information about the items to which Turkish and Kyrgyz students gave the highest and lowest scores among the scale items. In these interviews, it was aimed to discover whether the items discussed had a correspondence in cultural, religious and political fields in Turkish and Kyrgyz societies.

2. Method

2.1 Research Group

There are two different study groups in the research. The data of the first study were acquired from two different countries. A total of 1086 students participated in the research: 543 people studying in Karamanoğlu Mehmet Bey University in Turkey and 543 people studying in Kyrgyz-Turkish Manas University in Kyrgyzstan. Since the assessment instrument was in Turkish, the study group in Kyrgyzstan consisted of students from Kyrgyz-Turkish Manas University, which provides education in Turkish and where students speak Turkish at an advanced level. Simple Random Sampling technique, in which all the sampling units have equal participation probability, was used for the determination of the sample (Taherdoost, 2016; Büyükşener, et al., 2016; Cochran, 1977).

Table 1: Data of the First Study Participants

Country	N	Female	Male
Turkey	543	414	129
Kyrgyzstan	543	327	216
Total	1086	741	345

The data of the second study were collected from a total of 30 students; 15 were citizens of Turkey and 15 were citizens of Kyrgyzstan. For the determination of the sample, purposeful sampling technique, which was used to conduct in-depth research and where the researcher consciously selected the data source, was used (Palys, 2008; Lewis & Sheppard, 2006; Tongco, 2007; Bernard, 2002).

Table 2: Data of the Second Study Participants

Country	N	Female	Male
Turkey	15	9	6
Kyrgyzstan	15	10	5
Total	30	19	11

2.2 Research Model

This research is a descriptive study based on screening method, which was prepared as a mixed pattern within the framework of quantitative and qualitative paradigm. The screening method is a method used to quantitatively identify the specific aspects of a certain population (Glasow, 2005; Flowler, 1988; Groves, 2004). Accordingly, the patience tendencies of the students were identified according to the gender, age and year of study variables in the study. In the second study of the research, the phenomenological pattern, which is among the qualitative research techniques, was used. The phenomenological pattern is a technique used to obtain more in-depth information about something which is already known about (Groenewald, 2004). From an epistemological point of view, the phenomenological approach is built on the paradigm of subjectivity and stresses the importance of personal perspective and interpretation (Laster, 1999; Polkinghorne, 1989).

2.3 Assessment Instrument

In the first part of the research, "University Students Patience Scale" developed by Çeliköz and Gül (2018) was used. During the development process, the assessment instrument was applied to 375 university students. The scale consists of 21 items in total, including three sub-dimensions: Patience for Intolerance, Patience for Hastiness and Patience for Anger. The internal consistency coefficient of the scale, the items of which are totally composed of positive expressions, was calculated as.86 for the overall.

2.4 Data Collection

In the first section of the study, students from both countries and universities were given the *University Students Patience Scale* and were asked to answer. For the data collection, the assessment instrument prepared in the electronic environment and, in some parts, the printed assessment tool was used.

In the second part of the research, the items of the *University Students Patience Scale* given the highest and lowest scores by the students who participated in the research from Turkey and Kyrgyzstan were identified. It was attempted to determine through interviews with the students why the students gave the highest and the lowest scores to the items.

3. Findings

3.1 Findings Related to the First Sub-Problem of the Research

Findings regarding the items given the highest and the lowest scores among the items of the USPS by the University students are presented in tables.

Table 3: The items given the highest and the lowest scores among the items of the USPS by Turkish and Kyrgyz students

Country	Item No	Statements	$\bar{X}$	Total Score
Turkey	I 4	People should withstand problems	4.65	2.524
	I 18	It does not make me angry if someone jumps the queue in the cafeteria	1.99	1.082
Kyrgyzstan	I 5	I consider patience as a very necessary value	4.22	2.294
	I 19	It does not make me angry if students make noise while I am studying in the library	3.16	1.284

As seen in Table 2, the item given the highest score by Turkish students was ($\bar{X}$=4.65) the 4th item. According to this item, Turkish students argue that people should withstand problems and have patience for these problems.

This item was agreed on by almost every Turkish student. On the other hand, the item given the lowest score by Turkish students was ($\bar{X}$=1.99) the 18th item; Turkish students are not patient if someone jumps the queue in the cafeteria. Kyrgyz students think that the value of "Patience" is very necessary. Among the Kyrgyz students' patience levels, this item had the highest mean score ($\bar{X}$= 4.22). Additionally, the item given the lowest score by Kyrgyz students among the scale items was ($\bar{X}$= 3.16). the 19th item; Kyrgyz students feel disturbed if there is noise in the library.

3.2 Findings Related to the Second Sub-Problem of the Research

Descriptive data of USPS regarding Turkish and Kyrgyz University students are presented in Table 4.

Table 4: Descriptive data of USPS regarding Turkish and Kyrgyz University Students

	Min.	Max.	N	$\bar{X}$	ss
Turkey	1.10	5.00	543	3.62	.56
Kyrgyzstan	2.00	5.00	543	3.73	.50

Descriptive statistics about the patience levels of Turkish and Kyrgyz students are given in the table above. Accordingly, while the lowest mean score of Turkish students was 1.10, the highest mean score was determined as 5.00. Regarding the patience levels of Kyrgyz students, the lowest mean score was recorded as 2.00, while the highest mean score was calculated as 5.00. When the patience level rates of university students are reviewed, it is seen that Kyrgyz students are more patient than Turkish students ($\bar{X}$=3.73 > $\bar{X}$=3.62).

3.3. Findings Related to the Third Sub-Problem of the Research

Table 5: Results of t-test for comparison of patience levels of university students in terms of countries

Country	N	$\bar{X}$	s	sd	t	P	d
Turkey	543	3.62	.56	1084	-3.34	.00	.68
Kyrgyzstan	543	3.73	.50				

According to the data in Table 5, the patience levels of the university students differ significantly as per the country variable (t_{1084}=-7.54, p<0.5). It is understood that the patience levels of Kyrgyz university students ($\bar{X}$=3.73) are higher than those of Turkish university students ($\bar{X}$=3.62). These data obtained through the independent samples t-test show whether there is a significant difference between the patience levels; however, they do not give information about the magnitude of the effect level belonging to this difference. Cohen's d (Cohen, 1988; Kotrlik & Williams, 2003) formula was employed to understand the magnitude of the effect level of the difference. According to this formula,.20 signifies a low-level effect,.50 indicates a moderate effect and.80 point at a high-level effect. The effect size obtained as a result of t-test (d =.68) shows that this difference between the means has a moderate effect size.

Table 6: T-test results related to the comparison of the mean scores received by the university students in the sub-dimensions of the USPS

Sub-Dimensions	Country	N	$\bar{X}$	s	sd	t	p	d
Intolerance	Turkish	543	3.94	.02	.56	.88	.38	.10
	Kyrgyz	543	3.90	.02	.58			
Hastiness	Turkish	543	3.50	.03	.75	-4.63	.00	.25
	Kyrgyz	543	3.69	.02	.63			
Anger	Turkish	543	3.14	.03	.76	-5.87	.00	.24
	Kyrgyz	543	3.42	.03	.82			

In the table above, independent samples t-test data regarding whether there is a significant difference between the patience levels of Turkish and Kyrgyz University students in the sub-dimensions of the USPS are stated. According to these data, no significant difference is observed in the sub-dimension "Patience for Intolerance" of the USPS ($p>0.05$); however, a significant difference stands out in favor of Kyrgyz students in the sub-dimensions *Patience for Hastiness* and *Patience for Anger* of the USPS ($p<0.05$).

3.4 Findings Related to the Fourth Sub-Problem of the Research

Independent samples t-test and one-way ANOVA analysis were conducted to determine the differentiation status of the patience levels of the university students according to the year of study, age, gender and country variables.

Table 7: T-Test Results related to the Comparison of the Patience Levels of Turkish and Kyrgyz Male Students as per the Gender Variable

Country	Gender	N	$\bar{X}$	ss	t	p
Turkey	Female	414	3.60	.54	-1.54	.12
	Male	129	3.69	.61		
Kyrgyzstan	Female	327	3.70	.50	-1.53	.13
	Male	216	3.77	.51		

As seen in Table 7, independent samples t-test was executed to determine whether the patience levels of Turkish and Kyrgyz students differed significantly according to the gender variable. It was first checked whether the variances were equal, and the variances were found to be equal ($t = -1.54, -1.53$ $p\geq0.05$). As a result of the test, no significant difference was found between the patience levels of Turkish and Kyrgyz university students as per gender variable ($p>.05$).

Table 8: T-Test results related to the comparison of the patience levels of Turkish and Kyrgyz students according to the gender variable

Country	Gender	N	$\bar{X}$	ss	t	p
Turkey	Male	129	3.69	.61	-1.30	.18
Kyrgyzstan	Male	216	3.77	.51		
Turkey	Female	414	3.60	.54	-2.65	.00
Kyrgyzstan	Female	327	3.70	.50		

When Table 8 is examined, it is seen that the patience levels of Turkish and Kyrgyz male students do not differ significantly as per gender variable ($t = -1.30$, $p>.05$). While the mean score of Turkish university students was found as 3.69, the mean score of Kyrgyz university students was calculated as 3.77. The t-test results related to the comparison of the patience values of Turkish and Kyrgyz female students according to gender variable are presented in Table 10. Accordingly, it was determined that the patience levels of Turkish and Kyrgyz female students differed significantly in favor of Kyrgyz female students as per gender variable ($t = -2.65$, $p\leq.05$).

Table 9: T-Test results related to the comparison of the patience levels of Turkish and Kyrgyz students according to the age variable

	Age	N	$\bar{X}$	ss	t	p
Turkey	17-19	210	3.46	.56	-4.56	.00
Kyrgyzstan	17-19	112	3.74	.47		
Turkey	20-21	256	3.67	.54	-1.24	.21
Kyrgyzstan	20-21	282	3.73	.50		
Turkey	22+	77	3.87	.51	2.22	.02
Kyrgyzstan	22+	149	3.71	.53		

In the table above, it is observed that the patience levels of Turkish and Kyrgyz students in the first age group differed significantly in favor of Kyrgyz students ($t = -4.56$, $p<0.05$). Whereas the mean score of the patience levels of Turkish students was calculated as 3.46, the mean score of the patience levels of Kyrgyz students was found as 3.74.

Table 10: T-Test results related to the comparison of the patience levels of the first-year Turkish and Kyrgyz students according to the year of study variable

Country	**Year of Study**	**N**	$\bar{X}$	**ss**	**t**	**p**
Turkey	1	222	3.45	.54	-5.76	.00
Kyrgyzstan	1	168	3.77	.52		
Turkey	2	92	3.71	.53	-.21	.98
Kyrgyzstan	2	167	3.71	.48		
Turkey	3	109	3.64	.53	-1.14	.25
Kyrgyzstan	3	116	3.73	.46		
Turkey	4	120	3.86	.53	1.85	.06
Kyrgyzstan	4	92	3.72	.56		

In Table 10, it is seen that the patience levels of the first-year university students differ significantly ($t = -5.76$, $p\leq.05$). According to the results of the independent samples t-test, it is understood that the significant difference is in favor of Kyrgyz students. In other words, the first-year Kyrgyz students are more patient than Turkish students.

Table 11: Results of ANOVA Analysis related to the Comparison of the Patience Levels of Turkish and Kyrgyz Students as per the Year of Study Variable

Country	**Year of Study**	**N**	$\bar{X}$	**ss**	**F**	**p**	**Levene**	
Turkey	1	222	3.45	0.54	16.08	.00	.64	4th, 1st and 3rd Year Students
	2	92	3.71	0.53				
	3	109	3.64	0.53				
	4	120	3.86	0.52				2nd and 1st Year Students
								3rd, 1st and 4th Year Students
Kyrgyzstan	1	168	3.77	0.56	.44	.72	.32	-
	2	167	3.71	0.51				
	3	116	3.73	0.46				
	4	92	3.72	0.60				

As a prerequisite of the analysis of variance, Levene's test statistics were reviewed to understand whether the scores of Turkish and Kyrgyz students were distributed homogeneously, and the data were observed to meet the condition of homogeneity. When the information stated in the table above is considered, it is understood that the highest mean score of the patience levels of Turkish students belongs to the fourth-year students with 3.86 and the lowest mean score belongs to the first-year students with 3.45. Furthermore, there was a significant difference between the years of study ($p<.05$).

Table 12: Table title (this is an example of table 1)

		95%CI	
Condition	*M*(*SD*)	LL	UL
Letters	14.5(28.6)	5.4	23.6
Digits	31.8(33.2)	21.2	42.4

Note. Place table caption in front of table body and description below the table body. Avoid vertical rules. Be sparing in the use of tables and ensure that the data presented in tables do not duplicate results described elsewhere in the article. You may resize the tables to fit the page size.

4. Discussion

In this study, the patience levels of university students were generally calculated high. Some studies in the literature (Gül & Çeliköz, 2018; Doğan, 2017; Eliüşük, 2014) also reached similar results to this study. In the study, the patience levels of Turkish students were discovered to be lower than those of Kyrgyz students. The data obtained from the students in the second study of the research coincide with the data of this study. Kyrgyz students mentioned that they were more patient than Turkish students, and Turkish students said that they were more impatient than Kyrgyz students. When the sub-dimensions of the scale were reviewed, it was seen that Turkish students received higher scores compared to Kyrgyz students in the Intolerance Sub-Dimension. However, it was determined that Kyrgyz students had higher scores in the sub-dimensions of Patience for Hastiness and Anger. In the second study of the research, students also expressed similar opinions to these results. It was inferred that Kyrgyz student did not define themselves as hasty and angry.

Another result of the research is that the gender variable affects the patience levels of the students. It was concluded that male participants from both countries were more patient than the women at the patience levels as per the gender variable of the students. There are studies in the literature that tally with the results of this research, concluding that male students are more patient than female students (Eliüşük, 2014; Bettinger & Slonim 2007). On the other hand, there is also a study belonging to Bauer and Chytilova, (2013), which has concluded that women are more patient than men. Socio-cultural structures of the research samples are assumed to be effective in the emergence of this difference. It can be said that male students have more patience because of the different social status of men in Eastern societies and they are in communication with more people due to their work (Ağçoban, 2016; Bilgin, 2016).

One of the results of the research is that the age variable has an effect on the patience tendencies of the students. In respect of the age variable, the patience levels of the Turkish university students were found to be higher than Kyrgyz students in the group aged 22 and above, which is the third group of the three groups regarding the patience levels of the university students. Among the students, Kyrgyz students below the age of 22 were found to be more patient than Turkish students. When the age groups were examined within the countries, it was observed that the patience levels of Turkish students increased in parallel with their age, whereas there was a very low level of difference in Kyrgyz students' mean scores of patience. There are studies in the literature indicating that patience levels increase with the increasing age of students (Khormaei, et al., 2017; Bartling et al., 2010; Bettinger & Slonim, 2007). In terms of the year of study variable, it was concluded that the patience levels of the students differed significantly in favor of Kyrgyz students in the first-year students. It was revealed that there was a difference in other year of study groups, but this difference was not significant. Another remarkable result related to the year of study variable is that Turkish students at the fourth year are more patient than Kyrgyz students. This is assumed to be related to the level of development of the societies of the two countries (Cafri, 2018).

According to the results of the interviews, there are differences in Turkish and Kyrgyz students' understanding of patience. It is seen that Turkish students attribute the value of patience to religion, believing that patience is transferred to Turks from Islam, while Kyrgyz students associate patience with their cultural traditions. In the research, it was determined that there is a difference between the opinions and actions of Turkish students regarding patience. While Turkish students thought that it is necessary to be patient in every situation, they stated that they could not be very patient. With this study, it was understood that Turkish people were impatient to wait

in the queue anywhere. All the Turkish students expressed their opinions in this direction. On the basis of the findings of this research, it can be said that Kyrgyz people are more dependent on traditions and customs than Turkish people. It was determined that Kyrgyz students performed their actions according to their family and social environments. Especially in respect of patience, Kyrgyz students expressed that they were affected by the opinions of the people around them, and therefore, they had to be patient and referred to the effect of the environment on Kyrgyz people. In most of the sources in the Kyrgyz literature (Анаркулов, 1993; Эшимбекова, 2014; Осмонова, 2015), they drew attention to this situation and explained that they are very dependent on Kyrgyz traditions and customs and they brought up their children on the basis of these traditions and customs. The opinions coincide with the statements obtained in the research, in which the Kyrgyz people correlate patience with traditions and customs.

Another noteworthy finding of the research was the high value given to the book by Kyrgyz students. Most of the students reported that the book was a very valuable thing and their parents suggested that they should not even put it down on the ground but respect it. It is believed that this respect shown to the book is not limited to Kyrgyzstan and this is experienced in all the societies of the USSR, because the most important propaganda tool of the USSR has been education and thus books. They aimed at continuing the system by making the people from every profession and age read ideological books (Zhuk, 2009; Шпаковская, 2009; Самсонов, 1957; Ноллендорфс, 2010). Therefore, it is assumed that the reading culture left from the USSR was the reason why students stated that making noise in the library was the situation which they had the highest level of impatience for and could not withstand.

In the research, the students were asked what they understood from the value of patience. Accordingly, the students said patience meant ability to wait, withstand and not getting angry. Besides, they stated that the value of patience was a virtue itself, but it carried different values in it according to the events encountered. For example, they expressed that the ability to wait was patience, but patience was not only the ability to wait. In this aspect, patience was understood as an evident virtue by itself. Although Peterson and Seligman (2004) consider patience as a mixture of endurance, open-mindedness and self-regulation virtues, the finding that the strength of 24 characters in the Schnitker and Emmons' (2007) Inventory of Action Resilience (Peterson & Seligman, 2004) constitutes only 26% of patience coincides with the results obtained.

According to another finding obtained in the research, all the students think that there is a limit for patience, and when this limit is violated, the overreaction of people does not refer to impatience. When the literature (Parry, 2009; Izgar & Eliüşük Bülbül, 2017) is reviewed, it is seen that there is a limit for patience and the impatience arising from exceeding this limit is a virtue.

It is thought that this study will contribute to values and character education, especially to the literature on patience. It is believed that revealing the results regarding whether the value of patience carries different characteristics in terms of culture and what the level of the university students' patience is will contribute to the development of future programs for increasing the patience levels of university students. For this purpose, the following recommendations can be made for the researchers based on the data obtained from the study:

- The relationship and differences between the patience levels of university students and different variables and their effects on each other can be researched.
- Programs can be developed to increase the patience levels of university students.
- Patience levels among the populations from different countries can be studied.

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Exploring the Grieving Process and Coping Strategies of Meranao Mothers over their Children's Death

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Abstract
Death of one's child is an unfathomable painful situation that a mother may feel. While literature reports different coping strategies across cultures, there has no research yet that explored the grieving process that Meranao mothers go through when they lost a child. Hence, this study explored the grieving process of the bereaved Meranao mothers from the Southern Philippines over the loss of their children and the strategies they used to cope with the feelings of grief. The study was conducted at different barangays located in Marawi City, Lanao del Sur, Philippines. The participants lost children with age range of 18-30 years old. It was discovered that these bereaved mothers ask several questions to themselves emerging after the death of their children. Nonetheless, it was found that after the mothers had worked through their grief brought by their child's death, they were able to restore their life and become stronger and resilient individuals. This paper concludes that bereaved mothers go through a tedious journey wherein the existence of pain, longing, sadness, guilt and anger were felt, but these emotions only strengthen them as mothers.

Keywords: Child's Death, Grief, Loss, Bereaved Mother, Grieving Process

1. Introduction

The death of a child is one of the worst and crucial moments in a parent's life. It is a life-changing event that shudders every parent (Doka, 2016). Between both the parents, the mother is the one greatly affected by these unwanted circumstances. Mothers have a higher percentage of acquiring negative effects than those of the father after the death of a child (Youngblut, et al., 2013). Death can trigger an intense feeling of disturbance, anxiety or stress to the mother. However, the effects are not only evident through the psychological aspect of the person but also manifested physiologically (Murphy, Shevlin & Elklit, 2014). Exhaustion, body pains, breathing problems and loss of appetite are just some of the physical changes that may occur due to grief (Curie, 2014).

Grief is an emotional and usual response or reaction often due to the death of a loved one (Rainer, 2013). It is a very subjective process wherein people grieve differently. Every individual has his or her own way of grieving;

some may grieve for a long period of time while some may grieve for only a couple of months or a year and some may grieve more intense than others (American Cancer Society, 2016).

There are several types of grief and it can be classified as (1) nonfinite grief or the grief for lost aspiration and plan; (2) ambiguous loss or the grief which is brought by uncertain reason for one's disappearance or death; (3) anticipatory grief or the grief that may occur even before the death or loss of someone; (4) normal grief which is accompanied by emotional or physical response that is normal for grieving individuals; (5) traumatic grief or the grief brought by the sudden, unexpected or tragic death of a person; and (6) complicated grief which is a persistent and more extreme kind of grief which limits one from doing certain activities (Michael, 2015). In this state of loss, the mother's ability to function is greatly reduced as symptoms of grief consume all areas of her life: cognitive dysfunction, physical symptoms, as well as the constant emotional turmoil. Although physical symptoms of grief such as insomnia, nausea, fatigue are common in many losses, in maternal grief such symptoms are more frequent, intense, and long lasting that may last several years, decreasing slowing in intensity over time. The loss of a child has been associated with higher morbidity and mortality (Tan, 2016).

Normal grief enables one to cope with a healthy manner, grief that deviates from normal behavior, grief that occurs prior to the actual loss like in an illness, or disease, grief after the death of a family member because of substance abuse, and one that hides because the loss is socially unacceptable, and grief is caused by natural or man-made circumstances (Tronetti, 2015). Yet people cope differently in countless ways that there is no certain pattern to grieving or they may spend different lengths of time in each stage. After the death of a child, some parents may feel nothing at all. It seems that numbness overpowers the immense emotions caused by the situation.

Death is a natural occurrence that no one can prevent or change. It causes pain and other emotional responses that might have varying degrees of impact on an individual (Ronel & Lebel, 2006). The reason why it is important to conduct a study that will explore the grieving process of mothers who lost their children is to find ways or interventions to help them to cope. Many similar studies have been undertaken in the western world; however, due to the variations in culture and environment that these mothers have, as well as the therapies available to them, it is necessary to conduct a separate study. Though western cultural traditions have affected various mourning theories, several concepts are inapplicable to other cultures, according to a study by Poxon (2013). Furthermore, different cultures prepare people to react differently to the death of a loved one, resulting in grieving that differs from culture to culture. It's also worth noting that psychiatrists and/or psychologists play a bigger role in Western countries than they do in the Philippines. In 2013, the Philippine Psychiatric Association reported that there were only 450 psychiatrists in the country. When it comes to mental health in the Philippines, Filipinos prefer to confide in friends rather than professional therapists if they have a problem, whether serious or not (Buan, 2013). This modest function of mental health practitioners in the Philippines could potentially play a role in how bereaved people deal with their grief.

This present study examines the grieving process and coping strategies of Meranao mothers who experienced grief and loss over the deaths of their children. Specifically, this study sought to answer the following research questions: 1) What is the grieving process the mother had been through? 2) What are the effects of the child's death on the mother? And 3) What is the coping mechanism and adjustment process of the mother?

2. Method

This study utilized a case study design. Due to the similarities of the respondents in a particular quantifier, the researchers considered the study as a multiple-case study. The study employed a qualitative research design to explore the mother's grief deeply over the child's death and other reactions related to it. The research method used in the study was a semi-structured in-depth interview.

In gathering the data relevant to the study, the researchers constructed semi-structured interview guide questions to explore the participants' grieving process, placing emphasis on the effects of the child's death and their coping

strategies. These interview questions were adapted from the study "Mean-making in bereaved parents: Process outcome" by Suzanne Lister (2005) checked by experts to ensure the construction and level of sensitivity of the questions asked.

The Respondents and Ethical Considerations

Purposive sampling technique was used in selecting the participants. Only four mothers whose deceased child was 18-30 years old agreed and gave consent to be part of the study. as the biography chosen was based on the age of the child when he/she died. For ethical considerations, they were all offered a choice of interview location but all opted for the privacy at their own homes. Respondents' right to autonomy and principle of respect is protected through informed consent. The participants were reminded that their participation is voluntary and they are given the right to withdraw from the study. The participants were informed about the nature of the study and the degree of potential harm.

After conducting the interviews, the researchers transcribed the recorded interview data and noted the non-verbal expressions and behaviors of the respondents. Thematic analysis was then applied to identify and organize the data set into themes that created the interpretation of the cause of the phenomena. Moreover, it helped the researchers find the similarities and differences of the respondents' individual perspectives.

3. Findings and Discussion

The analysis of the results, and the interpretation of the data gathered were based on the objectives of the study: grieving process, effects of loss, and coping strategies of the bereaved mothers due to the death of their young adult children. Presented below are the findings of the thematic analysis extracted from the transcribed interviews.

3.1 Grieving Process

This comprises the process of the bereaved mothers due to the death of their children, which is divided into four parts: (a) questioning self and others, (b) recollection of memories, (c) visualizations, and (d) acceptance of fate.

3.1.1 Questioning self and others

Question of "How can this possibly be" turns into "why did this happen to my child?" The inconceivable must have a rhyme and reason. Random chance explanations offer no comfort, but rather mocks that life that was so sacred. The why-me question easily transformed into self-pity. Feeling the intense pain of loss can almost be impossible to separate from feeling sympathy for oneself. Most of the respondents ask questions to themselves like- "Sometimes, I ask myself why is my fate turned out like this? I am not the type of mother who abuses or do bad stuff to my child. I do not even curse or utter bad words to them because I even spoiled them a lot?" People live in the world where the parents should outlive their children but when the children outlive their parents, the parents begin to question themselves. Most people look for someone to blame and this is redirected to other things, even to themselves. This is necessary for the grieving process, the more the bereaved persons feel angry towards other people, the more they will release the pain they are feeling and, in some ways, will gradually heal over time (Bulman, 2006).

3.1.2 Recollection of memories

One of the hardest things in losing a child is remembering the memories the deceased left for the living family especially when they see their personal belongings. Even the child was not there anymore, the mothers still cherish the possessions of their children. Accordingly, the things left are what reminded the living of the departed ones (Burke & Neimeyer, 2014). In the following section, two subthemes that informed how the mother recollected her memories were described. These are the characteristics of child and the unacceptable death of child.

Characteristics of child

From the memories and remembrances left by the deceased children, the mothers cannot help but feel remorse to the potential lost and the what-could-have-been of their children, especially when the child showed good attitude and values when he/she was alive. These maybes have been realized because they start acknowledging the absence of their child. For Mommy A, she reminisced her child by saying good characters about him like- "I can tell that he was my kindest child. I've got no worries from him; he really loves his siblings."

Unacceptable death

Like post-traumatic stress, the loss of a child is inconceivable. One is stunned, immobilized, catatonic with shock. The death of a life one has given with one's own body, brought into the world with one's own labor, renders the mother incapacitated. For months, the mother struggles to comprehend the unthinkable. This shock occurs regardless of whether the death was anticipated, for, until it happens, a mother cannot conceive the death of a child emotionally (Meisenhelder, 2021). A respondent spoke at length about what it had been like to witness their child's life with her death from the disease. She recollected some of her memories by stating, "You see, I always think of things like 'Maybe she could still be saved? Maybe she is still alive? Maybe, there is still life on her? It is like you cannot accept everything. It was so sudden because she was a healthy kid."

Many mothers, especially in the process of bereavement are having hard times accepting their child's death (Gerrish, 2018). It argues that the moment the child departed from this world is the same moment that the bereaved parents' dreams and hopes for their child also dies. They grieved for their deceased child's potentials and how it will not flourish anymore. The parents' dream of what they had for themselves also dies, the moments they will be missing and the memories they have shared feels like it is never enough.

3.1.3 Visualization

Some people believed that the living could see and talk to the departed, especially when it is a loved one. Talking to the deceased became quite common for some. One of the recurring sub themes from the data gathered presents bereaved mothers' visualizations of their children. This may be a way of reducing the pain of accepting the fact that their children are not physically around anymore.

Imagination

One respondent reported that for that year, she has no missed single moment that she cannot think of her deceased child. She always prays for her every time. She said "Sometimes, I ask the God 'why did you get this child from me too early?' Of course, she has been with me for 30 years and how can I forget about her."

Visualizing her deceased child is a way to comfort her whenever she feels lonely. It might also be an indirect way to change herself especially that she told the researchers that there is no second that she cannot think of her.

3.1.4 Acceptance and fate

The expected final stage of the grieving process of the bereaved is the acceptance that the deceased will no longer be here and one will be able to live through feelings of grief and pain. People know that one cannot run from death and many have believed that if it is the time, it will be. Many also believed that death is inevitable, one cannot stop nor avoid it, and one cannot do anything about it. Some believed that it is master plan of a Higher Being.

Higher being's plan

Most people are convinced in the spiritual belief that when someone died, he/she will go to heaven. One respondent believes in trusting with the God's process. As a part of accepting the loss, people tend to associate and incorporate

the death as something done by a supernatural force. In order to make sense of loss, people think that there is a purpose why the Higher Being redeemed their departed loved ones. All of the respondents have gone through this. One stated that, “Every time I pray, there is no missed chance that I cannot think of her. I always seek guidance from Allah and pray ‘Oh Allah, I will trust you my child’ I do not know, it is really hard to erase all the memories about her.”

Perception towards Death

In accepting the loss, Mommy M has formed a perception that death is a natural phenomenon. In the respondent’s case, she believes that all people will experience this kind of situation. She stated that, “We will all leave this world and what we will bring to the hereafter is our faith. Every time I pray, it is like all the hardship and burden are gone.”

Mothers’ perception that people disappear because they are forgetting, which in turn intensifies grief feelings including guilt, fear, self-doubt, anger, loneliness, and feeling abandoned. The convergence of guilt, fear, self-doubt, anger, loneliness, and feeling abandoned that are generated when once-supportive people disappear add considerably to parents’ suffering and impede their arduous journey towards healing (Denhup, 2014)

3.2. Effects of child’s death

This theme encompasses the effects of the death to the mother. It is divided into three categories namely: (a) social effects, (b) psychological effects and (c) physical effects.

3.2.1 Social Effects

A catastrophic loss triggers intense empathy right at that moment and shortly thereafter is forgotten by all except those traumatized by the loss. Social norms cue mothers to behave as if nothing happened. Often others feel helpless, inadequate, and afraid to raise the subject, thus, reinforcing the tragedy as a taboo topic of conversation. Mothers seek out those who they may be able to share openly, but still mindful of the toll constant grief expressions may take on a friendship. Mothers may fear losing even close friends by the constant need to express their distress and talk of their child. Thus, mothers take on a balancing act, juggling their own needs with the preservation of the relationship.

Familial Relationship

Most of the participants have changes in the perceptions of themselves because of their struggles with grief. In terms of adaptive changes, one mother explained how she had become less neurotic by her willingness to face her fears. In addition, she felt more honest and authentic in how she lived her life specially in the way she treated her family, “Ever since my child was gone, I started to give more importance to my family than anything else. I always take care of my grandchildren unconditionally. "Now that I am old, the important thing for me is I have taken care of them properly before I leave this world. However, it was also noted that this mother described how many of these adaptive changes in her self-perceptions had been overshadowed by complications in her grieving process.

3.2.3 Psychological Effects

The mother is best served by drawing close to others most affected by the loss. New bonds are possible with the others who loved her child, including the father and siblings. Families who can share their grief openly create most healthy atmosphere of positive coping and mutual support. The joint sense of loss allows for a more intense connection with those sharing that loss, bringing an element of healing into the bleak emptiness. For families, verbalizing the feelings, sharing comforts, and comforting each other must be blended with forgiveness and understanding as each person may be more irritable, self-absorbed, and thoughtless in the midst of grief. Studies

report that close family connections are associated with seven lower negative psychological outcomes of child loss.

Emotions brought because of the child's death

All human pain triggers an angry reaction. In grief, the anger may be aimed at God, the One who is supposed to prevent and protect such devastation, or at those who appeared to have caused the loss, as in an auto accident. The extensive degree of pain results in huge amounts of anger that are expressed diffusely:

When I reached the Doctor (Hospital), I said "Hey, save her for me, bring her to the ICU for me!' then they said, it is too late, she does not have any pulse already. Allahu Akbar (God is Great)… that feeling is a death itself for me. I really fainted."

A manifestation of grief, anger is a more culturally acceptable emotion than grief and easier to express. Anger is second-degree grief, the outer layer of protection to attempt to smother the intense, overwhelming, and intolerable sense of loss. Under the anger lies the pain (Gerrish, 2018). Once the pain is expressed, the anger may well dissipate for some period. As the grief heals in a healthy way over the years, the anger dissolves, no longer needed.

Reaction to losing a child

Mothers need reassurance that this devastating reaction is typical and expected, as well as comfort that they will heal with time. Losing a child is excruciatingly a painful experience that can literally make someone shout. Based on the statements made by the participants, it seems that shouting is their way of releasing the tension or feeling that they feel towards the death of their child. For Mommy S, she stated that she always thinks of her child not unless she will not be mentioned. Every time she prays, there is no moment that she can think about her deceased child. This coincides with an article released by True Stress Management (2016), stating that screaming helps individuals breathe out the stress that they feel inside them and could be made them feel relieved.

3.2.4 Physical Effects

Grieving mothers are affected vastly by the child's death that even the normal things they have been doing regularly are affected. One factor that is visibly identifiable during bereavement is one's physical change. According to Mommy B, she stated from the interview that, "I got old fast because of her. As you can see, I really look old."

In this state of loss, the mother's ability to function is greatly reduced as symptoms of grief consume all areas of her life: cognitive dysfunction, physical symptoms, as well as the constant emotional turmoil. Although physical symptoms of grief such as insomnia, nausea, fatigue are common in many losses, in maternal grief such symptoms are more frequent, intense, and long lasting that could last to several years, decreasing slowing in intensity over time. The loss of a child has been associated with higher morbidity and mortality (Bailey, 2014).

3.2.5 Range in happiness

Some mothers experience a range in their level of happiness. Happiness may be absent. When happiness is absent, a bereaved parent is burdened by a heavy weight. Most of the respondents explained what the absence of happiness is like for them. Mommy S stated that, "My children are letting me do various activities just to make me feel well. In fact, they will bring me tomorrow to Dahilayan. They are distracting me. However, despite all their efforts, I can still remember her."

3.3. Coping Mechanisms

This theme encompasses the coping mechanism and strategies utilized by the mothers who lost their child. Three themes have emerged under this objective, namely: (a) unintentional way of coping, (b) intentional way of coping and (c) child's death as a bittersweet experience

Unintentional way of coping

Some mothers described how their ability to cope with their child's death had improved once they stopped searching for answers as to why their child had died. Many mothers reached this point when they realized they would never find the answers they sought.

Finding hope from the living

The thought of living many years without their child is unbearable. The presence of a surviving child is the most powerful maternal incentive to go on living. One key factor to distract the bereaved from this situation is to find hope from the living. One respondent's way of finding hope is through taking care of her grandchildren and in increasing faith in God. She stated, "Now that I am old, if ever I left this world, then the important thing is I have taken care of them properly. Now that I have already retired from work, what I do is to take care of my grandchildren. In this stage of my life, praying and increasing my faith to God is enough for me."

Defense mechanism

One defense mechanism is rationalization, a defense mechanism where people make acceptable reasons in order to cover what they are really feeling. This subtheme emerged when compared to Sigmund Freud's defense mechanism wherein this surfaced because people protect themselves unconsciously from the anxiety they are feeling. This is evident with Mommy B wherein she compares her experiences with other people. During the interview she said, "My relatives always say, 'It is going to be alright, as you can see, she had replaced herself with her daughters,' even my cousin said to me that I should leave it to God because she also lost her only child due to dengue."

Losing someone is one of the greatest turning points in one's life. Bereaved may not want to accept and cope with the reality that their loved one is gone. But one should be able to let people back in his/her life again, to be able to realize that there are people who are waiting for him/her to face the truth that the loved one is gone physically but he/she will always be in his/her heart (Parabuac, Zarraga, Garcia and Tenorio, 2019).

3.3.1 Intentional way of coping

Solace

Solace encompasses the things that the bereaved mothers seek or do in order to find comfort or relief. Mommy S, for instance, do activities that her other children make her do just to distract her from grieving. She mentioned, "Right now, I and my children and grandchildren are living in the same house. They are doing their best to distract me. Because of them, I can forget my (deceased child) for a while."

This connection is what really gives solace to the mother. According to Humbeeck, et al. (2016), even the simple stuff like clothes the child wore are treasured by the bereaved mothers. According to the participants, through these things, they can still hold despite the child's absence and are able to feel the connection they had with their deceased child.

Belief in Higher Power

The respondents described how their beliefs about the world and life had permanently changed because of their child's death. Most of these changes occurred in the domains of spiritual or religious views and in their assumptions about the world. These statements from the participants imply their belief to the Higher Power's control over the things they are experiencing. Denhup (2014) pronounced that faith to God gives the parents hope. It is through faith that these parents are able to withstand the grief they have due to their loss. Others cling to their faith and by clinging to God, they feel less alone and think that God is with them at this critical situation. One respondent mentioned that, "At this stage of my life, praying and increasing my faith to God is enough for me. You see, we will all leave this world and what we will bring in the hereafter is our faith. Every time I pray, it is like all the hardship and burden eventually go off."

The only answers to existential questions are spiritual. Mothers may turn to their own faith beliefs and may find the most help with spiritual counselors and resources. Else, they may reject long held beliefs and begin a search for new beliefs that they can embrace. Either way, the journey for meaning in suffering often accompanies such loss.

3.3.2 Child's death as a bittersweet of experience

Mommy A described her current life positively. She stated: "Alhamdulillah (Thank God) because my children never abandoned me ever since my child died. I feel much better because of them. This is where we put extreme patience."

It can be implied that given the experience she had, she was able to restore her life and progress to a stronger, more positive individual. Since this mother was able to cope with her child's death, she thinks that she will be able to surpass the challenges that are about to come. It is the mothers' ability to survive and progress from the situation that made them feel that way.

4. Conclusions and Recommendations

From the patterns of grievances and coping mechanisms presented in the results and discussions, it can be said that a mother's grief is a phenomenon that strengthens her being. After the child's death, the mothers go through a tedious journey wherein the existence of pain, longing, sadness, guilt and anger were felt. Throughout the process of grieving, it is depicted that the grief never really leaves and that there are times that it is intensified even more, especially if the memories of the child were recalled by the mother. It was discovered that even though there are a lot of theories about one's grieving process and stages or tasks to be done, there is no linear pattern that needs to be followed in grieving because grieving varies from people.

Most of the participants experienced a normal grief which is accompanied by emotional or physical responses that are normal for grieving individuals, except for Mommy S who experienced a traumatic grief in which the disappearance of her child was very unexpected for her. Results also show that the mothers really grieve and regret that their adult child had missed. The death of a child leaves an indelible mark on the mother's being. It is a bittersweet experience that has effects, which are beyond what one can handle. The researchers found that this occurrence negatively affects the mother's physical, psychological and social state. However, posttraumatic growth such as betterment of socialization and attainment of resiliency and happiness is a positive effect of the death. Processing the grief and being with people who had the same experience helped the mothers the most in coping. Another factor that helped them cope is their belief in the Higher Being. These religious beliefs are assumed a medium from which the mothers can derive meaning. It was also indicated that meaning making also aids the coping of mothers wherein they give sense and meaning to the traumatic event that had happened. It was also found that not anything in specific, like a specific thing, individual or action, is what brings comfort and solace

to the mother. Instead, it is the feeling of "still being connected with the child" that gives them a sense of relief whenever they feel the grief brought by the child's death.

In accordance with the findings of this study, the researchers suggest the following recommendations: The study's limitation is that it is too broad to fully scrutinize mother's grief. Therefore, future researchers are recommended to have a further study on the existing theories about grieving process. It is also suggested to find respondents that have not gone through any interventions yet. To the families, it is difficult to lose someone. A family might eventually learn to live through the pain. However, it is important for the family members to support each other through the process of grieving.

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Examining the Relationship Between Pre-Service Teachers' Behaviors Towards Environmental Issues and Their Awareness

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Abstract
This research was designed in the relational screening model to examine the relationship between the awareness levels of pre-service teachers towards environmental issues and their behaviors towards environmental issues. 5 multiple-choice questions to determine their descriptive features, the "Awareness Scale for Environmental Issues" developed by Guven (2011) to measure their awareness of environmental issues, and the "Behavior Scale for Environmental Issues" to measure their behaviors on this were applied by the researcher to 129 pre-service teachers studying at Gazi Osmanpasa University, Faculty of Education, Department of Primary School Teaching in the 2019-2020 academic year. Numbers, percentage, mean, standard deviation were used as descriptive statistical methods in the evaluation of the data. T-test was used for comparison of quantitative continuous data between two independent groups and a one-way Anova test was used for comparison of quantitative continuous data between more than two independent groups. Scheffé's test was used after the Anova test as a complementary post-hoc analysis to determine the differences. The Pearson correlation and regression analysis were applied between the continuous variables of the study. As a result of the research, it was determined that the awareness of the pre-service primary school teachers about environmental issues was low and their behavior towards environmental issues was moderate. A low-level significant relationship was found between pre-service primary school teachers' awareness of environmental issues and their behaviors. As a result, it was concluded that as the awareness levels of primary school teachers towards environmental issues increased, their behaviors towards environmental issues increased positively.

Keywords: Environmental Issues, Awareness of Environmental Issues, Environmental Issues-Oriented Behavior, Pre-Service Primary School Teacher

1. Introduction

To survive, humans base their lives on very different internal and external balances that are interdependent and closely related. Perhaps the most important of these balances is the balance between humans and the environment that has been going on since the existence of human beings. Since the earliest known history of humankind, the environment and humans have acted as inseparable parts of a continuous whole (Guven & Aydogdu, 2012).

The environment is defined as living and non-living things that coexist and mutually affect each other (Yesilyurt, Gul & Demir, 2013; Dagdemir, 2015). It is possible to divide the environment into two biotic and abiotic environments. The living environment includes plants, animals, and microorganisms (living natural resources), the abiotic environment includes air, water, and soil systems, mines, and underground resources (natural resources) that the living natural environment needs uninterruptedly (Keles, Hamamci & Coban, 2015).

People have to use other living things and their abiotic nature to survive. The relations between humans and the environment have always continued in harmony from the creation of human beings until the industrial revolution, even if there are differences. With the Industrial Revolution, global environmental issues have become threatening to nature and the world. The way of existence, which is valid for all living species, has left indelible marks on the earth due to excessive use when it comes to human societies, has dominated all other species of nature, and has created results that reach the level of environmental destruction. Humanity has accelerated the process to disrupt the natural balance by intervening in nature. In this progressive process, the ecological balance has begun to be destroyed and deteriorated by human beings and pose a danger to the life of living things (Dogan & Purutcioglu, 2017; Celik & Dogru, 2019).

After the 17th century, the ambition of human beings to dominate nature and consume nature's resources unlimitedly increased more rapidly. In the 18th century, with the development of technology and industry, many more issues began to arise, primarily in Western European countries and later in the world (Gormez, 2010). Being careless and insensitive in technological advances and industrialization has disrupted the ecological balances in the world (Selim et al., 2011). As a result of the advancing age of the world, the unpredictable increase in the consumption rate, the limited resources consumed and the decrease in natural resources, the issue of regaining the limited resources needed is becoming a vitally important problem of the current age. The environment is a whole with the living and non-living things that it contains. Each part of the whole affects the others. Human is the one who consciously or unconsciously damages the environment in which he lives (Kadioglu Ates & İsik Oner, 2020). Environmental issues are defined as the negative effects of the artificial environment, created by humans, on the natural environment (Erturk, 2011). For centuries, human beings have seen nature as an unlimited resource, and it has been brutally destroyed, polluted causing environmental issues. (Sipahi, 2010). The environmental issues that threaten the future of human beings, who constantly struggle with the environment and change the environment, occur as a result of this struggle and changes (Secgin, Yalvac & Cetin 2010; Ercengiz, Kececi Kurt & Polat, 2014). In general, environmental issues such as the depletion of the ozone layer, the melting of glaciers, climate change, pollution of drinking water, air pollution, decrease in soil fertility, global warming, and deforestation affect our lives negatively (Cocadar, Turkoglu, & Gezer, 2009; Kadioglu Ates & Isik Oner, 2020).

On the other hand, humankind has wasted by producing, selling, and throwing away products that it does not even need, and could not use natural resources effectively (Barlas, 2013). As a result of the increase in environmental pollution day by day, the deterioration of the natural balance has begun to harm human health, and as a result, environmental pollution has gained an international dimension. Since this problem also concerns future generations, raising environmentally sensitive people has become a necessity (Sahin et al., 2004; Demirbas & Pektas, 2009). Today, consumption of resources, pollution of the environment in all respects, has exceeded nature’s limits of self-cleaning and renewal. It is difficult to say that successful steps have been taken to solve environmental issues and that the problem has been completely resolved (Kislalioglu & Berkes, 2012).

Of course, the most effective and permanent solution to eliminate and combat environmental issues is to raise environmentally conscious societies. Environmental awareness can be explained as the attitudes, thoughts, and behaviors that societies and individuals who make up societies should have to develop a balanced relationship with their environment (Guven & Aydogdu, 2012). Effective environmental education should be given to individuals to raise environmentally conscious societies. The history of environmental education is quite new, and it has come to the fore as a result of increasing environmental issues, especially after the 1970s. Informing all segments of the society against increasing environmental issues, raising awareness, and using nature without destroying it can be achieved with an effective education process (Ada, Baysal & Erkan, 2017). Environmental education plays an important role in solving environmental issues. Effective environmental education increases

the person's knowledge of the subject, and as a result, enables the person to develop a positive attitude towards the environment. It is expected that these attitudes will lead to actions that will positively affect the environment (Sahin & Dogu, 2018). Environmental manners are positive or negative attitudes and thoughts that people show towards fears, anger, restlessness, value judgments caused by environmental issues, and environmentally beneficial behaviors such as readiness for the solution of environmental issues (Erten, 2005). Environmental education aims to develop individuals' environmental ethics, environmental awareness, environmental attitudes, and behaviors in a positive way. Therefore, changing environmental attitudes and information about the environment are among the primary objectives of environmental education (Atasoy & Erturk, 2008). Environmental education is an integrated process that examines the relationship between the environment and nature in which we live in many subjects, especially in the urban and rural planning of the environment of human beings, technological protection, correct use and economic consumption of resources, the balance of the population, and population development (Nagel, 2005). Environmental education is an education process that aims to equip people with information that they can analyze and evaluate the results of all kinds of actions, situations, and behaviors in their technical, social, and natural environments (Islam, 2000).

The main cause of environmental issues is the negative behaviors of individuals. To overcome these issues, everyone should be aware of environmental issues and behave for the solution of these issues. Individuals, knowing about the environment and environmental issues, display a positive attitude towards the environment and strive to take responsibility (Ozsoy, Ozsoy & Kuruyer, 2011). One of the most effective ways to reduce environmental issues and bring solutions to existing issues is to raise individuals who have high environmental awareness and sensitivity, have the necessary environmental knowledge, have a positive environmental attitude, and can actively participate in the solution of environmental issues. Individuals' perception and interpretation of events and phenomena occurring in their environment are effective in the development of environmental awareness and attitude. By supporting individuals to interpret the effects of these events and phenomena on the environment correctly, to perceive environmental issues and the causes of environmental issues correctly, to realize the measures that can be taken against the formation of environmental issues, and to take responsibility for the solution of issues, it can be facilitated to achieve the purpose of environmental education (Yucel & Ozkan, 2018).

Environmental awareness and environmental education are the most important concepts that human beings have at the point of solving environmental issues. The individuals, forming the society, are in an interaction network. Individuals who have not received environmental education and do not have any sense of responsibility in environmental issues cannot be expected to benefit each other, the environment, and the society in which they live. However, people with environmental awareness can provide positive effects and benefits to other members of the society with whom they interact and to the whole society over time. Teachers have important responsibilities in sharing their knowledge and experiences about environmental education with their students and in raising environmental awareness.

Primary school teachers, who have an important role in education, are expected to be environmentally aware and environmentally conscious individuals. Teachers with this awareness can raise individuals who can exhibit positive behaviors to the environment. For increasing the effectiveness of environmental education, it is important to carry out studies especially from the pre-school and primary school. It is important that primary school teachers have sufficient sensitivity and a positive attitude towards the environment in the pre-service period. It is thought that it is important for environmental education that there is a positive relationship between preservice primary school teachers' awareness of environmental issues and their behaviors to environmental issues. It is important that pre-service teachers have the awareness to set an example for their students and their environment when they become teachers. Particularly, the environmental education to be given in the primary education period and the behavior of the teacher, who is a role model, is very important in terms of the development of students' environmental awareness. It has critical importance for children to acquire positive attitudes and behaviors towards the environment and to form the basis of their future life. Considering the situation in environmental issues in Turkey, the value that should be given to environmental education and the importance of studies on this issue emerge. When evaluated from this point of view, the importance of our study on the awareness of teachers, who

have an important role in shaping new generations, towards environmental issues and their behaviors in this regard, increases even more.

Based on this information, in this study, answers to the following questions were sought to examine the effects of pre-service primary school teachers' awareness of environmental issues on their behaviors towards environmental issues;

- What is the level of awareness of pre-service teachers about environmental issues?
- What is the level of pre-service teachers' behaviors to environmental issues?
- Is there a significant relationship between pre-service teachers' awareness and behaviors towards environmental issues?
- Do pre-service teachers' awareness of environmental issues significantly affect their behavior towards environmental issues?
- Do pre-service teachers' awareness and behavior towards environmental issues differ according to their descriptive characteristics*?*

2. Method

2.1. Research Model

This research was designed in the relational screening model to examine the relationship between the awareness levels of pre-service teachers towards environmental issues and their behaviors towards environmental issues. Relational screening model; "is defined as a research model that aims to determine the existence or degree of covariance between two or more variables (Karasar, 2012).

2.2 Study Group

The universe of the research consisted of 4th-grade students studying at Gazi Osmanpasa University, Faculty of Education, Department of Primary Education in the 2019-2020 academic year. In the research, sampling was not used, and the whole sample group was tried to be reached. In this context, 129 primary school pre-service teachers, who received education in the 4th-grade, voluntarily participated in the research.

2.3 Data Collection Tools

The research data was collected by questionnaire method. In the first part of the three-part survey, there are 5 multiple-choice questions to determine the descriptive features such as the participants' age, gender, etc. In the second part of the questionnaire, there is the "Awareness Scale for Environmental Issues" developed by Guven (2011). There are 44 propositions in the 3-point Likert type in the scale. The scale is selected as agree, neutral, and disagree. It is marked as 0 to disagree, 1 to neutral and 2 to agree. In this context, a minimum of 0 points; maximum of 88 points can be obtained from the "Awareness Scale for Environmental Issues." An increase in the score, obtained from the scale, indicates an increased awareness of environmental issues. In the study, the reliability analysis for the scale was repeated, and the reliability value of the "Awareness Scale for Environmental Issues" was found to be 0.809.

In the third part of the questionnaire, there is the "Behavior Scale for Environmental Issues" developed by Guven (2011), consisting of 40 3-point Likert type offerings. The options and scoring of the scale were done in the same way as the Awareness Scale for Environmental Issues. In this direction, they can get a minimum of 0 points; maximum of 80 points from the "Behavior Scale for Environmental Issues." An increase in the score, obtained from the scale, indicates an increased awareness of environmental issues. In the study, the reliability analysis for the scale was repeated, and the reliability value of the "Awareness Scale for Environmental Issues" was found to be 0,822.

2.4 Analysis of Data

The data, obtained in the research, were analyzed using SPSS (Statistical Package for Social Sciences) for Windows 22.0 package software. Numbers, percentage, mean, standard deviation were used as descriptive statistical methods in the evaluation of the data. T-test was used for comparison of quantitative continuous data between two independent groups and a one-way Anova test was used for comparison of quantitative continuous data between more than two independent groups. Scheffé's test was used after the Anova test as a complementary post-hoc analysis to determine the differences. The Pearson correlation and regression analysis were applied between the continuous variables of the study.

3. Results

In this section, the findings, obtained as a result of the analysis of the data collected through the scales of the pre-service teachers participating in the research, are included to solve the research problem. Explanations and interpretations were made based on the findings.

Table 1: Distribution of pre-service teachers' descriptive characteristics.

	Groups	**Frequency (n)**	**Percentage (%)**
Gender	Female	95	73.6
	Male	34	26.4
	Total	129	100.0
Mother's Educational Status	Illiterate	15	11.6
	Primary School	76	58.9
	Secondary School	16	12.4
	High school and above	22	17.1
	Total	129	100.0
Father's Educational Status	Primary school and below	47	36.4
	Secondary School	26	20.2
	High School	28	21.7
	University	28	21.7
	Total	129	100.0
Family's Monthly Income	1000 and Below	18	14.0
	1001-2000	46	35.7
	2001-3000	45	34.9
	3001 and Above	20	15.5
	Total	129	100.0
Family's Place of Residence	Town	24	18.6
	District	32	24.8
	City Center	73	56.6
	Total	129	100.0

According to gender, 95 (73.6%) of the pre-service teachers are female and 34 (26.4%) are male. Pre-service teachers range as 15 (11.6%) illiterate, 76 (58.9%) primary school, 16 (12.4%) secondary school, 22 (17.1%) high school and above according to the mother's educational status. According to father's educational status; 47 (36.4%) primary school or below, 26 (20.2%) secondary school, 28 (21.7%) high school, 28 (21.7%) university. According to the monthly income of the family, it range as 18 (14.0%) 1000 and below, 46 (35.7%) 1001-2000, 45 (34.9%) 2001-3000, 20 (15.5%) 3001 and above. According to the place of residence of the family, pre-service teachers range as 24 (18.6%) towns, 32 (24.8%) districts, and 73 (56.6%) urban centers.

Table 2: Awareness of environmental issues and the average of behavior towards environmental issues

	N	Avg.	Sd	Min.	Max.	
Awareness of Environmental Issues	129	30.326	6.454	18	57	0-88
Behaviors Towards Environmental Issues	129	48.217	8.666	24	71	0-80

The average score of awareness level for environmental issues is 30.326. It is seen that the level of awareness of pre-service teachers about environmental issues is at a low level. The average score for the level of behaviors towards environmental issues is 48.217. It is seen that the level of behavior of pre-service teachers towards environmental issues is at a moderate level.

Table 3: The correlation analysis between the awareness of environmental issues and behaviors towards environmental issues

		Awareness of Environmental Issues
Behaviors Towards Environmental Issues	r	0.217*
	p	0.013

*<0.05; **0.01

There is a weak, positive and significant relationship between behaviors towards environmental issues and awareness of environmental issues (r=0.217; p=0.013<0.05).

Table 4: The correlation analysis between awareness of environmental issues and behaviors towards environmental issues

Dependent Variable	Independent Variable	ß	t	p	F	Model (p)	R^2	
Behaviors Towards Environmental Issues	Fixed		39.374	10.922	0.000	6.287	0.013	0.040
	Awareness of Environmental Issues		0.292	2.507	0.013			

The regression analysis performed to determine the cause and effect relationship between awareness of environmental issues and behavior towards environmental issues was found to be statistically significant (F=6.287; p=0.013<0.05). It was observed that the relationship (explanatory power) with awareness variables about environmental issues as a determinant of the level of behavior towards environmental issues was weak (R2=0.040). The awareness of pre-service teachers to environmental issues increases their behavior levels towards environmental issues positively (ß=0.292).

Table 5: Comparison of awareness and behavior to environmental issues according to descriptive features

Demographic Features	n	Awareness of Environmental Issues	Behaviors Towards Environmental Issues
Gender		Avg. ±SD	Avg. ±SD
Female	95	30.126±6.090	48.168±7.380
Male	34	30.882±7.450	48.353±11.667
t=		-0.585	-0.106
p=		0.560	0.932
Mother's Educational Status		Avg. ±SD	Avg. ±SD
Illiterate	15	31.800±6.816	44.467±9.372
Primary School	76	30.316±5.641	47.184±7.890
Secondary School	16	28.875±6.032	51.625±7.420

High school and above	22	30.409±8.953	51.864±10.039
F=		0.526	3.631
p=		0.665	0.015
PostHoc=			3>1, 4>1, 4>2 (p<0.05)
Father's Educational Status		Avg. ±SD	Avg. ±SD
Primary school and below	47	30.106±5.906	45.957±7.304
Secondary School	26	31.154±5.576	45.769±9.043
High School	28	30.179±5.729	51.679±8.615
University	28	30.071±8.696	50.821±9.002
F=		0.177	4.416
p=		0.912	0.005
PostHoc=			3>1, 4>1, 3>2, 4>2 (p<0.05)
Family's Monthly Income		Avg. ±SD	Avg. ±SD
1000 and Below	18	30.833±6.119	47.000±11.098
1001-2000	46	29.587±5.184	48.326±7.680
2001-3000	45	31.733±6.949	48.400±8.566
3001 and Above	20	28.400±7.843	48.650±9.184
F=		1.565	0.141
p=		0.201	0.935
Family's Place of Residence		Avg. ±SD	Avg. ±SD
Town	24	30.958±7.000	50.125±10.001
District	32	29.906±4.720	47.938±9.062
City Centre	73	30.301±6.972	47.712±8.042
F=		0.181	0.719
p=		0.835	0.489

The awareness of pre-service teachers about environmental issues, their behavior scores towards environmental issues do not differ significantly according to gender, monthly income of the family, and the place where the family lives (p>0.05). Behavior scores of pre-service teachers towards environmental issues differ significantly according to the mother's educational status (F=3.631; p=0.015<0.05). The awareness scores of pre-service teachers for environmental issues do not differ significantly according to the mother's educational status (p>0.05). The behavior scores of pre-service teachers towards environmental issues differ significantly according to the father's educational status variable (F=4.416; p=0.005<0.05). The awareness scores of pre-service teachers for environmental issues do not differ significantly according to the father's educational status variable (p>0.05).

4. Discussion

It was determined that the pre-service primary school teachers' awareness of environmental issues was low. It was determined that the environmental behaviors of the pre-service teachers were at a moderate level. It is an indication that the awareness and behavior levels of the pre-service teachers in our study group are below the desired and expected level to understand environmental issues and to carry out studies to solve these issues. Looking at the studies in the literature, the research consistent with the results, there are findings that awareness and behaviors towards environmental issues are low (Tuncer et al., 2005; Oguz, Cakci, & Kavas, 2010; Kahraman et al.; 2008; Shobeiri, Omidvar & Prahallada, 2007; Aminrad, Zakaria & Hadi, 2011; Kaushal & Singhal, 2011), it was also

found that awareness and behaviors towards environmental issues are at a high level (Gokceli, Bilmez & Tarkocin, 2015; Altiparmak, 2012; Unalan, 2018; Irmak- Kazazoglu, 2020).

While a significant low-level relationship was determined between the awareness of pre-service teachers about environmental issues and their behaviors towards the environment, it was concluded that their awareness of environmental issues affected their behavior towards environmental issues, albeit at a low level. When the relationship between pre-service teachers' environmental awareness and their behaviors towards environmental issues is examined, it has been determined that there is a positive and moderate relationship between their environmental awareness levels and their behaviors towards environmental issues. This situation can be considered as an indication that with the increase in environmental awareness, their behavior towards environmental issues will also increase.

In a study conducted by Sahin & Dogu (2018) on the examination of pre-service pre-school teachers' attitudes and behaviors towards environmental issues, they concluded that there is a positive and significant relationship between pre-service pre-school teachers' attitude scores towards environmental issues and their behavior scores towards environmental issues. In the research conducted by Irmak Kazazoglu (2018) on undergraduate students studying at Hacettepe University Beytepe Campus, it was determined that there is a positive relationship between students' environmental awareness and their behaviors towards environmental issues. In the study conducted by Gulay (2011), it was stated that the increase in environmental knowledge and environmental awareness and environmental behavior are related to each other. These results support the results of our study.

It has been concluded that the awareness and behavior levels of pre-service teachers towards environmental issues do not differ according to their gender. In the literature, some results coincide with our research findings (Chu et al., 2007; Yurt et al., 2010; Guven & Aydogdu, 2011; Unalan, 2018), and there are also findings that the awareness and behaviors of the participants towards environmental issues differ according to their gender (Tuncer, Ertepinar, Tekkaya & Sungur, 2005; Annex et al., 2009; Irmak Kazazoglu, 2020).

It has been concluded that the awareness and behavior levels of pre-service teachers towards environmental issues do not differ according to the monthly income level of their families. In the literature, some results coincide with our research findings (Atasoy & Erturk, 2008; Kisoglu, 2009; Altinoz, 2010; Timur, 2011; Unalan, 2018), but there are also findings that the awareness and behaviors of the participants towards environmental issues differ according to their income levels. These results do not lead to a generalization that the income level of the family affects awareness and behavior towards environmental issues.

It has been concluded that the awareness and behavior levels of pre-service teachers towards environmental issues do not differ according to their gender. In the literature, there are results that coincide with our research findings (Kisoglu, 2009; Altınoz, 2010; Karatekin, 2011; Timur, 2011), and there are also findings that the awareness and behaviors of the participants' families towards environmental issues differ according to the place of residence (Kose, 2010; Unalan, 2018; Irmak Kazazoglu, 2020). These different results show that different variables may affect awareness and behaviors towards environmental issues.

It was determined that the awareness levels of the pre-service teachers towards environmental issues did not differ according to the education levels of their parents, but the levels of behavior towards environmental issues differed according to the education levels of the parents. It has been concluded that the behaviors of those whose mothers are at secondary school or higher education level and whose fathers are at high school or higher education level are more positive towards environmental issues than those whose parents have lower education levels. When we look at the studies in the literature, there are findings that environmental behaviors do not differ according to the education level of the parents (Ocal, 2013; Altiparmak, 2012), while there are also findings that differ according to the education level of the father and cannot differ according to the education level of the mother (Irmak-Kazazoglu, 2020). On the other hand, as the education level of the parents increases, which is in line with our research results, the results of the research reveal that more positive behaviors towards the environment occur in children (Chu et al., 2007; Ocal; 2013; Unalan, 2018). Based on these results, it can be said that environmental

awareness and behaviors of parents, rather than their educational status, are more effective in their children's awareness and behavior towards the environment.

One of the biggest issues of the century we live in is environmental issues that affect all countries of the world directly or indirectly. To reveal what these issues are, their characteristics, causes, and dimensions, each environmental value should be examined separately and, in a way, a breakdown of them should be made (Keles & Hamamci, 2002). Because the solution of a problem is only possible by defining it fully and knowing the causes of it. From this point of view, it is considered as an important problem that primary school pre-service teachers have low awareness of environmental issues and moderate behaviors. The environmental awareness of a professional group that should be a role model and shapes society is an important issue that concerns the whole world. Considering the function of education in solving environmental issues, providing information, changing attitudes and behaviors, education is in an effective position in environmental issues. Teachers, who are the most critical part of education, are at a key point in environmental education. In the education process, gaining the expected attitude towards the environment will be possible with the help of competent and sensitive educators. Although many studies on the perception of the environment in Turkey describe students' attitudes towards the environment as positive, these approaches are relative. The country's sensitivity to this issue within the national education policies concerns both the country and the future of our world. Although it is possible to benefit from education as a process of gaining knowledge, skills, and attitudes in the cognitive, affective, and psychomotor fields in the individual, and as a tool to change individuals in the solution of environmental issues, this situation depends on the quality of the education to be given. One of the main functions of education in society is to transfer scientific and cultural knowledge to new generations, and the other is to change and develop the natural and social environment.

As a result of the research, it was concluded that pre-service primary school teachers have low-level awareness of environmental issues and moderate behaviors. It has been determined that there is a significant low-level relationship between awareness and behavior towards environmental issues, and as the awareness levels towards environmental issues increase, their behaviors towards environmental issues increase positively.

When the awareness levels for environmental issues are examined in terms of descriptive characteristics of pre-service teachers; it was determined that gender, education level of parents, monthly income of the family, and the place where the family lived did not cause a significant difference. When the behaviors of pre-service teachers towards environmental issues are examined according to their descriptive characteristics; it has been determined that there is no difference according to the gender, monthly income of the families, and the place of residence of the families but there are differences in their behaviors towards environmental issues according to the education level of the parents. It was concluded that as the parents' education level increased, their behaviors towards environmental issues increased positively.

4.1. Limitation of the Study

This research is limited to the opinions of 129 4th grade students studying at Gazi Osmanpasa University, Department of Primary Education. There are some limitations in generalizing the findings of our study to all primary school pre-service teachers and other countries. To generalize the results of the research, studies can be carried out on a larger sample.

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Why Acceleration is a Controversial Debate Among Educators?

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Abstract
The concept of "acceleration" continues to pay subject to a number of controversial debates in education. Much of the controversy around the concept can be associated with the beliefs and attitudes of educators, which have little or no grounds in research (Vialle, Ashton, Carlon, & Rankin, 2001). While acceleration takes on many forms, educators often correlate the concept with radical acceleration or multiple grade skipping. Teachers oppose acceleration because they believe that students' social and emotional needs come before their academic ones (Vialle, Ashton, Carlon, & Rankin, 2001). On the other hand, research on acceleration consistently indicates positive academic attainments for those who are accelerated (Assouline, Colangelo, VanTassel-Baska & Lupkowski-Shoplik, 2015; Benbow, 1992; Gross, 1992; Kulik & Kulik, 1991, 1992; Rogers, 2015; Swiatek, 1993). This paper aims to examine the reasons for the continuous gap between the effectiveness of research on acceleration and educators' attitudes toward it; thus, I will be analyzing the factors that are believed to influence practitioners' resistance toward using acceleration as an intervention strategy with gifted and talented students.

Keywords: Acceleration, Educators, Gifted Education, Gifted Students

1. Introduction

Steering in the complex educational arenas with ongoing transitions and shifts in educational policies is challenging for the gifted students and educators. As a low-cost and effective intervention strategy, acceleration provides opportunities to challenge and engage gifted students in their learning process. Existing research has examined types of acceleration practices and related issues. Many of the acceleration practices are reported for their effectiveness and cost-efficiency (Southern & Jones, 2015).

A Nation Empowered (2015) arose as a ten-year follow-up document to *A Nation Deceived* (2004), which combined current research, policy and practice regarding acceleration. Behind the conception of *A Nation Empowered,* there is an assertion to provide stakeholders (i.e., educators, school board members, and legislators) the evidence about the effectiveness of academic acceleration as a valid means of intervention for highly talented students. While *A Nation Deceived* was published in 2004, the impact of the federal authorization of the Elementary and Secondary Student Education Act (named No Child Left Behind) was not identified. While *A Nation Deceived* (2004) paved the way for the acceptance of academic acceleration, recently emerged research has provided foundation to *A Nation Empowered* (Rogers, 2015).

Despite decades of advocacy, gifted learners are being overlooked. The Thomas B. Fordham Institute published *High-Achieving Students in the Era of NCLB* in 2008, which revealed that the academic achievements of gifted students suffered over the course of the prior decade (Assouline, Colangelo, VanTassel-Baska & Lupkowski-Shoplik, 2015). Contrary to considerable research, which has shown that acceleration is an effective intervention strategy influencing gifted students both academically and emotionally, the concept remains controversial.

Various meta-analyses indicate that as an intervention strategy academic acceleration produces observable academic progresses regardless of its type. The social-emotional gains of academic acceleration appear to range around small-to-moderate level for gifted students. The social and emotional effects are not as strong as the cognitive effects. Results of acceleration on psychological adjustment such as one's feelings about self are positive but small (Cross, Andersen, & Mammadov, 2015). Another study examined twenty types of acceleration practices, with the results revealing only few issues due to poor planning (Southern & Jones, 2015). Grade-based acceleration is cost efficient and has social benefits that allow gifted students to complete their education and enter the work force earlier (Assouline, Colangelo, VanTassel-Baska & Lupkowski-Shoplik, 2015). In one study, researchers noted that a sample of students who had participated in whole-grade acceleration were not different in their perceived interpersonal competence (including interacting with others and their ability to form friendships) when compared to a control group of students. Findings indicated that the academically gifted students had higher academic self-concepts, which may have positively influenced their overall self-concepts than their peers (Lee, Olszewski-Kubilius, & Thomson, 2012).

A Nation Deceived (Colangelo, Assouline, & Gross, 2004) analyzed 50 years of gifted education research, disproving a number of myths about acceleration. The conclusions of *A Nation Deceived* include the idea that acceleration is a matter of equity, as all students have the right to learn, positing acceleration a successful and inexpensive intervention strategy. The work further proposes that accelerated students do well in the academic and social-emotional domains. While evidence from solid-based research has continuously and persistently proved that acceleration works, it is reasonable to ask why there is continuous resistance from educators toward the idea. Colangelo et al. listed four factors that are believed to contribute to this resistance: a) personal beliefs contradict with the research on the efficacy of acceleration; b) teachers are unaware of the research; c) educators do not receive training in the Colleges of Education; and d) there are concerns about the social-emotional development of accelerated gifted students more broadly.

1.1. Role of Beliefs and Misconceptions

Consistent and vigorous findings indicate that acceleration has positive academic and social effects (Colangelo, Assouline, & Gross, 2004). The acceleration of students is well-known to be an effective intervention technique as reported by numerous studies including: Benbow (1992); Brody & Benbow (1987); Clark (1992); Kulik & Kulik (1990, 1991, and 1992); Gross (1992); Proctor, Black & Feldhusen (1986); Van Tassel-Baska (1986); and Swiatek (1993). On the other hand, educators' beliefs and misconceptions toward acceleration influence their attitudes. While gifted children repeatedly report no harm from acceleration, educators do not seem to favor acceleration as a method of intervention in schools (Southern, Jones, & Fiscus, 1989). Personal experience with acceleration surfaced as a significant influence that shaped attitudes and beliefs toward the practice in Southern et al.'s study. It is believed that lack of training, knowledge, awareness, confidence, myths and anti-elitist beliefs about gifted children and gifted education is related to the negative teacher attitudes (Collins, 2001). Collins listed some of the misconceptions and stereotypes that affect attitudes toward gifted students which include: a) *tall poppies* need to be cut down to size; b) special curricular arrangement will lead to feelings of superiority and egocentric behaviors; c) gifted children could succeed without help; d) gifted children cause trouble; and e) they should be with their chronological peers. Whole grade acceleration and early entry seem to be the most controversial types of acceleration practices; however the concept takes many forms such as:

> Early Admission to Kindergarten, 2) Early Admission to First Grade, 3) Grade-Skipping, 4) Continuous Progress, 5) Self-Paced Instruction, 6) Subject-Matter Acceleration/Partial Acceleration, 7) Combined Classes, 8) Curriculum Compacting, 9) Telescoping Curriculum, 10) Mentoring, 11) Extracurricular

> Programs, 12) Correspondence Courses, 13) Early Graduation, 14) Concurrent/Dual Enrollment, 15) Advanced Placement, 16) Credit by Examination, 17) Acceleration in College, 18) Early Entrance into Middle School, High School, or College (Southern & Jones, 2004, p. 6).

While teachers accept that many high ability students need some form of intervention to promote academic challenges, they seem to be reluctant to place students when arrangements require grade-skipping and early entry to school. When their students considered for whole-grade acceleration, some teachers have even reported experiencing a sense of failure, as if they have been incapable of teaching them (Piper & Creps, 1991). Other misconceptions stem from perceptions that gifted children consistently exhibit good behavior (i.e., obedience to classroom rules) and show exceptional performance in all academic areas. However, gifted children may not always be the most popular students among their peers, have academically talented siblings, or come from homes with well-educated or professional parents (Dawson, 1997; Rohrer, 1995). Another common misconception is related to the belief that a student may not be able to handle the increased academic "pressure." However, the findings prove the opposite; that students who have been accelerated are inclined to succeed academically (Gallagher, 2003). When accelerated students experience difficulty, teachers are more likely to blame the difficulties on acceleration practices rather than on normal developmental variation in behavioral changes (Jones & Southern, 1992). If a child experiences emotional difficulties, there may not be a causal relationship between acceleration practices and the child's behavior. There may be other factors interfering with why a student might be experiencing emotional disturbances (Gallagher). Accelerated students tend to do better academically than gifted students, who not accelerated, possibly because of the new challenge these students gain from content that more adequately extends their abilities. If the child is physically mature and emotionally well-adjusted, no harm can be expected from a well-planned acceleration. Despite an extensive literature on the impact of educational acceleration, much information is decades old and requires reevaluation.

Further, early admission and grade skipping practices were viewed as identical (Southern, Jones, & Fiscus, 1989). Attitudes towards early entry appear to be largely based on false or subjective opinions rather than experimental data (Butterworth & Constable, 1982). This attitude contradicts the literature because early entrants are at least equally as well adjusted as their peers (Proctor, Black, & Feldhusen, 1986; Van Tassel-Baska, 1986). Early entry is successful if the selection process is careful and the teacher is sensitive to the needs of gifted children and supportive of the child's placement (Mares & Byles, 1994). Schools and local educational institutions differ considerably (e.g., extremely supportive or opposing) on their view of whole-grade acceleration as well. Teachers are concerned about how students will cope with academic and social demands after whole grade acceleration (Assouline, Colangelo, Lupkowski-Shoplik, Lipscomb, & Forstadt, 2009; Southern et al., 1989). However, the focus should be the student's benefit and for that reason, the team should examine the environment if whole-grade acceleration is being considered. Hence, team members can identify the resources for barriers that could obstruct the process. On the other hand, teachers more often recognize circumstances when a student's academic needs are not being met, than they agree that intervention is needed (Assouline et al., 2009). Rogers and Kimpston (1992) disapproved two misconceptions about acceleration based on a meta-analysis of 19 major research syntheses: "(1) all forms can be reduced to grade skipping, and (2) acceleration may have negative social and emotional consequences for gifted learners" (p. 59). Each form of acceleration had very different academic, social, and psychological results; thus, when accelerating a gifted student, individual decisions must be based on matching the child to the types of acceleration that are compatible with his or her learning style, social, and psychological trait and needs.

1.2. When Teachers are Unaware of the Research

The main issue is not the lack of evidence that exists regarding the efficacy and effectiveness of acceleration, but the gap between the evidence and the educational practices and beliefs. As a continuation of the work initiated by *A Nation Deceived*, the Institute for Research and Policy on Acceleration (IRPA) was established in 2006 mainly to: a) generate new research on acceleration; b) act as a clearinghouse for research and information on acceleration; c) develop instruments that will guide educators and parents to make effective decisions; d) provide consultation on acceleration policy and practices based on research evidence; and e) provide research grants to

stimulate worldwide research on acceleration (Colangelo & Assouline, 2009, p. 201). IRPA's work will be very well timed to reverse the attitudes and trends toward acceleration. It is believed that eventually educators will accept the effectiveness of acceleration as an integral part of gifted education because "Acceleration practices are elegant in their simplicity and effectiveness" (Colangelo & Assouline, 2009, p. 202). Acceleration is a dynamic topic and much more work needs to be done.

While many studies examine teachers' attitudes toward gifted students and gifted education, it is still unclear what teachers' attitudes are toward gifted students and gifted education (McCoach & Siegle, 2007). Additionally, most of these studies have design flaws (e.g., sampling issues related to not using a random or a good representative group of teachers), thus rendering their results ungeneralizable vis-à-vis the general population of the gifted teachers. Overall, the results of previous research do not provide a clear picture about teachers' attitudes toward gifted students (McCoach & Siegle). McCoach and Siegle's study hoped to understand teachers' knowledge and attitudes toward the gifted by examining some questions such as, "How do regular education teachers currently feel about providing specialized services for gifted students? Are teachers who have training or experience in gifted education more supportive of gifted students and gifted education?" (2007, p. 248).

It was hypothesized that teachers with training and experience would have a more positive attitude toward gifted education programs and gifted students since teachers' self-perceptions would be positively correlated with their attitudes of gifted students. The survey packet was mailed to a national random sample of 1,500 teachers, with 262 teachers joining this survey. McCoach and Siegle's study used Gagné and Nadeau's (1991) *Opinions About the Gifted and Their Education* instrument to assess teachers' attitudes toward the gifted and gifted education. Some of the factors examined include training and experience in gifted education, training and experience in special education, and self-perception as gifted predicted teachers' attitudes toward the gifted and gifted education. However, the relationship between training in gifted education and attitudes toward the gifted was not found to be significant and related to differences in attitudes toward gifted education and viewed as troubling (McCoach & Siegle). Future studies should examine how training received on gifted education impacts attitudes toward gifted students. It may be helpful assessing the effect of training by looking before and after so that future training strategies may be designed to improve practitioners' attitudes toward the gifted.

It is astounding that what predicts teachers' attitudes toward the gifted remains unclear. McCoach and Siegle's findings indicate that future research should focus on exploring the components of effective gifted educator training programs, which train gifted educators are supportive of gifted education while nurturing the potential of gifted students. I believe much exploratory research is needed to get a clear understanding to know how to fight with controversies against acceleration. Much of the controversy around acceleration might be associated to beliefs and attitudes of the teachers with limited or no support in research (Vialle et al., 2001). Thus, studies on gifted students should be replicated, exploring a number of issues. Once educators take a more deliberate look at the evidence, it will become clearer the need to use acceleration (Colangelo & Assouline, 2009).

1.3. Educators do not Receive Training in the Colleges of Education

Teachers do not often receive formal training in how to assist their gifted and talented students. While research on acceleration has been known for many years, Colleges of Education programs do not include acceleration as a curricular intervention strategy in teacher training. The University of Iowa College of Education Dean, Sandra Domico, asserts: "The fact that the research on acceleration is not readily part of the training of teachers and administrators," which "is a strike against the mission of Colleges of Education" (Colangelo, Assouline, & Gross, 2004, p. 50). Regular education teachers with concern for their gifted students devote significant amounts of time and resources for developing their knowledge and proficiency to meet the needs of such students.

Teachers face more difficulties in identifying gifted and talented students than those with specific knowledge and training. This limitation later leads to a lack of understanding on acceleration, yet as Stanley simply puts it: "The chief reason for identifying intellectually talented children is . . . to help them get a better education than they probably would otherwise" (1984, p. 178). Teachers with lack of training in how to nurture their gifted

students do not know how to use the research to shape their practice. Fear of elitism causes many educators to view gifted education as exclusive, accusing it of providing special benefits for the "already advantaged." Meanwhile, the pendulum swings between the search for excellence and the call for equity, the *No Child Left Behind* era heightens concerns about "raising the academic bar." How this *No Child Left Behind* era's zeitgeist affects regular classroom teachers' attitudes toward the gifted is unknown (McCoach & Siegle, 2007, p. 246).

On a positive note, research has demonstrated that professional development changes teacher attitudes, enhances a teacher's sense of self-efficacy (i.e., that is to say the belief in the capability to organize and enact appropriate activities), promotes greater proficiency and enhances better understanding and application of relevant competencies (Ropp, 1999; Shore & Kaizer, 1989). The National Association for Gifted Children has stated, "Gifted learners are entitled to be served by professionals who have specialized preparation in gifted education, expertise in appropriate differentiated content and instructional methods, involvement in ongoing professional development, and who possess exemplary personal and professional traits" (1998). Teachers with limited to no training in gifted education tend articulate beliefs and attitudes that are contradictory to proper identification criteria as articulated in these comments: "A truly gifted kid is not really bored" and "He's probably gifted, but he's a first-class jerk" (Peterson & Margolin, 1997, p. 87). The teacher nominations indicated that instructors were likely to spot high achieving and emotionally stable students who showed good attitudes, while overlooking other numerous identification criteria (Schack & Starko, 1990).

A lesson learned: limited teacher training on gifted education affects all aspects of gifted students' lives starting from the identification to acceleration stage. Starko (1990) investigated what factors influence the establishment, operation, effects and elimination of an elementary enrichment and acceleration program, which existed between 1958 and 1969. As part of the study, program documents were examined, teachers and administrators were interviewed, and former participants were surveyed to investigate the program's life sequence and effects on students. In these schools, teachers were selected by the school administration to administer enriched and accelerated classes. These teachers came from the elementary school that housed the program and none who were interviewed knew how or why they had been selected. They then stated their lack of formal preparation and training in gifted and talented education (Starko). General education teachers often do not feel successful in identifying high-ability children. It was found that using extremely conservative identification criteria approved to be wrong in the life of the gifted programs (e.g., students had to score above 125 or 130 on an individual IQ test, in addition to scoring very highly on achievement tests in all subjects, while maintaining emotional stability, and a positive attitude toward school) (Starko).

1.4. Social and Emotional Concerns

Furthermore, teachers neglect the fact that the social and emotional well-being of students is inextricably related to meeting their cognitive needs (Gross, 1993). However, despite research that constantly supports positive changes in academic achievement and a lack of negative impact on social and emotional growth, educators are unwilling to implement acceleration practices (Southern, Jones, & Fiscus, 1989). A landmark study on acceleration was conducted by Southern et al. that aimed to delineate why practitioners objected to acceleration two decades ago. Interestingly, the findings appear to be consistent with recent literature and resonate throughout research in the field. Southern et al. surveyed a number of gifted program coordinators, school psychologists, principles, and teachers, receiving 554 responses out of 1,263 mailed surveys to examine the origin of practitioners' objections. The feedback revealed a major concern over acceleration as a risky approach because of the social and emotional concerns surrounded the status of gifted children. Daurio (1979) described the same concern two decades ago regarding the importance of the social and emotional needs of gifted students. Daurio (1979) and Southern et al. (1989) both present a clear controversy among practitioners' views toward acceleration that revolves around social-emotional concerns. Contrary to the arguments made by practitioners regarding the social and emotional benefits of acceleration, such perspectives are not grounded thoroughly (Rogers, & Kimpston, 1992). Studies do not reveal that some forms of acceleration demonstrate more risk to adaptation or attainment compared to others (Southern & Jones, 2015). Regarding the effect of grade skipping among highly gifted students, it was found that students who had not skipped grades were less well-adjusted

than that who had (Gross, 1994). Similarly, accelerants experience satisfaction in social relationships (Brody, Muratori & Stanley, 2004; Gross, 2003), positive self-esteem, self-concept, or self-confidence (Olenchak, 1995; Rogers, 1992); high level of satisfaction about their being accelerated (Gross, 2003; Lubinski, Webb, Morelock, & Benbow, 2001); and superior educational ambitions (Lubinski, 2004; Lubinski et al., 2001).

The results from the dissertation study by Witham (1992) compared acceleration, curriculum integration, and critical thinking skills in self-contained gifted public and private schools. Witham examined 24 school programs using director interview surveys, teacher surveys, document analysis, and observation. The results from the private schools were consistent with previous studies conducted regarding practitioners' resistance toward acceleration practices. Research conducted in Australia repeatedly confirmed resistance to acceleration by practitioners (Vialle et al., 2001), while a study in Germany found a similar parallel patterns (Heinboket, 1997). Rankin and Vialle (1996) surveyed school principals in Australia to investigate their attitudes regarding the early entry of gifted pre-school students. The survey was sent to 63 elementary school principals and 27 questionnaires were returned and 23 of the 27 respondents stated children were rejected for early entry because of the social and emotional development concerns. This was consistent with Southern et al. (1989)'s findings concerning practitioners' assumptions on the social and emotional adjustment of early entrants.

While numerous studies find that acceleration results in neither short nor long-term damage, few studies report positive socio-affective outcomes for gifted students (Neihart, 2007). Using Slavin's (1986, 1987) *best-evidence synthesis* technique, Rogers (1992) reviewed 81 studies, which was thoroughly selected 314 studies in between 1912-1988 that examined the social or emotional effect of acceleration among 12 acceleration practices.: (1) Early Entrance to School (EE); (2) Grade Skipping (GS); (3) Nongraded Classrooms (NG): (4) Curriculum Compaction (CC); (5) Grade Telescoping (GT); (6) Concurrent Enrollment (CE): (7) Subject Acceleration (SA); (8) Advanced Placement (AP); (9) Mentorship (ME); (10) Credit by Examination (EX); (11) Early Admission to College (EA); and (12) Combined Accelerative Options (CE).

The results revealed positive effects in both the social (Mean effect size = 0.46) and emotional (Mean effect size = 0.12) domains. Social effects were examined by using social maturity scores, teacher ratings of social skills, involvement in extracurricular activities, and leadership skills. Emotional effects were examined by using measures of self-concept or teacher/parent ratings of risk taking, independence, and creativity. Rogers found significant emotional effects (Mean effect size = .58) for subject-based acceleration and differential effects on self-esteem for different grouping arrangements, which showed that accelerated students responded positively to the acceleration practices in social and emotional domains. Further, Grade Skipping and Mentorship were viewed to be socially effective acceleration practices; Concurrent Enrollment and Mentorship were viewed to be psychologically effective acceleration practices. Rogers' study proved that: (1) acceleration is just grade skipping; and (2) acceleration does produce negative social and emotional effects for gifted students. The study offered educational decision-makers wide range of acceleration options well supported by research to promote gifted students' academic achievement. If educators are still concerned about gifted students' social and psychological adjustment when these accelerative options are used, perhaps school counselors could provide support individually or in a group setting (Rogers).

According to Winner (2000) gifted children are precocious, self-motivated, and approach problems rising in their particular domain of special talent in an innovative way. Thus, current knowledge on the gifted should focus on its origins, gifted children's motivation, and how the social, emotional, and cognitive relate to exceptional performance. Contrary to some of the finding concerning creative individuals, gifted children are inclined to be well adjusted and supported by their families (Winner).

In a meta-analysis of 700 studies on a broad range of school-based programs aimed at developing students' social and emotional skills funded by Collaborative for Academic, Social, and Emotional Learning (CASEL), Weissberg (2007) identified 207 studies that involved students ages 5–18 and used a control group and collected data on one of six specific outcome areas related to students' (1) social and emotional skills, (2) attitudes toward self, others, and school, (3) positive social behaviors, (4) conduct problems, (5) emotional distress, and (6)

academic performance (p. 2). It was found that after the intervention, the experimental groups behaved better, were more positive, and were less anxious than their control-group peers. Moreover, students in the control group they scored 11 percentile points higher than the comparison-group students. Weissberg reported that social and emotional learning influences students' success.

Things are Changing, but Not Fast

Seligman stated (1988) the common belief hold that: "Gifted children take care of themselves" is not only incorrect, but also presents a trap that many gifted children can fall into, pushing them to the sidelines unhappy and frustrated. *A Nation Deceived* revisited the notion and reiterated the benefit of acceleration practices as an intervention in school to meet the needs of gifted students roughly out two decades after Seligman assertion. Intellectual giftedness comes in many ways and if neglected "squanders a precious, irreplaceable national resource under the banner of anti-elitism" (Seligman, p. 1). Seligman asserts that "Psychology must take up their cause again" (1988, p. 1) and for this purpose, the American Psychological Association, led by Camilla Benbow and Nancy Robinson, developed two proposals: 1) to create the foundations a Virtual University for gifted teenagers, and 2) to study truly extraordinary people (Seligman). Every student is special; if some students have the desire, aptitude, and ability to be challenged, helping them should not be viewed as incompatible with equity.

The National Council for Accreditation of Teacher Education (NCATE) approved the new Teacher Preparation Standards in Gifted Education that were developed by NAGC and the Council for Exceptional Children (CEC) over the past three years. The NCATE stated that gifted educators "… possess a repertoire of evidence-based curriculum and instructional strategies to differentiate for individuals with gifts and talents. They select, adapt, and use these strategies to promote challenging learning opportunities in general and special curricula and to modify learning environments to enhance self-awareness and self-efficacy for individuals with gifts and talents" (2006, p.59). However, the Council of State Directors of Programs' the Gifted and Talented Education Report (1999) indicated, 3 of 43 states suggest that classroom teachers received more than 3 contact hours (i.e., either pre-service or in-service training) in gifted education while 30 states mandate the identification of gifted students and 19 states do not require any training in gifted education for teachers who work with gifted students (Council of State Directors of Programs for the Gifted, 1999). Case studies on acceleration have revealed that acceleration was seen as a temporary solution to addressing the needs of gifted students (Gross, 1992; Kulik & Kulik, 1992). Acceleration will not satisfy the gifted student if it is not paired with a challenging curriculum for the student and if it is not supported by teachers who are knowledgeable about their needs (Gross; Kulik & Kulik). In such cases, acceleration becomes a placement decision rather than being a program decision (Vialle et al., 2001). Lubinski and Benbow (2000) reviewed the literature concerning children with exceptional intellectual abilities and examined issues how to nurture, counsel and teach children with extraordinary high ability. The authors indicated that one-third of the total ability ranges within the top 1%. A child with an IQ of 200 is quite unique compared to gifted children with an IQ of 140. Neglecting the potentials of such exceptional children would be a terrible loss to society as the authors commented. Perhaps acceleration practices could intervene to meet some of the challenges that the gifted students experience in school.

Conclusion

Lubinski, Webb, Morelock, and Benbow (2001) conducted a 10-year follow up study with profoundly gifted accelerated high-ability students. The results indicated that 71% of the students were pleased with their experience and only a small number of the participants stated that they were unsatisfied. Gifted and talented students from accelerated classes do better (i.e., by almost one full year on achievement tests) than their regular non-accelerated counterparts of the same chronological age and IQ level (Kulik, 1992). Gifted and talented students from enriched classes do better on grade equivalent scales (i.e., by 4-5 months) than their counterparts in conventional classes (Kulik, 1992). Compared to their age peers, students who were allowed to begin elementary school were typically six months advanced in achievement in the same year. Furthermore, accelerated students showed better progress both personally and socially in comparison to slight difficulties faced by advanced students who were not in accelerated programs (Rogers, 2002). In a longitudinal study, the

Academic Talent Search program found that after five years of their participation in the accelerated program, students viewed the experience as very positive. These students also recognized improved self-esteem and self-control (Thomas, 1980).

Acceleration is definitely not new but it still generates more controversy as an educational intervention (Colangelo & Assouline, 2009). The main issue is not the lack of evidence that exists regarding the efficacy and effectiveness of acceleration, but the gap between the evidence and educational practices and beliefs. Acceleration should be considered pivotal for gifted students because of the compelling evidence of its academic and social benefits. For gifted students, acceleration often constitutes a strong and powerful intervention – and one very simple to apply. Over the course of the next decade, acceleration will see greater implementation in many countries, naturally leading to the development of greater practices and a broader understanding by professionals regarding the essential role that assessment plays in decision-making around it (Colangelo & Assouline). The founders of the positive psychology movement constitute some of the foremost to promote acceleration, with psychological studies involving individuals' social and emotional well-being proving that attention should be as focused on an individual's strengths as much as their weaknesses; the field is as interested in constructing positivity in life as equally as in repairing the worst, as concerned with making lives fulfilling and nurturing talent as a healing pathology (Seligman & Csikszentmihalyi, 2000). Due to psychology's undue focus on pathology, the fulfilled individual and the thriving community appear to be neglected, whereas genius and high talent have become a dirty words that dissuade researchers from greater examination (Seligman & Csikszentmihalyi, 2000). This, in turn, has influenced educational practices. To overcome the myths that have led to the disregard of acceleration, one must begin by correcting the belief systems that influence practitioners'' attitudes toward gifted education.

What it means to teach gifted learners "is actually simple in theory" according to Carol Ann Tomlinson as quoted in her frequently referenced 1997 paper. Tomlinson (1997) continued *Good Instruction for Gifted Learners* implementing teaching principles where immersed students in a higher "degree of difficulty" than that typical of peers from their own age. A greater degree of difficulty requires more refined skills in talent areas in terms of the content, processes and products involved in developing and implementing a particular skill set. What it takes to teach gifted learners well is actually not that complicated - a little common sense, which begins with the premise that each child should come to school to stretch and grow daily (Tomlinson).

Having an educational policy involving gifted learners is important, since it draws attention to the needs of special needs' students and increases awareness about their needs. Using academic acceleration as a form of intervention to aid gifted students is the most effective strategy for nurturing highly talented learners, who can tolerate quicker-than-usual pace. Furthermore, when there is a policy that increases not only awareness but also acknowledges the validity of the acceleration practices as an intervention, it helps with the implementation of best practices related to acceleration practices. In summary, a principled and researched guidelines for developing an academic acceleration policy assists in guiding policy makers, school administrators, and educators (Lupkowski-Scholik, Behrens, & Assouline, 2018).

It should be remembered that each student is unique with exceptional familial and social characteristics. Some students will benefit from enrichment, while others will benefit from acceleration or both (Rogers, 2002). While the research on the effects of acceleration is overwhelmingly positive, decisions made for each student must comprise additional information (Rogers, 2015). In conclusion, as asserted by The National Association Gifted Children: "Educational acceleration is one of the cornerstones of exemplary gifted education practices, with more research supporting this intervention than any other in the literature on gifted individuals" (NAGC, 2004).

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School Environment and Methods of Teaching as Correlates of Language Skills Achievement of Pre–Primary School Pupils in Edo State Nigeria

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Abstract
The study investigated the effects of school environment and methods of teaching on language skills achievement of pre – primary school pupils in Edo State. It also investigated the interaction effects of Montessori and played methods and urban and rural environments on pupils' achievement in listening, speaking, reading and writing skills. Three urban and three rural areas which were selected from two Local Government Areas (LGAs) were used for the study. Six pre - primary schools were purposively selected for the study. A total of 228 kindergartens 2 pupils intact classes were used for the study which lasted for eight weeks. The study was a pretest, posttest, quasi- experimental control group design with independent variables as methods and school location while achievement in Language Skills Achievement Test (LSAT) was the dependent variable. Descriptive statistics and Analysis of Covariance (ANCOVA) were used to analyze the data obtained while the Multiple Classification Analysis (MCA) was used as post-hoc test for further significance. Three research questions were answered with three hypotheses, tested at 0.05 level of significance. Results showed that the Montessori Method of teaching pre –primary pupils was more effective than the play method. Similarly, urban school pupils achieved higher than their rural counterparts. There was also a significant interaction effect of methods and school location on pupils' academic achievement in Language skills. It was therefore recommended that the Nigerian Government should adopt the Montessori Method as a dominant method of teaching pre – primary school pupils and that pre – primary school owners should provide materials adequately for teaching and learning.

Keywords: School Environment, Teaching Methods, Language Skills Achievement, Pre-Primary Pupils

Introduction

Early childhood education is the education given to children between ages 3 - 5 plus. It is the formative period of their lives that is very crucial. Education for these young learners is based on the psychological foundations and learning theories of early educational and developmental psychologists like Froebel, Rousseau, Piaget,

Montessori and Dewey, who believed that the child has innate tendencies which can unfold when properly guided through contact with varied activities within the environment.

Froebel, an educational psychologist, pioneered the kindergarten system which created freedom of activities for children to fully exhibit their hidden potentials. According to John (2004), Maria Montessori originated the "activity method" through which the young learner is exposed to learning experiences which will challenge him to actively participate in learning activities. Children need a language to perform well in schools and this can only come through adequate practices in the Language Arts.

The Language Arts according to Fisher and Terry (1995) entails the communication skills of listening, speaking, reading and writing. They emphasize speech as the primary medium of communication and that a child employs this skill first when he starts to talk. In agreement, Dolzhykova (2014) explains that young children as learners of language, young children possess their own level of psychological ambiance which cuts across their disposition to things around them in terms of their attitude, aptitude and way of thinking.

John (2004) reiterates that the foundation of learning to read is laid in the early years of attentive listening. Through listening exercises, children learn to ignore distractions; they learn to attach their experiences and sensations to words and how to transform those words into sentences. Children's attention span is short so listening activities should be explicit, brief and interesting.

The ability to speak has a powerful influence on the life of any individual. Nursery pupils in their formative age should come in contact with models that have the basic knowledge of sound patterns. This will create mastery which will help curb deep-rooted pronunciation problems at the primary school level. Early introduction to basic principles of spoken language through daily activities will enhance fluency and develop reading interest.

According to Okorodudu and Okorodudu (2002) when children are exposed to reading materials early enough, a good foundation for subsequent educational levels is laid. Pre - primary schools must offer children the opportunities for extensive and varied reading by providing a spacious, well ventilated, well-lit and attractive classroom; library facilities, electronic gadgets and other sensory aids that will enhance reading interest and even usher them into a world of writing. Writing at this stage should be relevant to the background, interests and experiences of the children.

The child must be assisted to commit to memory the shape of the letters and their sounds, develop the muscular skill necessary for using the pencil with control, and learn to obey the principles of effective writing Schmitz (2012). A good measure of exposure through interactions with learning materials in each of the language skills established early will enhance academic achievement in school.

The theoretical framework for this study is anchored on Howard's (1983) "theory of multiple intelligences" Atkinson, Atkinson, Smith and Bern (1990). Howard postulates that our intelligence derives from our biological traits as well as the environment in which we are raised. He reiterates that" the environmental conditions which determine how a child's intellectual potentials develop include the quality of stimulation, in terms of availability of learning resource that will challenge him to learn and develop hidden potentials. For the purpose of high academic achievement of school pupils, many studies in Nigeria are advancing the need to match the learners with learning materials for active participation in class activities Ezema (2002) and Akpochafo (2001).

Environmental influence on educational attainment is an issue that begs for attention. In the different studies conducted by Akpochafo (2001) and Adeyinka (2019) on primary and junior secondary school students respectively, they found that the favourable urban conditions characterized by municipal amenities like electricity, roads, water, factories, recreation centres, all provide conducive learning environment for students. On the other hand Dolzhykova (2014)and Okorodudu & Okorodudu (2002) believed that in spite of the unattractive and poor living conditions in rural locations, children are close to nature and through interaction they learn concepts. Estein (2001) and Adeyinka (2019) also highlighted one vital element of the Montessori

Method as "the prepared environment" through which information passes to the child. The richer the learning environments the greater the opportunities exist to listen, talk, read and write. This friendly atmosphere is characterized by the ever-busy hum of activities in the classroom where the use of learning materials involves many psycho-motor activities like walking, carrying, pouring, listening, speaking, reading and writing and particularly, the constant use of the hands.

The play method of teaching is very popular with almost all nursery schools but the fact is that a majority of the teachers inter-use it with Montessori Method. With the play method, concepts are taught most often with little or no contact with learning materials while Montessori Method emphasizes sense training through interaction with learning materials Schmitz (2012). When teaching is done collectively due to inadequacy of learning materials it is play method because a true Montessori class emphasizes individualization of instruction with each child using his/her learning aid that will help to select responses to sense stimuli. In a play school, suitability of learning environment is compromised in many cases (Seldin, 2002). Ezema (2002) also looked at the influence of play method on the achievement of pre-primary pupils in mathematics using the Montessori Method for the experimental group. When they were enhanced with adequate learning aids they performed better than the control group which had inadequate learning aids. Montessori Method was preferred to play method teaching but shortage of instructional materials that pupils need to interact within this region makes the achievement of the desired results difficult.

Statement of the Problem

Method of instruction is one factor which influences pre – primary pupils' performance in the communication skills. The National Policy on Education (2014) stipulates that: government shall establish pre-primary sections in existing public schools and encourage both community/private efforts in the provision of pre-primary education. Beyond this policy statement, what major practical contributions have government made to ensure that standards are upheld? To a large extent; government does not recognize the nursery school as the foundation of formal education hence the approved system of education in Nigeria, the Universal Basic Education (UBE) starts from 9 year basic (primary 1 to junior secondary 3). The hue and cry about the fallen standard of education as evidenced in the poor standard of students' performances both in internal and external examinations across levels of education are quite worrisome to educationists and researchers, One way to tackle the poor performance is to reexamine the quality of instructional methods and quality of learning at the foundational level of formal education in Nigeria. When the quantity of instructional aids is either inadequately utilized or indiscriminately distributed, quality performance cannot be guaranteed hence this study investigated method and school location as factors for Language skills achievement in pre – primary school education in Edo State.

Purpose of the Study

1. To find out the effect of Montessori and play methods of teaching on academic achievement in language skills of pre – primary school pupils.
2. To find out if the use of the Montessori Method enhances pupils' performance in listening, speaking, reading and writing skills.
3. To investigate the interaction effect of methods and school location on pupils' academic achievement in language skills.

Research Questions

The following questions guided the study:

1. Was there any difference in the academic achievement of pre - primary school pupils in language skills when taught with Montessori and play methods?
2. Was there any significant difference in the academic achievement of urban and rural school pupils when taught with Montessori and play methods?
3. Did methods and school location have any interaction effect on pre - primary pupils' academic

achievement in language skills?

Research Hypotheses

The following hypotheses were formulated for the study:

1. There was no significant difference between Montessori and play methods as shown in the academic achievement of pre – primary school pupils in language skills.
2. There was no significant effect of school location on pre – primary school pupils' academic achievement in language skills when taught with the two methods.
3. There was no significant interaction effect of methods and school location on pre – primary pupils' academic achievement in lsanguage skills.

Research Design

This study adopted the quasi-experimental pretest-posttest control group design (Design 10: Campbell and Stanley, 1960). This design was chosen because:

i. The control group and the experimental group did not have pre-experimental sampling equivalence; and
ii. Intact classes of non-randomized subjects were used for the study.

The research examined the effects of the three independent variables of the Montessori Method, play method of teaching and control condition, on one dependent variable which was the academic achievement in the posttest measurement. The intervening variables were urban and rural school locations.

Population/Sample

The target population for this study was all the kindergarten II pupils in the 52 government approved and functional private pre - primary schools in Edo South Senatorial District. The sample comprised three schools from urban and rural environments in Egor and Ikpoba-Okha local government areas respectively. Two hundred and twenty eight (228) kindergarten II pupils in their intact groups who were purposively selected from sixteen schools in Egor and eight in Ikpoba-Okha Local Government Areas were used for the study.

Instrumentation

The research instrument for this empirical study was a self-made evaluation instrument titled the Language Skills Achievement Test (LSAT). It was a 25-item mixed questions based on the topics taught during the period of experimentation, as contained in the scheme of work. The test items were weighted four (4) points each and covered topics in the Language skills as follows:

-	Listening Skill	5 items	20%
-	Speaking Skill	8 items	32%
-	Reading skill	7 items	28%
-	Writing Skill	5 items	20%
-	**Total**	**25 items**	**100%**

Considering the age of the testees (4 years), speaking and reading skills weighed more because of their egocentric disposition. At this stage of development, their attention span for listening and writing is short; they dialogue and monologue a lot. Reliability of LSATwas ensured through a pilot study. A school each from urban and rural settings in Uhunmwode Local Government Area was randomly selected with seventy-two kindergarten II pupils in their intact classes. The data collected was analyzed using the Kuder Richardson formula 21 and a reliability coefficient of 0.76 was obtained.

Control Measures

Every experimental research sets out to ensure that results are reliable and valid. Some measures used to minimise possible reactive effects of experimental procedures were:

- Testing: a pre-test was administered on all the subjects to determine their entry levels. They were also too young to understand what the exercise was all about, so a second administration of the test was not a problem.
- Maturation: changes within the subjects due to passage of time were controlled for with a control group which experienced similar changes as the experimental groups.
- Instrumentation: LSAT was the same for pre-test and post-test; administered by same teachers who use the same marking guide for assessing pupils.
- Experimental bias: the use of multi – choice objective tests with option controlled bias.

Descriptive statistics like mean, standard deviation and variance were computed for the pre-test and post-test scores, to sort the differences in the performance of the subjects. Secondly, Analysis of Covariance (ANCOVA) was used to test the hypotheses relating to group differences.

Presentation of Results and Discussion

Data generated from the 228 respondents were tabulated as follows:

Research Question I

Was there any difference in the academic achievement of pre – primary school pupils in language Skills when they were taught with Montessori and play methods?

Table I: Descriptive Statistics of Pre-test, Post-test Mean Scores of Pupils according to Methods

METHODS	GROUPS	N	X	SD	X GAINED
Montessori	Pretest Posttest	78	56.40 81.49	9.16 10.00	25.09
Play	Pretest Post-test	75	47.80 60.53	14.03 14.95	12.73
Control	Pretest Post-test	75	39.45 58.35	7.09	18.90 12.70

Table I showed the pretest posttest mean scores of pupils according to methods. The Montessori group recorded the highest posttest mean score of 81.49 (SD-10.00); the play group 60.53 (SD=14.95); and control group with the least mean score of 58.35 (SD = 12.70). This order could be attributed to the effect of treatment on experimental groups. However, the mean score gained showed Montessori leading with 25. 09, the control group was next with 18.90 and the play group with the least mean gained at 12.73.

Research Question 2

Was there any significant difference in the academic achievement of Urban and Rural school pupils when taught with Montessori and Play Methods?

Table 2: Comparison of Post-test Mean Scores of Urban and Rural School Pupils According to Methods

METHODS	ACHIEVEMENTS ACCORDING TO SCHOOL LOCATION	
Montessori	82.31 (42)	80.53 (36)
Play	64.73 (40)	55.74 (35)
Control	57.05 (37)	59.61 (38)

The table two revealed that the urban school subjects performed better than the rural school pupils in the post-test achievement test in both Montessori and Play groups. Montessori urban scored 82.31 while the rural school scored 80.53; the play group (urban) obtained 64.73 and (rural) obtained 55.74. Surprisingly, the rural pupils in the control group did better than their counterparts in urban schools with scores 59.61 and 57.05 respectively. This could be attributed to the rural environment which they were exposed to which might have helped them 10 know the sounds of animals, their names and habitats, some of which were items in the test instrument. Statistical explanations were given in respect of research question 3 which dealt with the interaction effect of methods and school location as tested in the hypothesis shown on table 2.

HO1: There was no significant difference between Montessori and Play Methods as shown in the academic achievement of pre - primary school pupils in Language Skills.

Table 3: Analysis of Covariance (ANCOVA) Showing Difference in Treatment Groups

Sources of Variation	Sum of Squares	Df	Mean Square	F	Significance of F
Covariates/protest	41255.29	1	41255.29	629.45	.000
Main effects	6309.31	2	3154.66	48.13	.000
Groups	6309.31	2	3154.66	48.13	.000
Explained	47564.60	3	15854.87	241.90	.000
Residual	14681.38	224	65.54		
Total		227	274.21		

*p < .05 level of significance

From table 3, f (2,226) 48, 13, F < ,05 which dearly indicated that the hypothesis should be rejected, It invariably meant that there was significant difference between Montessori and play methods as shown in the academic achievement of nursery school pupils in Language Arts, Consequently, the Montessori Method proved to be a better method of teaching the Language Arts to nursery school pupils than the Play Method.

$H0_2$: There was no significant effect of school location on pre - primary school pupils' academic achievement in Language Skills when taught with methods.

Table 4: ANCOVA summary table for Effect of School Location on Pupils' Achievement using Methods

Source of Variation	Sum of Squares	df	Mean Square	F	Significance of F
Corrected model/covariates	47637.44	6	7939.57	128.41	.000
Intercept/main effect	4905.16	1	4905.16	79.33	.000*
Groups x location	598.072	2	299.04	4.84	.009*
Error/Residual	13664.494	221		61.830	
Corrected total	61301.930		227		

*p <.05 level of significance

Table 4 showed f (1, 227) = 79.33; P < .05. The hypothesis was rejected because the ANCOV A summary established the fact that school location played an important role in the study and therefore had significant effect on the pupils' academic achievement in Language Skills using methods. The table also showed a significant interaction between methods and school location with F (2,226) = 4.84; P .0.5.

The Multiple Classification Analysis (MCA) table 5 substantiated the position of ANCOVA.

Table 5: MCA post-test by school location, methods with pretest N = 228, Grand Mean =66.9

Variable + Category	N	Unadjusted Deviation	Eta	Adjusted for Independent Covariate	Beta
Methods					
Montessori	78	14.61		6.62	
Play	75	-6.51		-6.49	
Control	75	-8.72	.64	-0.31	33
Location					
Urban	119	1.59		-1.26	
Rural	109	-1.73	.10	1.38	.08

Multiple R =.88Multiple R_2= .77

The table showed that the pupils from the rural school had an adjusted score of 1.38 as against the urban school pupils with -1.26. The Montessori Method recorded an adjusted score of 6.62, followed by the control group with -0.31 and play group with -6.49. The Montessori Method was therefore a superior method of teaching pupils the Language Arts. Finally, the multiple R2 of 77% showed a high degree of the effect of school environment on the academic achievement of pre - primary school pupils.

(HO_3: There was no significant interaction effect of methods and school location on nursery pupils' academic achievement in Language Skills.

Table 6: ANCOVA Summary Table for Interaction Effect between Methods and School Location on Pupils' Achievement in Language Skills

Source of Variation	Sum of Squares	df	Mean Square	F	Significance of F
Corrected model/covariates	49986.15	12	4165.51	79.15	.000
Intercept/main effect	5161.74	1	5161.74	98.07	.000*
PRE	18417.80	1	18417.80	349.94	.000
Methods/Location	533.99	2	266.99	5.073	.007*
Error	11315.777	215	52.632		
Corrected total	61301.930				

Table 6 showed f (1, 227) = 98.07, P < .05 which meant that there was significant main effect of methods and school location on the pupils' academic achievement in language Skills. From the table, F (2, 226) = 5.07, P < .05 showed that there was significant interaction of methods and school location with the pupils' academic achievement in language skills; therefore, the null hypothesis was rejected.

Summary of Research Findings

From the analyses shown on tables 1-6, the following findings were made:

1. There was significant difference in the academic performance of pre - primary school pupils in language skills between Montessori and Play Methods.
2. The treatment had significant effect on the academic achievement of the pupils in the experimental groups.
3. The Montessori Method was more effective than Play Method of teaching language skills to pre – primary school pupils in the urban schools than in the rural schools.
4. The mean score gained showed that pupils in the control group did better than those in the Play group.

This may be attributable to the eclectic nature of the teaching method used in the control class.

5. Urban school pupils performed better than rural school pupils in language skills.
6. There was also a significant interaction of methods and school location on pupils' achievement in language skills.

Discussion/Conclusion

The analysis presented in tables 1 and 3 showed significant differences in the achievement of pre – primary school pupils in Language Skills in both the Montessori and Play Methods. Consequently, the experimental groups gained more than the control group and this difference in performance can be attributed to the effect of treatment which was not extended to the control group. The enhanced performance of the Montessori group after treatment was the result of the interaction between learners and learning experiences. This agreed with Howard in Atkinson et al. (1990) who believed that the environmental conditions that determine how a child's intellectual potentials will develop included the quality of stimulation in terms of availability of learning materials that will challenge him to learn and develop his hidden potentials. Akpochafo (2001) and Adeyinka (2019) in their various studies also advocated the need to match the learners with learning experiences through active participation in class activities.

The findings from research question 2 as shown on table 2 revealed the peak performance of the urban pupils against their rural peers as shown by the mean scores. This was confirmed by the findings from HO2 as shown on table 4 which revealed that school location had significant effect on pre - primary education in terms of achievement in Language Skills. Though no literature was found on any empirical study conducted for this level of scholars, in agreement with this research findings, studies by Akpochafo (2001) and Adeyinka (2019) on junior secondary school students respectively, confirmed that the general disposition of urban environment enhances learning.

Students in urban centres tend to perform better than their rural peers because of the availability of qualified teachers and enhanced learning environment. They found that urban centres were favourably disposed to a good supply of adequately trained teachers, resource personnel and experts who can make learning easier and more fascinating.

Surprisingly however, the MCA on Table 5 showed that the subjects from the rural environment recorded an adjusted mean score as high as 1.38 as against -1.26 obtained by the urban school subjects. This result agreed with the studies of Akpochafo (2001) and Ezema (2002) whose works though at secondary school level respectively, lent credence to the fact that rural school students did better than their urban mates. They particularly argued that the unattractive and deprived nature and living conditions in the rural areas notwithstanding, rural children lived very close to nature. They had the advantage of knowing many names of fruits, of animals, their habitats and their reproductive styles because they see them in their natural state unlike their, urban counterparts who most probably and nearly always too, saw many of the items in their artificial form either frozen or already dressed in readiness for consumption.

Method of teaching is an important factor for the development of the language skills in pre – primary education. The essence of this level of education is to train the child; to help the child develop the head, the heart and the hands through exposure to organised learning activities with learning materials. Table 1 showed a clear difference in the mean score gained by the Montessori group as against the least mean score gained in the Playgroup. This definitely implied that instructions in the language skills of listening, speaking, reading and writing were better understood when learners were matched with learning materials as stipulated by the Montessori Method. Table 3 also showed that treatment techniques had a significant effect in the achievement of pupils. This finding corroborated the work of Ezema (2002) who found that exposure of pre -primary pupils to learning materials in an experimental group enhanced their participation in class activities which led to significant achievement in mathematics.

The play method was not effective as shown by the mean score gained on tables 1 and 3, most probably because of the non-availability of a variety of learning materials; the unchallenging nature of the learning environment as against the enriched Montessori environment where, within and outside the classroom a rich display of items suggests learning. The better performance of the control group against Play group suggested that the eclectic method used in the control group gave them the advantage.

In conclusion, the significant difference in the mean score gained by the Montessori group and those of the control and Playgroup empirically put the Montessori Method as the best method to use when teaching the language skills in pre – primary schools.

Recommendations

1. The language skills acquisition are the golden key which open doors to various fields of study, so learning aids that will foster language development in children should be richly provided and used.
2. Classroom libraries should be equipped with varied materials to promote reading habits and interest in the children.
3. The Montessori Method of teaching, in its real sense, should be the approved method of teaching children, as it exposes them to listening. It gives them opportunities to talk about issues and it trains them to write.
4. To ensure compliance with government's policy on standards, the Ministry of Education through its inspectorate arm should visit pre – primary education centres regularly.

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A Qualitative Analysis of Using Games Learning Programs to Improve Elementary Teachers' Application of STEM Capabilities

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Abstract
This study used CodeMonkey, an online learning platform through which elementary teachers can learn programming while playing games and experience how to integrate STEM into their courses. The study analyzed and examined their experiences using a qualitative research method. According to the research results, learning programming while playing games can encourage beginners to go all in. There are also complete guidelines on the teaching platform, so beginning learners can quickly become familiar with the interactive model, which stimulates their curiosity and changes the traditional learning method of teaching by teachers and received by students. On the whole, learning programming itself is a rigid subject. At the fundamental stage, learners can be greatly interested in learning it. However, if learners cannot understand the learning goals, the advantages gained from their self-confidence and joy of learning will no longer exist. Among beginners to the novel model of learning programming while playing games, there is no obvious difference in learning effectiveness between male and female students. Learners who actively seek to solve problems during the learning process can achieve better learning efficacy.

Keywords: Science, Technology, Engineering, And Mathematics (STEM), Game-Based Programming Learning, Big Six Skills

1. Introduction

In recent years, programming has been incorporated into the elementary school curriculum in many countries. For example, Estonia and Finland encourage students to learn a programming language from the first grade of elementary school. The United Kingdom has launched an education program for children to learn programming. In Asia, Singapore, South Korea, Hong Kong, the Philippines, and Malaysia have launched programs for elementary school students to learn programming. Taiwan's Ministry of Education (2018) promulgated the 12-year National Basic Education Curriculum Outline, which separated the current information curriculum from information technology and life technology, with the expectation that the curriculum objectives in the field of

science and technology can create appropriate and friendly teaching situations to enable students to acquire basic scientific and technological literacy in order to bring out children's talents in adaptable and supportive conditions, regardless of gender (Tsai, 2019).

Science and technology are taught via two courses, information technology and life technology, which are expected to train students' operational thinking and design thinking and develop their understanding and logical thinking of science and technology issues. These courses serve the same purpose as science, technology, engineering, and mathematics (STEM) education, which aims to supply the country with excellent manpower in STEM-related fields. Integrating various subjects can motivate learners' willingness to learn the subjects to meet the needs of modern science and technology by enabling students to break away from the traditional way of learning and face future challenges with new ideas and attitudes. However, few teachers feel prepared to integrate STEM into the classroom. Many learning-by-doing courses do not support in-depth learning and apply STEM inappropriately due to a lack of teacher experience, which can impede the achievement of learning outcomes. As educators integrate STEM into courses—a phenomenon becoming more and more required in the field—most certified elementary teachers have no training on how to incorporate new ideas into their courses. Although recent elementary education graduates have been required to take related courses to graduate, they are still unfamiliar with how to integrate the information into lessons for their learners. Thus, the researcher attempts to help elementary teachers experience the STEM course designed for elementary school children learning programming languages. The researcher explores the effectiveness of learning programming that elementary school teachers experience while playing games and then analyzes the efficacy of learning programming.

2. Methods

2.1 STEM Theory

STEM refers to the curriculum integrating science, technology, engineering, and mathematics. The main purpose of STEM education is to train and provide the country with versatile professionals who have acquired applicable competencies integrating science, technology, engineering, and mathematics. Through the interactive application of various disciplines, STEM education motivates learners' interest in integrated courses so they can combine what they have learned from science and technology into their daily lives. STEM education originated in 1986, when the U.S. National Science Board released its *Undergraduate Science, Mathematics, and Engineering Education*, which put forth the programmatic proposal of STEM education integrating science, technology, engineering and mathematics and recommended cultivating high-quality scientific and technological talents, engineers, scientists, and mathematicians to enhance the country's competitiveness. In 2007, it released the *National Action Plan*, which proposed that the United States should strengthen the dominant position of STEM education at the K–12 and undergraduate stages, improve the quality of teachers, and increase the amount of resources allocated to addressing this issue. In 2009, in the *Ten-Year Plan for Innovation in Education*, USD 400 million were budgeted for training 100,000 STEM teachers to improve their students' science and mathematics skills; it was recommended that teachers make science practical and interesting through hands-on courses. In 2014, in the *National Integration Strategy for STEM Talent Development*, USD 450 million were budgeted to establish the STEM Innovation Network Program, STEM Virtual Learning Network, Group of Expert STEM Teachers, STEM Teacher Professional Development, STEM Efficient Teaching and Learning Program for elementary and secondary schools, and the Improvement Education Fund (Lin, 2014).

Since 1990, many analysis reports in the United States have noted that the traditional way of teaching STEM subjects in disaggregated categories is obviously insufficient for students' learning, resulting in students' inadequate problem-solving skills (Bybee, 2013; Thomasian, 2007); National Academy of Engineering & National Research Council, 2014). Over time, the United States has been alert to the continued decline in student performance in STEM subjects and the decreasing number of students becoming employed in the engineering field after graduation, leading to a series of changes to STEM teaching (Toulmin & Groome, 2007). Such ideas have also quickly attracted the attention and emulation of various countries (Fan & Yu, 2016; Ritz & Fan, 2015).

In order to reverse the decline in American competitiveness, the United States released the American Competitiveness Initiative (ACI) in 2006. In view of the close correlation among competitiveness, creativity, and mathematics and scientific literacy, ACI listed the enhancement of students' mathematics and science literacy as one of the main initiatives. In addition to encouraging students to study science, technology, engineering, and mathematics in various ways, ACI attached greater importance to the cultivation of students' STEM literacy in integrating STEM knowledge and developing innovation and problem-solving skills. In the following year, the National Governors Association (NGA) released a joint research program, Innovation America: Building a Science, Technology, Engineering and Math Agenda, to effectively implement STEM education in each state of the United States. For example, in terms of STEM curricula, the NGA believes that states should integrate K–12 STEM education, align state K–12 STEM standards and assessments with postsecondary and workforce expectations for what high school graduates know and can do, and develop high-quality STEM curricula for voluntary use by various regions. In 2011, the United States National Research Council released a research analysis entitled *Successful K-12 STEM Education: Identifying Effective Approaches in Science, Technology, Engineering, and Mathematics*, which noted that increasing STEM literacy for all students should be the main goal.

Not all STEM-related jobs require candidates who have received a higher education or even a university degree. Less than half of the rudimental STEM jobs require a bachelor's degree or above. STEM education begins when the students are young:

- Elementary schools focus on introducing STEM courses so that the students can develop an understanding of STEM fields and occupations;
- Secondary school curricula are more rigorous and challenging, and the goal of STEM education is still to enable students to develop an understanding of STEM fields and occupations; and
- Senior high schools focus on challenging and rigorous tasks, reducing STEM opportunities both inside and outside the school.

Kelley (2010) noted that the STEM curriculum framework of science and technology education should be geared with "contextual learning" and provide students with a systematic problem-solving model through "engineering design" so that the students can solve real-world problems through "scientific inquiry." Fan and Yu (2016) conducted in-depth interviews with several scholars related to science teaching in the United States for the purpose of understanding their teaching, and their study reached the following conclusions:

- The STEM teaching model should be an integrated way of teaching and learning.
- In addition to practical teaching, STEM teaching courses must also consider intellectual learning.
- STEM teaching courses must consider such aspects as science and engineering issues, engineering design, scientific inquiry, mathematical analysis, and scientific and technological tools, applying and integrating them.

The STEM teaching philosophy takes creative design as the goal and uses technological techniques and thinking to deal with the problems encountered. The overall competencies to be trained and developed cover science, technology, engineering, and mathematics literacy (Liu, Wu, Xie, & Shen, 2013). According to Becker and Park (2011), compared with the traditional single-subject teaching approach, integrated approaches in STEM teaching improve students' interest and learning in STEM.

2.2 CodeMonkey Course

CodeMonkey enables learners to get a sense of programming. In addition, CodeMonkey has a set of complete and step-by-step game levels for individuals to learn programming languages; these levels are suitable for children and beginners to slowly learn from scratch, so they can start learning programming in a relaxed and interesting situation. This study adopts the CodeMonkey game programming as the experimental platform.

CodeMonkey game software was launched by Israel in 2014 to teach children to code online. The programming language used in CodeMonkey is called CoffeeScript, and the method adopted is to code in JavaScript, which is mainly used for web-based applications. CodeMonkey hopes to combine games and learning in education to enhance students' motivation to learn to program through game-based digital learning.

CodeMonkey is suitable for children over 9 years old and beginners, and the way of learning is similar to that of real programming. Coding in hand allows children to have a more authentic feeling of writing the program. Of course, the higher the game level is, the more difficult the corresponding programming is, such as logic loops. In terms of learning outcomes, education through entertainment can develop children's logical thinking and provide fundamental training to learn engineering mathematics in the future. The game involves a baby monkey who wants to eat bananas, and the player helps the virtual monkey partner get mouth-watering bananas by writing real lines of code.

The basic levels of CodeMonkey are called "Story Mode" and can be challenged one by one. Each level includes many graphic buttons to tell learners the meaning of the main commands. It is a very good guiding process for people who have never learned a programming language. Moreover, after each level is passed, the program logic designed by the learner will be scored, and the learner will even be prompted with a better way to write it.

CodeMonkey also has some more advanced practice courses, such as practicing creating a small game. Once the player acquires some basic program concepts, they can try such exercises. At these levels, players are challenged to create more interactive effects as well as make characters' interactions successful and complete tasks. The many checking mechanisms in the course help learners identify the wrong lines of code they wrote. This is a very convenient self-study exercise for beginners (Etemadi, Kharma, & Grogono, 2013).

2.3 Theoretical Framework of Big 6 (Big Six Skills)

This study intends to implement the theoretical framework of Big 6 (Big Six Skills), which is a teaching method that adopts the problem-solving model. Big 6 was proposed by Eisenberg and Berkowitz in 1990. It consists of six stages: facing the problem, analyzing the problems, acquiring the data, using the data, synthesizing useful data, and evaluating the results.

Big 6 is the most promoted curriculum activity in American school education. It is a teaching model focusing on solving information problems. In recent years, many experts have recommended integrating this model into the teaching of various subjects. Big 6 was originally a method through which school librarians and subject teachers plan the curriculum together so that the students can learn by seeking information and using information in the process of problem thinking, data collection, and report completion. Through the Big 6 teaching strategies, teachers develop problem situations suitable for students' level and help students use systematic steps to complete the course step by step in order to develop their problem-solving skills in areas such as critical thinking, information seeking, and information synthesizing. These are usually the abilities that students find more challenging to acquire. Following the Big 6 strategic steps will effectively assist students in developing an active and participatory learning process and becoming self-directed learners. Students who want to improve STEM professional knowledge and competencies must have this learning attitude to avoid confusion and disorientation (Eisenberg & Berkowitz, 2000).

The Big 6 strategic steps go through six stages:

1) Understand the problem (task definition): Define the problem and identify relevant information needed to solve it. Students must first know the form of the problem to be solved, understand the amount of information needed to solve the problem, and confirm the processing method.
2) Identify sources of information (information seeking): Determine the scope of resources and select the best resources. Students must use their imagination or an innovative way to come up with all possible sources of information and areas covered. They then identify and select the appropriate data sources from the

information sources.

3) Gather relevant information (location and access): Find the sources of the information, acquire the information, identify where the information can be found to solve the problem, and find and acquire the required data oneself.
4) Select a solution (use of information): Read and summarize the information. After searching out the necessary data, understand, analyze, and classify the data acquired and classify the necessary data.
5) Integrate the ideas into a product (synthesis): Organize a variety of information from different sources and present the information. Students must sort and analyze the information that meets actual needs and choose the most appropriate way to publish and present the results of the research.
6) Examine the result (evaluation): Judge the information-processing process and evaluate the works. Students should be able to assess whether they have solved the problems they faced in the whole process as well as reflect on and review whether the whole process is effective.

In sum, the Big 6 model focuses on different priorities for solving the problem at each stage. Students should constantly think about ways and channels to solve the problem, learn to seek the information needed and synthesize it, and then develop the ability to solve the problems. The purpose of the Big 6 model is to provide the framework for teachers to work out a series of systematic teaching activities to strengthen students' ability to think critically.

When analyzed according to the problem-solving method proposed by Lai (2000), the Big 6 involves a series of tasks or needs to be dealt with, which are combined with data through a series of processes, from data-searching methods and tools to how to use, apply, and evaluate the data. The details are broken down into six major steps: (1) definition, including defining the problem and identifying the information need; (2) searching, including determining the scope of resources and listing priorities; (3) acquiring, including finding information resources and acquiring the information; (4) use, including reading and summarizing the information; (5) synthesis, including organizing and presenting the information; and (6) evaluation, including appraisal work and process. Therefore, the use of Big 6 combined with the implementation of game programming can systematically link the theoretical knowledge of STEM with practical applications.

2.4 Research Methodologies

This study combines program design with STEM and Big 6 teaching modes while using exploratory teaching. Through a student-centered learning approach, trainers serve as facilitators, encouraging elementary teachers to raise inquisitive questions independently or in groups and then to search, read, analyze, and compare relevant information before finally reaching conclusions for solving the problem.

The research participants are 10 elementary school teachers who do not have any programming background. According to the six steps of the Big 6 model, which were matched to the course topics of CodeMonkey, the elementary school teachers were helped to learn the basics of programming.

The research design combined the plan with programming and the Big 6 teaching model to train teachers' how to apply STEM into their courses. It formulated specific teaching strategies for each stage. Elementary teachers' learning processes are described as follows:

1) Defining the problem: Trainers encourage elementary teachers to discuss ideas in class to pool collective wisdom, conduct brainstorming sessions and discuss ideas with each other on the spot, and solve problems by drawing upon all useful opinions.
2) Employing information-seeking strategies: In this teaching activity, trainers guide elementary teachers to achieve the aforementioned goals, provide pre-screened and appropriate teaching units, and require elementary teachers to seek the necessary information.
3) Acquiring information: In this teaching activity, trainers require and instruct elementary teachers to read or watch the information found in the previous step, mainly allowing elementary teachers to spontaneously

understand the teaching units provided.

4) Using information: In this teaching activity, hosts require elementary teachers to understand every piece of information, figure out useful information, and record the key points of the information.
5) Synthesizing information: In this teaching activity, trainers encourage elementary teachers to try to synthesize the commands at different game levels in order to achieve the goal under the condition of restricted program commands. Therefore, elementary teachers not only need to fully understand STEM-related teaching units, but also must try to solve the problems that may be encountered in the process of synthesizing program commands.
6) Evaluating: elementary teachers use the knowledge learned and experience from the previous stages to achieve the goal set in the concept development stage—namely, creating a product. In this teaching activity, elementary teachers evaluate the effectiveness of the product through the program commands actually completed by elementary teachers.

This study refers to Sung's (2017) interview outline as the interview questionnaire for the research. After the course finished, the structured interviews were conducted with the elementary teachers. The research questionnaire is shown in Table 1.

Table 1: Interview questionnaire for application programming for improving learners' STEM professional knowledge and competencies

Theoretical Foundation	Big 6 Stage	Interview Questions	Interview Record	Notes
Thinking about the problem	I. Define the problem	What have you learned in this study? Have you encountered any problems? How would you solve the problem(s)?		
Identify the problem	II. Employ information-seeking strategies	How will you find useful information?		
	III. Find information	Will you use the computer or mobile phone or ask other people?		
Use information	IV. Use information	How do you find out what you want from the information collected and categorized?		
Solve the problem	IV. Synthesize information	Is there any information for solving your problem?		
	VI. Evaluate	What have you learned?		

The participants of this study were elementary teachers who played CodeMonkey. Using the levels designed for the game, this study observed whether elementary teachers could learn by doing via playing the game, cultivating their self-confidence and creativity in the games. Each elementary teacher in the course had a computer. By understanding and writing the program logic, elementary teachers were continuously encouraged to try to design and observe details and problems. For problems encountered in the course design, elementary teachers were allowed to find solutions to problems on their own in order to cultivate their abilities and self-confidence.

3. Result

A total of 10 elementary teachers (7 males, 3 females) who do not have any programming background were interviewed in this study.

3.1 Define the Problem

3.1.1 What Have You Learned from This Study?

In the part of thinking about the problem, only three elementary teachers did not pass all the preset game levels. Most elementary teachers could pass all the preset 75 game levels.

3.1.2 What Problems Have You Encountered?

Among the 10 participants, five were able to quickly solve the problems they encountered. Three struggled a bit in learning in the second half of passing the preset game levels and felt that the program logic was a bit difficult to understand; two were obviously weak in learning the program logic as it was relatively difficult for them to pass all the game levels by themselves, perhaps because it was the first time that they had participated in such a course.

3.1.3 How Would You Solve the Problem?

In the last part of defining the problem in Big 6, when encountering a problem, regardless of the stage of the course, participants generally tended to ask classmates or the trainer instead of trying to solve the problem themselves. Four participants were willing to find a solution on their own during the learning process, and they were considered to be quite outstanding participants. When two of the participants encountered a problem, apart from watching what their classmates would do, they were less likely to ask the trainer or actively search for a solution, so their learning results were relatively poor in the later stages.

3.2 Employ Information-Seeking Strategies

Four participants were very comfortable in the context of self-learning game programming, and another one was willing to seek information from other places to solve the problem. These five participants were also able to show a positive attitude and overcome the problems encountered in the relatively difficult program logic in the later stage of passing the game levels.

3.3 Find the Information

In existing Big 6 literature, the main way to find information was to use computers and ask other people (hosts and classmates). In this study, because the learning platform provides prompt guidance before passing the level, most participants could find information from the guidance. Two participants gave priority to asking the hosts, another two gave priority to asking their classmates, and four gave priority to finding solutions to the problems on their own.

3.4 Use Information

In terms of using information, this study mainly observed how participants used information. Four participants acted in accordance with the source of the information, while six categorized the information according to the problem. As previously discussed, each game level of the learning platform offered some problem points for consideration. The learners also adapted to the learning model. They would first think about how they wanted to solve the problem before acting so they could develop the skills for first collecting, categorizing, and finding the information they wanted and solve the problem themselves.

3.5 Synthesize Information

Most of the participants could successfully solve the problems through the process of collecting and categorizing information, especially the basic logical problems in the first half, which could be successfully solved in accordance with the information. However, the second half included more complicated game levels, which led participants to conclude that "the program is difficult" and ask "Why is it that? I cannot understand it."

3.6 Evaluate

As they learned to code while playing games, the participants generally found the activities novel and fun. On the whole, all of them liked the process of learning by playing games.

Passing game levels can encourage participants to go all in. In addition, some guidance is provided before entering each level, and learners are able to complete the tasks to complete each level. After acquiring a basic understanding of the game in the initial stages, learners enter more complex game levels; if mistakes continue to occur, Dr. Monkey provides some guidance on the learning platform, which greatly reduces learners' frustration. The learners can get complete step-by-step guidance and feel a sense of accomplishment by passing the game levels, thereby stimulating their curiosity and generating a strong impulse to pass the game levels and even create their own game levels to challenge others.

Participants are more willing to accept different learning tools to collect and analyze information. The process of this study lasted only 32 hours of research time total over 8 weeks. Throughout the classes, participants were very focused on such courses for learning programming, which could improve their abilities to collect, analyze, and synthesize information. As the trainer could not answer different participants' questions at the same time, those participants eager to pass the game levels used other information to solve the problem, including repeatedly reading the prompts of the topic to search for data, discussing ideas with each other, and reviewing the information that the trainer had already provided.

Programming is a relatively rigid subject that involves commands, logic, mathematics, programming, etc. In the expanded scope, it also involves source materials from science, technology, and mathematics. Through game-based learning, at the fundamental stage, participants can learn it with great interest. However, when the application of logical and loop concepts is involved, participants must have the ability to use abstract thinking to deconstruct concepts. If the participants cannot understand the learning goals, their self-confidence and joy of learning will be weakened.

4. Discussion

With respect to the performance of elementary teachers who participated in the course CodeMonkey Learning Programming while Playing Games, no significant difference was found between male and female participants' expectations of the course teaching, game levels passed for the course, programming skills, and learning attitude. This is different from the general perception that male participants would do better than female students. When participating in the course, the proportion of participants who actively solved problems was higher than that of participants who waited for help. Thus, participants who actively seek to solve problems can achieve better learning efficacy.

Regardless of whether they had completed Lesson 6, most participants agreed that learning CodeMonkey is not difficult; the operation for passing the game levels is easy, and CodeMonkey is helpful for learning programming and can improve the learning efficiency. In the learning process, most participants thought that CodeMonkey was interesting, and they would continue to learn programming. The research results show that participants were highly satisfied with the CodeMonkey programming teaching course, which successfully aroused their interest in programming. For both male and female students who are relatively passive in learning, when they learn CodeMonkey programming courses, the teacher should provide more guidance to eliminate

their differences in learning. Logical thinking is an important ability for programming. If participants can study the CodeMonkey programming courses for at least half a year, it would be helpful for the researcher to observe the participants' differences in logical thinking ability after they receive the CodeMonkey programming teaching.

This study confirmed that CodeMonkey is suitable for beginners and can enable them to develop an interest and maintain that interest in information technology since first becoming engaged in information courses. The study can serve as a guide for elementary teachers to improve their Application of STEM Capabilities

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The Effect of Social Studies Courses on Digital Self Formation in Turkey

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Abstract
The world, which includes all living things from the first human to the present, is based on the process of change and transformation with all its dimensions. It can be stated that this process of change and transformation affects the lives of many living things on earth, as well as remarkable effects on human life. In particular, the digital world, which is one of the important results of technology-based development, can be said to be effective in shaping human life cognitively, psychomotorically and emotionally. This shaping process takes place in educational institutions with the achievements transferred through various fields of study and disciplines. This study, in which the effect of social studies courses on the formation and development process of the digital self-concept, which is based on the cognitive effects of digitalization, was evaluated in line with the perceptions of teachers in Turkey, was designed according to the phenomenological approach, one of the qualitative research methods. The research data were analyzed with the descriptive analysis technique and thematic codes were created based on the findings. A semi-structured interview form prepared by the researchers was used to collect data. The research data, the answers to the questions in the interview form, were collected through online interviews with social studies teachers due to the Covid-19 epidemic in the world and in Turkey. In the study supported by the Scientific Research Projects Coordination Unit of İnönü University with the Normal Research Project coded SBA-2019-1755, the data obtained were analyzed and the findings were presented in tables and figures. Considering the findings of the study, it can be said that the social studies teachers who make up the study group have different and remarkable perceptions about the effects of social studies lessons on digital self-creation.

Keywords: Digitization, Digital Self, Social Studies, Teacher, Perception

1.Introduction

It can be said that digitalization is one of the most important determinants of human life in the 21st century, in which environments, where interaction and communication take place with technology-based tools and materials, are at the forefront. Although digitalization brings many new dimensions and skills to human life, it can be stated that it overshadows many values and habits. As a living creatures on earth, human beings have been in the process of constant curiosity and questioning in their life adventure. The basis of this questioning

process was the effort to question who the human being is, the purpose and goals of existence. In this process, the questions that a person asks within himself and the answers to these questions have brought the concept of self to the forefront as the expression of the inner process that helps him define himself. It can be said that the self-concept, which comes to the forefront, is effective in creating virtual identities in various forms by enabling different discourses, practices and positions in the identity construction process together with the digitalization process. In the adventure of creating virtual identity, the concept of digital self-came to the fore in the process of questioning and building. It can be said that the digital self, which contributes to the self-knowledge of human beings, contributes to the communication, sharing and interaction rate of the individual in virtual environments. In addition, the digital self-creation and development process has increased the level of using social media platforms for the purpose of self-expression, having fun or socializing. It can be said that this increase has positive and negative reflections that are appreciated by the society in the life process of human beings.

Although many studies have been conducted to evaluate the positive and negative effects of digitalization on human life, it has been observed in the literature review that the effects of digitalization on cognitive, psychomotor and emotional development areas are not adequately addressed. While this observed situation constitutes the reason for the study, it can be said that it is very important in terms of shedding light on the studies to be done on the basis of digitalization from now on.

2. Literature Review

2.1. Self-Concept

It can be said that the continuation of humankind's historical existence until today is due to the sense of curiosity, questioning and research skills it carries. It cannot be said that fulfilling the requirements of these feelings and skills is at the same level in every society or individual in the world. Therefore, there is difference and originality on the basis of the concept of human or individual. This difference and originality may vary depending on the individual's self-perception. Although the self is defined in different ways based on the achievements it contains in many disciplines, it can be said that the main theme of this concept is the image that separates the person or the individual from the others (Morva, 2014; Morva, 2016).

In addition, the self can be defined as the concept that forms the inner integrity of the person and evaluates the qualities that exist in him (Allport, 1950). It has been seen in the literature review that many scientists who have worked in different disciplines in line with various themes have made original definitions of the self-concept. That is, while Mead (1972) considers the self as a social formation existing in social relations (Okcebe, 2019), it can be said that Rosenberg (1965) expresses it as the sum of all feelings and thoughts that a person has about himself (Gray-Little, Williams & Hancock, 1997). However, according to William James, the pioneer of scientific research on self-concept, it can be stated that the self is defined as everything that an individual can say that he or she belongs to (Yılmaz Aslan, 2016).

2.2. Digital Self

It can be said that the developments in communication technologies and the change of the media over the phenomenon of digitalization bring about the emergence of original concepts such as the digital (virtual) self. Along with the introduction of Web 2.0 technology into human life, depending on the developing internet technology, it has brought many transformations such as socialization styles. With this technology, new forms of socialization have emerged through social networks. Self-presentation, which was only in the physical world, has moved to the internet world. In this way, it has become possible to talk about both the physical self and the digital self. The increase in the time spent on the internet due to the rapid spread of internet technology has accelerated the technology-based self-development processes in the internet environment (Armağan, 2013).

The digital self can be expressed as an online mental interaction process that designs/creates itself under the influence of electronic audiences or viewers. In addition to many original studies on the concept of digital self,

Zhao can be said to explain the digital self with four main items in his research (Morva, 2016; Okcebe, 2019). These items are given in Figure 1 below.

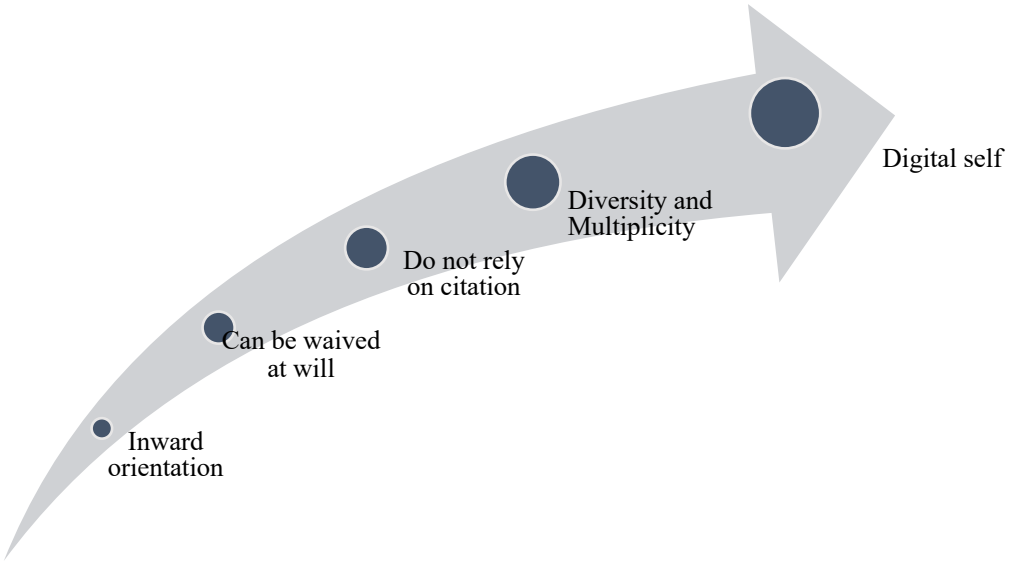

Figure 1: Stages that make up the digital self

What constitutes the digital self is detailed below in detail. These stages are;

2.2.1. Inward Orientation

At this stage, the freedom of expression that the digital self provides to the individual in the virtual environment is highlighted. Namely, it can be said that individuals who are introverted in the online environment can communicate more easily with those who are in the same environment with themselves through the digital self. It can be stated that this communication process stems from the individual's ability to share feelings and thoughts easily without any pressure (Morva, 2016; Okcebe, 2019).

2.2.2. Relying on Narrative

It can be considered as the stage in which the individual expresses and explains who he is. In the offline life process, the individual does not have to introduce or explain himself to his environment. Because the environment can have a perception about the individual by looking at the words and actions of the individual. However, it can be said that it is necessary for the individual to make a transfer about himself on anonymous platforms open to everyone. In environments where written text based communication takes place, the individual can build his digital self by giving information about himself (Morva, 2016; Okcebe, 2019).

2.2.3. Quit When Wanted

The self that an individual creates or uses in the offline environment is related to his/her own gestures and mimics and cannot be considered apart from them. Changes in the individual's knowledge-based thoughts and ideas may make it difficult for the individual to adapt to his environment and may take a certain time. However, it can be said that this situation is different in online environments. The digital self, which is formed depending on the digital environment, which is independent of the physical environment, can be deleted or edited without requiring any changes in the process. However, this process may have some negative consequences such as gaining followers or losing viewers (Morva, 2016; Okcebe, 2019).

2.2.4. Being Multiple and Diverse

In line with this stage, it can be said that Zhao stated in his study that the excess of self in digital platforms should be considered as a mirror of society that contains differences. While similar personality structures are observed in traditional societies, it is seen that there are many different personality structures in modern societies. Modern society teaches individuals that a person can contain many selves within himself. Zhao defines the self-shaped in this way as “decentralized, diffused and diversified and multiplied in a continuous instability” (Morva, 2016; Okcebe, 2019).

Purpose of the Research

In the research, it was aimed to evaluate the formation process of the digital self, which emerged due to the fact that the developing internet and communication technology in the world has an important place in the life of the individual, in the social studies course criterion. For this purpose, the views of social studies teachers working in various secondary schools affiliated to the Ministry of National Education in Turkey were used. In line with the purpose of the study, answers to the following questions were sought.

- What are the concepts that create associations for you when you say digital self?
- Do you think that social studies lessons contribute to the formation of digital self, why?
- What are the skills that come to the fore in social studies in terms of contributing to the formation of digital self?
- What do you think are the factors that negatively affect the digital self-creation process in social studies lessons?
- What are your suggestions for digital self-formation in social studies lessons?

3. Method

A flow chart showing the main stages of the method followed in the study is presented in figure 2. Looking at Figure '2, it can be said that the study took place with online activities due to Covid-19, which continues to affect the world.

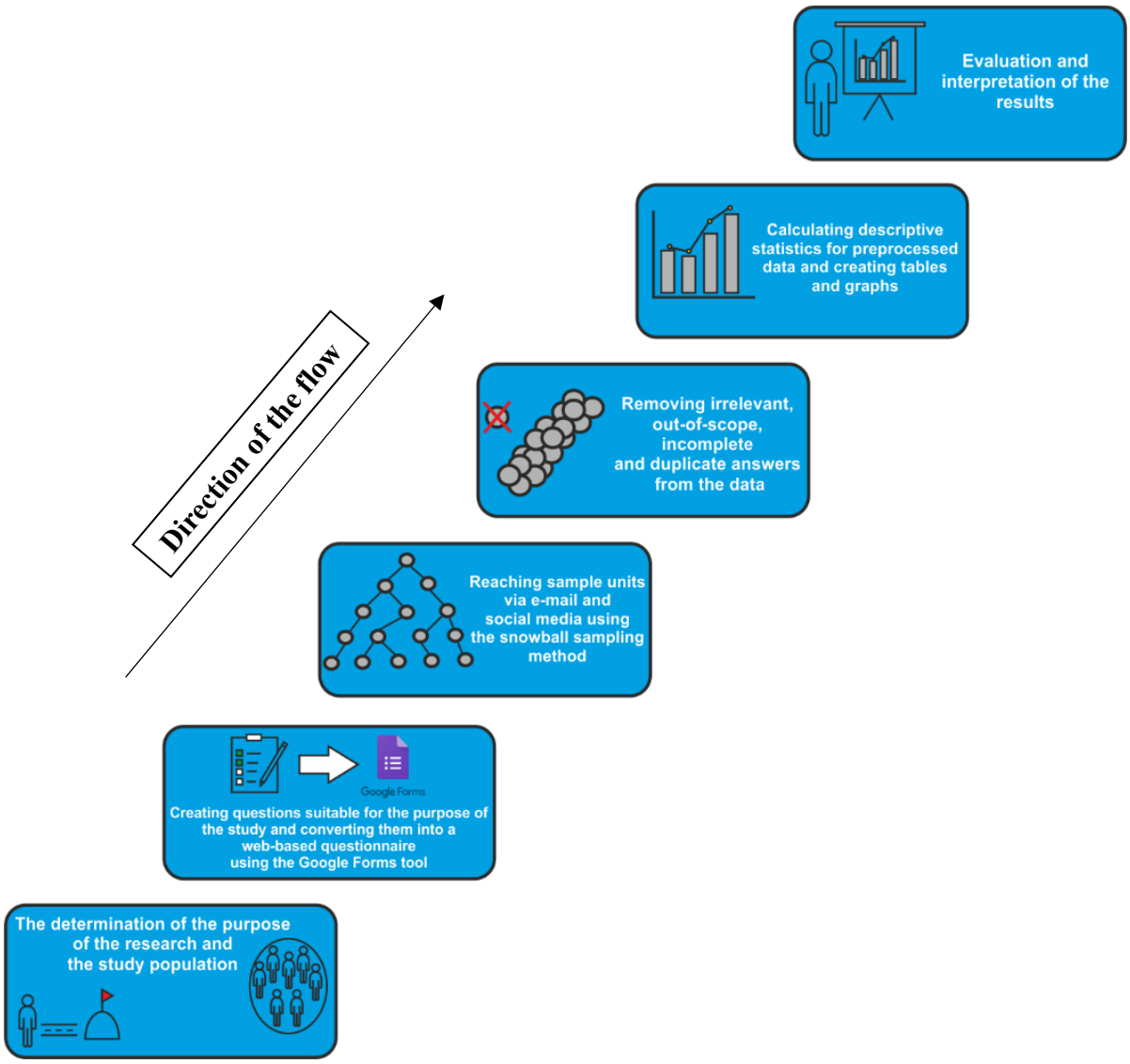

Figure 2: Methodological stages of the study

3.1. Model of the Research

This study is a research designed according to the phenomenological model, one of the qualitative research methods. Yıldırım and Şimşek (2005) define qualitative research as a type of research in which qualitative data collection methods such as observation, interview and document analysis are used, and a qualitative process is followed to reveal perceptions and events in a natural environment in a realistic and holistic manner. The phenomenological model, on the other hand, is the study that aims to investigate the phenomena that are not completely foreign to us and at the same time we do not understand the full meaning (Yıldırım & Şimşek, 2005). The purpose of the phenomenological pattern is to produce knowledge and reveal the reality of the phenomenon (Patton, 1980; Creswell & Poth, 2016).

3.2. Working Group

The study group of the research consists of 50 social studies teachers working in secondary schools in various provincial centers (Malatya, Mardin, Ankara, Bursa, Aydın, Antalya, Sinop) in Turkey in the 2020-2021 academic year. In Figure 3, the gender distribution of the school teachers participating in the research is given. The members of the study group, who contributed to the research with their opinions, were selected within the

scope of simple random sampling, one of the random sampling methods. In the simple random sampling method, all units in the universe have an equal and independent chance to be selected for the sample. However, random sampling methods are stronger than other sampling methods in providing representation and the power of the sample to represent the universe is higher (Özen & Gül, 2007).

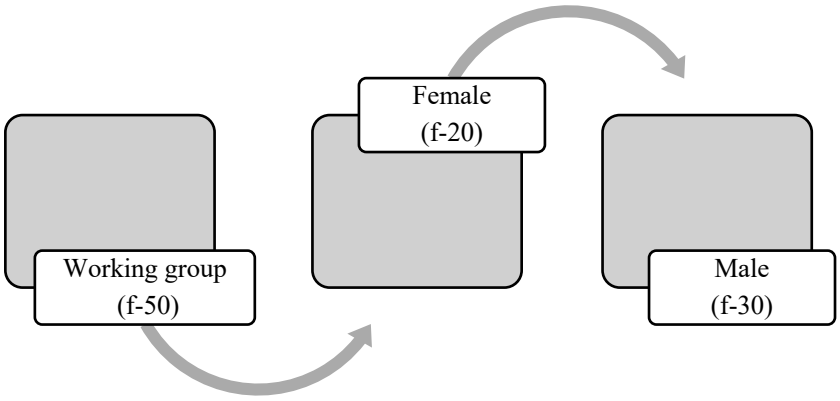

Figure 3: Gender distribution of the study group members

When we look at Figure 3, it is seen that the majority of social studies teachers who contributed to the study with their views are male. The excess of male teachers is not considered as a result especially desired by the researcher, but can be expressed as a random situation that occurs depending on the distribution of the obtained data.

3.3. Data Collection Tool

The data of this research were collected through a semi-structured interview form. In the semi-structured interview technique, the researcher prepares the questions he wants to ask the subject in advance. These prepared questions are asked to each participant within the framework of a certain system. It is ensured that the participants, who are asked the same questions in the interviews, can go into detail in order to ensure that they do not give the same answers (Altunışık, Çoşkun, Yıldırım & Bayraktaroğlu, 2001). For the interview form used in this study, the relevant literature was searched, a semi-structured draft interview form was prepared, and first of all, the administrators were interviewed and the corrections were made on the questions. Then, the semi-structured interview form was examined by the field experts and the form was finalized and applied.

3.4. Analysis of Data

Within the framework of the study, the data recorded by the researcher in the online interviews with the social studies teachers who constituted the study group were interpreted by describing them. The "content analysis" process was followed in the analyses. The data were divided into categories according to their salient features, and cause-effect relationships were tried to be examined and summary information that the reader could easily see was tried to be reached. Tables were created by using the frequency values of the data subjected to content analysis. The tables prepared were interpreted by the researcher. Direct quotations from the answers of the pre-service teachers were included in order to describe the data presented by organizing according to concepts and themes in detail (Yıldırım & Şimşek, 2011). Similar opinions were brought together under a common theme and grouped as G.1, G.2…. In the example sentences, the person who thought of the thought was added to the end of the sentence by shortening it. (For example, it is coded at the end of the statements as Participant 1=K1).

4. Findings

The findings obtained in this study, which was prepared to determine the effect of social studies courses on digital self-creation, are discussed under six headings.

4.1.The Situation Regarding the Concepts That the Digital Self Concept Arouses Associative

In order to obtain the data in line with the study, in the semi-structured interview form prepared by the researcher, "What are the concepts that evoke in you when you say digital self?" The answers given by the social studies teachers constituting the study group to the first question in the form of, were analyzed with the content analysis technique and the findings were given in table 1.

Table 1: Concepts associated with the digital self in the study group members

Themes	f
G.1. Technology based thinking	20
G.2. Virtual warehouse	10
G.3. Virtual thinking	6
G.4. Digital view	10
G.5. Dependent and limited thinking	4
Total	50

Looking at Table 1, it can be said that the social studies teachers who make up the study group have strikingly different mental associations regarding the concept of digital self. The emergence of this situation can be shown as the reason for the continuous technological developments related to the development and formation process of the digital self-concept. The exemplified views of the members of the study group regarding the findings given in Table 1 are given below.

> *"I can say that the concept of digital self is one of the concepts that I have encountered widely in recent years due to technology-based developments. In this direction, I can write many concepts that this type of self-evokes. However, I can say that the first thing that comes to my mind is the virtual warehouse." (Participant, 42)*
>
> *"In today's world where technology-based activities are at the center of our lives, we have started to meet many of our needs with internet-based applications. I can say that the concepts of digital self, technology-based thinking and perception formed in this process are associated with me." (Participant, 12)*

4.2. Contribution of Social Studies Courses to Digital Self Formation

"Do you think that social studies courses contribute to digital self-formation, why?" The answers given by the members of the study group to the question in the semi-structured interview form in the form of a semi-structured interview were analyzed with the content analysis technique and the findings are given in the form of themes in Table 2 below.

Table 2: Perceptions of study group members regarding digital self-development of social studies

	Themes	**f**
Yes	G.1. Technology based gains	9
	G.2. Virtual events	15
	G.3. Digital materials	15
No	G.4. Theoretical content	5
	G.5. Inappropriate learning environment	6
Total		50

When the findings given in Table 2, obtained as a result of the analysis of the views of the study group members with the content analysis technique, are examined, it is seen that the social studies teachers have different perceptions about the digital self-development of the social studies lessons. It is observed that this difference is evaluated around five themes. It can be said that the fact that the social studies teachers who constitute the study group have different perceptions about the research finding is due to their different competencies in using technology effectively. The exemplary opinions that best summarize this situation are given below.

"As a teacher who has been in the social studies course for nearly 20 years, I can say the following regarding your question. I am trying to give more space to internet technology-based activities in social studies lessons, especially after smart boards are installed in classrooms. I can say that these activities provide students with more meaningful and concrete learning. I can say that these activities contribute to the formation of digital self in students." (Participant, 7)

"I think that it will not contribute to the formation of digital self, due to the structure of the social studies course and the learning areas it contains are more at the level of knowledge and concept." (Participant, 17)

4.3. Situation Regarding Skills Contributing to Digital Self Formation in Social Studies

"What are the skills that stand out in social studies in terms of contribution to the formation and development of the digital self?" The answers given were analyzed and the findings were given in Table 3 in the form of themes.

Table 3: Perceptions of the study group regarding the skills that contribute to the formation of digital self

Themes	f
G.1. Research	8
G.2. Entrepreneurship	7
G.3. Digital literacy	23
G.4. Media literacy	6
G.5. Innovative thinking	6
Total	50

When we look at the table 3 above regarding the research finding, it is seen that the members of the study group have remarkable perceptions about the subject. In the research finding examining the contribution level of the skills in the social studies curriculum to the formation of the digital self, it is observed that the skills that come to the fore are those included in the social studies curriculum in 2018. This can be shown as one of the proofs that the social studies program has been updated in line with technology-based needs. The exemplified views of the members of the study group regarding the relevant finding are given below.

"I can say that there are many skills that contribute to the formation of digital self in the social studies curriculum. However, I can say that the entrepreneurial skill that contributes to the process of benefiting from digitalization is more prominent." (Participant, 3)

"If the digital self is not supported by communication technologies, many difficulties may be encountered in its formation. Therefore, in answer to your question, I will give the skill that includes the competences on the basis of media literacy." (Participant, 29)

4.4. Situation Regarding Factors Negatively Affecting Digital Self Formation

"What do you think are the factors that negatively affect the digital self-creation process in social studies courses?" The answers given by the members of the study group to the question in the form of content analysis were subjected to content analysis and the findings were given in the form of themes in table 4. When Table 4 is examined, it can be said that the social studies teachers who make up the study group have remarkable perceptions about the subject. The differences in these perceptions can be shown as evidence that the members of the study group think differently about the factors that negatively affect the digital self-formation of the social studies course.

Table 4: Perceptions of the study group about the factors that negatively affect digital self formation

Themes	f
G.1. Program deficiencies	8
G.2. Lack of gain	5
G.3. Learning environment issues	25

G.4. Course material problems	8
G.5. Teacher competency problems	4
Total	50

Considering the findings in Table 4 above, it can be said that the social studies teachers who constitute the study group classified the factors that negatively affect the formation of digital self in social studies under 5 themes, and among these themes, the frequency ratio of learning environment problems was noted. The prominence of this theme can be shown as evidence of the inadequacy of technology-based laboratories in schools for social studies courses. Exemplary opinions regarding the relevant finding are given below.

> *"In my opinion, the most important factor negatively affecting the formation of digital self in the social studies course learning-teaching process is the inadequacy of digital technology in the learning environment. Digital self-formation cannot occur in a classroom where this inadequacy exists." (Participant, 50)*
>
> *"I think the main condition for contributing to the formation of digital self in social studies is the proficiency level of the teacher who transfers the course. Digital self-formation cannot take place in a course or environment where there is a lecturer who does not have sufficient equipment in this regard." (Participant, 9)*

5. Conclusion, Discussion and Recommendations

It can be said that in this study, in which teachers' perceptions of the effect of social studies lessons on digital self-creation were evaluated, original and remarkable results were obtained. It is seen that these results are evaluated under the themes of the connotation of the digital self-concept, the contribution of the social studies course to the formation of the digital self, the skills that stand out in terms of contribution to the formation of the digital self in social studies, the factors that negatively affect the formation of the digital self, and the suggestions for the formation of the digital self (Table, 1, 2,3,4 and 5). It is observed that the findings related to these themes are given together with the frequency ratio distribution in the worksheets. When each of the tables is examined, it can be said that remarkable findings have been reached. One of the results obtained in the study is that the social studies teachers who make up the study group express the digital self with technology-based thinking. It can be said that this result is very important in expressing the level of influence of technology-based mental activities on digital self-formation. It can be said that this result obtained in the study is similar to many results obtained in the study by Patchin and Hinduja (2017). In addition, in this study, it can be said that the development of digital self-formation among young people, associating it with young people's awareness of technology-based activities, and in this study, the technological inadequacies of teachers, which negatively affect the process, are determinative in determining the effect of digital self-formation on the process of digital self-formation.

In the research on the digital self-formation process, it can be said that remarkable results have been achieved regarding the research theme in which the contribution to the social studies course is evaluated. Among these results, it can be said that the findings related to the increase in the number of virtual activities and materials used in the learning-teaching process contribute to the increase of awareness about the research. It can be said that this result obtained in the study is similar to the results obtained in the study by Nokelainen (2006). This similarity can be evaluated as the positive reflection of digital materials on the formation of digital self by making mental learning meaningful in the learning-teaching process. Another important result that supports this positive reflection and obtained in the study is the findings that include the skills that come to the fore in terms of contributing to the formation of digital self in social studies lessons. Looking at Table 3, which includes these findings, it can be said that digital and media literacy, entrepreneurship and research skills come to the fore. Considering these results, it can be stated that the formation of digital self takes the skills gained due to the activeness of the individual in the learning environment in the learning-teaching process. It can be said that this result obtained in the study is similar to the skills highlighted by the technology-based learning process in the study by Jonassen, Peck, and Wilson (1999). It can be said that this similarity is remarkable in terms of the skills

gained by the technology-based activities, which the individual is responsible for his own learning in the learning-teaching process, and that he uses to make his learning meaningful and concrete. Based on these results obtained in the study;

- Digital self-formation should be supported by increasing the number of technology-based activities in the social studies course learning-teaching process,
- The number of acquisitions and activities that contribute to the formation of digital self should be increased in the curriculum,
- The scope of the digital self and its benefits to the individual should be conveyed by experts to the administrators and teachers who manage the process,
- Suggestions can be made that the number of activities and applications that contribute to the formation of the digital self should be increased in the learning environment and course materials.

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Teaching in the Aftermath of a Pandemic: Must an Employer Provide an Accommodation for Commuting for a Disabled Employee?

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Abstract
Part I of the paper discusses the Americans with Disabilities Act or ADA, its requirements, and various protections for persons who suffer from a recognized disability which impacts their ability to work under certain circumstances and conditions. The context of this study is American higher education. Part II will discuss the obligation of an employer to offer a "reasonable accommodation" of the nature sought by an employee which would permit the employee to continue teaching while otherwise meeting all of the obligations imposed on faculty members under appropriate university policies. Specifically, the research question considered in Part II relates to whether "commuting" is a covered activity under the ADA which would trigger the responsibility of providing the employee with a reasonable accommodation, allowing an employee to teach in the employee's preferred combination of online and hybrid modalities.

Keywords: Americans with Disability Act, Accommodation, Undue Burden, Commuting, Essential Function, Online and Hybrid Teaching

PART I – A DETAILED ANALYSIS OF THE AMERICANS WITH DISABILITY ACT

> *"A key feature of the ADA prohibits discrimination against persons with disabilities in employment. That means employers must provide reasonable workplace accommodations for employees with disabilities, as long as the accommodations do not cause an undue burden on the employer. Reasonable accommodations are changes to a job, workplace, or the way a job is carried out that allow an employee with a disability to perform a job for which they are qualified"* (Social Security Administration, 2021).

1. Introduction

Consider this scenario. Professor Rachael Gatherer has been teaching at the University of South Hampton (USH) for nearly forty years. Professor Gatherer has been a productive member of the university community, publishing more than 175 academic articles with colleagues and students, winning numerous awards for teaching, and giving exemplary service to the university, to the School of Corporate Communications, and to her profession.

However, about fifteen years ago, Professor Gatherer was diagnosed with Lyme Disease. As a result, commuting to the university has been increasingly more difficult and teaching classes while lecturing in a standing position and moving about the classroom has also become more problematic. In addition, over the years, Professor Gatherer has experienced severe ear infections caused during air travel which have impaired her ability to hear her students clearly and to answer questions in the classroom once she returns to the USH campus from a trip involving air travel.

The University, however, offers classes in a variety of teaching modalities that would accommodate these factors, while giving Professor Gatherer the opportunity to fulfill her responsibilities under USH's Faculty Manual. These options include teaching fully online or teaching in what may be described in a hybrid format, meeting classes and conducting activities in a limited number of in person contacts and also online as well, or in a combination of the two modalities. In fact, Professor Gatherer actually was assigned classes by her Department Chair over two semesters based upon these factors utilizing these modalities—a schedule which was approved by the Dean of the School, Dr. James Hayes. Using the technologies supported by USH, Professor Gatherer has successfully taught her classes for the past eighteen months during the Pandemic and has met all the other obligations of a faculty member in terms of conducting regular office hours online, and participating in faculty governance and committee meetings.

Now, Dean Hayes wishes to impose a new requirement on all faculty, partly in response to the Pandemic, which saw USH move to an online (synchronous or asynchronous) modality only, and later adding a hybrid flexible, or HyFlex, modality in which each class session and learning activity was offered in-person, synchronously online, and asynchronously online, and students could decide how to participate (see Lederman, 2020). The Dean has announced that all faculty members would be required to be physically present on campus once each week and faculty would no longer be afforded the opportunity to continue to teach a schedule based completely on online or hybrid classes.

Professor Gatherer wishes to continue her teaching at USH and seeks an accommodation based on her physical disabilities. However, the Director of Human Services at USH has informed Professor Gatherer that the university will only accommodate her disabilities by providing a classroom chair and microphone, but that her request to teach online and in a hybrid format, based on difficulties encountered while commuting to the university, had been denied.

Professor Gatherer has appealed the decision of the Director of Human Services, asking who in fact made the decision, who had been consulted in any deliberative process, and the basis for the denial. Meanwhile, Professor Gatherer has sought the guidance of the local Equal Employment Opportunity Commission (EEOC) to investigate whether her rights under the *Americans with Disabilities Act* (ADA) of 1990 or the *ADA Amendments of 2008* have been violated.

This paper will discuss the implications of this scenario and the questions which arise in that context. Part I of the paper will discuss the ADA, its requirements, and various protections for those who suffer from a recognized disability which impacts their ability to continue to work under present circumstances and conditions. Part II of the paper will discuss the obligation of an employer such as USH to offer a "reasonable accommodation" of the nature sought by Professor Gatherer which would permit her to continue in her chosen profession of teaching while otherwise meeting all of the obligations imposed on faculty members under the USH Faculty Manual.

Specifically, the research question which we consider in Part II relates to whether "commuting" is a covered activity under the ADA which would trigger the responsibility of USH to provide a reasonable accommodation in the form of allowing Professor Gatherer to teach in the preferred combination of online and hybrid modalities.

2. The Americans with Disabilities Act

The *Americans with Disabilities Act of 1990* or ADA is a civil rights law that prohibits discrimination based on disability (Rothstein, 2000). Barancik (1998) noted: "When Congress enacted the Americans with Disabilities Act ("ADA") in 1990, approximately 43,000,000 Americans had one or more physical or mental disabilities." That number had grown to approximately 54 million in 2021 (National Network, 2021).

In creating the ADA, The Congress specifically found in Section 12101 that:

> "(1) physical or mental disabilities in no way diminish a person's right to fully participate in all aspects of society, yet many people with physical or mental disabilities have been precluded from doing so because of discrimination; others who have a record of a disability or are regarded as having a disability also have been subjected to discrimination;
> (2) historically, society has tended to isolate and segregate individuals with disabilities, and, despite some improvements, such forms of discrimination against individuals with disabilities continue to be a serious and pervasive social problem;
> (3) discrimination against individuals with disabilities persists in such critical areas as employment, housing, public accommodations, education, transportation, communication, recreation, institutionalization, health services, voting, and access to public services;
> (4) unlike individuals who have experienced discrimination on the basis of race, color, sex, national origin, religion, or age, individuals who have experienced discrimination on the basis of disability have often had no legal recourse to redress such discrimination;
> (5) individuals with disabilities continually encounter various forms of discrimination, including outright intentional exclusion, the discriminatory effects of architectural, transportation, and communication barriers, overprotective rules and policies, failure to make modifications to existing facilities and practices, exclusionary qualification standards and criteria, segregation, and relegation to lesser services, programs, activities, benefits, jobs, or other opportunities;
> (6) census data, national polls, and other studies have documented that people with disabilities, as a group, occupy an inferior status in our society, and are severely disadvantaged socially, vocationally, economically, and educationally;
> (7) the Nation's proper goals regarding individuals with disabilities are to assure equality of opportunity, full participation, independent living, and economic self-sufficiency for such individuals; and
> (8) the continuing existence of unfair and unnecessary discrimination and prejudice denies people with disabilities the opportunity to compete on an equal basis and to pursue those opportunities for which our free society is justifiably famous, and costs the United States billions of dollars in unnecessary expenses resulting from dependency and nonproductivity."

The ADA requires covered employers to provide "reasonable accommodations" to employees with disabilities which will permit an employee to continue to work. In addition, the ADA imposed "accessibility requirements" on certain public accommodations (Burgdorf, 1991; Parry, 1992).

The ADA provides "a clear and comprehensive national mandate for the elimination of discrimination against individuals with disabilities." The Act prohibits discrimination in several areas against people with disabilities. Title III states that:

> "No individual shall be discriminated against on the basis of a disability in the full and equal enjoyment of the goods, services, facilities, privileges, advantages, or accommodations of any place of public accommodation by any person who owns, leases (or leases to), or operates a place of public accommodation."

The ADA also applies to a wide range of *facilities* whose operations "affect commerce." Coverage includes restaurants, bars, and other food serving establishments. The ADA does not apply to (1) private clubs exempted from coverage under Title II of the *Civil Rights Act of 1964* (see Hilton, 1987; Johnson, 1995; Livergood, 2001); (2) religious organizations or entities controlled by such organizations (Sepper, 2016; Payne, 2021); and (3) multifamily buildings, which are covered by the 1988 *Federal Housing Amendments Act* [Fair Housing Act] (generally Jeter, 2016).

2.1. A Brief History

The ADA is said to have its roots in Section 504 of the *Rehabilitation Act of 1973,* which prohibits discrimination on the basis of disability in programs conducted by federal agencies, in programs receiving federal financial assistance, in federal employment, and in the employment practices of federal contractors (Chamusco, 2017). Perkins (2018, p. 55) stated: "With the enactment of Section 504, Congress recognized that the inferior social and economic status of people with disabilities was not a consequence of the disability itself, but instead was a result of societal barriers and prejudices."

In 1986, the National Council on Disability (NCD), an independent federal agency that makes recommendations to the President and Congress on policies affecting Americans with disabilities, recommended the enactment of a federal Americans with Disabilities Act. The NDC had issued a report, "*Towards Independence,"* in which the Council had examined incentives and disincentives existing in federal legislation which would impact the independence and full integration of people with disabilities into American society. According to its website, "The NCD is comprised of a team of Presidential and Congressional appointees, an Executive Director appointed by the Chair, and a full-time professional staff" (National Council on Disability, 2021).

The NCD drafted the initial version of the bill which was introduced in the House and Senate in 1988 by Senator Lowell Wicker (R-Conn.) and Representative Tony Coelho (D-Cal) (see Mayerson, 1992). A revised bipartisan version of the ADA was later introduced by Senators Tom Harkin (D-Iowa) and David Durenberger (R- Minn.), and Representatives Tony Coelho (D-Cal.) and Hamilton Fish (R-N.Y.) in the 101st Congress. The ADA passed the Senate by a vote of 76 to 8. The final version passed the House by a vote of 377 to 28 (see Colker, 2004).

The bill was signed into law on July 26, 1990, by President George H. W. Bush. [Picture 1.] Rosenthal (2005, p. 895) reports that "At the signing of the ADA, President Bush observed the following: 'With today's signing of the landmark Americans for [sic] Disabilities Act, every man, woman, and child with a disability can now pass through once-closed doors into a bright new era of equality, independence, and freedom.'" The ADA was later amended in 2008 and signed by President George W. Bush, with changes that became effective as of January 1, 2009.

Interestingly, the bill faced opposition from several religious groups such as the Association of Christian Schools International, who opposed the ADA in its original form, primarily because the ADA had deemed religious institutions as "public accommodations" and would have required churches to make structural changes to ensure access people with disabilities in Section 12187. The "cost" argument was successful in keeping religious institutions from being labeled as "public accommodations" under the Act (see Ramey, 2007).

The National Association of Evangelicals testified against the ADA's Title I employment provisions on grounds that the regulation of the internal employment of churches was "... an improper intrusion [of] the federal government" and a violation of "religious liberty" (Lawton, 1990).

Members of the business community likewise opposed the ADA on more practical grounds. For example, in offering testimony before Congress, a representative of the Greyhound Bus Lines stated that the act had the potential to "deprive millions of people of affordable intercity public transportation and thousands of rural communities of their only link to the outside world" (see Feinberg, 2021). The US Chamber of Commerce argued that the costs of the ADA would be "enormous" and would have "a disastrous impact on many small

businesses struggling to survive" (Congressional Digest, 1989, p. 297). The National Federation of Independent Businesses, an organization that lobbies for small businesses, called the ADA "a disaster for small business" (Mandel, 1990; see also generally Stapleton & Burkhauser, 2004).

In signing the bill, President George H. W. Bush rejected these views and stated:

> "I know there may have been concerns that the ADA may be too vague or too costly, or may lead endlessly to litigation. But I want to reassure you right now that my administration and the United States Congress have carefully crafted this Act. We've all been determined to ensure that it gives flexibility, particularly in terms of the timetable of implementation; and we've been committed to containing the costs that may be incurred.... Let the shameful wall of exclusion finally come tumbling down."

The Equal Employment Opportunity Commission (EEOC), created by the *Civil Rights Act of 1964,* to enforce Title VII of that Act, prohibiting discrimination in employment on the basis of race, color, religion, sex or national origin, was given the responsibility to interpret provisions of the ADA with regard to discrimination in employment against people with disabilities.

2.2. Controversy and Change

From the start, the definition of a disability would include both mental and physical medical conditions. A condition need not be permanent to be classified as a disability. In 1995, the EEOC issued significant guidance regarding disabilities. The guidance defined and explained the terms "impairment," "major life activities," and "severely or significantly" which are important determinants of whether a person has a disability under the ADA. The guidance also addressed the question of how to determine whether an employer should regard an individual as having an impairment that substantially limits the major life activity (EEOC, 1995).

The 1995 guidance provided:

- "The definition of a disability under the ADA may differ from the definition of a disability under other laws.
- An investigator should not consider the availability of mitigating measures that lessen or temporarily relieve a person's disability, such as medication, prosthetic devices, or auxiliary aids, when determining whether an individual has a disability under the ADA.
- An impairment is defined as a physiological disorder affecting one or more of a number of body systems, or a mental or psychological disorder. Conditions such as physical characteristics, common personality traits, and environmental, cultural, and economic disadvantages are not defined as impairments under the ADA.
- Added to the list of major life activities previously identified by the EEOC are mental and emotional processes, such as thinking, concentrating, and interacting with other people. Other major life activities cited by the EEOC include caring for oneself, performing manual tasks, walking, seeing, hearing, speaking, breathing, learning, working, sitting, standing, and lifting.
- The duration of an impairment is one of the factors to consider when determining whether an impairment substantially limits a major life activity. It is not essential for an impairment to be permanent to be considered a disability -- for instance, it is possible for temporary impairments that take a significantly long time to heal, long-term impairments, or potentially long-term impairments of indefinite duration to be considered disabilities. However, short-term, temporary impairments or restrictions generally are not defined as substantially limiting and, therefore, generally do not qualify as disabilities under the ADA" (see EEOC, 1995).

However, in interpreting the ADA, the EEOC developed regulations limiting an individual's impairment to one that "severely or significantly restricts" a major life activity, which was seen by many as *limiting* the rights of the disabled (Eichhorn, 1999).

2.3. The ADA Amendments Act of 2008

In response to deficiencies in the ADA, Congress amended the original Act. On September 25, 2008, President George W. Bush signed the *ADA Amendments Act of 2008* (ADAAA) into law (Feldblum, Barry, & Benfer, 2008; Barry, 2010). [Picture 2.] The ADAAA broadened the definition of "disability," extending the ADA's protections to a greater number of people and directed the EEOC to amend its regulations and replace its "severely or significantly" language with the phrase "*substantially limits*" – a more favorable standard to individuals with a disability.

The ADAAA rejected the United States Supreme Court's definition of "major life activities" in *Toyota Motors Mfg., Ky. v. Williams* (2002). It also added to the ADA examples of "major life activities" (Parry and Allbright, 2008, p. 695) including, but not limited to, "caring for oneself, performing manual tasks, seeing, hearing, eating, sleeping, walking, standing, lifting, bending, speaking, breathing, learning, reading, concentrating, thinking, communicating, and working" as well as the operation of several specified major bodily functions." In 2008, a report issued by the House Committee on Education and Labor found that the ADAAA "makes it absolutely clear that the ADA is intended to provide broad coverage to protect anyone who faces discrimination on the basis of disability."

Regulations issued by the EEOC in 2011 provide a list of conditions that may be classified as disabilities, including deafness, blindness, an intellectual disability (formerly termed mental retardation), partially or completely missing limbs or mobility impairments requiring the use of a wheelchair, autism, cancer, cerebral palsy, diabetes, epilepsy, attention deficit hyperactivity disorder, Human Immunodeficiency Virus (HIV) infection, multiple sclerosis, muscular dystrophy, major depressive disorder, bipolar disorder, post-traumatic stress disorder, obsessive compulsive disorder, and schizophrenia. Other mental or physical conditions also may constitute disabilities, depending on what the individual's symptoms would be in the absence of "mitigating measures" such as medication, therapy, the use of assistive devices, or other means of restoring function, which might occur during an "active episode" of the condition (EEOC, 2011).

Interestingly, certain specific conditions that are widely considered as anti-social, or which involve an illegal activity, such as kleptomania, pedophilia, exhibitionism, voyeurism, etc. have been excluded under the definition of "disability" in order to prevent abuse of the statute's purpose to provide access to an individual with a genuine disability. Generally, an employee or job applicant who engages in the use of illegal drugs or suffers from "substance use disorder" (Aoun & Appelbaum, 2019) is *not* considered as "otherwise qualified" when a covered entity takes an adverse action based on such use. At present, gender identity, gender dysphoria, or sexual orientation may also be excluded under the ADA definition of "disability," but may otherwise be protected under other legislation more broadly prohibiting discrimination in employment or in other areas (Hunter & Brown, 2015; Cox, 2019; Kennedy, 2019) or may be the benefit of changing views on the issue (see National Center for Transgender Rights, 2017, citing *Blatt v. Cabela's Retail*, 2017; Levi & Barry, 2021).

As a result, the amended ADA defines a *covered disability* as "a physical or mental impairment that substantially limits one or more major life activities, a history of having such an impairment, or being regarded as having such an impairment" (see Barry, 2010). The ADA defines a *person with a disability* as an individual "who has a physical or mental impairment that substantially limits one or more major life activity. This includes people who have a record of such an impairment, even if they do not currently have a disability. It also includes individuals who do not have a disability but are regarded as having a disability. The ADA also makes it unlawful to discriminate against a person based on that person's association with a person with a disability" (National Network, 2021).

3. Burdens of Proof

The issue of "who must prove" is often a critical issue in disability litigation or in deciding which employment policies a party can implement. In *US Airways, Inc. v. Barnett* (2002), the United States Supreme Court set forth the burdens of proof for an individual with an alleged disability and for an employer in an ADA lawsuit alleging failure to provide a reasonable accommodation.

In order to establish a claim of disability discrimination under the ADA, a plaintiff must prove three things by a preponderance of the evidence: First, that she [or he] was disabled within the meaning of the Act. Second, that with or without reasonable accommodation she [or he] was able to perform the essential functions of [the] job. And, third, that the employer discharged her [or him] in whole or in part because of her [or his] disability (*Katz v. City Metal Co.*, 1996).

In order to defeat a defendant's motion for a summary judgment, which would result in a dismissal of a suit based on an allegation of discrimination against a disabled person, "the plaintiff/employee need only show that a [requested] 'accommodation' seems reasonable on its face…." Once the plaintiff has shown that the accommodation is "reasonable," the burden of proof (sometimes called the "burden of going forward") then shifts to the defendant/employer to provide specific evidence proving that reasonable accommodation would cause an undue hardship under in the particular circumstances (*U.S. Airways v. Barnett*, 2002).

4. Individual Titles (Sections) of the ADA

The language of the ADA tracks closely the language found in other legislation outlawing discrimination in employment. In fact, many of the titles or sections of the ADA mandate close association with various administrative departments and agencies for interpretation or enforcement.

Title I applies in a wide-variety of employment situations (see Dunn, 2018). The statute defines "covered entities" to include employers with 15 or more employees, as well as employment agencies, labor organizations, and joint labor-management employment committees. There are strict limitations when a covered entity can ask job applicants or employees disability-related questions or require them to undergo medical examination. All medical information is required to be kept confidential.

Prohibited actions include firing or refusing to hire someone based on a real or perceived disability; segregation of employees based on a disability or the perception of a disability; and harassment based on a disability, or the perception of a disability. An important provision of the ADA deals with retaliation or coercion (Section 12203) (Eichhorn, 2002). Any individual who exercises a right under the ADA, or who assists others in exercising a right, is protected from retaliation or coercion by an employer. Any form of retaliation or coercion, including threats, intimidation, or interference, is prohibited if it is intended to or does interfere with the exercise of any right under the ADA.

Title II prohibits disability discrimination by all "public entities" at the local level (including school districts, municipalities, cities, or counties) and also by entities which operate at the state level (see Brooks, 2019). The U.S. Department of Justice assures compliance with Title II regulations by public entities. Regulations cover access to all programs and services offered by a public entity. Access includes *physical access* described in the ADA *"Standards for Accessible Design"* (Aldousari, Abdulaziz, & Alwadei, 2021) and also access to *programs* that might be affected negatively by discriminatory policies or procedures undertaken by a covered entity.

Title II also applies to public transportation provided by public entities as prescribed through regulations issued by the U.S. Department of Transportation. Title II includes the National Railroad Passenger Corporation (Amtrak), along with all other commuter authorities. This section regulates the provision of para-transit services by public entities that provide certain regular or fixed-route services. ADA also sets minimum requirements for appropriate *space layout* in order to facilitate the operation of wheelchairs on public transportation.

In addition, Title II applies to all state and local public housing, housing assistance programs, and housing referrals made by public authorities. The Office of Fair Housing and Equal Opportunity is charged with enforcing this provision of the ADA.

Title III deals with “public accommodations” and certain commercial facilities deemed to be “public accommodations.” According to Stowe (2000, p. 297), “To those ends, the protections Congress afforded to the disabled under the ADA extend to numerous aspects of public life, including employment, public services such as transportation, and public accommodations.” Under Title III, no individual may be discriminated against on the basis of disability with regards to the “full and equal enjoyment” of the goods, services, facilities, or accommodations of any place of public accommodation by any person who “owns, leases, or operates” a place of public accommodation. The term “public accommodations” is very broad and includes most places of lodging (such as inns, motels, and hotels), recreation, transportation, education, and dining facilities, along with stores, care providers, and “places of public displays” such as museums, libraries, and galleries.

In most cases, the mandates of the ADA are *not* retroactive. However, under Title III, all new construction (including modifications or alterations of structures or buildings) after the effective date of the ADA (approximately July 1992) must be fully compliant with the *Americans with Disabilities Act Accessibility Guidelines,* which are found in the Code of Federal Regulations (2021).

Title III may also require proactive actions on the part of certain public accommodations. Thus, under Title III, a "failure to remove" certain architectural barriers in existing facilities may constitute a violation of the ADA. The standard applied is whether "removing barriers" (typically defined as “bringing a condition into compliance” with the 2008 ADAAA) is "readily achievable,” which Title III defines as "... easily accomplished without much difficulty or expense.” This requirement is not absolute, but involves a balancing test between the cost of the proposed action and the ability of a business and/or owners of the business to effect any change.

Under the 2010 revisions of Department of Justice regulations, newly constructed or altered swimming pools, wading pools, and spas must provide an accessible means of entrance and exit to pools for disabled people. However, for example, the requirement of providing access may be conditioned on whether providing access through a fixed lift is "readily achievable,” taking into account cost as one factor.

Court challenges and administrative rule making have identified various exceptions to Title III. As noted earlier, many private clubs and religious organizations may not be bound by Title III. In addition, historic properties, including those that are listed or that are eligible for listing in the *National Register of Historic Places*, or properties designated as “historic” under state or local law, are required to comply with the provisions of Title III of the ADA to the "maximum extent feasible.” However, if complying with ADA standards would "threaten to destroy the historic significance of a feature of the building," then alternative solutions or strategies for providing access may be implemented (see Goodall, Pottinger, Dixon, & Russell, 2005; Gissen, 2019).

4.1. Auxiliary Services and Aids

As a core requirement, the ADA requires that a public accommodation must take those steps that may be necessary to ensure that no individual with a disability is excluded, denied services, segregated or otherwise treated differently than a non-disabled individual because of the absence of auxiliary aids and services, *unless* the public accommodation (i.e., a business) can demonstrate that taking such steps would fundamentally alter the “nature of the goods, services, facilities, privileges, advantages, or accommodations being offered” or would result in an undue burden, involving a significant difficulty or expense.

The ADA provides certain mandates for providing disabled persons with auxiliary aids, equipment, and services assist disabled persons who exhibit a hearing, vision, or speech disability to communicate with persons who do not have such a disability (see Parry & Allbright, 2008). Some of these mandates might be especially relevant in a university environment for both students and faculty and may be key test to determine if a course—or the

professor who is delivering it—is meeting the educational requirements for students—no matter the modality of its delivery.

The term "auxiliary aids and services" includes:

> "Qualified interpreters on-site or through video remote interpreting (VRI) services; notetakers; real-time computer-aided transcription services; written materials; exchange of written notes; telephone handset amplifiers; assistive listening devices; assistive listening systems; telephones compatible with hearing aids; closed caption decoders; open and closed captioning, including real-time captioning; voice, text, and video-based telecommunications products and systems, including text telephones (TTYs), videophones, and captioned telephones, or equally effective telecommunications devices; videotext displays; accessible electronic and information technology; or other effective methods of making aurally delivered information available to individuals who are deaf or hard of hearing;
>
> Qualified readers; taped texts; audio recordings; Brailed materials and displays; screen reader software; magnification software; optical readers; secondary auditory programs (SAP); large print materials; accessible electronic and information technology; or other effective methods of making visually delivered materials available to individuals who are blind or have low vision;

Acquisition or modification of equipment or devices; and other similar services and actions."

4.2. Is There a Captioning Requirement for Disabled Students?

Title IV of the ADA amended the *Communications Act of 1934* by adding a section which requires that all telecommunications companies in the U.S. take steps to ensure functionally equivalent services for consumers with disabilities, notably those who are deaf or hard of hearing, and those with speech impairments.

Captioning is a type of auxiliary aid or service that is required for entertainment, educational, informational, and training materials. These materials must be captioned for deaf and hard-of-hearing audiences at the time they are produced and distributed. Interestingly, the *Television Decoder Circuitry Act of 1990* requires that all televisions larger than 13 inches sold in the United States after July 1993 have a special built-in decoder that enables viewers to watch closed-captioned programming. The *Telecommunications Act of 1996* directs the Federal Communications Commission (FCC) to adopt rules requiring closed captioning of most television programming. The FCC's rules on closed captioning became effective January 1, 1998.

5. The "Reasonable Accommodations" Requirement for Employees

The EEOC provides that employers are only required to accommodate disabilities of which they are aware. Interestingly, the U.S. Department of Labor refers to accommodations as "productivity enhancers." The ADA requires reasonable accommodations as they relate to three aspects of employment:

1. Ensuring equal opportunity in the application process;
2. Enabling a qualified individual with a disability to perform the essential functions of a job; and
3. Making it possible for an employee with a disability to enjoy equal benefits and privileges of employment.

The key to the ADA may be found in its provisions relating to the requirement that covered entities are required to provide what are termed as *"reasonable accommodations"* to job applicants and employees with disabilities. As Rosenthal (2005, p. 895) noted: "One of the ADA's most noticeable features is that in addition to prohibiting employers from firing and failing to hire individuals with disabilities, it places an affirmative obligation on employers to accommodate an employee's or a candidate's disability…."

A "reasonable accommodation" may be seen as a change in the *usual or typical* work environment or a modification of a workplace policy (Travis, 2021) that the person needs because of a disability. A "reasonable accommodation" can include, among other things, special equipment that allows the person to perform the job; job restructuring which may include part-time or modified work schedules, or scheduling changes; and changes to the way work assignments are meted out, chosen, or communicated to employees. Facility enhancements may include ramps, accessible restrooms, and providing ergonomic workstations.

Granting an employee an adjusted work schedule (such as a different teaching modality in the educational environment) as a reasonable accommodation may involve modifying a standard work schedule or other employment policies. In some instances, an employer's refusal to modify a workplace policy, such as a change to leave or attendance policy, may constitute disparate treatment [behavior toward someone because of a protected characteristic under Title VII of the United States Civil Rights Act], as well as constituting a failure to provide a reasonable accommodation.

6. Undue Hardship

Courts will often be called upon to determine the reasonableness of an accommodation on a case-by-case basis. What might be reasonable in one context may not be in another. However, as a general rule, an employer is not required to provide an accommodation that would involve an *'undue hardship,"* which is defined as a significant difficulty or expense for an employer (Porter, 2019). To show that a particular accommodation would present an undue hardship, an employer would have to demonstrate that it was too *costly or extensive, or disruptive* to other employees carrying out their job responsibilities to be adopted in that workplace.

According to EEOC *Enforcement Guidance*, referenced by Shinn (2016), "there are three important points that companies should carefully consider when assessing a request for a reasonable accommodation under the ADA:

> "First, this case [*Searls v. Johns Hopkins Hospital*, 2016] reinforces that an "undue hardship" defense, will be available to employers only upon a showing of significant difficulty or expense in providing a disabled worker an accommodation.
>
> Second, in making the assessment, the "financial realities of the particular employer" will be taken into account.
>
> Third, "undue hardship" generally means "unduly expensive" by considering an employer's overall operational budget and financial standing — not just the finances of a single department or unit employing the individual."

The EEOC (2021) has set out some of the factors that will determine whether a particular accommodation presents an undue hardship on a particular employer:

- the nature and cost of the accommodation;
- the financial resources of the employer;
- the number of workers at the business or facility;
- the impact of the accommodation on the facility's expenses, resources or operations;
- the employer's overall size, nature and resources;
- the type of operations impacted by the accommodation; and
- the nature of the business, including size, composition, and structure; and
- accommodation costs already incurred in a workplace.

An employer cannot claim undue hardship based on convenience, prior practices, customer preferences (Westergard, 2020), or the fears, prejudices, or assumptions that customers or other employees might harbor

toward an individual with a disability. Nor can a claim of undue hardship be based on the fact that provision of a reasonable accommodation might have a negative impact on the morale of other employees who have not been similarly accommodated.

However, the provision of a reasonable accommodation only requires that the employer modify a policy for an employee who requires such an accommodation because of a disability. The employer may continue to apply its normal or usual policies to other employees.

PART II – THE ADA AND COMMUTING: THE RESEACH QUESTION

> *Is "commuting" a covered activity under the ADA which would trigger the responsibility of providing a reasonable accommodation in the form of allowing Professor Gatherer to teach in the preferred combination of online and hybrid modalities.*

An important question raised regarding the mandates of the ADA is whether the ADA requires employers to provide an accommodation for an employee who has difficulty commuting to and from work because of his or her disability? A separate but related issue is whether the employer must provide commuting assistance to a disabled employee?

The relationship of the ADA to commuting raises several discreet questions:

1. Do provisions of the ADA relate to commuting?
2. Does the ADA require an employer to offer "commuter assistance" to an employee whose disability impacts on the employee's ability to perform essential work functions?
3. Must the employer offer an accommodation relating to commuting to an employee with a disability which would allow the employee to absent themselves from the workplace under certain circumstances, but which would allow the employee to perform the "essential functions" of the job with the use of certain "teaching modalities"?
4. If an employer is required to offer an accommodation to a disabled employee, what is the nature of the accommodation? Specifically, in the context of the scenario involving Professor Gatherer, does a reasonable accommodation include the ability of an employee such as Professor Gatherer to teach remotely (i.e., online) or if the disability does not completely rule out commuting under all circumstances, through a hybrid teaching modality?
5. Reflecting the earlier discussion of "burden of proof" in a suit brought under the ADA, would providing such an accommodation place an "undue burden" on the employer where the employer maintains that presence at the workplace is an "essential function" of the job or where productivity or morale might be impacted?
6. Finally, what recommendations might be offered to an employer under these circumstances to avoid pitfalls and unnecessary controversy relating to employees with disabilities and issues relating to commuting?

7. Commuting Assistance vs Commuting Accommodation: What the Case Law Indicates

According to Merley (2019), "There is no consensus in the federal courts as to whether employers must offer accommodations to assist a disabled employee in commuting to and from work. The majority seems to conclude that such accommodations are not needed because commuting is not part of the employee's job responsibilities or work environment." A decision from the Fifth Circuit Court of Appeals in *Trautman v. Time Warner Cable Texas, LLC* (2018) "falls squarely" within this view.

The First Circuit also addressed the reasonableness of accommodating commuters under the ADA. In *Jacques v. Clean-Up Group, Inc.* (1996), the employer prevailed based on a factual finding that the plaintiff could not

perform the essential functions of the job and that the requested accommodation was not reasonable. But Millman and Kabir (2011) noted that "it is significant that the issues went to the jury… neither the district court nor the court of appeals found that the employee's commute did not have to be accommodated *as a matter of law.*" After a trial, the jury found for the employer on the plaintiff's ADA claims and the plaintiff appealed. The First Circuit upheld the jury verdict and explained that the evidence presented at trial supported the jury's finding that the plaintiff was not "otherwise qualified" to perform the essential function of the job and that there was ample evidence to demonstrate that furnishing transportation to the plaintiff imposed an undue burden on the employer.

Millman and Kabir (2011) conducted a study of cases decided by various U.S. Courts of Appeals which have also addressed the issue and provided another perspective. They cited a decision of the U.S. Court of Appeals for the Second Circuit which stated that employers *may* be obligated under the ADA to accommodate requests by a disabled employee for assistance with her commute to work (see *Nixon-Tinkelman v. N.Y. City Dep't of Health & Mental Hygiene*, 2011). While *Nixon-Tinkelman* dealt with providing transportation assistance to a disabled employee, the Court referenced three possible courses of conduct for the employer, which included allowing the plaintiff to work from home. While not definitive, the authors cited "current trends among the Circuit Courts of Appeals" and state that "*Nixon-Tinkelman* case marks the latest and perhaps most far-reaching foray by a federal appeals court suggesting otherwise. In some cases, it may in fact be reasonable for an employer to accommodate commute-related requests – especially if changes in shifts or assignments are at issue."

In *Colwell v. Rite Aid Corp.* (2010), the Third Circuit ruled that "under certain circumstances the ADA can obligate an employer to accommodate an employee's disability-related difficulties in getting to work, if reasonable. One such circumstance is when the requested accommodation is a change to a workplace condition that is entirely within an employer's control and that would allow the employee… to perform her job" (see Millman & Kabir, 2011, note 6). The Court held that changing the plaintiff's work schedule "in order to alleviate her disability-related difficulties in getting to work is a type of accommodation that the ADA contemplates."

In *Colwell*, the Third Circuit distinguished its holding from one that "makes employers 'responsible for how an employee gets to work,'" and noted that the plaintiff did not "ask for help in the method or means of her commute." The Court explained, however, a jury could "decide whether a shift change was a reasonable accommodation under the circumstances."

Similar to the Third Circuit's decision in *Nixon-Tinkelman*, the Ninth Circuit "recognized that an employer has a duty to accommodate an employee's limitations in getting to and from work" (citing *Humphrey v. Memorial Hosp. Ass'n* (2001) and held that the accommodation requested by the plaintiff was in fact reasonable. "Thus the plaintiff had raised a triable issue of fact as to whether her employer failed to reasonably accommodate her."

Batiste (2021) reinforces this perspective and notes that:

> "According to informal guidance from the ADA Policy Division of the Equal Employment Opportunity Commission, while employers do not have to actually transport an employee with a disability to and from work (unless the employer provides employee transportation to and from work as a perk of employment), employers may have to provide other accommodations…. such as changing an employee's schedule so he can access available transportation, reassigning an employee to a location closer to his home when the length of the commute is the problem, *or allowing an employee to telecommute"* (emphasis added).

Batiste (2021) argues that the underlying rationale why an employer may be required to provide such accommodations is that "the employer typically controls employee schedules and work locations so when a schedule (or work location) poses a barrier to an employee with a disability, the employer must consider reasonable accommodation to overcome the barrier."

8. Working from Home- Or, In the Academic Environment, Online or Hybrid Teaching

Hutchison (2020) states that "If a work schedule or work location becomes a barrier to an employee with a disability, their employer may be required to provide reasonable accommodation to overcome the barrier to their job."

Support for this proposition comes from the EEOC. According to the EEOC, working from home is considered a reasonable accommodation under the ADA. "Not all people with disabilities need to or want to work from home, but for some it can provide the flexibility they need to succeed on the job"—especially where an employee has difficulty in commuting to and from work due to a disability-related reasons" (Social Security Administration, 2020). *DeRosa v. Nat'l Envelope Corp.* (2010) suggests that an employer may provide a reasonable accommodation to disabled employee who was unable to commute by allowing the employee to work from home for a period of two years.

The situation at USH offers a unique challenge. Assuming that a "return to campus" is safe for bother students and faculty, university administrators have announced that "opening up" the campus and returning to in-person teaching will be the highest priority for the new academic year. In addition, all faculty will be required to support this decision by maintaining a "physical presence" on campus at least once each week. What effect will this have on the argument relating to possible accommodation for teaching either online or within a hybrid format?

Batiste (2021) offers a cautionary note: "As with any accommodation under the ADA, when considering accommodations related to commuting to and from work, employers can choose among effective accommodation options and do not have to provide an accommodation that poses an undue hardship."

Roth (2018) argues that in recent years, "particularly with technology making it easier for employees to work remotely, courts have struggled to determine whether onsite attendance is an essential job function under the Americans with Disabilities Act. This question is often dispositive because only qualified individuals—those who can perform a job's essential functions with or without a reasonable accommodation—are protected by the ADA."

8.1. "Essential Functions"

An individual who receives an accommodation or who is seeking an accommodation must be able to perform the *essential functions of the job* and *meet the normal performance requirements.*

Several courts which have addressed this issue have expressed hesitancy to consider telecommuting (i.e. teaching online) as a "reasonable" accommodation given that attendance at the workplace is an essential function of almost every job. As noted by the EEOC (2021), "Most jobs require that employees perform both 'essential functions' and 'marginal functions.'

The '**essential functions'** are the most important job duties, the critical elements that must be performed to achieve the objectives of the job. Removal of an essential function would fundamentally change a job. Marginal functions are those tasks or assignments that are tangential and not as important." Is presence on campus a "marginal" or "essential" function?

In *Dunn v. Faithful & Gould, Inc.* (2018), a United States District Court in South Carolina ruled that an employee who could not get to his worksite for a six-month period could not perform the essential functions of his job and thus his employer did not violate the ADA in terminating his employment. In essence, the *Dunn* court concluded that onsite attendance was an *essential function* of Dunn's job. The District Court gave significant weight to the judgment of Dunn's supervisor that onsite attendance was essential to performing his job and Dunn's own statements to his doctor that he could *not* perform his job from home**.**

The *Dunn* court stated:

> "A job function is essential when 'the reason the position exists is to perform that function,' when there [are not] enough employees available to perform the function, or when the function is so specialized that someone is hired specifically because of his or her expertise in performing that function' (citing *Jacobs v. N.C. Admin. Office of the Courts*, 2015) "[I]f an employer has prepared a written description before advertising or interviewing applicants for the job, this description shall be considered evidence of the essential functions of the job." Other relevant evidence includes the employer's judgment as to the essential functions of the job, the amount of time spent performing the function, and the consequences of not requiring the function of the employee."

What might be some of the factors that might apply in making a determination? In *Smith v. Ameritech* (1997) the Fifth Circuit held that a sales representative who requested to work from home failed to establish that his was one of the "exceptional circumstances" that could be considered reasonable for an employer to accommodate. In *Vande Zande v. Wisconsin* (1995), the Seventh Circuit held that the ADA does not require employers "to allow disabled workers to work at home, where there productively would be greatly reduced." And, in *Tyndall v. Nat'l Educ. Ctrs., Inc.* (1994), the Fourth Circuit found that "except in the unusual case where an employee can effectively perform all work-related duties from home, an employee who cannot meet the attendance requirements of the job at issue cannot be considered a 'qualified' individual protected by the ADA."

9. Some Observations and Suggestions

The questions raised in the fact pattern concerning Professor Gatherer and USH may come down to a determination whether Professor Gatherer, who is "ready and willing and able" to fulfill her teaching responsibilities ("essential functions") through a combination of online and hybrid teaching, would nevertheless be deemed non-qualified for the job and thus not protected by the ADA because she is unable to meet the requirement of in-person presence on campus. This question may turn on whether the jury believes "presence on campus" is an essential element of Professor Gatherer's job as a university professor. Recall that USH had offered Professor Gatherer a chair and a microphone to accommodate her disability and did not challenge the fact that Professor Gatherer had demonstrated a disability that would entitle her to "some accommodation" under the ADA.

Dunn v. Faithful and & Gould (2018) "illustrates well that a case-by-case analysis required in determining whether a job function such as onsite attendance is essential and that the essential nature of a function can actually change over time. Thus, in considering potential accommodations, employers should always conduct an individualized assessment to determine whether any job function, including onsite attendance, is an essential function of a particular position."

The law firm of Barnes and Thornburg (2021) provides some excellent advice to employers who are faced by the conundrum of conflicting questions concerning the relationship between commuting, reasonable accommodations, and the ADA: "It is always prudent to play it safe and engage in the interactive process with employees to discuss proposed accommodations. Once a proposed accommodation is identified, an employer can work with outside counsel to discuss whether the request would be deemed 'reasonable' under the ADA."

Millman and Kabir (2011) presciently added: "Employers should be aware that their obligation to engage in the interactive process under the ADA may be triggered as soon as these requests arise – especially if these requests are precipitated by employer decisions that impact an employee's commute. Employers are advised to consult with legal counsel to assess the extent of their legal obligations when confronted with requests by disabled employees to accommodate their commute to work" (see also Miller, 2017).

For the employee, it is critical that he or she understands the nature of any disability and the accommodation that he or she are seeking and whether that accommodation might place an "undue burden" on their employer.

The case of Professor Gatherer may not be unique as the United States slowly returns to some normalcy after more than 18 months of dealing with a Pandemic that has impacted greatly on the educational environment—for both students and faculty. However, it does pose a realistic question when a faculty member who is disabled and entitled to the protections of the ADA is seeking to continue to work—although through delivery of a course in a non-traditional manner that has in recent years become more common with the onset explosion of modalities available to deliver an educational product (see Griffin, 2020).

Travis (2021, p. 230) writes insightfully:

> "The lessons of COVID-19 should rekindle this potential by demonstrating the malleability of our conventional workplace design. For individuals with disabilities, this means that full-time face-time requirements should no longer be treated as 'essential job functions,' thereby enabling full assessment of workplace flexibility accommodation requests. Using the lessons of COVID-19, it's time for judges to re-examine their assumptions about the defining features of 'work' and empower antidiscrimination law to more meaningfully expand equal employment opportunities."

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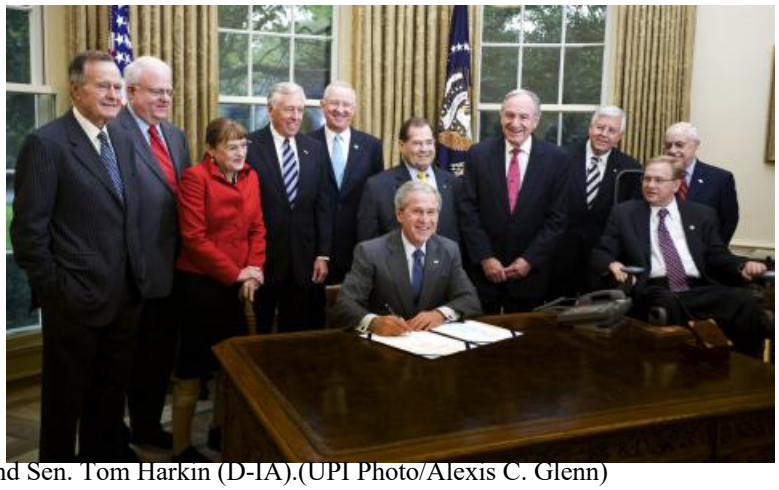
Picture 1:
On July 26, 1990, President George H. W. Bush signed the Americans with the Disabilities Act during a ceremony in the Rose Garden. Sitting beside him from left to right are Evan Kemp, Chairman of the Equal Employment Opportunity Commission, and Justin Dart, Chairman of the President's Committee on Employment of People with Disabilities. Standing behind him from left to right are Reverend Harold Wilke and Swift Parrino, Chairperson, National Council on Disability. Photo credit: George Bush Presidential Library and Museum/NARA.



Picture 2:
On September 25, 2008, President George W. Bush signed the ADA Amendments Act. It changed the ADA definition of 'disability' to ensure all people with disabilities could receive the law's protections. Standing behind President Bush are (L to R) Cheryl Sensenbrenner, wife of Rep. Jim Sensenbrenner (R-WI), House Majority Leader Rep. Steny Hoyer (D-MD), Rep. Buck McKeon (R-CA), Rep. Jerry Nadler (D-NY), and Sen. Tom Harkin (D-IA).(UPI Photo/Alexis C. Glenn)

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What Do Turkish Experts Say about Sustainable Development Goals and Teaching about Achieving these Goals?*

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Abstract
The research aimed to investigate what Turkish experts say sustainable development goals and teaching about achieving these goals. The research has a qualitative design, and the analysis of the interviews consisting of ten questions was made by document and content analysis. Interviews were held with ten academicians, who are experts in their field and have included the topic of sustainable development in their studies. Interview questions consisted of two parts in terms of content, in the upper part only for scientific purposes and for information purposes in consideration of ethical rules, as well as demographic information and the main questions. The main questions are based on determining whether the curriculum is sufficient in terms of the education of sustainable development, as well as identifying students who have gained awareness about this issue and the behaviors that can be expected from students. The interviews lasted an average of twenty-five minutes. The data were analyzed by transcribing the sound recordings. After the analyzes were completed, the codes, categories, and themes related to the questions were determined. As a result, with this study, a needs analysis, which is the first stage of the sustainable development teaching material to be developed within the scope of a large project study, has been made. In line with the results, new acquisitions about sustainable development were developed.

Keywords: Education of Sustainable Development, Science Education, Needs Analysis

1.Introduction

Climate changes, environmental pollution, and epidemic diseases are the main problems that people have been trying to solve from the past to the present. Besides these; the use of fundamental rights, such as the increase in hunger and poverty, efficient use of our resources, and access to healthy water, has become a globally accepted problem these days. Since these global problems cannot be solved by only some countries, there have been many global initiatives for a long time. When looking at these initiatives historically, considering the studies done until today; the United Nations Stockholm Conference held in 1972 with the participation of 113 countries, the Mediterranean Action Plan in 1975, the Tbilisi Conference in 1977, the establishment of the World Environment

* This research was produced from the doctoral thesis conducted by the second author under the supervision of the first author.

and Development Commission [WCED] in 1983, the United Nations Conference on Environment and Development [UNCED], in Rio de Janeiro in 1992 signed in Kyoto, Japan, as a result of the failure of the Framework Convention on Climate Change, which was prepared for the reduction of greenhouse gas emissions of countries at the UNCED held in Rio de Janeiro in 1997, the "Kyoto Protocol, which was gathered in New York under the presidency of the United Nations in 2000. The publication of the "Millennium Declaration" by the leaders, the holding of the World Sustainable Development Summit (Rio + 10) by the United Nations in Johannesburg, South Africa in 2002, and the recent meeting of world leaders in New York under the presidency of the United Nations in 2015. The way they accept the 2030 Agenda sorting can also be done (Aytar, 2016; Aksu, 2011; Ozmehmet, 2008).

Turkey took part in these studies and put the concept of "sustainable development" on its agenda as a priority. In this context, within the scope of the "2030 Agenda" to make the whole world a more sustainable place; a total of 17 Sustainable Development Goals (SDGs) have been defined and declared by an official website subordinate to the Presidency of the Republic of Turkey (see http://www.surdurulebilirkalkinma.gov.tr/). The slogan of the SDGs was determined as "leaving nobody behind" between 2015 and 2030. Among these purposes, it is possible to mention some new goals that were not previously on the agenda. In this context; in addition to social and environmental issues such as gender equality, observing the needs of disadvantaged groups, reducing food waste, combating desertification and drought, protecting biodiversity, economic growth, technological development, employment, and industrialization have also been included in the scope of sustainable development.

Undoubtedly, the most effective way to adopt a lifestyle that is suitable for these goals, both cognitively and affectively, is to include these goals in all kinds of formal or informal education and training activities (Alkis, 2007; Kaya & Tomal, 2011). Supporting this situation, these targets are included in many programs in other countries (Petersen & Alkis, 2009; Walshe, 2008). Related to this, the concept of sustainable development in Turkey finds its response in the Science Education Program as "recognizing the mutual interaction between the individual, the environment and the society and developing the awareness of sustainable development regarding society, economy and natural resources" (Ministry of National Education [MNE], 2013). Considering the curricula, it is revealed that the subject of "Sustainable Development" is included only in the science lesson curriculum and at the 8th-grade level. However, placing this subject with limited gains to gain skills that individuals can reflect what they have learned in school life into their daily lives does not constitute a source for meeting the importance of the subject fully nor reaching the expected outputs (Yapici, 2003; Tanrıverdi, 2009).

In this context, it will be easier to reach the targets set by 2030 by enriching the achievements regarding sustainable development in the curriculum. It is obtained that the studies on sustainable development generally try to measure the conceptual understanding of sustainability, sustainable development, and education for sustainable development. Similarly, it was observed that studies were conducted on geography, science, and social studies teacher candidates studying at universities to determine the situation. It has been observed in studies that data collection tools are generally questionnaires and interviews. When the studies conducted on both teacher candidates and secondary school students were examined, it was found that there were deficiencies in the conceptual understanding of the sub-dimensions of the concept of sustainability and sustainable development (Aytar, 2016; Ozturk Demirbas, 2011; Tanrıverdi, 2009).

The research results, which have been examined and discussed so far, reveal the need to work with studies that can reveal the environmental, social, and economic aspects of sustainable development as a whole. Similarly, there is a need for the development of appropriate teaching materials for the successful realization of education for sustainable development, which has just started to be studied, and to offer it to the relevant stakeholders (Aytar, 2016). The first thing to do in this process is to employ a qualified needs analysis study by operating the material design process related to the teaching material in question. In a material design process, when the needs analysis is not handled well, there may occur important problems (Kaya, Cepni & Kucuk, 2004; Cepni, Kaya & Kucuk, 2005). When the steps of preparing a curriculum are examined, the first step appears as determining the needs. Needs analysis, defined as a systematic information gathering and analysis process, generally consists of preparation, analysis, reporting, and use of information (Demirel, 2012; Adiguzel, 2017). Then, the acquisitions

that can meet the determined needs, the learning-teaching process according to the content goals and content, and the evaluation of the program depending on all of these should be done.

In the needs analysis, the technique of literature review and interviews with experts is frequently used (Kaya, Cepni, & Kucuk, 2004). While conducting the needs analysis within the scope of the current research, following a detailed literature review in the subject area, it was revealed that new acquisitions were needed to eliminate the gap in the curriculum. Based on the view that expert opinion may be important in filling this gap with new gains, experts who write book chapters and thesis in the field of sustainable development could take place, and a group of teachers who carried out thesis consultancy was interviewed. As the outcomes dimension of the curriculum planned to be designed would be shaped by the interviews, it is thought that it will make a significant contribution to the research. Undoubtedly; since determining the gains that constitute the most important dimension of a teaching program will shed light on other dimensions, this part must be purposeful and useful.

On the other hand, when we consider the global sustainable development goals; the realization of 17 goals can be regarded as an indicator of development. As in every field, if it is desired to raise a conscious generation at the point of sustainable development goals, the most important way to achieve this is to provide quality education. In this context, the title of "Quality Education," which takes 4th place among the global goals, constitutes the main theme of the current study. In terms of cognitive development; students in primary 6th, 7th, 8th grades and secondary education in the 21st century, it is necessary to include activities that improve the characteristics of their skills such as analyzing, comparing, establishing abstract relationships, producing something original, and critical thinking (Senemoglu, 2010). Now, at this point, it is very important to raise individuals who are involved in the curriculum and are sensitive to their environment. For students to participate actively in preventing and solving environmental problems in their country in terms of sustainability; the cognitive, affective, and psychomotor areas as a whole should be given the necessary weight and importance in the programs (Derman, 2013). The basis of sustainable development is to define the behavioral patterns and motivations of individuals and to ensure that individuals develop positive attitudes with appropriate behavioral patterns (Uzun, 2007). In this context, the curriculum should be flexible and have educational situations that will provide students with mental and manual skills rather than providing knowledge. The teaching programs must be prepared and implemented in this context.

In the current research, the answer to the question of ‘What Turkish experts say about sustainable development goals and teaching about achieving these goals?’ was sought in detail. For this reason, the research appears as an original study in that it includes a needs analysis for teaching material to be designed for sustainable development goals.

2. Method

In this research, the phenomenology method was used based on a qualitative research approach (Creswell, 2013). In this way, the characteristics of individuals who received an education based on sustainable development were revealed based on the opinions of experts in the field. The new knowledge generated in this research, which is part of a large project, was used to determine the achievements of the sustainable development teaching material.

The study group

While determining the study group of the research; the purposeful sampling method was used. This sampling method, which is highly preferred in qualitative research, the research will gain momentum as individuals who are suitable for the research are identified (Buyukozturk et al., 2013; Levent et al., 2017). In this way, while determining the experts to participate in the research, academicians studying in the field of sustainable development were preferred. The study group consisted of 10 academicians (2 female, 8 male) studying in different state universities of Turkey. Since the academicians in the study group are experts in the context of the subject area, code names such as U1, U2, U3, …… U10 was used while making their definitions and included in the findings. Information on the studying areas of the experts participating in the study is given in table 1 below.

Table 1: Studying areas of experts

	Studying places	Experts
Type of Studies	Including thesis and thesis advisory in her studies	U1, U2, U6, U7
	Chapter of a book, article, proceeding	U3, U4, U5, U8, U9, U10
	Actual studies	U3, U7, U9

Experts are studying in the field of science (80%) and liberal arts (20%). The experience periods of the experts in the study group are determined at certain intervals and presented in Figure 1 according to the gender distribution.

Figure 1: Distribution of academicians by professional experience and gender

Data collection tool

In this study, semi-structured interviews were used as data collection tools. Semi-structured interviews aim to obtain in-depth information on a specified subject with enough detail. If the answer received in the interviews is incomplete or not clear enough, the interviewer can provide more explanatory information with the help of other questions (Cepni, 2007). The interview used in this study, was aimed to get answers to the questions: "What kind of individuals do we aim to raise in the field of sustainable development, and is current Turkish curriculum sufficient to raise individuals with these characteristics?" The interview, which consisted of 10 questions and two parts in the upper part that includes only a scientific and informative article considering the ethical rules, as well as demographic information and the main questions.

Questions are based on determining whether the curriculum is sufficient in terms of sustainable development education as well as identifying students who have gained awareness on this subject and the behaviors that can be expected from students. To ensure the validity and reliability of the interview questions, the opinions of three experts in the field of science education were used. Also; interview questions were read by two Turkish teachers and one science teacher, so their comprehensibility was determined. After receiving positive answers from both teachers, the experts to be interviewed were contacted.

Based on the expert opinion, the question "What do you know about Turkey's sustainable development goals?" has been changed to "What can you say about the sustainable development goals of Turkey?" to be more understandable. The interviews were carried out by asking for permission from the expert lecturers and by taking audio recordings. After the interviews, the answers were transformed into written form, and analyzes were performed in this format. In addition, after the interviews with the experts were completed, the validity and reliability of the study were ensured by sending the written forms of the voice recordings to them and obtaining their approval. The interviews lasted an average of 25 minutes. The interviews took approximately 3 months to complete.

Data analysis

Experts participating in the interviews within the scope of the research were coded with the codes U1, U2, U3 …… .., U10 as explained before. The data obtained from the interview were analyzed using the descriptive content analysis method, which is a type of content analysis. Descriptive content analysis is an approach used when defining the results obtained from both qualitative and quantitative studies (Calik & Sozbilir, 2014). In this way, it is thought that the teaching material planned to be developed in the large project in question will contribute to the creation of the outcomes dimension and will guide researchers who want to learn about it. While analyzing the descriptive content, categories were created based on the roots of the questions asked in semi-structured interviews. These categories were formed entirely by the researchers and in line with semi-structured interview questions. It was tried to be supported with direct quotations containing the expressions of the experts by presenting the categories in the form of tables that emerged from the opinions of the experts.

3. Results

In this section, the findings obtained from the answers to the interview questions asked to the experts are included. First of all, tables containing the questions asked, and then the answers are presented.

Question 1: What can you say about Turkey's sustainable development goals?

Table 2: Experts' opinions on the sustainable development goal

	Features	Experts
Views on the Sustainable Development Goal	Being aware of the whole, the SDG relates the work done with the goals.	U1, U3, U6, U9
	Being aware of the SDG, but not linking the work with these goals	U4, U8, U10
	Seeing SDG as a different field and not associating it in their studies	U2, U5, U7

(SDG: Sustainable Development Goals)

When the interview data were analyzed, it was first tried to measure whether the experts interviewed associate their knowledge of sustainable development with sustainable development goals. It was revealed that the three experts interviewed (U2, U5, U7) consider the information in this field independent of the sustainable development goals. On the other hand, it is reflected in the table that four out of ten experts explain the sustainable development goals in the context of their studies and explain a few of them about the sub-goals of the goals.

Question 2: What work have you done so far related to sustainable development?

Table 3: Type of experts' work

	Studying areas	Experts
Type of Studies	Including thesis and thesis advisory in her studies	U1, U2, U6, U7
	Chapter of a book, article, paper	U3, U4, U5, U8, U9, U10
	Actual studies	U3, U7, U9

It was revealed that the majority of experts participating in the interviews wrote book chapters, articles, and papers. It is understood from the answers they gave to the 1st and 2nd questions that the teachers who wrote a thesis on the subject gave more detailed information about the subject. For example; U2: said

> "I worked on 'how can sustainable development education be feasible?' I worked on the conceptual and developmental dimensions, but I did not only study inside the school but also watched the students outside. In this way, I have conducted both conceptual and applied studies."

U5 also said:

> "I only wrote a chapter of a book, but I did not know the subject in such detail. As far as I follow, new developments are also taking place, and this issue should be constantly investigated. Sometimes I can lag behind them ". The expert stated that s/he could not follow the new developments on the subject.

U3 also said

> "I trained thousands of environmentally friendly students. We have planted thousands of trees that I have participated in, including myself. I have/have done awareness-raising activities in primary and secondary schools. I use energy and water sparingly, my garbage production is low, I do not drive if it is not necessary, I have published environmentally conscious educational materials such as "green boxes" and dozens of articles. I adopt the principle of "Our underground and aboveground natural resources are not inherited to us from our ancestors, we borrowed them from our grandchildren" and I raise students with this principle."

It can be said that U3 defines raising students and raising awareness of future generations as a de facto work while explaining his studies. It is understood from these expressions that participating in the projects and leading the tree planting works and acting in line with a certain slogan and arranging according to their life are considered as actual work.

Question 3: What can you say about the place and importance of sustainable development in the curriculum?

The answers to this question were analyzed in two separate tables.

Table 4.1: Expert opinions on the importance of the sustainable development issue in the curriculum

The sustainable development issue in the curriculum	Experts
Aware of the gap in the SC area and explains what needs to be done	U1, U3, U4, U6, U9
Aware that there is a gap in the SC area, but cannot explain what needs to be done	U2, U10
Not aware that there is a gap in the SC area	U5, U7, U8

Table 4.2: Experts' recommendations for overcoming the deficiencies regarding sustainable development.

Suggestions for overcoming the deficiencies regarding sustainable development	Experts
Parent's role model	U1, U9
Writing a book. Preparation of sample materials, focusing on projects and training	U3, U4
Training in out-of-school settings	U4
Its place in our education programs should be increased	U6, U9

As can be seen in Table 4.2 the recommendations of experts who think that there is a gap in sustainable development are presented in different categories. The recommendations reveal that the importance within the school should be increased and the processes outside the school should be given importance. While there are suggestions such as increasing the achievements of our curriculum on this subject and enriching the materials (U3, U4, U6, U9) inside the school, it is seen more important to internalize the subject with cooperation of parents outside the school (U1, U9). Sample sentences highlighting the deficiencies in our curriculum from the answers given to the question are given below:

"… this concept, which has different dimensions, should be more integrated into curricula so that our children will be familiar with this concept even at a young age. Otherwise, it may be more difficult to teach a student who comes to university to be conscious. " [U6]
"I think more academic studies should be carried out on this subject. We need to have lesson contents that allow us to practice and observe our children, not just on paper. " [U9]:

Question 4: Is there already a gap in this area?

Table 5: Indicators of the gap in sustainable development

Concept / S.D. the nature of	• Lack of knowledge
	• Using it in the same sense as environmental education
	• The definition is not suitable for all levels
	• Being abstract
Size	• Environmental Dimension to come to the fore
	• The economics dimension is far from students
	• Lack of achievements with the same importance in three dimensions
Press	• Limited written sources (Magazine, Advertisement Brochure)
	• Lack of coverage in social media, lack of popular articles
	• News reflecting the bad and being insufficient to raise awareness
Program	• Not Rich in Content
	• Lack of awareness studies in high school and primary education
	• Not including the pre-school period
Academic	• Turkey lags 30 years behind in terms of familiarity with the issue compared to abroad
	• Being an interdisciplinary concept
	• Not teaching as a separate course
	• Lack of consciousness as well as attitude knowledge and awareness
	• Experts do not come together with joint studies.

Looking at table 5, it is seen that there are experts' opinions that accept that there is a gap in the field of sustainable development and attribute this to the reasons presented in the table. These reasons can be explained as follows; Perceiving the concept of sustainable development as difficult and as a subject related to different fields (economy). The fact that the environmental dimension of this concept, which consists of three dimensions, comes to the forefront, causes the other dimensions not to be given the same importance and it creates a view that creates a gap in this area. Looking at the press category; while the subject of hunger was given in the news and social media, it was not associated with the sustainable development issue and insufficient written sources were presented as the reason. The reason for the gap in the size of the program is seen to be due to the content not being rich and not being adapted to students in the younger age group. In the academic category, the opinions of experts are mostly justified for not conducting scientific studies, not addressing the subject as a whole, and not being addressed with a separate course dimension.

Question 5: In your opinion, do the existing secondary school education programs raise individuals with "sustainable development awareness"?

Table 6: Experts' views on whether the curriculum is raising individuals with sustainable development awareness or not

	Opinions	Teachers
Curriculum Perspective	The program is sufficient but additions are required	U5, U6, U7
	The program is not sufficient	U1, U2, U3, U4, U8, U9, U10

As seen in Table 6, it is seen that more than half of the experts think that sustainable development is not included enough in the curriculum.

Question 6: Why can't individuals with Sustainable Development awareness be raised? How would you explain the reason?

Table 7: Experts' views on the reason why individuals with Sustainable Development awareness cannot be raised

	Justifications	Teachers
The reason why individuals with Sustainable Development awareness cannot be raised	Failure to reflect the curriculum in daily life	U1, U3, U4
	Insufficiency of the dimensions of the curriculum in terms of scope	U9
	External factors (family, social environment, technology abuse)	U2, U8, U10

When asked the reasons why the current education programs on sustainable development could not raise a conscious and high level of awareness individuals, experts gave answers that can be grouped into three different categories. While one expert explained the reasons for this inadequacy due to the lack of wide scope, half of the other experts claimed that the curriculum remained in theory but could not be implemented in daily life. Finally, considering that the external environment (family, peer interaction) is important in these issues, experts have stated that the deficiencies in this area cause individuals with poor awareness to grow.

Question 7: As a specialist in this field, what kind of changes would you suggest to make in which dimensions of the curriculum (target, content, educational status, evaluation) to reach the goals set, and especially to raise individuals who are desired effectively?

Table 8: Experts' views on which dimensions of the curriculum should be changed

	Size	Teachers
The Importance of Program Size	All Sizes	U1, U3
	Education and training status	U2, U4,
	Target and content	U8, U9, U10

Based on the answer to the question posed to the experts in question 7, it was determined that there are some deficiencies in the dimensions of the curriculum. The 7th question was asked to learn from which of the teaching dimensions these deficiencies arise and to further elaborate. The answers have also revealed which dimensions should be changed. Most of the experts (3 out of 7 experts) argued that the target and content section should be revised again. While two experts stated that the education and training situation was incomplete, it was determined that two experts argued that all dimensions should be reviewed. Some of the sample answers are presented below;

"The achievements and contents should be arranged according to the environment in which children live, and while evaluating our students, we should have certain parameters so that we can observe the effect of the process." [U1]
"I think our curriculum should be completely renewed in this regard." [U3]

Question 8: What can you say about the characteristics of a student who has gained awareness of sustainable development?

Table 9: Characteristics of an individual who has gained awareness of sustainable development

	Behaviors	Teachers	Example Behaviors
Characteristics of the Awareness Individual	Environmental	U2, U4, U5, U6, U7, U9	-They prefer the products they purchase with the least harm to the environment. -They are even affected by events far from their hometown and predict that this situation can harm everyone.
	Social	U1, U3, U4, U8, U9, U10	-They pay attention to peer interaction. -They respect their culture and values.
	Economic	U2, U3, U4, U5, U6, U9	-Avoid waste (turning off the unused air conditioner, turning off the light) -They are aware of concepts such as green economy, sustainable environment, alternative energy sources.

The characteristics that an individual who has gained awareness of sustainable development should have been presented in Table 9. According to the answers received from the experts, the behaviors an individual should exhibit are classified according to each dimension of sustainable development. It is striking that there are equal numbers of behaviors related to all three dimensions and shown by equal numbers of experts.

Question 9: How can we distinguish between individuals who have acquired this awareness and those who have not? What specific behaviors do these students show?

Table 10: Expert opinions on the characteristics of the students who gained awareness and did not

A student who gains awareness	A student who doesn't gain awareness
They do not cut down the tree and take care to water the tree.	May show lavish behavior. They try to save their day
They do not save the day, think about tomorrow.	Tend to behave positively only in mandatory areas.
They assume that all people are equal regardless of language, religion, or race.	They are not sensitive to environmental problems.
They do not want the tea that they think they cannot finish and recycle the bottle of water they drink.	They like to collect lots of the same material.
Economically uses materials that are used individually and jointly in the classroom.	Limit what they learn to school and class
Reflects and tells the positive behaviors learned to her family.	
The mood in expressing yourself and talking about interests is positive. In homework, they enjoy the process, not the result. Take what it needs. Students who believe implements	

Table 10 includes behaviors that can be used to distinguish individuals who have gained awareness of sustainable development from individuals who cannot win. Since these behaviors are also the characteristics of an individual with awareness, they appear as desired student behaviors at the end of the curriculum.

Question 10: Which subjects of social development content may raise difficulties in teaching? How can we overcome these difficulties?

In the last question posed to the experts, the possible difficulties that may be encountered in teaching the subject of sustainable development and the solutions to these difficulties were asked. The answers are presented in items as below.

- It was stated that the content dimension of the Turkish curriculum is sufficient and it would not be appropriate to make changes regarding this section.
- It is thought that difficulties may arise because the economic dimension of SD is not close to science in terms of terms and its social dimension is abstract.
- It may be difficult to understand the religious issues within the scope of the social dimension due to the difficulty of the children's level. (The samples should be appropriate to the readiness level of the students)
- There may be difficulties in affective behavior. To prevent this, the principle of "loving nature should be taught rather than teaching nature" should be acted upon. In addition, the attention of the students should be drawn by giving examples from their environment and familiar situations.
- Observing the behavior in the classroom can be difficult. However, the process can be facilitated by receiving parent and peer support.
- Since the subject will take a long time as of time, loss of motivation may be observed. For this reason, the teacher must be patient to ensure their intrinsic motivation.

4. Discussion

In line with the data obtained from the studies conducted in the field of sustainable development and the interviews with academicians who are regarded as subject experts, the findings regarding whether the current curriculum is sufficient for sustainable development are discussed in this section. The fact that sustainable development is not included in a holistic approach in the current Turkish Science Curriculum has been seen as the most fundamental problem. To eliminate this problem, it is aimed to identify the deficient and need to be corrected aspects, to present a sample material, and most importantly to share the information obtained about the characteristics expected from an individual who has received sustainable development education.

Through interviews, 10 academicians studying in 10 different universities in Turkey were interviewed on sustainable development. The inclusion of the academicians on the condition that they have worked on this subject before and their answers to the semi-structured interview form make our research unique due to the diversity of their experiences and perspectives on the subject. Another important aspect of the study is that it made important contributions to the studies to be carried out in Turkey as a result of the findings obtained in terms of guiding and teaching material. As a result of the literature review, to determine the position of sustainable development in the Turkish curriculum, it was noticed that there are studies in the field of social studies (Kaya & Tomal, 2011; Dinc & Acun, 2017; Aydogan, 2010) in addition to the science lesson (Temocin, 2007; Aytar, 2016; Seker, 2017).

In addition, it has been observed that there are studies that examine the teaching programs of both courses in the context of sustainable development (Tanriverdi, 2009; Colak, 2012). Considering the 2018 science curriculum, sustainable development has taken its place in 8th-grade subjects. However, until reaching this class level, the issue of sustainable development is not directly addressed, but the gains related to the subject are generally given in connection with environmental issues. The study of Tanriverdi (2009) showed that similar results have emerged. When it comes to the final grade of middle school, it is limited in terms of understanding the importance of the subject that students suddenly encounter this concept. This limitation causes sustainable development to be

perceived as an issue equivalent to the environment. However, sustainable development is a concept from three dimensions (social, environmental, economy). To emphasize that all three dimensions have the same importance, it is important to organize the curricula in this direction and to enrich their content in this way.

Based on the point of "what can be done" to make up for the deficiency in the current curriculum, an answer has been sought for what needs to be done to raise individuals who adopt the issue of sustainable development. In this context, considering Table 2, it is seen that there are experts who think that there are some deficiencies in the curriculum on sustainable development and offer suggestions on the subject. In addition, some academicians think that there is no deficiency (U2, U5, U7). Results supporting this view are also seen in Table 4.1 Since U5, U7 and U8 were not aware of the sustainable development goals, they could not express their opinion for the solution of the issue.

Considering Table 4.2, it is seen that different suggestions are presented to understand the importance of sustainable development and to eliminate its deficiencies. Some academics argue that parents should be an example, as well as those who argued that education should be enriched in the context of the school and emphasis should be placed on out-of-school learning environments. Ozdemir (2010) also concluded in his study that there is a positive and significant change in students' perception and behavior towards the environment of environmental education that is processed in nature.

One of the experts, U9, made statements emphasizing the importance of both parents and the curriculum. Studies have shown that sustainable development should spread to the process rather than the behaviors to be gained at once. It is important that the scope of the subject is wide and our country has targets until 2030, while the content is presented with richer elements and that students make them a skill in their daily lives. Gaining these behaviors is limited to 5 acquisitions in the 2018 science curriculum. It does not seem possible to teach a sustainable development program with 17 target areas and sub-goals for each target with such few achievements. Since the acquisitions that reflect all the goals will be challenging both in terms of time and the level of the children, these requirements can be met with a new material that includes sufficient gains for students at the secondary school level, even if not all goals. Looking at other countries, we can see that environmental issues are included as a separate course in their curricula (Finland, Austria, and England).

It is expected that the inclusion of the sustainable development issue, which has an intense and detailed content, in the education program of our country with such an application is expected to have better results (Alim, 2006). As a separate course, other dimensions (economic and social) will also come to the fore and sufficient time will be allocated. For example; while explaining the economic dimension of sustainable development to children, it can be emphasized that the issue has responsibilities for their age group by giving examples from their daily life, and in this way children can be at the center of the process.

As a result of the interviews, it has been revealed that some problems prevent these innovations. If these problems are to be listed; the nature of sustainable development is not fully known and it is an abstract concept. Because secondary school students often have prejudices by seeing the subject name hard or thinking it is an upper-class subject. However, it is thought that explaining all three dimensions more holistically while giving concepts in curriculums will break this judgment. Because the concept of environment in the concept of sustainable development includes the social and cultural environment of individuals as well as their natural and immediate environment. It has been revealed that the social and cultural environment is almost not included in general and specific goals, and the environment is more perceived as a natural environment (Tanriverdi, 2009).

Another problem is that the issue is not given enough attention in the press. For example, when reporting on hunger and poverty in the news, instead of attracting people's attention with only pictures and videos, the message should be given about what can be done to prevent this and that everyone has an important place at this point. Based on this, it will be an important step to bring the information in the press to the agenda in a language that will raise awareness of children and they will assume responsibility. Another of our problems was the features we evaluated in the academic category. For example, the inadequacy of the studies conducted in Turkey and the fact that the

sharing in congresses or publications cannot be reached to the masses cause the importance of the subject not to be understood by everyone. Instead; striking results or suggestions obtained from an academic study should encourage practical studies and go beyond being a written article on paper. In their study, Artun and Ozsevgec (2014) put the student at the center of the teaching process by activating the student with a modular curriculum on the subject of environment. In this way, they concluded that the students learned environmental issues better, could produce solutions for the environmental problems they encountered, and their success increased due to these reasons.

Since the 5th, 6th, and 7th questions directed to the experts are related to each other, it would be more appropriate to interpret the findings in common. When the experts were asked whether the current curriculum is sufficient for sustainable development, it was concluded that seven of them (U1, U2, U3, U4, U8, U9, U10) did not consider the program sufficient. As a justification, it is presented that what has been learned at school is not reflected in daily life, the dimensions of the curriculum are insufficient and the social environment is not strong enough to reinforce what has been learned. Family is one of the main elements that make up the child's social environment. Assuming that the first education starts in the family, children start by imitating what they observe and gain responsibility as they become aware of what they do (Erkal, Safak, & Yertutan, 2011).

Among the dimensions of the curriculum, it was suggested that these sections should be revised, considering that the target and content sections were insufficient. The target dimension is an important part that directs other departments as the first step in a curriculum. Based on this importance, another question was asked which student characteristics should a program be designed to raise individuals who have gained awareness of sustainable development. The findings are presented in Table 9 and gains that reflect these behaviors have been created and have taken place in the aforementioned thesis study. Finally, at the end of our curriculum, they were asked to list the features that can distinguish between students who are aware and students who are not. With the data obtained here, the content and educational status part of the curriculum was also shaped.

5. Conclusion

It should not be forgotten that raising individuals who can prevent environmental problems will offer us a more livable world and a more livable future (Uyanik, 2017). Based on the fact that the sustainable development issue was not given the necessary importance in the Turkish curriculum, researchers tried to get the opinions of the experts on how to solve this problem. In this context, it has emerged that it would be appropriate to teach the subject of sustainable development under a separate module instead of teaching it as a subject or unit in a specific curriculum. Similarly, it was shared that it is valuable to process student-centered activities for each goal in informal teaching environments as well as formal teaching. It is important that this teaching covers not only environmental issues and awareness but also all5. dimensions of sustainable development, as in the studies shared in the literature. Most importantly, the need for structuring an education in which affective learning will be at the forefront rather than cognitive gains for sustainable development has been emphasized.

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Examination of 4th Grade Students' Definitions for Square, Rectangle and Triangle Geometric Shapes

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Abstract
The aim of this study is to obtain information about students' definitions, mistakes, misconceptions, and van Hiele geometry thinking levels by using the definitions of 4th grade students for geometric shapes of rectangle, square, isosceles triangle, equilateral triangle, and scalene triangle. The study was carried out with 156 primary school 4th grade students. In the study, the case design, one of the qualitative methods, was used. Students were asked to describe geometric shapes. It was observed that most of the 4th grade students participating in the study were in the visualization stage of van Hiele. There are very few definitions of the hierarchical structure in the study. Most correct definitions are in the partitional form. In the study, misconceptions were detected in some of the students.

Keywords: Error, Misconception, Van Hiele Geometry Thinking Level, Hierarchical Definition, Partitional Definition

1. İntroduction

Geometry is the 'study of shapes, their relationships, and their properties' (Bassarear, 2012, p. 463). Geometry is one of the important fields of mathematics. Knowledge of geometry remains a prerequisite for working in fields such as physics, astronomy, art, mechanical drawing, chemistry, biology, and geology (Luneta, 2015). "Geometry and spatial sense are fundamental components of mathematics learning. They offer ways to interpret and reflect on our physical environment and can serve as tools for the study of other topics in mathematics and science" (National Council of Teachers of Mathematics, 2000 (p. 41)). The hierarchy in van Hiele's geometry thinking model is an important determinant in the planning of the geometry curriculum. The stages in Van Hiele's theory are visualization, analysis, abstraction, deduction, and rigor, respectively. These levels are in hierarchical order (Van Hiele, 1986). When students learn geometric concepts, they progress through five hierarchical reasoning levels (Mbusi, 2015). The child cannot pass the abstraction stage before the visiulation stage occurs. These stages develop according to the experience of the child, not according to age. The development of a geometric concept takes place with the formation of other concepts related to this concept. Geometry subjects consist of abstract concepts and proceed in a sequential and stacked order. The learning of geometrical concepts requires high mental ability. Learners should acquire to be able to conceive, analyze them, as well as to recognize their relationships (Jacobson & Lehrer, 2000). Students may experience difficulties while learning concepts related to geometry. Not making the concepts meaningful enough may cause errors and

misconceptions. A misconception could be the result of a misapplication of a rule, an over- or under-generalization, or an alternative conception of the situation (Drews, 2005). Although error and misconception are perceived as the same, they are different from each other. It is necessary to distinguish whether these problems that arise in students' learning are caused by errors or misconceptions. Error is the mistakes in the answers given by the students to the questions, and misconceptions are the internalized information that prevents the student from learning. While the error arises out of carelessness without the awareness of the student, the misconception emerges as a conscious action. Misconceptions are mistakes, but not all mistakes are misconceptions (Eryılmaz, 2002). Misconception is that the intuitive ideas that students have constructed for themselves as a result of experiences with their physical environment (Gilbert and Watts, 1983). Tall and Vinner (1981) formulated a distinction between formally defined mathematical concepts and the cognitive processes for which they are designed. The term concept image is used to describe the total cognitive organization associated with the concept, which includes all mental pictures and associated features and processes. This image is formed over time through all kinds of experiences that change as the individual encounters new stimuli and matures. The student's concept image is the form of the words he uses for his own explanation. Whether the definition was given to him or made by him, it may change from time to time. In this way, a personal concept definition may differ from a formal concept definition. For these reasons, the most important factor in the formation of misconceptions is the concept images that students have about the concept. Concept definition based on student's self-image does not accept that a square is a rectangle. A potential conflict factor occurs when the personal concept image conflicts with the formal concept definition itself. If a student is presented with an image that causes cognitive conflict with his own concept image, then he or she will experience difficulties (Kembitzky, 2009). Since students internalize their ideas about the concepts they have learned, it is very difficult to change their misconceptions. Once misunderstandings occur, they are highly resistant to change (Clement, 1982; Shaughnessy, 1981). This is because students are reluctant to change the wrongly constructed concepts (Kembitzky, 2009). Misconceptions prevent learning the truth of concepts and cause new misconceptions to occur. When the teacher is aware of possible concept images, he or she can rationalize conflict through confrontation and communication to bring false images to the surface (Tall & Vinner, 1981). With the student's reflection own self, be can balance the concept image that they will reconstruct with the mathematically accepted concept image. In the Luneta, (2015) study, most students in grade 12 did not understand many of the basic concepts in Euclidean transformation. Most of the errors are conceptual and suggested that the students did not understand the questions and did not know what to do as a result. It is also stated that when students lack conceptual knowledge, their results are so severe, and they hardly answer the questions in the exam. Luneta (2015) concluded that the majority of the students in the 12th grade were in second level of van Hiele geometry thinking model. Ningrum, Yulianti, Helingo and Budiarto (2018) indicated that 8th grade students had misconceptions in understanding the properties of rectangles. Students thought that rectangles were always regularly shaped. They assume that the rectangle was always in the same position and has the same shape as any other rectangle (Ningrum et al. 2018; Ryan & Williams, 2007). In the study of Ubuz (1999) in the 10th and 11th grades, the biggest reason for the mistakes of the students was that the visuality level was not fully formed in the Van Hiele geometry thinking model. Students evaluated shapes not by their features but by their appearance. Pickreign (2007) investigated 40 pre-service teachers' perceptions of the relationships between parallelograms and the properties of parallelograms; found that only 9 pre-service teachers made adequate definitions for rectangle and only one for rhombus. He stated that the definitions made were generally at the lowest level of Van Hiele geometric thinking. Keiser (2003) determined that students have difficulties in the concept of angle. He attributed the reason for this to the fact that the definitions related to the concept of angle are given in a single way in the textbooks. Fujita (2012), in his study with 19 new teachers, found that most of the participants knew the definitions correctly, but they evaluated the quadrilaterals by considering the prototype examples and shapes. Fonseca and Cunha (2011) examined the approaches of 79 pre-service teachers to geometric subjects. It was observed that most of the participants knew the definitions, made analogies, understood the operations and were able to apply geometric rules. However, he found that they had difficulties in visualizing, reasoning, explaining the thinking style he was processing, and making connections with various mathematical subjects. Ward (2004) found that students have problems even in basic polygon definitions.

Most of the studies examining the classification, errors, misconceptions, and van Hiele geometry thinking levels of students regarding geometric shapes were conducted with 6, 7 and 8 grades and high school students. In addition, many mistakes and misconceptions were studied with pre-service teachers. At the 4th grade level, studies examining students' knowledge of geometric shapes (classification, error, misconception, and van Hiele geometry thinking level) are almost non-existent. The aim of this study is to obtain information about how the students make the definitions, mistakes, misconceptions, and van Hiele geometry thinking levels by using the definitions of the 4th grade students for the geometric shapes of rectangle, square, isosceles triangle, equilateral triangle, and equilateral triangle.

2. Method

2.1. Research model

The data of the study were collected from the students in the form of documents. The analysis of the answers given by the students to the questions about geometric shapes was made with the case study pattern, which is one of the qualitative methods. There are multiple definitions of the case study. In qualitative research, qualitative data collection methods such as observation, interview and document analysis are used, and perceptions and events are presented in a realistic and holistic way in the ordinary environment (Yıldırım & Şimşek, 2008). The research that focuses on a determined aspect of a current event, phenomenon or situation is called a case study (Yin 2009). According to McMillan (2004), a case study is an in-depth study of the places and times of more than one event, setting, and individual.

2.2. Research sample

The study group of the research consisted of 156 students selected by systematic sampling method among 780 students in the 4th grade. In systematic sampling, all of the items needed for the sample are systematically selected from the sampling frame (Creswell & Clark, 2016). This is the path for the selection of 156 students in this study. The sampling interval is 780/156=5. Students are divided into groups of 5 people. One student was randomly selected from the first 5 people group. Then, the 5th student right after that student is selected and this continues until the 156th student is selected (Bernard, 2011). A possible bias is prevented by systematic sampling at regular intervals (Cochran, 2007).

2.3. Data Collection Tools

In the questions developed to collect data, it was tried to reveal the types of errors, misconceptions and definitions that students may have about geometric shapes (rectangle, square, equilateral triangle, isosceles triangle, and scalene triangle). The data of the study were collected with 18 questions about rectangular, square and triangular geometric shapes. The questions detailed in Table 1 include definition, properties, and drawing. In the questions, the reasons for the answers given by the students were asked. In addition, students were asked whether they were sure of their answers or not. During the preparation of the questions, the opinions of three field experts were considered.

Table 1: Contents of the questions

Task	Content of the questions	Number of questions
1	Definitions of square, rectangle, isosceles triangle, equilateral triangle, and scalene triangle	5
2	Properties and relationship between geometric shapes	8
3	Drawings of geometric shapes	5

2.4. Analysis of data

18 questions about geometric shapes were answered by 4th grade students in the form of written documents. In the study, the data obtained from the questions containing the definitions and properties of rectangle, square, equilateral triangle, isosceles triangle, and scalene triangle were evaluated by content analysis. Thus, the hierarchical and partitional definitions that students have about these concepts were tried to be revealed. In the partial definition, almost all the features of the relevant geometric shape are specified, while in the hierarchical definition, special cases of the geometric shape are mentioned. The fact that a square is also a rectangle, parallelogram, and trapezoid, quadrilateral is related to the hierarchical definition. Features such as the sides of the square being of equal length, the sides being perpendicular to each other, four sides and corners are included in the partitional definition. The correct hierarchical and partitional definitions given by the students for the geometric shape were analyzed and the appropriate van Hiele geometry thinking level was determined. In the study, misconceptions were detected by the simultaneous realization of the following 3 situations:

1. Incorrect definition or incorrect feature writing for a geometric figure,
2. Consistent repetition of incorrect or faulty features,
3. Be sure of the answer.

In the student's response, only the first two of the three situations may have occurred. However, if the student is not sure of his/her answer, there is no misconception. Or the student can be sure of the wrong answer given. However, if the wrong answer is not consistent with the answers in the other questions, it is not seen as a misconception. The data obtained in the study were evaluated and classified by two researchers. In this section, the percentage agreement formula is used to determine how compatible these two people are with each other. The percentage of agreement, in other words, the reliability of the study was calculated using the formula of Miles and Huberman (1994) (P=(Nax100) (Na+Nd) (P: percent agreement, Na: agreement amount, Nd: amount of disagreement)). The agreement percentages of two researchers who made the evaluation were found to be 89% at the beginning. With the collaboration of two researchers, agreement was achieved for different results.

3. Findings

In this section, the findings, and interpretations of the analysis of the data obtained for the rectangle, square and triangle are given, respectively. The answers given by the 4th grade students (156 students) to the question of what are rectangles, squares, equilateral triangles, isosceles triangles, and scalene triangles; were analyzed into the categories of correct, incomplete, incorrect and no answer. The results obtained here are presented in Table 2.

Table 2: Examination of the answers given by the students to the question of what are rectangle, square, equilateral triangle, isosceles triangle, and scalene triangle according to the categories of correct, incomplete, incorrect and no answer.

Geometric shapes	Correct definition number of students		Number of incomplete definition students	%	Incorrect or very insufficient definition number of students	%	No answer Number of students	%	Total number of students
Rectangle	11	%7	80	%51,2	55	%35,2	10	%6,4	156
Square	24	%15,3	83	%53,2	42	%26,9	7	%4,5	156
isosceles triangle	56	%35,8	50	%32	35	%22,4	15	%9,6	156
Equilateral triangle	61	%39,1	39	%25	31	%20,6	25	%16	156
Scalene Triangle	55	%35,2	40	%25,6	35	%22,4	26	%16,6	156

Definitions related to triangles have higher accuracy rates than definitions of rectangle and square. The reason for this may be that the definitions of rectangle and square at the 4th grade require more detail than the definitions of equilateral, isosceles and equilateral triangles. For example, in the definition of a square, having equal sides, having four sides, and having 90 degrees of angles includes more features than the definition of isosceles triangle. The most correct definitions were made for equilateral triangles (39.1%) and the least correct definitions were made for rectangles (7%). Similarly, wrong or very inadequate definitions were made for the rectangle (35.2%) the most and for the equilateral (20.6%) the least.

3.1. Findings for the rectangle

Table 3: Examination of the definition types of students who answered correctly to the definition of rectangle

Definition type	Expressions	Number of students	van-Hiele level	Number of students
Hierarchical definition	It is a special quadrilateral.	1	Abstraction	2
Hierarchical and partitional definition	Opposite sides are equal and parallel, sides are perpendicular to each other.	1		
Partitional definition	A geometric shape whose opposite sides are of equal length and all angles are 90 degrees.	6	Analysis	9
	A shape whose opposite side lengths are equal and parallel, all angles are 90 degrees.	2		
	A geometric shape with four sides, four corners, four right angles, two opposite sides, and two diagonals.	1		

11 students gave the correct definition to the question of what is a rectangle. In Table 3, the numbers of students who gave correct definitions are given according to their definition types. A student gave a hierarchical definition by stating that a rectangle is a quadrilateral. 9 students gave partitional definitions. In the definition of 1 student, both hierarchical and partitional definitions appear. A student's partitional definition is given in Figure 1.

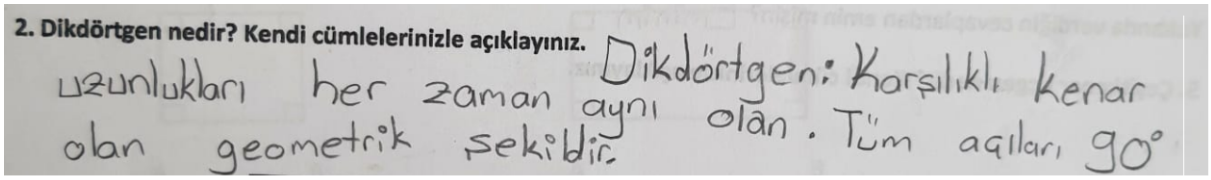


Figure 1: Partial definition of student for rectangle

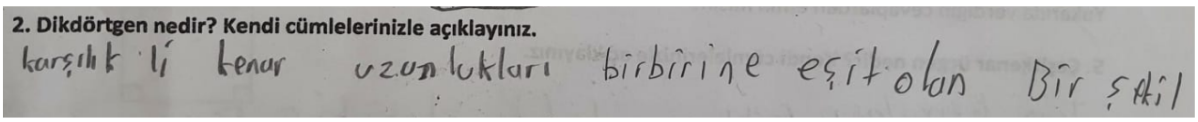
80 students gave incomplete partitional definitions for the rectangular geometric shape. Incomplete partitional definitions with similar structures are classified in Table 4. There are 34 (21,7%) students who said that the most

striking situation in the incomplete partitional definitions is that the rectangle has 2 long and 2 short sides. This situation is seen as an obstacle for students to reach the level of analysis, which is the 3rd level of van Hiele. Grade 4 students are expected to see the difference between an object and a geometric figure. According to incomplete definitions, the most problematic concept is angle. Only 3 students mentioned that the angles of the rectangle are 90 degrees. However, there are overall expectations related to the angle in the mathematics teaching program in the 3rd and 4th grades. 11 students out of 156 students who participated in the study gave the correct definition. It can be said that the students who gave the correct definition mentioned the concept of angle. Accordingly, only 14 students out of 156 mentioned the angle feature of the rectangle.

Table 4: Expressions stated in the definitions of students who gave incomplete partitional definitions for rectangle.

Expressions for incomplete partitional definitions for rectangle	Number
A quadrilateral with opposite sides equal in length and opposite sides parallel.	3
It is a quadrilateral with opposite sides equal to each other.	9
It is a shape with 2 short sides and 2 long sides.	31
It is a four-sided geometric shape with two equal long and 2 short sides.	3
A four-sided, four-sided shape whose opposite sides are equal.	3
A shape with four corners, four sides, and angles of 90 degrees.	2
All angles are 90 degrees.	1
It has 4 vertices and 4 edges.	5
A figure with 4 sides, 4 vertices, 4 angles, and opposite sides parallel.	1
A shape with four equal sides and opposite sides.	2
It is a shape with opposite sides equal.	10
Opposite sides are equal and the sum of the interior angles is 360 degrees.	4
It is a geometric shape with four corners and four sides.	2
A shape whose interior angles add up to 360 degrees.	1
Its sides are parallel to each other.	2
It is a polygon with four sides.	1
Sum	80

In Figure 2, there is an answer of a student who gave an incomplete partitional definition. This student sees the rectangle as a shape with only opposite sides equal. Other features are not mentioned. This student did not specify an angle in the rectangle drawing.



2. What is a rectangle? Explain in your own words.

Answer: A shape with opposite side lengths equal to each other.

Figure 2: The response of a student who gave an incomplete partitional definition

In Table 5, the definitions and numbers of students who gave wrong or insufficient definitions for the rectangular geometric shape are given.

Table 5: Incorrect or very insufficient definitions for rectangular geometric shape

Incorrect or very insufficient definitions for rectangular geometric shape	Number
It is a rectangular geometric object.	10
It is a geometric solid with opposite sides equal.	2
It is a geometric object consisting of 4 sides and 4 vertices.	3
It is a geometric object with opposite sides parallel to each other.	1
It is a geometric object with a rectangular, four-cornered, and four-sided surface.	1
A shape with a long side and a short side.	2
It is a rectangular geometric shape.	7
A rectangle is a shape with 4 corners, 4 sides, and 4 edges.	6
It has two sides, two corners.	1
It is a slightly longer shape than a square.	21
Opposite surfaces are an equal shape.	1
Sum	55

There are 7 students who see the rectangle as a geometric object. 21 students gave a shape definition slightly longer than a square. Students who gave wrong or very inadequate definitions could not make the concept of rectangle meaningful in the learning process. It can be said that 55 (%35,2) students who defined rectangular geometric shapes in this table did not reach the visualization stage of van Hiele. 10 students did not write an answer to the question of what is a rectangle.

3.2. Findings for the square

When Table 2 is examined, 24 (15.3%) students out of 156 students gave the correct answer to the question of what is a square. The answers given are hierarchical; partition; hierarchical and partitional definitions are considered. In Table 6, 24 students who gave the correct answer to the question of what is a square showed that hierarchical (9); partition (10); hierarchical and partitional (5) definitions are specified.

Table 6: Examination of the definition types of students who answered the square question correctly

Definition type	Expressions	Number	Van Hiele level	Number
hierarchical definition	The square is the special case of the rectangle.	3	Abstraction	14
	A square is a special quadrilateral.	4		
	A square is a parallelogram.	1		
	A square is a rhombus.	1		

Hierarchical and partitional definition	A square is a quadrilateral with four corners, four sides of equal length, and sides perpendicular to each other.	2		
	A square is a rectangle with four corners, four sides of equal length, and sides perpendicular to each other.	3		
Partial definition	It has four corners. It has four edges. The edges are perpendicular to each other. The sides are equal.	10	Analaysis	10

As a hierarchical definition in Table 6, 3 students saw that the square is a special form of the rectangle. 4 students gave the definition that a square is a rectangle. One student gave the definition of a square parallelogram and another student gave a definition of a square rhombus. 5 students gave hierarchical and partitional definitions together. hierarchical for square; 14 students giving hierarchical and partitional definitions are at van Hiele's informal deduction (abstraction) level.

For the correct partitional definition of the square, at least four corners, four equal sides, and the features that the sides are perpendicular to each other are accepted. In Table 6, 10 students out of 156 students who participated in the study gave the correct partitional definition. Definitions are at van Heile's level of analysis (description).
Four students gave a hierarchical and partitional definition for the square. Two of these students have a square with four corners, four equal-length sides, and a quadrilateral whose sides are perpendicular to each other. 2 students gave the definition that a square is a rhombus with four corners, four equal-length sides, and sides perpendicular to each other. In Figure 3, there is the answer of a student who gave the correct hierarchical definition for the square.

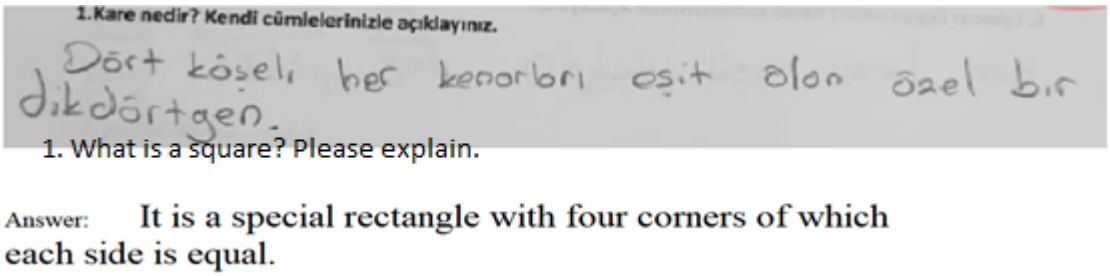


Figure 3: The answer of a student who gave the correct hierarchical definition for the square

83 students gave incomplete partitional definitions. In Table 7, the content of the definitions of the students who gave incomplete partitional definitions for the square is indicated.

Table 7: Statements in the definitions of students who gave incomplete partitional definitions for the square

Expressions for missing partitional definitions for square	Number
Side lengths are equal, opposite sides are parallel and shape.	2
A shape with 4 vertices and sides, opposite sides parallel to each other.	4
Its sides are equal to each other.	9
It is a geometric shape with equal diagonals.	4
A shape whose diagonals are equal and bisect each other.	1
It has 4 vertices and 4 edges.	12
It is a shape with opposite sides equal.	5

It is a shape with four corners and four equal sides.	9
The sides are perpendicular to each other.	2
It is a shape with four sides.	5
A shape whose four sides and interior angles add up to 360 degrees.	3
It is a geometric shape with four corners.	3
A shape whose four corners and interior angles add up to 360 degrees.	2
All sides are equal and the sum of the interior angles is 360 degrees.	4
All angles are 90 degrees.	2
A shape with four corners, four sides, and angles of 90 degrees.	4
It is a shape with four corners and all angles of 90 degrees.	5
It has four sides and 2 diagonals.	4
A geometric figure with four equal sides and diagonals bisecting each other.	1
A shape with four sides and equal interior angles.	2
Total	83

The students who gave the missing partitional definition in Table 7 could not see all the features for the square together. For example, 12 students stated in their definitions that a square is only four-cornered and four-sided. These 12 students did not mention that the sides are equal to each other and that each interior angle is 90 degrees. The number of students who gave incomplete partitional definitions was 83 (53.2%).

According to Table 2, 42 (26.9%) students gave wrong or very inadequate definitions. The expressions mentioned by these students in their definitions are given in Table 8.

Table 8: Incorrect or very insufficient definitions for the square geometric shape

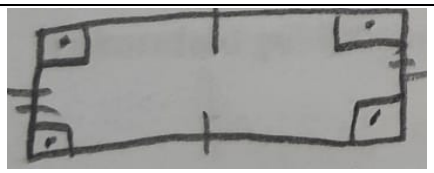
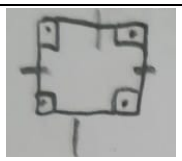
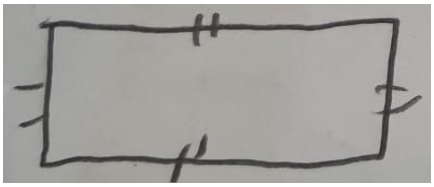
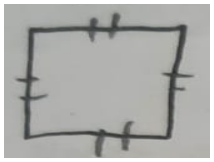
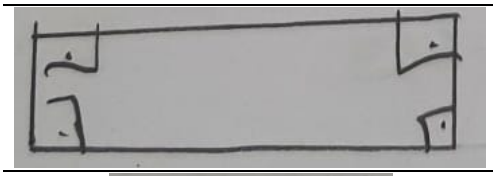
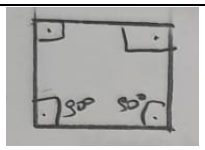
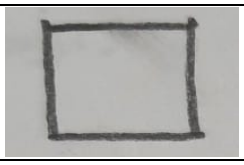
Incorrect or very insufficient definitions for the square geometric shape	Number
A square is a geometric object.	8
A Square is a cube.	3
A square is a 4-sided geometric object.	6
A square is a geometric object consisting of 4 edges and 4 corners.	1
A square is a geometric object with 4 corners.	3
A Square is the geometry.	2
A Square is geometric shape.	5
A Square is a shape.	5
A square is a 2-sided shape.	2
A square is a shape with 2 corners.	1
A square is a shape with 2 sides and 2 corners.	1
A square is a shape with two surface.	1
A shape with 4 corners the same length.	5
Total	42

21 students agreed that the square is a geometric object. It can be said that 42 students who defined the square in this table did not reach the visualization stage of van Hiele.
In Table 2, 7 students did not answer the question of what is a square.

3.3. Student's rectangle and square drawings

Rectangle and square lawns of the students are classified in Table 9. When the drawings were examined, 4 different drawings were determined for rectangle and square.

Table 9: Rectangle and square drawings

Rectangle	Number	Square	Number
	2		2
	2		2
	11		11
	141		141

All the students participating in the study made drawings. In the study in which 156 students participated, the number of students who drew correctly for square and rectangle was 2 (%1,2). These students paid attention to the side lengths and angles while drawing. For square and rectangle, 2 students only paid attention to the side lengths and did not show the verticality of the sides in their drawings. 11 students did not specify anything about the side lengths by only showing the angle in their square and rectangle drawings. However, the number of students stating that the angles are 90 degrees in the correct or incomplete partitional definitions is 14 for the rectangle. The number of students showing the 90 degree angle to their drawings is 13. 31 students mentioned that their angles are 90 degrees in their correct or incomplete partitional definitions. In the drawings, only 13 students showed that the edges are perpendicular. 141 students drew only one quadrilateral for rectangle and square.

3.4. Misconceptions for square and rectangle

Table 10: Misconceptions for square and rectangle

Incorrect results	Number of students with errors	Number of students with misconceptions
Not accepting a square as a rectangle	120	7
Considering rectangle and square as objects	33	5

Table 10 shows the errors and misconceptions that students have for rectangles and squares. Accordingly, it is a mistake not to accept the square as a rectangle at most. 120 students do not see the square as a rectangle. 7 of these 120 students have misconceptions. These 7 students did not accept the square as a rectangle, because they wrote stable answers such as square or all sides are equal. They did not think that the sides of the rectangle would be equal. For these students, the rectangle has two short and two long sides. They stated that they were sure of their answers. In the Figure 4 below, a student with this misconception answered the question of what is a rectangle, it is a slightly longer shape than a square. The photograph of this student's answer to the question "Which of them are rectangles, circle them?" is given in figure 4 below.

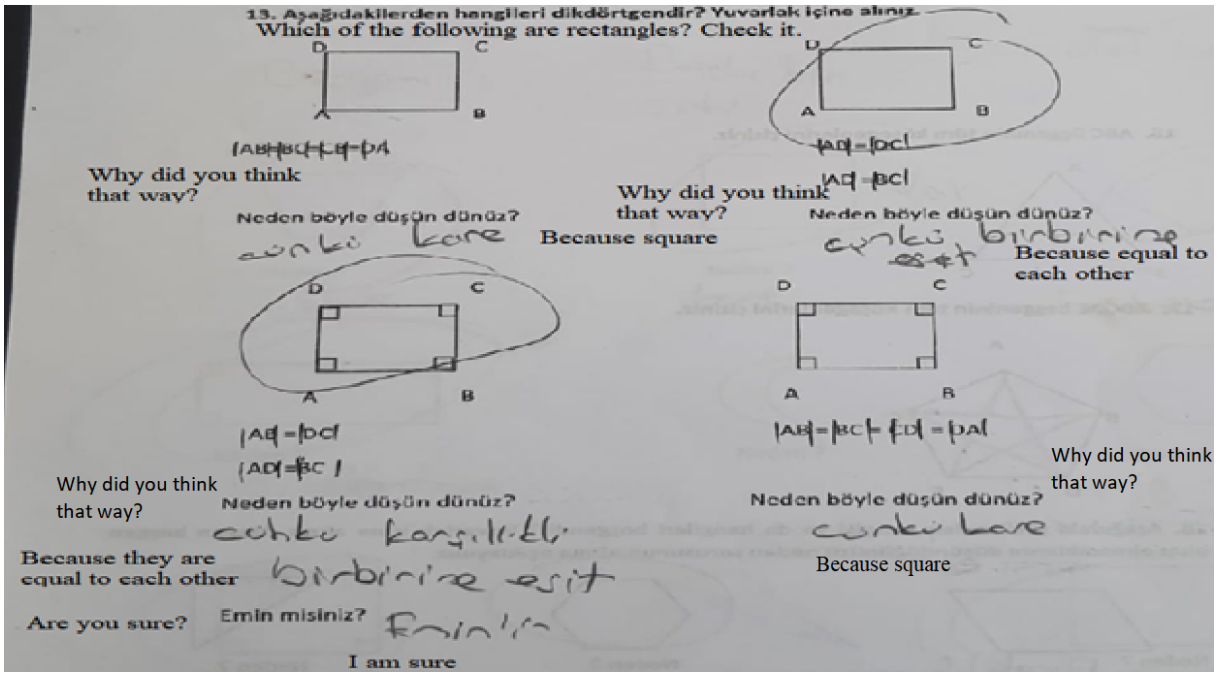


Figure 4: A student's answer to the question "Which of the following are rectangles"?

In figure 4, the student did not mark the square shape as he did not see it as a rectangle. He said that the sides are equal and square to each other as a reason. He also stated that he was sure of his answer. In addition, he considered the quadrilateral without angle information as a rectangle. He stated that the opposite sides are equal to each other for the reason of the shape he marked as a rectangle. This student is not aware that his correct generalization is valid in the square.

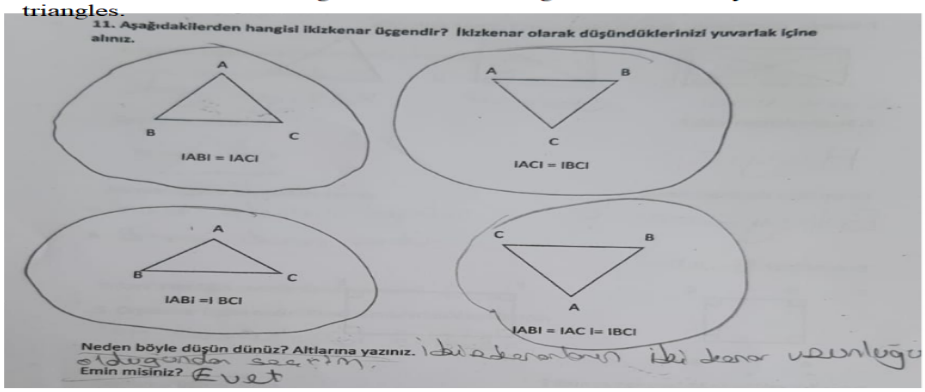
33 students saw these geometric shapes as objects in their definitions of rectangles or squares. 5 of these 33 students have the misconception that geometric shape is an object. These students used the word object in their definitions for both rectangle and square. These students stated that they were sure of the wrong answer they gave by using words such as cube and object frequently.

3.5. Findings about isosceles, equilateral, and scalene triangles

In Table 11, 61 students gave correct definitions for equilateral triangles, 56 students for isosceles triangles, and 55 students for scalene triangles. The correct definitions given are at van Hiele's level of analysis. An abstraction level definition is not given in the definitions. However, for the question of which of the following triangles is isosceles, only 5 students out of 156 stated that equilateral triangle is isosceles triangle. The answer of one of these students to this question is in Figure 5 below.

Table 11: Correct definitions for isosceles, equilateral, and scalene triangles

Equilateral triangle	Number of students	Isosceles Triangle	Number of students	Scalene triangle	Number of students
A triangle with all sides and angles equal.	18	Three-sided polygon with two sides of equal length	1	Triangle with three sides and different sides	5
A triangle with three equal sides, 60 degrees, and 180 degrees for the sum of the interior angles	8	Three-sided polygon with two sides and two same angles	10	A triangle with all sides and angles different.	17
Triangle with three equal sides	23	Triangle with two equal sides	39	Triangle with different sides	25
Triangle with each angle of 60 degrees	10	Triangle with two equal sides and two equal angles	5	Triangle with different angles	5
A three-sided geometric shape with equal sides and angles	2	It is a 3 sided shape with two equal sides and 3 corners.	1	Three sided geometric figure with unequal sides and angles	3
Total	61 %39,1		56 %35,8		55 %35,2



Answer: In an isosceles, I choose it because the two sides are equal in length.

Are you sure?

Answer: Yes

Figure 5: A student's answer to the question "which of the following triangles is isosceles"?

3.6. Expressions specified in the definitions of students who gave incomplete partitional definitions

Table 12: Incomplete partitional definitions given by students

Equilateral triangle	Number of students	Isosceles triangle	Number of students	Scalene triangle	Number of students
All sides and angles are equal	14	Triangle with the same side lengths	5	A shape with different sides and angles	11
A shape with all sides equal	25	Triangle with two equal sides and a third side of different measure	10	Shape with unequal sides	29
		A shape with two equal sides and two equal angles	3		
		shape with two equal sides	29		
		A geometric shape with two equal sides and an apex angle	3		
Total	39		50		40

In the incomplete definitions given for the triangle, the number of definitions such as a shape with equal sides or a different shape is 114. These students did not use expressions such as triangle or three sides in their definitions. Only 15 students who defined isosceles triangles used triangle expressions. 39 students for equilateral triangle, 50 students for isosceles triangle and 40 students for scalene triangle gave incomplete partitional definitions. It is observed that the analysis level of these students, which is Van Hiele's 2 levels, did not occur. 4th grade students are expected to reach this level comfortably.

In Table 13, 31 students gave wrong or very insufficient definitions for equilateral triangle, 35 students for isosceles triangle and 35 students for equilateral triangle. It can be said that visualization, which is the first stage of van Hiele, did not occur in students who gave wrong or insufficient answers.

Table 13: Wrong or very insufficient definitions

Equilateral triangle	Number	Isosceles triangle	Number	Scalene triangle	Number
Opposite sides are equal to each other.	6	Opposite sides are equal to each other.	10	Shape with three corners	6
Shape with 3 corners	5	Triangle with equal opposite angles	2	a three-sided shape	2
Triangle and triangular shape	5	A shape with three corners	8	Object with different sides	10
An object with three equal sides	10	Ship shape with three sides and three corners	3	3 corners and 3sided shape	11
Shape with sides and corners	5	Geometric solid with sides and corners	3	Shape with sides and corners	4

A shape with 4 corners and four equal sides	1	Three-sided geometric solid with equal base angles	3	a four-sided triangle	1
		A shape with 2 sides, 2 corners	3	A different shape with 4 corners and four sides	1
		Shape with 4 sides and opposite sides equal	1		
Total	31		35		35

Table 14: Students' drawings of triangles

Drawing type	Equilateral triangle (number of students)	Isosceles triangle (number of students)	Scalene triangle (number of students)
Correct drawing	25	23	20
Wrong Drawing	131	133	136

In Table 14, the most correct drawings were for equilateral triangles (25 students). However, the number of students making the correct definition for the equilateral triangle is 61 in Table 2. Some of the students did not show that the edges are not equal on their drawings. A similar situation has been experienced for isosceles and scalene triangles. 23 students drew an isosceles triangle correctly. However, 56 students gave the correct definition for isosceles triangle. 20 students drew a scalene triangle correctly. However, 55 students gave the correct definition for the scalene triangle. Although the students made a correct definition, they could not reflect this situation in their drawings.

3.7. Misconceptions for triangles

Table 15: Misconceptions identified for triangles

Incorrect results	Number of students with errors	Number of students with misconceptions
Drawing a triangle as a quadrilateral	2	1
Seeing the triangle geometric shape as a geometric object	11	5
Not seeing equilateral triangles as isosceles	151	12

Misconceptions about equilateral, isosceles and scalene triangles were detected in the students participating in the study. 151 of the 156 students who participated in the study do not see the equilateral triangle as an isosceles triangle. 12 of these 151 students have misconceptions. The answer of one of the students with this misconception is given in Figure 6.

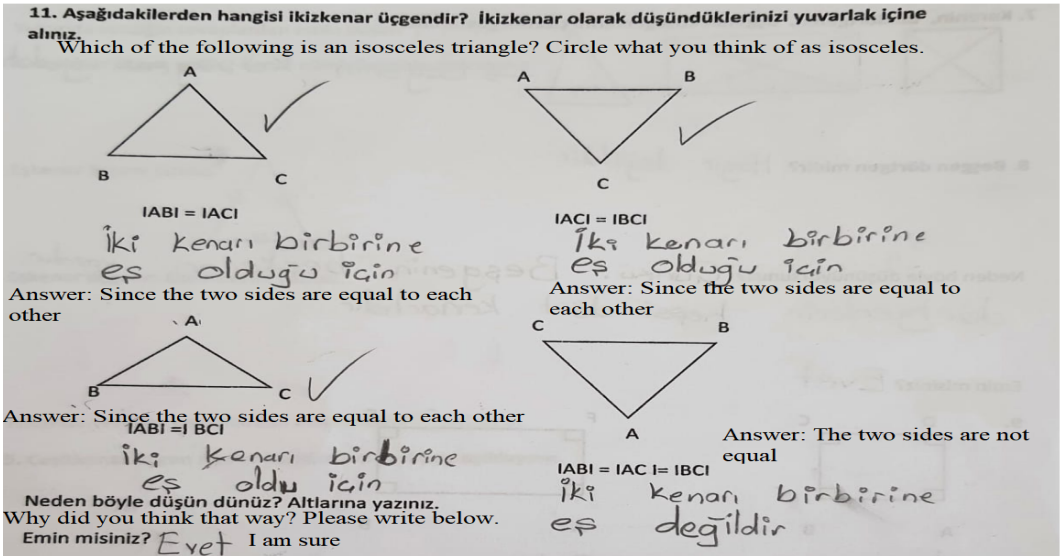


Figure 6: The mistake of not seeing the equilateral triangle as an isosceles triangle

This student does not see the geometric figure with three equal sides as isosceles in figure 6. He said that "the two sides are not equal to each other" as a reason. In other options, only two equal sides are given as isosceles. The student said that triangles with only two equal sides are isosceles because they have two equal sides. At the same time, the student has such a misconception because he cannot make the necessary analysis on the equilateral triangle. It can be said that this student, who stated that he was sure of his answer, had the misconception of not seeing the equilateral triangle as an isosceles.

11 students used the word "object" for the triangle geometric shape in their student definitions. 5 of these students saw these geometric shapes as objects in all definitions of rectangle, square and triangle. These 5 students have the misconception of seeing the geometric shape of the triangle as an object.

In the students' drawings of triangles, 2 students drew some of the equilateral, isosceles and scalene triangle types as quadrilaterals. One of these 2 students used expressions such as quadrilateral in all triangle drawings and quadrilateral and quadrilateral in their definitions. It can be said that this student has a misconception on this subject.

Conclusion

In the study, by using the definitions of the 4th grade students for the geometric shapes of rectangle, square, isosceles triangle, equilateral triangle and equilateral triangle, it was tried to obtain information about how the students made the definitions, mistakes, misconceptions and van Hiele geometry thinking levels. In the study, 11 (7%) students out of 156 students made the correct definition of the rectangle. Two of these students gave definitions at the 3rd level (abstraction) of Van Hiele geometry thinking level and 9 students at the 2nd level (analysis). Fujita and Jones (2007), Fujita (2012) stated that students have difficulties in hierarchical classifications. In the study of Öksüz and Başışık (2019), 14.5% of 5th grade students concluded that they defined the rectangle correctly. 14 students mentioned in their definitions that the sides of the rectangle are perpendicular to each other. Clements and Battista (1992) stated that students do not pay attention to orthogonality. 51.2% of the students who participated in this study gave an incomplete definition for the rectangular geometric shape. In the missing definitions, they could not give all the necessary and sufficient conditions for the rectangle together. It can be said that the 4th grade students who gave incomplete definitions could not reach the analysis level, which is the second level of Van Hiele. These students could not see all the features for defining rectangle. The most common definition in incomplete definitions is that it has two short and two long sides. 48 students gave definitions in this way. Berkün (2011) stated in his study that the majority of

students had such an incomplete definition. In Berkün (2011) study, 41.6% of these students could not give an incorrect definition for the rectangle.

In the students' rectangular and square drawings, only 2 students drew correctly for both. 141 students drew only a quadrilateral. In these drawings, the rectangle is drawn longer than the square. It was observed that these students did not consider the properties for rectangle and square. In this case, it can be said that these 141 students are at the visual level.

In the study, 24 students (15.3%) gave the correct definition for the square. 9 of these students gave hierarchical, 5 hierarchical and partitional definitions, and 10 students gave partitional definitions. 83 (53.2%) students gave an incomplete definition for the square. Since these students could not adequately analyze the concept of square geometric shape, they could not see the features required for square together. It is seen that these students did not reach the level of analysis, which is Van Hiele's 2 levels. In the study of Öksüz and Başışık (2019), 15% of the students (5th grade) correctly stated the characteristics that the square should have. The most striking situation in the incomplete definitions of the students is that they did not see that the angles were 90 degrees. Of the 83 students who gave an incomplete definition for the square, only 15 students said that the angles were 90 degrees. The rate of students who mentioned the concept of angle together with the students who gave the correct definition is 25%. Berkün (2011); Öksüz and Başışık (2019) reached similar conclusions in their studies.

In this study, two misconceptions were identified for rectangle and square. The first of these misconceptions is not seeing the square as a rectangle. 120 (76.9%) students do not see the square as a rectangle. 7 (4.4%) of these students who have this error have misconceptions. Okazaki and Fujita (2007); Aktaş and Aktaş (2012) stated that most of the students had difficulties in perceiving the square as a rectangle. 33 (21.1%) students see squares andrectanglese as objects. They emphasized that they were objects in their definitions. It was determined that 5 of these students had misconceptions.

In the study, 39.1% of the students gave correct definitions for equilateral triangles, 35.8% for isosceles and 35.2% for scalene triangles. Of the 4th grade students participating in the study, 25 (16%) drew equilateral triangles, 23 (14.7%) an isosceles triangle, and 20 (12.8%) scaled triangles. These students said the features that should be in the definitions. However, they did not reflect these features sufficiently in their drawings.

Definitions related to triangles are more accurate than definitions of squares and rectangles. This is because there are less adequate descriptive properties for triangle varieties than for square rectangles. For example, the definition of at least two equal sides is sufficient for an isosceles triangle. In definitions of isosceles triangles, definitions such as triangle with two equal sides are generally used. 151 (96.7%) of the students who participated in the study did not see the equilateral triangle as an isosceles triangle. In addition, 12 of these students (7.6%) have misconceptions. Two of the students participating in the study drew quadrilaterals in all triangle drawings. 1 of these students has a misconception. This student stated that he was sure by mentioning 4 edges and four corners in the definitions. 11 students used the concept of geometric object in their definitions for triangle. 5 of these students used the concept of object in square and rectangle similarly and mentioned that they were sure. It can be mentioned that there are misconceptions in these students.

In the study, the knowledge of 4th grade students about the concepts of square, rectangle, equilateral triangle, isosceles triangle and scalene triangle was examined. According to the results obtained, it can be said that the students have serious problems with these concepts. On the other hand, 4th grade students can classify the properties of geometric shapes (MEB, 2018). Students' difficulties in learning geometry are related to their inability to understand and correctly interpret geometric concepts and their weaknesses in deductive reasoning (Gal & Linchevski, 2010; Miyazaki, Kimiho, Katoh, Arai, Ogihara, Oguchi, Morozumi, Kon, & Komatsu, 2012). Starting from the preschool period, mathematical concepts should be embodied. The cause-effect relationship is fundamental to induction and deduction. The role of teachers in reaching abstract mathematical concepts is very high. Toluk et al. (2002) attributed the inability of students to form such relationships on their own to the absence of classification activities in mathematics education in Turkey, and therefore not drawing

students' attention to shapes and relationships between shapes. Therefore, students state that they see geometric shapes only separately and independently of each other. This situation creates an obstacle for making inference, which is van Hiele's 3 levels. Failure to provide adequate teaching environments for students to construct concepts meaningfully and teaching without associating them with their prior knowledge (memorization) may cause students to have serious problems with geometry. The fact that the stages that reveal metacognitive level behaviors in Bloom's taxonomy are not included in the curriculum or are few in number creates problems in the learning of students.

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Tracing Cultural Values in Thai Students' Dialogical Argumentation

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Abstract
Critical thinking and argumentation skills are crucial for developing responsible citizens and active participants in society. Indeed, reasoning and argumentation are known to be exercised differently in distinctive cultures. Historical, cultural and institutional contexts shape the way people in a society think, communicate and act. In this regard, the predominant Western assumption that reasoning should be detachable from emotion may not necessarily be accurate within the Thai cultural context. This paper highlights how different cultural assumptions were displayed in dialogical argumentation in English for fourteen, first-year undergraduates of the English Programme at a Thai university. The analysis of the argumentation data indicated that some participants presented their claims close to the end of their argumentative turns. In addition, personal experience was regularly employed as an argumentative strategy. Interestingly, there was also an absence of claims in some argumentative turns. The aforementioned findings and the themes derived from an analysis of the semi-structured interview data reflect some specific characteristics of Thai culture and values. They include indirectness and a desire for harmony, a subjectivity in argumentation and modesty.

Keywords: Argumentation Skills, Reasoning, Thinking Skills

1. Introduction

Critical thinking is considered to be a core learning skill in higher education. According to the economic model referred to as "Thailand 4.0", a major objective of the Thai government is the transformation of its citizens into "competent human beings in the 21st Century" (Royal Thai Embassy, n.d.). The implementation of these skills in the academic context requires the interweaving of various disciplinary themes into instruction, including critical thinking in order to enable students to make informed and reasoned decisions in the modern world. Critical thinking skills are concerned with systematic thinking, effective reasoning, and the making of reasoned judgments and decision-making (Partnership for 21st Century learning, 2009). In response to the government's policy, the National Qualifications Framework (Thailand NQF) has prescribed that Thai university students be equipped with skills in thinking and making reasoned judgments which will help to develop responsible citizens for the society (Office of the Education Council, 2017).

1.1. Critical Thinking and Argumentation

There is a nexus between critical thinking and argumentation because both implicate logic and reasoning. Allied with philosophy, critical thinking places emphasis on logical thinking with an application to the analysis of arguments (Quellmalz, 1987). Likewise, logical thinking and reasoning dominate argumentation. In argumentative exchanges, in which the participants attempt to scrutinise problematic issues and derive reasoned conclusions, the participants attempt to convince each other with their arguments. To do so, they are required to use logic and reasoning as a tool for analysing, evaluating and investigating each other's arguments, as well as defending their own arguments.

1.2. The Predominant Western Views of Reasoning and Argumentation and the Thai Context

Logic, reasoning and debate originated in Ancient Greece, and accordingly, argumentation has long been commonly practiced and is a fundamental character of Western civilisation and its democratic nature. In the West, it is thought that logic and reasoning involve a set of cognitive processes that are contradictory to emotions (Kahneman, 2003). Indeed, some experimental studies have shown that emotions are associated with human capabilities that are strong enough to influence and cancel rationality (Weigand, 2004). Taking into account the concept that emotions are human conditions, and reasoning and logic are regarded as human capabilities, emotions and reasoning are often detached within intellectual discourse in Western culture. As reasoning and logic dominate argumentation, which is commonly practiced in the West, individuals cannot trust arguments that are principally constructed based on emotions. In short, in the Western argumentative discourse context, there is an incompatibility with being both reasonable and emotional, in that reason is contrasted with emotion, which is perceived as being associated with the irrational.

Of course, the practice of the use of reasoning and logic in argumentation to establish truth claims in the Western context reflects an objective sense. According to Cassaniti and Luhrmann (2011), in Western culture the mind consists of an inner essence associated with cognition, motivation, awareness, emotion, judgment and action. It is treated as private, standing in natural separation from the world. In contrast, it could be argued that in a South Asian context, the mind is understood to be integrated and immersed with others in society. Specifically, in the Thai context, the mind has an energy which can wander, diffuse, get lost and return under the influence of others. In Thai culture, controlling one's own mind is the moral responsibility of an individual.

These cultural dimensions could be said to delineate the different concepts of the relationship between an individual's mind and a society – individualism versus collectivism. The worldview of individualism in the Western culture encourages the autonomy and agency of an individual's mind. In contrast, collectivism in the Asian context describes an individual's mind as an integral component of a society (Matsumoto, 1990; Zohar, 2013). Autonomy is considered to be a foundational principle of a liberal or democratic theory of society (Mackenzie, 2014). Indeed, there has been a view which equates autonomy with a self-centred individualism (Tappolet, 2014). Individual autonomy implies having the freedom, opportunity and appropriate competences for making choices and enacting decisions on the basis of one's own motives, reasons or values. In philosophical moral psychology, a competence is acknowledged as a person's capability to respond with reason (Mackenzie, 2014).

The historical, social and cultural conditions in which individuals are embedded shape their identities and values (Mackenzie, 2014) and influence the way people communicate and act. In this regard, the political and social constraints and the values associated with Thai culture can influence and somewhat restrict the conditions which accommodate the development and exercise of autonomy. According to Malikhao (2017), Thais tend to succumb to beliefs in supernatural powers, entreating them for protection in order to be able to personally survive in a hierarchical-oriented society and an uncertain and threatening world. It is also considered unacceptable to question, challenge or blame supernatural powers when a wish or request is not fulfilled. Instead, the requester evaluates their own behavior, considering whether there is anything they may have done that would have dishonored the spirits. It is likely that this behaviour is associated with the impact of hierarchy-oriented and patriarchal conditions

within society. Historically, the societal structure of Thailand is rooted in the *Sakdina* system, a feudal structure based on land possession[1]. It should also be noted that the country's shift and alliance towards capitalism have not completely altered the Sakdina system. Rather, the transition from a feudalistic to capitalistic society leans on, rather than replaces, this conservative force.

Many commentators contend that religious doctrines represent a fundamental problem for the country. Approximately, 95% of the population in Thailand are Buddhists (National Statistical Office, 2011). However, Thailand is located at the nexus between the beliefs of Buddhism, Brahmanism and Hinduism. Although Buddhism is the religion of reasoning and there is no discrimination towards women in Buddha's original teaching, it has been suggested that the adoption of certain prejudices in Buddhist doctrines in Thailand contributed to a patriarchy and a male-dominant society (Xu, Kerley, & Sirisunyaluck, 2011). Further, the belief systems in Brahmanism and Hinduism, which also rely on patriarchal structures, are similarly entrenched within Thai culture. For example, Thailand's male clergy has refused to allow the ordination of women as female monks.

In addition, extraordinarily, according to traditional beliefs, a female birth is an unfortunate event and the child is of inherently less value were they born a male. Correspondingly, it is thought that making good deeds in the current life will result in being born a man in the next life. It is surely not surprising that Buddhists agree with the conventions which promote the patriarch within a family. For example, parents are considered 'house gods' and a woman is required to obey her father, husband and even her son (Gross, 2014). These paradigms clearly demonstrate that the status of a woman in Thai society is secondary to that of a man.

However, it is important to emphasise that Buddhism has a connection with ethical reasoning and that Thai society is a complex mixture of a culture and not solely animistic. Gyamtso (2010) addresses how the Buddha emphasised the importance of the path of reasoning without denying the path of faith. In Buddhism, faith or belief can motivate and guide how people act and live their life in a society and enable them to reach what they aim to achieve. In addition, faith and belief can generate diligence and are fundamental parts of an intellectual development process (Phrachonyanmuni & Wongsaard, 2020). In the tradition in which the path of faith is significant, a practitioner acknowledges the significant role of a teacher and believes in the teacher's words. On the contrary, people who follow the path of reasoning use their own intelligence to examine what is being taught. To exorcise their doubts, people should use their critical analysis to investigate the Buddha's teaching[2]. If they find that his teachings are useful and practical, they should accept the teachings out of their confidence, rather than out of their faith in the Buddha. It can be understood that a person with a true Buddhist mind should employ critical thinking and reasoning to evaluate and make conclusions about what they have their faith in.

Thinking and reasoning have been practiced differently in each country in accordance with their culture and values. In a discourse in which a speaker intends to influence the behaviours, opinions or beliefs of others, they use sound reasons to support their propositions (Weigard, 2004). The literature on cognitive psychology (e.g., Nisbett, 2003) addresses how Westerners and Eastern Asians are likely to possess some differences in their cognitive styles and modes of reasoning. For example, Westerners are more likely to apply formal logic when reasoning about everyday matters, although their use of formal logic may occasionally cause errors in their reasoning. On the contrary, Easterners are willing to entertain contradictory propositions and sometimes this approach enables them to get at the truth. With regard to formal logic, Toulmin (1976) questioned how far the rigid structures of formal logic could be applied, particularly, in the context in which an individual argues for his or her belief or action with a properly convincing case. Toulmin suggested alternatively shifting the direction towards rhetoric rather than formal logic. In addition, Eemeren and Grootendorst (2004) describe how, from an anthropological perspective, reasonableness

[1] The Sakdina system can be translated as status endowed by land possession. The king, who is perceived as semi-divine, omnipotent and infallible, is the owner of all land. The Sakdina status and the changeability of the status is dependent on how the king distributes the right to use the land in accordance with an individual's relationship with royal blood or by service to the king (Malikhao, 2017).

[2] There are two approaches for expelling doubt in Buddha's teachings and entering into enlightenment, including (1) an analysis of our own experiences and (2) an analysis of our own five sense consciousness and mental consciousness to understand the difference between the mode of appearance and the mode of an underlying reality.

and rationality are not seen as objective, universal and static; rather they can be seen as (inter)subjective, cultural-bound and dynamic.

1.3. Social Practices and Interactions as Pathway to Higher Order Thinking

In actual life, logical reasoning is bounded within the planes of philosophy, cognition and social interaction. Apart from a philosophical knowledge of logic and a mechanism of higher-order thinking, reasoning abilities also require a social process of communication. Some scholars (e.g., Billig, 1996, Mercier and Sperber, 2011) contend that reasoning is fundamentally a social ability. This hypothesis is also aligned with the views of Vygotsky and Piaget. Within Vygotsky's concepts, there is a close connection between the social activity of speaking and an active process of higher mental functioning, including reasoning (Daniels, 2001). Based on his view, an individual's process of reasoning is culturally mediated through a social process of communication. According to Piaget (1976, p. 80, quoted and translated in Doise & Mugny, 1984, p.19), "social interaction is a necessary condition of the development of logic." These concepts suggest that reasoning may be a social trait. A concrete example in this regard is manifested in the different perceptions of reasoning and emotions in the West and the East.

The term 'argumentation' is basically concerned with a verbal, social and rational activity. Eemeren and his colleagues (1996, p. 5) conceptualised argumentation as a verbal and social activity of reason. In argumentation, speakers attempt to increase the persuasiveness of their standpoints or decrease the acceptability of other speakers' propositions with sound reasons in order to convince and obtain agreement from their target audience. According to Sperber (2001), a reasoning ability is manifested in both the individual's reflection in monological argumentation and in dialogical argumentation. The perspective which emphasises argumentation as a process of social interaction informed my investigation of Thai university students and their processes of reasoning in terms of how they construct their own arguments[3]. In addition, it has been well documented (e.g., Bruner, 1996; Markus, Kitayama, & Heiman, 1996; Fiske et al., 1998) that cultural assumptions about talking and thinking shape the philosophical and scientific foundation of social practices and interactions. For this reason, it is left to further explore the consistency between Thai cultural values regarding the relationship between talking and thinking and psychological reality in the Thai context.

As Buddhism has significantly contributed to the Thai worldview, I made the reasonable assumption that the Buddhist way of thinking would have a substantial impact on Thai students' rationality and reasoning capacities. This research study used a data analysis of Thai students' dialogical argumentation to investigate the influence of certain values of Thai culture portrayed in the students' argument patterns. The findings generated a better understanding of how the reasoning capabilities of Thai students have been shaped by their Thai social and cultural values. The research questions addressed in this study include:

1) What are patterns of argument in Thai students' dialogical argumentation that can reflect certain Thai cultural values?
2) What are sociocultural contexts of Thai students that shape the way they proposed their arguments with those argument patterns?

2. Methodology

The research design adopted a qualitative research approach which generated an in-depth understanding of a phenomenon in its context. This study was carried out with fourteen volunteers who were first-year students of the English Programme at a university in Thailand. The students participated in pairs in dialogical argumentation in English. The session started with a warming-up activity in order to familiarise the participants with argumentation. Then each pair chose two or three topics for discussion from a list of the topics provided. Prior to argumentation on each topic, the participants were given a ten-minute preparation time. The participants' argumentation tasks

[3] In this paper, the term 'argumentation' denotes the process of developing arguments, and I use the term 'argument' to refer to the product or content.

were audio-recorded and transcribed for further analysis using a line-by-line approach of what was actually stated. The audio recordings of the argumentation tasks of all fourteen participants lasted, approximately, 270 minutes in total. Then twenty-one transcripts of the 270-minute argumentation were divided into 302 sections for further analysis in order to detect and trace patterns of argument that reflected certain Thai cultural values. Apart from the data of dialogical argumentation, one-on-one, semi-structured interviews were undertaken in Thai after the participants had performed the argumentation task. The full transcripts of the interview data collected from twelve participants were analysed using thematic analysis to generate themes that inform how the sociocultural background of the participants impacted on the way they delivered their arguments and the associated patterns.

3. Results and Discussion

The analysis of the dialogical argumentation transcripts reported some argument patterns which are reflective of certain Thai cultural values. In addition, the analysis of the interview data, in particular, reflected certain social and cultural values and illustrated the Buddhist approach towards thinking and reasoning. These sociocultural values and Buddhist attitudes also illuminated the following themes.

3.1 Indirectness in Argumentation

The emergence of the first theme is concerned with how the participants were more likely to be indirect in argumentative reasoning. This action seemed associated with the avoidance of conflict in order to maintain harmony within a group. From the analysis of the transcripts, amongst the 302 sections of the participants' dialogical argumentation, it was found that twenty-two sections had a similar pattern. Each of those sections started with supporting ideas, but the speakers' claims were presented close to the end of the sections. This can be seen in the following extracts of which the claims are underlined.

Extract 1: Bella proposed an argument to support her view that studying subjects which meet the demands of a job market is more advantageous than studying subjects which suit one's own abilities.

> *I really agree with this because we can see that in Asia nowadays in many colleges we have many new students who graduated from many colleges and many faculties too. Everyone also has their own different skills and knowledge. There's nothing that can confirm that everyone who just graduated can get a job that they want in a suddenly time. Because nowadays it's really hard to find some jobs, any job that you really want to do and something that link with your ability and your knowledge. So I think we choose to study in the subject or the faculty that are needed in the job market. I think it's easy to find a job more than our preference (Bella).*

Extract 2: Violet advanced her argument to support the idea that studying subjects which suit one's own abilities provide more advantages.

> *I think that I can't deny the impact of labour market demands is factor on students to choose career. It doesn't matter because when you graduate from the university, you must have somewhere to work or somewhere to* (inaudible)*. But for me to make your own desire to study, there are so many ways to make yourself in somewhere that you can do something for your life because there are a lot of ways. Such as, maybe in this time, yes, you really have to find a job. There's less offer than before, Maybe you can make your own business. Maybe you can be your own boss. Or maybe you can work that related to what you have learned or studied because… But I think I believe in this statement that "Do what you love and love what you do" always leads you to success and true happiness. But I don't mean that to study the subjects that meet the demand of the market is not going to be unhappy or not. But I am talking about that if you have your own desire to study or learn. I think no matter what you are going to do what you love or like, it's going to be what you really like and you do it with your best and do it what you really want to do with your own passion (Violet).*

As indicated, these claims were only presented at the end of an argument. The above extracts illustrated an argument pattern shared amongst some participants. The participants structured their arguments by referring to the background of a problem or by providing supporting information, rather than stating their claims at the very beginning of their turns. This pattern is likely to be associated with the Thai values of avoiding direct confrontation. There is an expression in Thai, "Chak Mae-Nam Thang Ha," which translates in English as "Pulling all five rivers." The expression means that a person draws upon multiple reasons to convince an interlocutor and to reach their goals. This expression has its origin from the literature on Mahachat, the story of the last great incarnation of the Buddha, and the five rivers are the five major rivers in India. This expression reflects how an indirect nature is viewed as a favourable characteristic of Thais.

Starting their exchanges in argumentation with supporting details, rather than with a claim or an argument, reduces the extent of being too direct, assertive and challenging. The analysis of the interview data pinpointed that some participants appeared to be careful when communicating with their interlocutors, even with acquainted peers. This is doubtless influenced by Thai culture characteristics that emphasise a harmonious atmosphere. Upsetting the feelings of other interlocutors could create both an unfavourable atmosphere and an unsuccessful outcome from the interaction. Rather than allowing this circumstance to occur, Thais would prefer to subjugate their actual thoughts and feelings.

According to some participants, the avoidance of confrontation, especially with adults, is the appropriate behaviour in the Thai context. A young person who confronts an adult would be judged as a disrespectful person. Fiona, one of the participants, shared her story regarding how she avoided confrontation with her relatives who strongly encouraged her to choose a study programme in which she had no interest.

> *My parents were okay with my choice of the English Programme for my first degree at the university. However, my relatives who wanted me to study medical science complained about my decision. I felt exhausted due to their complaints. During the preparation time for a university entrance exam, I avoided to see them face to face. Whenever they came to visit my parents, I locked myself up in my bedroom and claimed that I was busy with studying…. I avoided confrontation with them. I didn't want to argue against them because they were adults. And I knew it would be hard to change their minds (Fiona).*

The concept of the avoidance of conflict in order to keep harmony within a group is also manifested in Jasmine's interview data.

> *Despite holding a different view, if it's not a big deal matter, I'm sort of compromise and view it as negotiable. Therefore, I often take it easy and let it go. I'm personally concerned about maintaining good relationships with other people (Jasmine).*

In Buddhist tradition, especially meditation, it is acknowledged that the states of silence and introspection help facilitate a higher level of thinking. Another Thai proverb, "Pood Pai Song Pai Bia, Ning Sia Tam Lueng Thong," reflects this custom to some extent, Thais' values. The meaning of this proverb rhymes with the English adage "Speech is silver, but silence is golden" and this reflects the Thais values and approaches to interpersonal communication. Seen through the lens of Buddhist teaching, modesty, the middle way and selflessness are key aspirations for behaviour. The Buddha taught his followers to treat others, including enemies, with compassion and kindness (Swati & Ghani-ur-Rahman, 2012). The avoidance of conflict could be characterised as a predominant feature of Thais' interpersonal communication. The aim is to maintain the relationship and harmony of the group as a whole. In this regard, Thais are taught at an early stage to oppress their emotions and to avoid the initiation of a conflict. This approach can readily be seen in the prevalence of the participants' emotions in their means of constructing arguments.

The collectivistic characteristic of Thai society drives the group dynamics and determines the harmonious and cooperative interdependence between individuals and others and the subjugation of the concept of the individual. Some research studies have found an association between these collectivistic cultures and the suppression of emotion. Individuals from collectivistic cultures tend to diminish the expression of their emotions, whereas people from individualistic cultures would often express their emotions more readily (Matsumoto, 1990; Matsumoto et

al., 2002). Subsequently, it is likely that the desire to create harmony and cooperation within a Thai group played a role in the way the students structured their arguments.

3.2 Rationality and Subjectivity in Argumentation

The analysis of the transcripts indicates that personal experience plays a significant role in Thai participants' argumentative dialogues. According to the data, twenty-seven out of 302 sections included the firsthand experiences of the participants and the experiences of others which the participants used as evidence or as a ground for supporting their arguments. The participants' employment of personal experiences in supporting their arguments can be seen in Extracts 3 and 4.

Extract 3: Beatrix delivered her argument with an intention to challenge the view that the use of social media applications has caused social isolation.

I don't really agree with you that I think social media application doesn't cause isolation in the society. Because, I think social media make we get closer. For example, friend, my friends uploaded the story where they go, what they did last week. I can see them although I didn't go with them. When we meet each other, we can talk about that. Like, yes, we have something to talk and it really makes we get closer… (Beatrix).

Extract 4: Patricia constructed her argument with an aim to support her perspective on the negative effects of the use of social media applications.

My dad keeps playing Facebook at the dinner table and I have to say to stop him from playing. Because of social media, we have social distancing from each other. We don't spend more time with family. That's why we should not pay attention to phone too much. I didn't talk about it that it doesn't cause isolation, but it also has a problem of isolation (Patricia).

The interview data also confirmed the importance of personal experience for some participants in argumentation. One of the participants, Bella felt that she fully engaged herself in the discussion topic on how the "Internet celebrity market diminishes the value of human beings" because of her own personal experience. Bella indicated how:

The topic is quite related to my personal experience and it allowed me to draw upon my direct experience in argumentation. From others' perspectives, my image was relatively good. This shaped my views that I needed to act and behave well to meet others' expectations. In argumentation, I felt like, eventually, I was able to say what I truly thought. Upon my reflection on myself, my previous behaviour reduced my self-esteem (Bella).

The participants' choices of supporting their arguments with personal experiences can be further explained through the lens of Thai culture in which there is an intersection of rationalism and animism. Buddhist teaching emphasises how listening and studying from more knowledgeable people, combined with direct and practical experiences are the correct approaches to wisdom. However, reflection and reasoning is also an important approach for the development of wisdom, which, in turn, promotes rationality (ปัญญากา, 2014). Indeed, a true Buddhist mind accommodates and embraces critical thinking (Zhang, 2018). In addition, Boss (2015) addresses how firsthand experience is positioned at the first level of the model of thinking, whereby a person simply describes his or her own experience, as well as the information received directly from others. In order to develop critical thinking, that person is required to further interpret and analyse those experiences. Following the Buddhist approach to wisdom and Boss' model of thinking, it can be understood that making sense of personal experiences, not only of their own but also of others, through the process of reflection and reasoning is vital for developing higher-order thinking. It may appear trite to highlight the importance of personal experience to some participants in their argumentative strategy; however, that this group of individuals used such experiences without making sense or contextualizing them, indicated a profound absence of reflection and reasoning.

Further, it should be noted that Buddhism goes beyond the level of reflection and reasoning. Supernatural knowledge or intuition is also considered to be another significant tool for making sense of a phenomenon. In Buddhism, rationality is situated at two different levels. At the foundational level, a phenomenon can be understood with elementary wisdom and empirical and rational knowledge. However, to achieve a higher level, a phenomenon cannot be merely understood with elementary wisdom; rather, an extraordinary wisdom or supernatural knowledge is required (ปัญญากา, 2014). As previously discussed, the Buddhist approach to the development of wisdom emphasises reflective thinking and making sense of one's own private experience. Interestingly, experiences based on empirical reasoning have been assessed as a valid tool for examining some supernatural beliefs within Thai culture, particularly in the Northern and Northeastern communities (Wattanagun, 2018). The author reported how his Thai interviewees tended to adopt both scientific and supernatural strategies as rational explanations to illustrate and examine the mysterious incidents they have experienced. In other words, experiences based on empirical reasoning and the adoption of rational explanations seem to play a supporting and co-existing role in scrutinising supernatural phenomena. Although supernatural beliefs have been viewed as a fallacious mode of thinking in the scientific context, the beliefs, as such, cannot be explained by scientific-rationalist notions of reality. Drawing upon the aforementioned sociocultural practices and beliefs to understand the phenomenon, it can be understood that the participants applied both subjective and rational strategies in argumentation. Some participants' deployment of personal experiences in their argumentative strategies illustrated the paradox between subjectivity in the social and cultural values for Thais and their analytical and logical attempt to devise a tool for the logical explanation of an incident based on scientific rationality.

3.3. A Nuanced Stance in Argumentation

The third theme to emerge from analysis of the transcripts of the participants' dialogical argumentation relates to the notion of the adoption of a nuanced stance to avoid being judged by peers as too extreme in terms of opinions. Being modest and subtle is likely to allow the participants to be more flexible in handling argumentative dialogues, especially with unfamiliar interlocutors who may hold opposing views. The data analysis highlighted that some participants did not make it clear at the beginning of their talks in argumentation what stance they were taking, supporting or opposing with regard to a motion. It was found that six sections in the transcripts started with and mainly contained supporting ideas, with the absence of the speakers' claims. This can be seen in the following Extracts 5 and 6.

Extract 5: Fiona expressed her view on the topic "Happiness in this era emerges in social media rather than in the real world."

> *When I see my brother is playing with friends, playing football with friends or riding, I see children are happy when spending time together in real life with their friends. But when they play the game, they will get mad at their friends. They are happy, but sometimes they get mad at their friends when playing computer games. And they speak that bad words to others. His friends speak the bad words to my brother. My brother speaks that bad words to his friends, and they fought until they go to school again. But when they play together, if they controversy, they can reconcile in the future in a minute because they are together. When they controversy when they play the game, one of them can close the game, can leave the game and they haven't talked to each other for a while (Fiona).*

Extract 6: Bella discussed the topic "Studying subjects which meet the demand of a job market is more advantageous than studying subjects which suits one's own abilities."

> *I think it also relates on the personal of each people too. For me at the beginning I go to school, my mum always suggests me or advise me to learn this or choose that, something like that. In Grade 9, I studied in English programme before, so I had to choose the new programme in Grade 10. And yes, I choose the English programme too. But my mum, she said, not just my mum, every parents said you have to choose science and math programme first because it gives you more chance to choose the faculty in the college too in order to find a job in the future (Bella).*

When the goal of argumentation is to convince a target audience, it is crucial for a speaker to clearly state his or her stance and supporting arguments. The absence of some arguments is likely to be a consequence of how some participants tended to undermine their own voice or lacked the confidence to express their stances. The perspectives from one of the participants, Florence, clearly indicated her concern regarding a potential negative appraisal and rejection from others. Florence commented:

> *In the previous semester, I had discussed the topic "Abortion should be legalised in Thailand" in a classroom. The teacher asked the students to vote for the side they agreed upon. I noticed that the majority of the students were likely to support legalisation of an abortion. I heard one of the classmates said it was impossible that anybody here would be against this motion. Indeed, I was definitely against this motion. However, I felt unconfident to express my stance. I was worried of being judged as a conservative and narrow-minded person (Florence).*

In addition, some participants' experiences in an English communication classroom reflected how Thai students tend to be reserved and reluctant to express what they really think, particularly in an unfamiliar environment. Indeed, Sage's observations reflect how, despite the fostering of a safe and supportive environment for learning in the classroom, many students were not comfortable expressing themselves.

> *From my experience in the English communication classroom, the atmosphere of teaching and learning was relatively quiet. The students were not familiar with one another, so majority of us chose to be quiet rather than expressive. The classroom atmosphere was like very few students contributed to sharing ideas in discussion (Sage).*

This observation can be analysed through the lens of two dimensions. First, viewing this experience through the lens of Buddhism, Thais are taught to take the middle path, which means an avoidance of existing within the two extremes of life. This refers to being neither indulgent in the sensual pleasures of life, nor living life with strict asceticism. It is possible that to clearly identify one's own stance in the argumentation can be seen as an extreme form of self-expression for the participants. Indeed, the participants are more likely to be in favour of compromise and harmony in argumentation, rather than explicitly clarifying their position.

In addition, Malikhao (2017) suggests that Thai animism is focused on appropriately and passively honouring, rather than challenging the power of the supernatural. This illustrates a modesty within the Thai character and its approach towards animism. As mentioned earlier, the controlling conditions that arise from the social structures and religious doctrines within the country are likely to restrict Thais' personal liberties and these conditions impact the political and social worlds. It can readily be understood that Thais are unlikely to have full agency and the opportunity to exercise their autonomy competences. Further, animism is not a phenomenon associated with commonplace realities and rational principles (Malikhao, 2017).

The other dimension for understanding this observation is concerned with the idea that Thailand is a highly collectivist country. A long-term commitment and loyalty to a group is a predominant feature of Thai society. Thais are likely to hold the view that building strong bonds and relationships between each other requires time and patience. Therefore, to preserve their own membership within a group, they are required to avoid confrontation and abide by the rules of the group. In this regard, any actions and communication which openly show discord with the majority of the group can be considered aggressive and impolite, and, consequently, this can lead to losing face.

3.4 Emotions in Argumentation

The emergence of such issues in the data analysis in this research suggests that Thai students tend to reason through emotions. In particular, this seemed to be exemplified by the students' concerns over the judgement of others about them. For them, argumentation does not solely involve proposing arguments with reasons and evidence, but their actions in argumentation were strongly driven by emotions – feelings and concerns about themselves and their interlocutors. The first issue with regard to emotions includes a concern that opposing views in argumentation

might make the relationship with an interlocutor acrimonious and inharmonious. The other issue involves a lack of confidence in revealing an opinion or stance during argumentation.

Markus and Kitayama (1991) contend that people in different cultures have a different understanding of the self, of others and of the interdependence of the self and others. Consequently, this understanding can influence the nature of individual experience, including emotion. Buddhism, which has been credited as a significant source of the Thai worldview (Mulder, 2000; Sattayanurak, 2002, 2005), takes into account a balancing between reasoning and emotions and allows a contribution from healthy emotions to play a role in thinking processes. The traditional philosophy of Buddhism considers empathy and love for all living beings as the foundation of critical thinking and flourishing towards a good life. Healthy emotions, as such, may promote some positive emotional effects, including a sensitivity to others' views. De Silva (2006) analysed the psychodynamic condition of emotional states and indicated that there is a range of factors which emerge out of the socio-economic structure of a certain society. The author suggested that this phenomenon was aligned with the notion of the Buddha and that the weight given to a range of emotions (e.g., loving, kindness, empathy, desire to share, fear, guilt, grief and anger) had a significant association with the value system embedded in a particular society.

3.5. Implications for Teaching and Learning of Argumentation

Undoubtedly, there are fundamental differences between the cultural values of Western and Eastern societies and transplanting Western-style teaching strategies can pose significant difficulties for Thai students in the classroom. Following the conventional approach to propose an argument, the students are required to clarify their claims at the beginning of their talk. However, growing up in a culture in which being too direct could be perceived as aggressiveness and where indirectness is associated with politeness and harmony is likely to impact the Thai student's approach in argumentation. This paper suggests that it is important to guide learners to recognise the different patterns of reasoning between the Western culture and the Thai culture. Learners should be provided with more scaffolding and support of conventional argument patterns, so that they are more familiar with such patterns and can adopt them when communicating in the culture of the target language.

In addition, employment of personal experience by some students as a strategy in argumentation indicates an issue which may be of concern for teachers. As discussed, describing firsthand experience is the primary level of thinking. To encourage one's level of thinking to be more critical, an individual is required to make sense of that experience and analyse it (Boss, 2015). However, the findings showed that in argumentation, the students merely described their own or others' direct experiences, rather than interpreting, examining and contextualizing those experiences. For this reason, it is crucial to equip Thai students with the skills necessary for interpretation and analysis of firsthand experiences and to cultivate these habits. To foster these skills, the author suggests promoting an environment in the classroom that allows the students to question one another in an open, collaborative and conducive manner. Each person brings different interpretations and experiences that need to be respected.

The final issue is concerned with the students' reluctance to present their stances. The participants were worried about challenging and not being accepted by their peers, especially if their stances are contrary to those of their peers. This phenomenon was clearly a consequence of the important cultural value attached to conformity to the collective society. The findings informed the requirement of empowering the students to realise that their voices exist and to express their voices. Moreover, it is crucial to design tasks and pedagogical techniques which can support the cultivation of being open-minded to other points of view, particularly ones which disagree with their views. Such 'perspective-taking' is known to be a fundamental characteristic of critical thinking. With regard to an approach to empowering the students, teachers should create a positive and supportive classroom environment that allows the students to take different roles and perspectives on a certain discussion topic.

4. Conclusion

This paper set out to investigate Thai students' argumentation patterns. The students' dialogical argumentation process clearly indicated that this type of discourse required the reasoning skills of the students. However, most

importantly, the argumentation tasks also elicited strong emotional responses amongst the students. Thematic analysis derived from the interview data confirmed the impact of Thai culture and values on the participating students' actions and strategies in dialogical argumentation. In particular, some of their argument patterns reflected Thai cultural values. These emphasise an avoidance of confrontation and a desire to maintain harmony within a group. Further, deploying personal experience as a strategy in argumentation echoed the values embedded in Buddhist teachings and the apparent contradictions between mythological and superstitious beliefs and religious beliefs within Thai culture. In addition, the collectivism apparent in Thai society appeared to influence how the students would avoid taking an extremist position in stating their stances. Indeed, this desire to maintain harmony within a group often led to a situation whereby the students would be reluctant to even state a position.

Despite the impact of the aforementioned sociocultural factors, this paper contends that the employment of conventional patterns of argument and dialogical argumentation tasks have significant potential in the teaching of critical skills. More scaffolding tasks will provide learners with more exposure to the argument patterns of the targeted language and culture. Furthermore, a classroom environment which is positive and supportive and allows for the expression of opinions and perspective taking will encourage learners to take more risks and foster their confidence. In conclusion, theses pedagogical techniques are likely to develop reasoning skills in a systematic manner, and, along with English language skills, provide learners with more exposure to the culture of the targeted language.

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An Analysis of Prospective Teachers' Curriculum Literacy Levels in Terms of Various Variables

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Abstract
This study aims to examine the curriculum literacy levels of prospective teachers in terms of various variables. The research sample consists of 469 teacher candidates, including 253 students from the 3rd grade and 216 students from the 4th grade, studying in Primary School Education, Preschool Education, Turkish Education, and Social Studies Education Departments of Inonu University Education Faculty. Curriculum Literacy Scale was used as a data collection tool in the study. In the findings of the study, it was observed that there was a significant difference in various sub-dimensions of the curriculum literacy of prospective teachers by different variables.

Keywords: Curriculum Literacy, Prospective Teachers, Curriculum

1. Introduction

The educational process has three essential elements: teacher, student, and curriculum. As one of the elements, the curriculum is the national, school-based, and official education plan of a country valid throughout the country (McLachlan, Fleer, & Edwards, 2010, p. 11). The curriculum seeks an answer to the question of "what," and it can be considered as a planning and learning experience (Demirel, 2020, p. 6). It also consists of realizing learning, learning and teaching processes, educational resources and guides for the use of these resources, course contents, assessment and evaluation processes, and practices related to the management of the curriculum (Demeuse & Strauven, 2016, p. 4). the curricula are developed for different grades (Carl, 2005). During the preparation process of the curriculum, some goals/objectives answer the question of why individuals will learn, content that answers the question of what to teach, learning-teaching processes that answer the question of how to teach, and assessment and evaluation elements that answer the question of the degree to which they learned. It is the characteristics that students are expected to acquire due to the implementation of the target curriculum. Content, on the other hand, is information designed to mediate in achieving goals. Learning-teaching processes include learning-teaching activities in which knowledge, attitudes, and skills are acquired in accordance with the determined goals. Assessment and evaluation aim to determine whether the objectives set using various assessment tools were achieved (Görgen, 2019, p. 11-12).

The curriculum has a constructive role in improving teaching. A well-constructed curriculum consists of activities based on teachers' and students' thoughts, encouraging the intellectual environment in the classroom, and developing effective materials (Ball & Cohen, 1996). However, no matter how well-designed a curriculum is, it is difficult to reach the preset objectives unless it is well understood and implemented by teachers (Arslan & Özpınar, 2008). To this end, the importance of teachers' curriculum knowledge and curriculum literacy is underlined.

Teachers' curriculum knowledge can be classified into three levels (Ariav, 1988 as cited in Silberstein, 1984):
At the 1st level, the teacher is an independent receiver who can intelligently use the ready-made curriculum materials. These teachers know how to evaluate the materials and how to adapt them to the educational environment.
At the 2nd level, the teacher is the receiver-developer who can develop limited material to support and enrich ready-made materials.
At the 3rd level, the teacher is an independent developer who can plan the whole lesson without any curriculum material.

A factor that allows teachers to use the curriculum well is curriculum literacy. The concepts of being literate and literacy are often confused. Being literate is based on analyzing what is written in a text, while literacy includes interpreting the meaning. Besides, literacy is a skill that can be developed, while being literate is a skill that someone has or has not. While a text is required for being literate, there are thoughts, information, and designs in the concept of literacy. Literacy manifests itself in many areas day by day, such as technology literacy and media literacy (Kurudayıoğlu and Tüzel, 2010). One of these types of literacy is curriculum literacy. The concept of curriculum literacy means having information about the curriculum, awareness of the curriculum, and the correct interpretation and use of the elements in the curriculum. This concept is a factor that contributes to the correct implementation of the curriculum (Aslan, 2018, p. 6). Curriculum literacy is an important skill that teachers and prospective teachers should acquire (Erdem & Eğmir, 2018). Accordingly, four important elements apply to the curriculum in any educational setting, from early childhood to higher education. These are the objectives about what the curriculum wants to achieve, the content of what is included in the curriculum, the teaching methods to be used to achieve the objectives, and the assessment to determine whether the goals were achieved (McLachlan, Fleer, & Edwards, 2010, p. 10).

Regarding the studies on curriculum literacy, 728 students studying in the departments of mathematics education, primary school education, computer and instructional technologies education, science education, and Turkish education in three universities participated in the study (Arı, 2010) conducted about the prospective teachers' level of recognition and understanding of the primary education curriculum. In the research, a questionnaire form developed by the researcher was used as a data collection tool. In the findings of the study, it was determined that the proficiency of prospective teachers to apply the primary education curriculum is low. Additionally, most of the students expressed that the introduction of the primary education curriculum in the textbooks was insufficient and that the education they received in the education faculty did not provide the necessary knowledge and skills in implementing the primary education curriculum.

345 3rd and 4th-grade students studying at the primary school education, preschool education, science education, and mathematics education departments of a university participated in a study (Çetinkaya & Tabak, 2019) examining the curriculum literacy levels of prospective teachers. Curriculum Literacy Scale was used as a data collection tool in the study. The study findings determined that the curriculum literacy level of the prospective teachers was at a sufficient level, the curriculum literacy level of the 4th-grade students was higher than the students in the 3rd grade, and the students in the primary school education department had a higher curriculum literacy level than the students in the preschool education and mathematics education departments.

In the findings of a study conducted to determine whether the teacher competencies of the renewed primary education curriculum are compatible with the professional competencies aimed to be acquired by prospective

teachers in education faculties, it was found out that the professional competencies expected from the teachers and the education given to prospective teachers were compatible (Arslan & Özpınar, 2008).

Studies also indicate that prospective teacher's curriculum literacy levels differ by various variables. The results of the studies conducted on the concept of curriculum literacy with prospective teachers are expected to pave the way for the studies that can be carried out to develop this skill of prospective teachers. Thus, teachers who can use the curriculum effectively and fulfill the requirements of the curriculum are trained. The reason is that with the curriculum literacy skills, teachers' mastery of the curriculum increases as well as the applicability and functionality of the curriculum (Karagülle, Varkı, & Hekimoğlu, 2019).

As in the world, and teacher training for Turkey is undoubtedly among the most important and strategic issues. Physical spaces, technology, tools, and equipment related to education, in short, efficient use of all resources, cannot fully achieve the desired results. In any education system, teachers cannot be expected to produce educational services above their quality. Teachers should have knowledge of curriculum literacy in another subject that they need to know and apply in addition to their content knowledge and pedagogy knowledge. It is thought that this knowledge contributes positively to the quality of education when prospective teachers start to work, having gained such qualities during their undergraduate years. This study investigated the curriculum literacy levels of prospective teachers. Within the scope of this purpose, the questions that the research seeks to answer are as follows:

1. Does the curriculum literacy levels of prospective teachers differ significantly by gender?
2. Does the curriculum literacy levels of prospective teachers differ significantly by grade?
3. Does the curriculum literacy levels of prospective teachers differ significantly by department?

2. Method

This study aims to determine whether the curriculum literacy levels of undergraduate students differ by various demographic variables. In this direction, the research was designed with the general survey model. The survey model describes an existing situation as it is in its own conditions (Karasar, 2009).

The study group of the research consists of 469 prospective teachers, 253 students from the 3rd grade, and 216 students from the 4th grade studying in the departments of Primary Education, Preschool Education, Turkish Education, and Social Studies Education at İnönü University, Faculty of Education. The demographics of the study group are presented in Table 1.

Table 1: Percentage and frequency distributions of students' demographics

	Categories	*f*	%
Gender	Female	361	77,0
	Male	108	23,0
Grader	3rd grade	253	53,9
	4th grade	216	46,1
Department	Preschool Education	138	29,4
	Primary Education	155	33,0
	Social Studies Education	89	19,0
	Turkish Education	87	18,6

According to Table 1, 77% of the participant students are female and 23% are male, 53.9% are studying at the 3rd grade, 46% are at the 4th grade, 29.4% are in Preschool Education, 33% are in Primary Education, 19.0% are in Social Studies Education, and 18.6% are at Turkish Education.

2.1. Data Collection Tools

Curriculum Literacy Scale (Bolat, 2017) was used as a data collection tool in this study. This scale was developed to determine the curriculum literacy levels of prospective teachers. It consists of 29 items and two factors: reading and writing. Under these two factors are objective literacy, content literacy, learning and teaching processes literacy, and assessment and evaluation literacy subdimensions. The Cronbach's Alpha internal consistency coefficients in scale reliability are ,940 for the whole scale, ,888 for the reading factor and ,907 for the writing factor. Scale validity was examined by calculating item-total correlations, and it was determined that the scale items had sufficient validity levels.

2.2 Data Collection and Analysis

The research data were collected online via Google Forms after obtaining the permission of the ethics committee. SPSS package software was used to analyze the collected data. Whether the data show normal distribution or not was analyzed with skewness and kurtosis coefficients, and these values are given in Table 2.

Table 2**:** Skewness and Kurtosis Scores regarding normality of Curriculum Literacy Scale scores

			Skewness	Kurtosis
Curriculum Literacy Scale	Objective	Reading	-,187	,194
		Writing	-094	,242
	Content	Reading	-,182	,130
		Yazma	-,204	-,118
	Learning and Teaching Processes	Reading	-,151	,015
		Writing	-,243	,052
	Assessment and Evaluation	Reading	-,011	-,295
		Writing	-,067	,064

Table 2 indicates that these values are between -1 and +1, and the data show a normal distribution. After it was determined that the data showed a normal distribution, descriptive analyses were made on the students' demographics. Independent Samples T-Test was used for two-category variables, and One-Way Analysis of Variance was used for variables with three or more categories for students' demographics. When a significant difference was found out in variables with three or more categories, the source of this difference was also analyzed with the Bonferroni Test.

3. Results

In this chapter, the findings obtained from the analysis of the research data are tabulated.

Table 3: Students' opinions about the curriculum course

		Categories	*f*	%
Taking curriculum course	3rd-grade	Taken	175	69,2
		Not taken	78	30,8
	4th-grade	Taken	45	67,1
		Not taken	171	32,9
Willingness to take curriculum course	3rd-grade	Yes	216	85,4
		No	37	14,6
	4th-grade	Yes	199	92,1
		No	17	7,9

When Table 3 is examined, 69.2% of the 3rd-grade participant students took the curriculum course in their university education. It is also observed that 30.8% did not take the curriculum course. It was determined that 67.1% of the 4th-grade students took the curriculum course in their university education, and 32.9% did not take this course. However, when looking at their willingness to take the curriculum course, it was found out that 85.4% of the 3rd-grade students and 92.1% of the 4th-grade participant students wanted to take the curriculum course during their university education.

Table 4: Independent Samples T-Test Results regarding curriculum literacy levels of students by gender

	Curriculum Literacy Scale Sub-Dimensions	Age	N	Mean	Ss	sd	t	p
Objective	Reading	Female	361	14,52	2,43	467	,896	,371
		Male	108	14,28	2,73			
	Writing	Female	361	10,49	2,15	467	-,013	,989
		Male	108	10,49	2,37			
Content	Reading	Female	361	14,38	2,44	467	,473	,636
		Male	108	14,25	2,88			
	Writing	Female	361	10,83	2,25	467	1,280	,201
		Male	108	10,51	2,35			
Learning and Teaching Processes	Reading	Female	361	14,48	2,78	467	-,016	,987
		Male	108	14,48	2,08			
	Writing	Female	361	14,40	2,91	467	1,306	,192
		Male	108	13,97	3,36			
Assessment and Evaluation	Reading	Female	361	6,78	1,61	467	-1,993	,047*
		Male	108	7,13	1,64			
	Writing	Female	361	13,77	3,04	467	-,537	,592
		Male	108	13,94	3,11			

Based on the curriculum literacy levels of students by gender in Table 4, it is seen that there is no significant difference in the dimensions of objective, content, learning, and teaching processes. In the reading sub-dimension of the assessment and evaluation dimension ($t_{(467)}$=,-1,993, p=,047<,05), it was seen that there is a significant difference by gender. Accordingly, it can be suggested that male students got higher scores from the reading sub-dimension of the assessment and evaluation dimension of the curriculum than female students

Table 5: Independent-Samples T-Test Results regarding curriculum literacy levels of students by grade

Curriculum Literacy Scale Sub-Dimensions		Age	N	Mean	Ss	sd	t	p
Objective	Reading	3rd-grade	253	14,26	2,35	467	-1,975	,049*
		4th-grade	216	14,71	2,64			
	Writing	3rd-grade	253	10,30	2,16	467	-1,963	,050*
		4th-grade	216	10,70	2,24			
Content	Reading	3rd-grade	253	14,06	2,42	467	-2,748	,006*
		4th-grade	216	14,70	2,65			
	Writing	3rd-grade	253	10,59	2,30	467	-1,672	,095
		4th-grade	216	10,94	2,24			
Learning and Teaching Processes	Reading	3rd-grade	253	14,20	2,78	467	-2,283	,023*
		4th-grade	216	14,80	2,89			
	Writing	3rd-grade	253	13,91	3,02	467	-3,132	,002*
		4th-grade	216	14,77	2,96			
Assessment and Evaluation	Reading	3rd-grade	253	6,74	1,63	467	-1,763	,078
		4th-grade	216	7,00	1,61			
	Writing	3rd-grade	253	13,68	3,11	467	-,968	,334
		4th-grade	216	14,00	2,99			

When the curriculum literacy levels of the students by grade are examined in Table 5, it is seen that there is no significant difference in the assessment and evaluation dimensions. Reading sub-dimension ($t_{(467)}$=,-1,975, p=,049<,05) and writing sub-dimension ($t_{(467)}$=,-1,963, p=,050=,05) of objective dimension, reading sub-dimension ($t_{(467)}$=,-2,748, p=,006<,05) of content dimension and reading sub-dimension ($t_{(467)}$=,-2,283, p=,023<,05) and writing sub-dimension ($t_{(467)}$=,-3.132, p=,002<,05) of assessment and evaluation dimension were found to be significantly different by grade. Accordingly, it can be asserted that 4th-grade students got higher scores than the students studying in the 3rd grade in the reading and writing sub-dimensions of the target dimension, reading sub-dimension of content dimension, and reading and writing sub-dimensions of learning and teaching processes of the curriculum.

Table 6: One Way ANOVA Test results regarding the curriculum literacy levels of students by department

Curriculum Literacy Scale Sub-Dimensions		Department	N	Mean	Ss	F	p	Difference
Objective	Reading	1. Preschool Education	138	14,17	2,26	1,731	,160	
		2. Primary Education	155	14,41	2,77			
		3. Social Studies Education	89	14,60	2,70			
		4. Turkish Education	87	14,92	2,09			
	Writing	1. Preschool Education	138	10,23	2,03	2,396	,068	
		2. Primary Education	155	10,34	2,48			
		3. Social Studies Education	89	10,90	2,04			
		4. Turkish Education	87	10,76	2,04			
Content	Reading	1. Preschool Education	138	14,02	2,29	1,847	,138	
		2. Primary Education	155	14,28	2,77			
		3. Social Studies Education	89	14,69	2,73			
		4. Turkish Education	87	14,68	2,29			
	Writing	1. Preschool Education	138	10,53	2,22	1,636	,180	
		2. Primary Education	155	10,74	2,47			
		3. Social Studies Education	89	11,20	2,14			
		4. Turkish Education	87	10,69	2,10			
Learning and Teaching Process	Reading	1. Preschool Education	138	14,20	2,49	1,311	,270	
		2. Primary Education	155	14,45	3,24			
		3. Social Studies Education	89	14,97	2,92			
		4. Turkish Education	87	14,46	2,51			
	Writing	1. Preschool Education	138	14,16	2,72	,389	,761	
		2. Primary Education	155	14,30	3,41			
		3. Social Studies Education	89	14,60	3,11			
		4. Turkish Education	87	14,25	2,64			
Assessment and Evaluation	Reading	1. Preschool Education	138	6,59	1,57	2,251	,082	
		2. Primary Education	155	6,95	1,72			
		3. Social Studies Education	89	7,12	1,56			
		4. Turkish Education	87	6,85	1,57			
	Writing	1. Preschool Education	138	13,12	2,78	4,763	,003*	2-1, 3-1
		2. Primary Education	155	14,08	3,39			
		3. Social Studies Education	89	14,56	2,86			
		4. Turkish Education	87	13,62	2,84			

In terms of the students' curriculum literacy levels by the department in Table 6, it is seen that there is no significant difference in the dimensions of objective, content, and learning and teaching processes. It was observed that there was a significant difference by the department in the writing sub-dimension of the assessment and evaluation dimension (F=4,763, p=,003<,05). Additionally, students studying in Primary Education ($\bar{X}$=14.08) received higher scores than students studying in Preschool Education ($\bar{X}$=13,12). Similarly, students studying in the Social Studies Education ($\bar{X}$=14,56) got higher scores than students studying in the Preschool Teaching ($\bar{X}$=13, 12) in the writing sub-dimension of the assessment and evaluation dimension of curriculum.

4. Discussion

Table 3 suggests that more than half of the 3rd and 4th-grade students took the curriculum course during their undergraduate education. In KPSS (Public Personnel Selection Examination in Turkey) exams, there are questions in the field of curriculum development within the scope of teaching profession knowledge. The prospective teachers are aware of it, and 85.4% of the 3rd-grade students and 92.1% of the 4th-grade students stated that they would like to take the curriculum development course during their university education. The fact that the numbers are so high that even the students who take the course want to take it again shows that the course is important for prospective teachers, and they basically need this course. Therefore, giving more space to the curriculum course while designing undergraduate teacher training curricula may contribute to meeting these needs of students.

In Table 4, male students got higher scores than female students in the reading sub-dimension of the assessment and evaluation dimension of the curriculum. In another study, it was determined that there was no significant difference in the reading dimension of the curriculum in terms of gender, and female students were better than male students in the writing dimension (Erdem & Eğmir, 2018). The difference in the current study may be because reading and writing factors are taken into consideration rather than the general sub-dimensions.

In Table 5, 4th-grade students are at a better level than the students studying in the 3rd grade in the reading and writing sub-dimensions of the objective dimension, reading sub-dimension of content dimension, and reading and writing sub-dimensions of learning and teaching processes dimension of curriculum. As expressed in Table 3, 32.9% of the 4th-grade students signified that they did not take the curriculum development course during their undergraduate education and would like to take it at a frequency of 92.1%. Thus, as 4th-grade students approach the KPSS exams, they can improve themselves by feeling more sensitive about curriculum literacy. In another study conducted to support the present findings (Süral & Dedebali, 2018), it was determined that there is a significant difference in favor of 4th graders in the reading and writing dimensions of curriculum. Based on the literature, Çetinkaya and Tabak (2019) revealed that the curriculum literacy levels of the 4th-grade students were at a better level than the 3rd-grade students.

As shown in Table 6, there is no significant difference in the sub-dimensions of the curriculum literacy factors in the objective, content, learning, and teaching processes by the departments of students, which may be due to the similarity of the curricula in terms of educational sciences. In the writing sub-dimension of the assessment and evaluation dimension of curriculum literacy, it is a meaningful and appropriate situation that Primary Education and Social Studies Education students received higher scores than Preschool Education students since the student assessment methods of Preschool Students are completely different from Primary Education and Social Studies Teaching departments. While more standardized assessment and evaluation methods are used in Primary Education and Social Studies Education curricula, non-standardized measurement tools such as monthly plan evaluation, activity evaluation, daily evaluations, children's activities, and portfolios are used in the Preschool Education curriculum evaluation (MoNE, 2013). In another study (Çetinkaya & Tabak, 2019), it was indicated that the literacy levels of the students studying in the Primary Education department were higher than the students studying in the Preschool Education department, in a way to support the current research results.

Based on the results of the current study conducted with prospective teachers, it can be ensured that teachers participate more effectively in the curriculum development processes to understand the essence of the curriculum and improve their curriculum literacy, without being included only as recipients in the curriculum (Carl, 2005). However, the fact that the students studying in the Social Studies Education had higher scores in the writing sub-dimension of the assessment and evaluation dimension of curriculum compared to the other departments could be affected by the existence of the curriculum development course in the Social Studies Education undergraduate program. Therefore, adding this course to other teacher training programs could help develop prospective teachers' curriculum literacy. Considering the new undergraduate teacher training programs of the Council of Higher Education (CoHE) (2018) in Turkey, it is seen that the Curriculum Development course is included in the curriculum as an elective. However, this practice may cause some students to take this course and others to

graduate without taking this course. At this point, making the Curriculum Development course compulsory in all undergraduate teacher training programs, adding other courses related to the curriculum could help prospective teachers be better educated about the curriculum.

It can be suggested that one of the problems faced by novice teachers is the difficulty in accessing resources and materials related to the curriculum (Grossman & Thompson, 2008). In this direction, it may be effective to increase the number of materials related to the curriculum in order for teachers and prospective teachers to better understand the curriculum and thus improve their curriculum literacy.

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Examining Entrepreneurship Characteristics and Reflective Thinking Levels of Pre -Service Teachers at Physical Education and Sports School

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Abstract
This study examines the relationship between the pre-service teachers' entrepreneurship skills and their reflective thinking levels. The sample of the study is 240 pre-service teachers studying at Bartın University Physical Education and Sports Teaching Department. Semerci (2007), “Reflective Thinking Tendency Scale” and Yılmaz & Sünbül (2009), “Entrepreneurship Scale for University Students” are used as data collection instruments. The data collected for the research were analyzed using SPSS 22.0 program. Reflective thinking levels and entrepreneurship characteristics of the pre-service teachers are examined based on gender, grade, entrepreneurship course and work experience variables. As a result, It is seen that female pre-service teachers' more reflective than male pre-service teachers and the entrepreneurship characteristics of the pre-service teachers in the study are found as "high." Moreover, in the work experience variable, there is a significant difference between the groups. A correlation analysis, it was found that there was a positive and significant relationship between entrepreneurship and all reflective thinking sub-scales, too. Based on the study's findings, it is possible to say that pre-service teachers with high entrepreneurship characteristics have high reflective thinking levels.

Keywords: Pre-Service Teachers, Entrepreneurship, Reflective Thinking

1. Introduction

Today, entrepreneurship has gained prominence upon the transition from an industrial society to an information society. Therefore, it is required to support, encourage entrepreneurship in every aspect, and provide training for entrepreneurship in societies' economic and social development. When reflective thinking, which is among the high-level thinking skills, is defined as a cognitive examination to pioneer the production of new information and development of alternative ways, the characteristics and skills similar in many aspects emerge between reflective-thinking individuals and entrepreneurs individuals.

Lipman (2003) defines reflective thinking as the skill of being aware of your thoughts and actions and thinking about the causes and effects of practices. Furthermore, he stated reflective thinking as considering an individual his methods and point of view in certain subjects. According to Dewey (1933), reflective thinking includes dealing with a subject in mind and seriously evaluating the subject.

According to Semerci (1999), developing and changing conditions of the world requires thinking individuals who can firmly lay down their existence. However, thinking individuals, in other words, individuals who can use their cognitive skills, will be more successful and survive in the future. Thus he points out the importance of education by stating, "This becomes evident as an obligation today and in the future." He draws attention to the point that this can only be achievable by developing sophisticated skills and improving educators' quality. The reflection skills of the educator improved the education quality and the learning quality in transferring the acquired skills to students. Besides, it is considered that it is required for a teacher to make an effort to change and continuously develop through self-evaluation, to be open to new knowledge and ideas and to develop himself/herself and the institution in the development of a teacher's qualifications (MEB, OYGM, 2006:1).

Considering the definition of entrepreneurship, entrepreneurship is defined as a process creating value for an individual and society, responding to economic opportunities/creating economic opportunities, exhibited by individuals, causing differences in economic systems through the innovations that it brings (Daniel, Alice and Neil, 1995: 352). According to Lounsbury (1998:52), entrepreneurship is taking an opportunity by emphasizing inequalities, examining alternative production processes and providing their optimization.

The reflective thinking levels and the entrepreneurship skills of pre-service teachers are essential at this point. The relationship between the reflective thinking tendencies and the entrepreneurship characteristics of educators in both educational activities and the business world is a subject that is worth researching in every faculty and every department. The subject of this study is what reflective thinking is, how it can be used effectively and its relation to entrepreneurship.

Within this framework, the primary purpose of this research is determined as examining a relationship between the entrepreneurship characteristics and reflective thinking levels of pre-service teachers studying in Physical Education and Sports School. The sub-problems that are determined within the framework of this problem are as follows:

1. What are the reflective thinking levels of the Pre-Service Physical Education and Sports Teachers?
2. What are the entrepreneurship levels of the Pre-Service Physical Education and Sports Teachers?
3. Do the entrepreneurship levels of pre-service Physical Education and Sports School teachers differ based on the variable of gender, instruction of entrepreneurship lecture and grade?
4. Do the reflective thinking levels of pre-service Physical Education and Sports teachers differ based on the variable of gender and grade?
5. Is there a relationship between the entrepreneurship levels and reflective thinking levels of pre-service Physical Education and Sports teachers?

2. Method

The model, population and study group of the research, data collection instruments, data collection and data analysis information are stated here.

2.1. The Research Model

A correlational survey model was used in the research as the entrepreneurship characteristics and reflective thinking levels of the pre-service teachers studying at Bartın University Physical Education and Sports School

are evaluated. Survey models are research approaches aiming to describe a condition present in the past and is present now. In the correlational survey model, which is a type of survey model, the presence and/or degree of covariance between two or more variances are tried to be determined (Karasar, 2012).

2.2. Research Population and Sample

The population of this research is formed of a total of 240 students studying at the 1st, 2nd, 3rd, 4th grades of Bartın University Physical Education and Sports School, Department of Teaching of Physical Education and Sports (the Teaching Department is a department of formal education) in 2017-2018 education year fall semester. Sampling could not be done as the population was reached entirely. The frequency and percentage distributions of the characteristics of the pre-service teachers in the sampling are shown in Table 1.

Table 1: The Frequency and Percentage Distributions of the Characteristics of the Pre-Service Physical Education and Sports Teachers Participating in the Research

Characteristics		**f**	**%**
Gender	Male	140	58,3
	Female	100	41,7
Grade	1.	60	25
	2.	60	25
	3.	60	25
	4.	60	25
Age	18-20	98	40,3
	21-23	111	46,8
	24-26	24	10,0
	26+	7	2,9
Entrepreneurship Lecture	Yes	58	24,2
	No	182	75,8
Work Experience	I haven't worked before	58	24,2
	1-6 Months	80	33,3
	7-11 Months	19	7,9
	1-3 Years	34	14,2
	3 Years & More	49	20,4

As it is seen in Table 1, 58.3% of the pre-service Physical Education and Sports Teachers are male, and 41.7% are female. The classes have equal sizes. Considering the age variable, the majority of the pre-service teachers were between 21-23 years old with a ratio of 46.8%, and the least encountered were those aged 26 and older with a ratio of 2.9%. 24.2% of the pre-service teachers checked the status of taking Entrepreneurship Lecture as "Yes," while 75.8% checked it as "No." Considering these percentages, we can say that teaching of entrepreneurship lectures was not generalized. In terms of work experiences, 1-6 months had the highest percent with 33.3% percentage while 7-11 Months had the minor percent with 7.9% percentage. Furthermore, the percentage of those with no work experience and those with over 3 years of work experience is significant.

2.3. Data Collection Instruments

"Entrepreneurship Scale For University Students," which was developed by Yılmaz and Sünbül (2009), and "Reflective Thinking Tendency Scale" " (YANDE), which was developed by Semerci (2007) was used for collecting research data. Furthermore, the "Personal Information Form" for determining gender, department, grade levels and similar variables of pre-service Physical Education and Sports teachers participating in the study is present as the 1st section.

Reflective Thinking Level Scale (YANDE): The scale is developed by Semerci (2007). It is formed of a total of 35 items and 5 points Likert type. The scale is formed of 7 sub-dimensions. Those are Constant and Oriented Thinking (7 items), Open-Mindedness (6 items), Interrogative and Effective Teaching (5 items), Teaching Responsibility and Scientificness (5 items), Researcher (6 items), Visionary and Sincere (4 items) and Viewing to Vocation (2 items). It is formed of 20 negative and 15 positive items. The negative items are adverse-coded. The validity and reliability study of the scale was performed by Semerci (2007). Accordingly, Cronbach Alpha values obtained in this study was calculated as 0.933 throughout the scale, it was calculated as 0.576 in Constant and Oriented Thinking sub dimension, it was calculated as 0.835 in Open-Mindedness sub dimension, it was calculated as 0.917 in Interrogative and Effective Teaching sub dimension, it was calculated as 0.745 in Teaching Responsibility and Scientificness sub dimension, it was calculated as 0.801 in Researcher sub dimension, it was calculated as 0.813 (4 items) in Being Visionary and Sincere, and it was calculated as 0.732 in Viewing to Vocation. According to Seçer (2015:219), Cronbach Alpha is a reliability method examined in the scale development and adaptation studies. Depending on the Alpha number, the α value of the scale reliability should be minimum α=0.70 and over. Cronbach Alpha value in this research shows a high degree of reliability.

University Students' Entrepreneurship Scale: The scale is developed by Sünbül and Yılmaz (2009). It is formed of 36 items and the expressions which are transformed to Likert type are arranged as 5 point interval scale form ranging from "Very frequent" (5)' to"Never" (1). It is seen that all of the items were gathered under one dimension through Basic Components Analysis. No negative items exist. Cronbach Alpha reliability value was found as α=0.930 in this study.

2.4. Collection of Data

A utilization permit was obtained for the scales before collecting data concerning the research. The data was filled voluntarily by the pre-service Physical Education and Sports teachers studying in Bartın University Physical Education and Sports School, included in the sampling in the 2017-2018 fall semester.

2.5. Data Analysis

The data, which was obtained for research, was analyzed using SPSS 22.0 program. Techniques such as frequency, percentage, arithmetic average and standard deviation in the data analysis as fit for the research. The significance level of (0.05) was taken as the basis in the significance tests. The arithmetic mean (X), standard deviation (SD), percentage (%), T-test (Independent Samples T-Test) for the samples that are unrelated to the parametric tests, single factor variant analysis (One Way ANOVA) tests were used for the unrelated samples. Tukey and Scheffe tests were preferred in the variant analyses, including significant differences. Furthermore, the Pearson Correlation Test was used to determine whether there is a linear relationship between two numerical measurements and the direction and severity of this relation if available.

3. Findings

The findings that were obtained from the research are presented as tables within the scope of sub-problems in this section.

3.1. Findings Related to the First Sub-Problem

The first sub-problem of the research is for determining the reflective thinking levels of pre-service Physical Education and Sports Teachers. The findings of the first sub-problem are shown in Table 2.

Table 2: The Mean and Standard Deviation Values of The Reflective Thinking Levels of Pre-Service Teachers of Physical Education and Sports

Sub-dimensions	N	$\overline{X}$	SD
Constant and Oriented Thinking	240	4,00	0,51
Open-mindedness	240	4,47	0,65
Interrogative and Effective Teaching	240	4,71	0,58
Teaching Responsibility and Scientificness	240	4,28	0,67
Researcher	240	4,11	0,75
Being Visionary and Sincere	240	4,19	0,81
Viewing to Vocation	240	4,42	0,93

It is seen in Table 2 that the highest arithmetic mean resulted in “Interrogative and Effective Teaching” ($\bar{x}$=4,71) sub dimension, the lowest arithmetic mean resulted in “Constant and Oriented Thinking”($\bar{x}$=4,00) sub dimension. Again considering the arithmetic mean values that emerged, it is seen that the views in the sub dimensions of “Open mindedness” ($\bar{x}$=4,47), “Teaching Responsibility and Scientificness” ($\bar{x}$=4,28) and “Viewing to Vocation” ($\bar{x}$=4,42) are at the level of “*strongly agree*." It is seen that the vies are at the level of "*generally agree*” in “Being Visionary and Sincere” ($\bar{x}$ =4,19) and “Researcher” ($\bar{x}$=4,11) sub dimensions.

3.2. Findings Related to the Second Sub-Problem

The second sub-problem of the research is for determining the entrepreneurship levels of pre-service Physical Education and Sports Teachers. The findings of the second sub-problem are shown in Table 3.

Table 3: The Arithmetic Mean and Standard Deviation Value of The Entrepreneurship Characteristics of Pre-Service Teachers of Physical Education and Sports

Characteristic	N	$\overline{X}$	SD
Entrepreneurship	240	4,20	0,415

It is seen upon examining the entrepreneurship characteristics of the pre-service teachers and viewing the emerging arithmetic mean value in Table 3 that the result obtained from the entrepreneurship means is 4.20. Furthermore, it shows that pre-service teachers replied at the "*High Entrepreneurship* “level. Based on this result, it can be expressed that the pre-service teachers are at a *“high entrepreneurship”* level.

3.3. Findings Related to the Third Sub-Problem

The third sub-problem of the research is related to determine the difference in the entrepreneurship levels of pre-service Physical Education and Sports School teachers based on the variable of gender, instruction of entrepreneurship lecture and grade. The findings related to the third sub-problem are presented in Table 4, Table 5, Table 6 and Table 7.

Table 4: Entrepreneurship Characteristics Based on The Gender Variable

Entrepreneurship	N	$\overline{X}$	SD	t	p
Male	140	4,17	0,420	-1,273	0,204
Female	100	4,24	0,406		

*p<0.05

As it is seen in Table 4, it is understood that no significant differentiation (t=-1.273, p>0.05) in the entrepreneurship scores of pre-service teachers emerged based on gender as a result of the independent group t-test that was performed to determine whether the Entrepreneurship characteristics of the pre-service teachers show any significant difference based on the gender variable.

Table 5: Entrepreneurship Characteristics Based on The Grade Variable

	Grade	N	$\overline{X}$	SD	V	Sum of Sqrs	df	Mean of Sqrs	F	p	Tukey Test
Eentrepreneurship	1.Grade	60	4,00	0,401	Between Groups	4,405	3	1,468	9,415	.000*	1. & 2. 1. & 3. 2. & 4.
	2.Grade	60	4,35	0,284	Within Groups	36,648	236	0,156			
	3.Grade	60	4,30	0,321	Total	41,053	239				
	4.Grade	60	4,14	0,526							

*p<0.05

As it is seen in Table 5, a significant difference was found between grades (p<0.05) as a result of the unidirectional variance analysis (ANOVA) performed to determine whether the entrepreneurship characteristics of pre-service teachers show a significant difference based on the grade variable. Tukey test was performed to determine in which grade levels these differences exist.

As a result of the Tukey test; a significance is seen in favor of the 2nd grade between the 1st grade and the 2nd grade ($\bar{x}$= 4,00-$\bar{x}$=4,35), in favor of the 3rd grade between the 1st and the 3rd grades ($\bar{x}$= 4,00-$\bar{x}$=4,30) and in favor of the 2nd grade ($\bar{x}$= 4,35-$\bar{x}$=4,14) between the 2nd and the 4th grades.

Table 6: Entrepreneurship Characteristics Based on Teaching of Entrepreneurship Lecture Variable

Teaching of Entrepreneurship Lecture	N	$\overline{X}$	SD	t	p
Yes	58	4,24	0,366	0,835	0,404
No	182	4,19	0,429		

*p<0.05

In Table 6, it is seen that no significant differentiation (t=-0.835, p>0.05) in the entrepreneurship scores of pre-service teachers emerged based on the entrepreneurship lecture as a result of the independent group t-test that was performed to determine whether the Entrepreneurship characteristics of the pre-service teachers show any significant difference based on the status of Teaching of Entrepreneurship Lecture variable.

Table 7: ANOVA Test of Entrepreneurship Characteristics Based on The Work Experience Variable

	Time	N	$\overline{X}$	SD	V	Sum of Squares	df	Mean of Squares	F	p	Scheffe Test
Work Experience	I haven't worked before	58	4,10	0,383	Between Groups	2,118	4	0,530	3,183	.014*	I haven't worked before & 1-6 Months
	1-6 Months	80	4,15	0,401	Within Groups	38,935	234	0,166			
	7-11 Months	19	4,31	0,390	Total	41,053	238				
	1-3 Years	34	4,37	0,446							
	3 Years & More	48	4,25	0,415							

*p<0.05

As it is seen in Table 7, a significant difference was found between the groups ($p<0.05$) as a result of the unidirectional variance analysis (ANOVA) performed to determine whether the entrepreneurship characteristics of pre-service teachers show a significant difference based on the work experience variable. Scheffe test was performed to determine in which group levels these differences exist. Scheffe test (Kayri,2009, 54), this method, which was developed to compare all of the linear combinations that are possible among groups, is considered as the most flexible type of post hoc ignoring the assumption of the equality of observation in groups and controlling the α margin of error in cases where the number of groups to be compared are high.

As a result of the Scheffe test, it is seen that the group forming the significant difference is in favor of 1-6 Months between "*I have not worked before"* and "*1- 6 Months"* ($\bar{x}$= 4,10-$\bar{x}$=4,15).

3.4. Findings Related to the Fourth Sub-Problem

The fourth sub-problem of the research is related to determine the difference in the reflective thinking levels of pre-service Physical Education and Sports School teachers based on the variable of gender and grade. The findings related to the fourth sub-problem are presented in Table 8 and Table 9.

Table 8: T-Test Related to Reflective Thinking Levels Based on Gender Variable

Sub-dimensions	Gender	N	$\overline{X}$	SD	t	p
Constant and Oriented Thinking	Erkek	140	3,97	0,53	-0,972	0,332
	Kadın	100	4,03	0,48		
Open-Mindedness	Erkek	140	4,43	0,68	-1,223	0,222
	Kadın	100	4,53	0,59		
Interrogative and Effective Teaching	Erkek	140	4,64	0,67	-2,200	0,029*
	Kadın	100	4,81	0,41		
Teaching Responsibility and Scientificness	Erkek	140	4,23	0,67	-1,532	0,127
	Kadın	100	4,36	0,65		
Researcher	Erkek	140	4,04	0,78	-1,684	0,094
	Kadın	100	4,21	0,68		
Being visionary and sincere	Erkek	140	4,10	0,85	-2,197	0,025*
	Kadın	100	4,33	0,74		
Viewing to vocation	Erkek	140	4,32	0,99	-1,972	0,043*
	Kadın	100	4,56	0,81		

*p<0,05

Upon examining the findings in Table 8, a statistically significant difference is shown in the interrogative and effective teaching, being visionary and sincere and viewing to vocation sub-dimensions as a result of the independent group's t-test, which is performed to determine whether the reflective thinking tendency sub-dimensions of pre-service teachers show significant difference based on gender variable ($p<0.05$). Upon examining the arithmetic mean values, it is seen that the difference is the favor of females in the interrogative and effective teaching, being visionary and sincere and viewing vocation sub-dimensions. Generally viewing, it can be said that female pre-service teachers are in the tendency to reflective thinking at a higher level than male pre-service teachers.

Table 9: ANOVA Test of Reflective Thinking Levels Based on Grade Variable

Sub-dimensions	Grade	N	$\overline{X}$	SD	V	Sum of Sqrs	df	Mean of Sqrs	F	p	Tukey Testi
Constant and Oriented Thinking	1.Grade	60	3,89	0,5	Between Groups	1,152	3	0,384	1,43	0,235	–
	2.Grade	60	4,06	0,4	Within Groups	63,379	236	0,269			
	3.Grade	60	4,05	0,5	Total	64,531	239				
	4.Grade	60	3,98	0,6							
Open-Mindedness	1.Grade	60	4,16	0,9	Between Groups	9,724	3	3,241	8,373	,000*	1.& 2. 1.& 3. 1.& 4.
	2.Grade	60	4,51	0,4	Within Groups	91,367	236	0,387			
	3.Grade	60	4,73	0,4	Total	101,092	239				
	4.Grade	60	4,47	0,7							
Interrogative and Effective Teaching	1.Grade	60	4,37	0,9	Between Groups	12,582	3	4,184	14,186	,000*	1.& 2. 1. & 3. 2.& 4. 3.& 4.
	2.Grade	60	4,92	0,2	Within Groups	69,77	236	0,296			
	3.Grade	60	4,92	0,2	Total	82,352	239				
	4.Grade	60	4,63	0,6							
Teaching Responsibility and Scientificness	1.Grade	60	4,06	0,7	Between Groups	9,586	3	3,195	7,723	,000*	1.& 2. 1.& 3. 2.& 4.
	2.Grade	60	4,48	0,5	Within Groups	97,646	236	0,414			
	3.Grade	60	4,48	0,5	Total	107,232	239				
	4.Grade	60	4,11	0,8							
Researcher	1.Grade	60	3,88	0,8	Between Groups	12,397	3	4,132	8,009	,000*	1.& 2. 1.& 3. 2.& 4.
	2.Grade	60	4,33	0,7	Within Groups	121,77	236	0,516			
	3.Grade	60	4,35	0,5	Total	134,167	239				
	4.Grade	60	3,89	0,8							
Being visionary and sincere	1.Grade	60	4,07	0,8	Between Groups	6,778	3	2,259	3,49	0,016*	2.& 4.
	2.Grade	60	4,37	0,7	Within Groups	152,784	236	0,647			
	3.Grade	60	4,35	0,6	Total	159,562	239				
	4.Grade	60	3,99	1,1							
Viewing to vocation	1.Grade	60	4	1,1	Between Groups	20,846	3	6,949	8,833	,000*	1.& 2. 1.& 3. 3.& 4.
	2.Grade	60	4,69	0,7	Within Groups	185,65	236	0,787			
	3.Grade	60	4,7	0,5	Total	206,496	239				
	4.Grade	60	4,27	1,1							

*p<0.05

As a result of the unidirectional variance analysis (ANOVA) conducted to determine whether reflective thinking tendency sub dimensions show significant difference based on the grade level variable in Table 9, a significant difference was found in all sub dimensions except for *Constant and Oriented Thinking* sub dimension ($p>0.235$) ($p<0.05$). Tukey test was conducted to determine the grade level of those differences as the number of samples was equal in the groups (Tukey,1949, cited in Kayri,2009).

When the results of the test that were conducted are reviewed at the level of sub dimensions:

- "*Open-Mindedness* was found in favor of the 2nd grade between the 1st and the 2nd grade ($\bar{x}$ =4,16 - $\bar{x}$=4,51), it was found in favor of the 3rd grade between the 1st and the 3rd grade ($\bar{x}$ = 4,16-$\bar{x}$ =4,73), and it was found in favor of the 4th grade between the 1st and the 4th grades (($\bar{x}$ =4,16 - $\bar{x}$=4,47).
- In the "*Interrogative and Effective Teaching"* sub dimension, based on the Tukey test result, a significance was observed in favor of the 2nd grade between the 1st and the 2nd grades ($\bar{x}$=4,37-$\bar{x}$=4,92), it was observed in favor of the 3rd grade ($\bar{x}$ =4,37- $\bar{x}$=4,92) between the 1st grade and the 3rd grade, it was observed in favor of the 2nd grade ($\bar{x}$ =4,92-$\bar{x}$ =4,63) between the 2nd grade and the 4th grade, and it was observed in favor of the 3rd grade (($\bar{x}$ =4,92-$\bar{x}$ =4,63) between the 3rd and the 4th grades.
- A significance was found in the "*Teaching Responsibility and Scientificness"* sub dimension in favor of the 2nd grade ($\bar{x}$=4,06- $\bar{x}$=4,48) between the 1st grade and the 2nd grade, it was found in favor of the 3rd grade between the 1st grade and the 3rd grade ($\bar{x}$ =4,06-$\bar{x}$ =4,48), a significance was found in favor the 2nd grade between the 2nd grade and the 4th grade ($\bar{x}$=4,48- $\bar{x}$=4,11).
- In the *Researcher* sub dimension; a significance is seen in favor of the 2nd grade between the 1st grade and the 2nd grade ($\bar{x}$= 3,88-$\bar{x}$=4,33), in favor of the 1st grade between the 1st and the 3rd grades ($\bar{x}$= 3,88-$\bar{x}$=4,35) and in favor of the 2nd grade ($\bar{x}$= 4,33-$\bar{x}$=3,89) between the 2nd and the 4th grades.
- When the "*Being visionary and sincere"* sub dimension is examined, a significance is seen in favor of the 2nd grade between the 2nd grade and the 4th grade ($\bar{x}$=4,37-$\bar{x}$ =3,99).
- Furthermore, in the last sub dimension, *Viewing to vocation*, a significance is seen in favor of the 2nd grade between the 1st grade and the 2nd grade ($\bar{x}$= 4,00-$\bar{x}$=4,35), in favor of the 3rd grade between the 1st and the 3rd grades ($\bar{x}$= 4,00-$\bar{x}$=4,70) and favor of the 3rd grade ($\bar{x}$= 4,70-$\bar{x}$=4,27) between the 3rd and the 4th grades.

3.5. Findings Related to the Fifth Sub-Problem

The fifth sub-problem of the research is related to determining the relationship between the reflective thinking levels and the entrepreneurship levels of the pre-service Physical Education and Sports Teachers. The findings of the fifth sub-problem are shown in Table 10.

Table 10: The Results of The Correlation Analysis Related to the Entrepreneurship Characteristics and The Reflective Thinking Sub dimensions

N=240	**Entrepreneurship**	**Constant and Oriented Thinking**	**Open mindedness**	**Interrogation and Effective Teaching**	**Teaching Responsibility and Scientificness**	**Researcher**	**Being Visionary and Sincere**	**Viewing to Vocation**
Entrepreneurship	1	0,378*	0,302*	0,407*	0,397*	0,369*	0,317*	0,201*

***p<0.01**

As it is seen in Table 10, as a result of the Pearson Correlation Analysis conducted to determine the relationship between the reflective thinking levels and the entrepreneurship characteristics of the pre-service teachers, it was found that there was a significant positive relationship between entrepreneurship and all reflective thinking sub dimensions.

- Constant and Oriented Thinking (r=0,378*, p<0.01),
- Open mindedness (r=0,302*, p<0.01)
- Interrogative and Effective Teaching (r=0,407*, p<0.01),
- Teaching Responsibility and Scientificness (r= 0,397*, p<0.01),
- Researcher (r=0,369*, p<0.01),
- Being Visionary and Sincere (r=0,317*, p<0.01)
- Viewing to Vocation (r=0,201*, p<0.01)

It can be interpreted that there is a weak linear relation in the same direction between the variances. In other words, the entrepreneurship characteristics of the pre-service teachers increase as parallel to their reflective thinking characteristics. The point that should be stated is that the correlation factor does not prove anything for the casual relationship. It is only a measure of the combined change of the variances (Bayram,2015, 181).

4. Results, Discussion and Suggestions

4.1. Discussion and Result

In this research, the entrepreneurship characteristics and the reflective thinking levels of the pre-service teachers studying at Bartın University Physical Training and Sports School (2017-2018 Academic year) are examined. In the relevant researches, the concept of entrepreneurship appeared before us as a mental skill in the broadest sense. This is accepted as the motivation to evaluate this opportunity to detect an opportunity and form value as single or within the team.

In our education system, the concept of entrepreneurship attained its place through forming new education programs in 2005. In this regard, the education system was affected by the developments worldwide, and the

teachers' taking a proactive role shall be through the entrepreneurship characteristics. The educational institutions, especially the institutions educating teachers, can educate and improve pre-service teachers in entrepreneurship to respond to this need. Several research pieces based on the entrepreneurship characteristics and tendencies revealed threats and opportunities in the education system and the education environment and provided information concerning the general framework. This study and other studies performed within this field have the characteristics to be a part and continuation of the whole.

If the need arises to summarize the demographic information of the pre-service teachers participating in our research, 140 of the total 240 participants are males, 100 are females, and the grades are formed of an equal number of students. Considering the age variable, the majority of the pre-service teachers were between 21-23 years old with a ratio of 46.8%, and the least encountered were those aged 26 and older with a ratio of 2.9%. In the state of education of entrepreneurship lecture, which is another variable, 24.2% was calculated as "Yes," and 75.8% was calculated as "No." Considering these percentages, we can say that teaching of entrepreneurship lectures was not generalized. Furthermore, in the finding that we obtained based on the replies belonging to the work experience variable of the pre-service teachers, 1-6 months has the highest percentage with 33.3%, while 7-11 Months has the lowest percentage with 7.9%. Furthermore, the percentage of those with no work experience and those with over 3 years of work experience is significant.

Upon summarizing the findings of the reflective thinking levels of the pre-service teachers participating in the research, it is seen in the mean of sub dimensions that the highest arithmetic means resulted in "*Interrogative and Effective Teaching*" ($\bar{x}$=4,71) sub dimension, the lowest arithmetic mean resulted in "*Constant and Oriented Thinking*"($\bar{x}$=4,00) sub dimension. Within this context, considering the lowest arithmetic mean value, 4.00 shows that the reflective thinking tendencies of the pre-service teachers are generally high. It was revealed in Yanpar, and Duban's (2010) article study entitled "The Opinions of The Pre-Service Teachers Relating to The Reflective Thinking Tendencies and Reflective Teacher Characteristics" that the reflective thinking means of the pre-service teachers were high, similarly in Alkan and Gözel's (2012) study entitled "The Opinions of Pre-Service Form Teachers Relating to the Reflective Thinking Skills" the reflective thinking levels of teachers were high, and these studies support our research.

Here, it can be deduced that reflective thinking is a type of thinking which primarily teachers should have, and those teachers with this skill can guide their students within the scope of these opinions (Karadağ, 2010).

A statistically significant difference is shown in the interrogative and effective teaching, being visionary and sincere and viewing to vocation sub-dimensions as a result of the independent group's t-test, which is performed to determine whether the reflective thinking tendency sub-dimensions of pre-service teachers show significant difference based on gender variable ($p<0.05$). Upon examining the arithmetic mean values, it is seen that the difference is the favor of females in the interrogative and effective teaching, being visionary and sincere and viewing vocation sub-dimensions. Generally viewing, it can be said that female pre-service teachers are in the tendency to reflective thinking at a higher level than male pre-service teachers.

Although this matter was explained by the difference in the tendency between female and male pre-service teachers, it can be derived from women being more enthusiastic than men, especially in education and training. In Aslan's (2009) study entitled *"*Association of The Relation Between Reflective Thinking Tendencies and Constant Anxiety Levels of Form Teachers," it is stated that being a woman and acting patient and cautious in reflective thinking sub dimensions will provide an advantage in reflective thinking tendency. In a similar study, in Hasırcı and Sadık's (2011) article study entitled "Examining The Reflective Thinking Tendencies of Classroom Teachers " it was found that female teachers had higher reflective thinking tendency than male teachers.

As a result of the unidirectional variance analysis (ANOVA) conducted to determine whether reflective thinking tendency sub dimensions show significant difference based on the grade level variable, a significant difference was found in all sub dimensions except for *Constant and Oriented Thinking* sub dimension ($p>0.235$) ($p<0.05$).

Tukey test was performed to determine in which grade levels these differences exist. Upon reviewing Tukey's results, it attracts attention that the 1st grades form differences in reflective thinking. It is thought that the decrease in the tendency of reflective thinking upon the advancement of grade-level arises from the increase in the vocational concern, the decrease in the learning tenacity, loss of the sense of wonder and differentiation in the perspective of the profession. The studies supporting this matter are present as thesis study by Ceyhan (2014) entitled “Determining the Entrepreneurship Characteristics of University Students” and the thesis study of Kaya (2009) entitled “Examination of the Thinking Styles and Mathematics Academic Success of the 6th, 7th, 8th Grade Students in Primary School Based on The School Type, Gender and Grade Level”.

It can be expressed upon reviewing the characteristics of the pre-service teachers on entrepreneurship that the result obtained from the entrepreneurship scale is at the *“High Entrepreneurship”* level. This indication shows that the entrepreneurship characteristics of the pre-service teachers are high. Similar results were obtained in many types of research conducted concerning the entrepreneurship characteristics of university students. The entrepreneurship tendencies of pre-service teachers are researched in some studies such as Pan and Akay (2015) “Examining Teacher Candidates’ Entrepreneurship Levels In Terms of Various Variables, "Akyürek (2013), “Evaluation of Elementary Teachers’ Entrepreneurship Skills," Yıldız and Kapu (2012) “The Relationship Between Individual Values And Entrepreneurship Tendency Of University Students: A Research On Kafkas University, "Kılıç, Keklik and Çalış, (2012) “A Study On Entrepreneurship Tendency Of University Students : Example Of Bandirma Department Of Business Administration, "Köstekçi (2015) “Examining the Relationship Between Entrepreneurship Characteristics and Reflective Thinking Levels of Pre-service Teachers ” and Akhtar, Keith and Riaz (2009) “Entrepreneurship Tendencies of Pre-service Teachers."

It is seen that no significant differentiation in the entrepreneurship scores of pre-service teachers was present based on gender as a result of the independent group t-test that was performed to determine whether the Entrepreneurship characteristics of the pre-service teachers show any significant difference based on the gender variable. However, it is seen that the arithmetic mean value of female pre-service teachers was 4.24, and the arithmetic mean value of male pre-service teachers was 4.17. It can be said that female pre-service teachers are at a "Very *High entrepreneurship”* level, male pre-service teachers are at *the "High Entrepreneurship"* level, and such values are significant. The non-formation of differentiation might be that male and female teachers feel the same economic anxiety.

A significant difference was found between grades due to the unidirectional variable analysis (ANOVA) performed to determine whether the entrepreneurship characteristics of pre-service teachers show a significant difference based on the grade variable. Tukey test was performed to determine in which grade levels these differences exist.

As a result of the Tukey test; a sign is seen on behalf of the 2nd grade between the 1st grade and the 2nd grade ($\bar{x}$= 4,00-$\bar{x}$=4,35), in favor of the 3rd grade between the 1st and the 3rd grades ($\bar{x}$= 4,00-$\bar{x}$=4,30) and in favor of the 2nd grade ($\bar{x}$= 4,35-$\bar{x}$=4,14) between the 2nd and the 4th grades. It is seen in the obtained results that the entrepreneurship characteristics mean values of 2nd Grade and 3rd Grade pre-service teachers affect the findings statistically. Deveci and Çepni’s study (2014) entitled "Entrepreneurship in Science Teacher Education" stated that the entrepreneurship characteristics of the pre-service teachers with entrepreneurship characteristics in the institution's training teachers are expected to be higher in the upper grades.

Another test was to determine whether the Entrepreneurship characteristics of the pre-service teachers show any significant difference based on the status of Teaching of Entrepreneurship Lecture variable. It resulted that no significant differentiation in the entrepreneurship scores of pre-service teachers was present based on the entrepreneurship lecture. Here it is seen that only 24.2% of the students participating in the research received entrepreneurship lectures. It can be interpreted that the students received no or insufficient entrepreneurship lectures during their secondary education and undergraduate education, and this education has not become widespread in educational institutions. It appears to attract attention in the research, which should be cared about and examined in a more detailed way. This variable was not found in the other studies that were examined.

A significant difference was found between the groups due to the unidirectional variance analysis (ANOVA) performed to determine whether the entrepreneurship characteristics of pre-service teachers show a significant difference based on the work experience variable, which is examined in the following variable. The groups that determine the difference are interpreted through the Scheffe test. In the Scheffe test, it is seen that the group forming the significant difference is in favor of 1-6 Months between "*I have not worked before"* and "*1- 6 Months"* ($\bar{x}$= 4,10-$\bar{x}$=4,15). This significance can be explained by the high percentages of "*I have not worked before*" and "*1-6 months*" groups.

The relationship between the reflective thinking tendencies and the entrepreneurship characteristics of pre-service teachers, which is the last test, was conducted by Pearson Correlation Analysis. A positive and significant relationship was found between entrepreneurship and all reflective thinking sub dimensions. Accordingly, it is seen that the entrepreneurship characteristics of the pre-service teachers increase parallel to their reflective thinking characteristics.

Based on these tests, it is considered that the pre-service teachers which we examined through various variables are potential entrepreneurs and the other studies conducted to support this consideration. Valuable teachers are educated by developing the university students' high order thinking skills, especially the pre-service teachers in the institutions educating teachers. They are introduced to society as role models, and the individuals with entrepreneurship potentials can contribute to society as a locomotive of productive societies.

4.2. Suggestions

Some lacking details or details that should be developed are mentioned briefly in this section. First of all, the reflective thinking levels and entrepreneurship characteristics, which decrease in the last grade of education faculties, should be examined through various varieties again, and the cause of this decrease should be determined. As the pre-service teachers' reflective thinking levels favor female pre-service teachers, the studies for the determination of the reflective thinking levels of the male pre-service teachers can be re-conducted.

Qualitative and quantitative studies can be performed on the individuals that can be reached after graduation about whether the pre-service teachers with high entrepreneurship levels use this feature in their professional lives, and the outcomes of the education can be measured in this field.
The entrepreneurship characteristics can be associated with the scales belonging to reflective thinking and high-order thinking skills.

Regional and national frames can be determined and compared by the participation of the pre-service teachers in the Sports Sciences department and School of Physical Education and Sports of other universities. Furthermore, the study applied to only the pre-service teachers in the School of Physical Education and Sports can be extended to other departments (Sports Management, Recreation, Coaching).
It can be suggested that the studies mentioned here can be supported by measuring the entrepreneurship characteristics of the participants, who are defined as reflective thinking teachers.

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The Effect of Social Studies Lessons on Citizenship Perceptions of 7th Grade Syrian Immigrant Students

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Abstract
Providing people to acquire some skills and concepts, social studies lessons interact with various branches of science. One of them is citizenship education. When citizenship education is examined, it is seen that effective citizenship education comes to the forefront in present democracies. Concepts and issues such as respect for differences, empathy, globalization, cooperation, solidarity, identity, unity, and the feeling of togetherness are important considering immigrant students' acquiring citizenship awareness via intercultural interaction. The aim of this study is to determine the effect of social studies lessons on citizenship perceptions of 7th grade Syrian immigrant students. For this purpose, opinions of 14 Syrian immigrant students, who attended 7th grade in three different secondary schools in Hatay in 2019, were asked. The research was designed in qualitative design and phenomenology model. Purposive sampling method was used to determine Syrian immigrant students participating in the research. A semi-structured student interview form was used to collect data. It was found that, immigrant students in the study group of the research know their rights and responsibilities, respect the rights of others, feel responsible and have patriotism. They stated that citizenship education they received in social studies lessons contributed greatly to their acquisition of these values. Considering these findings, it was concluded that social studies lesson has an important effect on the formation of citizenship perceptions of Syrian immigrant students; enabling them to be connected with the environment they live in with a sense of belonging, while enabling them to become more sensitive and responsible citizens towards their environment.

Keywords: Social Studies, Citizenship, Citizenship Awareness, Immigration, Immigrant

1. INTRODUCTION

Migration, which has existed throughout the history of humanity, constitutes an important part of humans' struggle with themselves and the environment. People have constantly migrated to better places to live in a more peaceful and safer environment. The increasing continuation of these searches for the desire to reach better and more beautiful conditions indicates that the phenomenon of migration has sustained its effect and importance in every period of human history (Castles and Miller, 2008). As a result of migration movements, people and societies that come into contact with each other and unite form a multicultural structure. Accordingly, today it has become difficult to mention a social structure or a country made up of a single culture or a single ethnic

origin. Therefore, education comes to the forefront as the most important factor facilitating the coexistence of individuals and societies that have mingled with each other by immigrating. Education is a set of systems that ensures the continuity and development of a society's culture and helps the state to which it is affiliated to provide acquisition of citizenship characteristics. In today's modern societies, education has an important place in terms of the continuity of the order and especially in terms of individuals' absorbing citizenship consciousness and adapting it to their lives. One of the most basic functions of education is to raise qualified and beneficial individuals who know their citizenship rights and duties. Therefore, educators have important responsibilities providing students acquire these qualities and grow them as effective citizens. In many studies, the importance of citizenship and raising effective citizens is mentioned and it is stated that because of this importance it is extremely vital to transform an effective citizenship into a lifestyle. Education and training period has an important place in shaping the life of the individual. In this period, personality structures of individuals are also shaped. As the personality structures of individuals are shaped, the awareness of responsibility and citizenship also develops. The thoughts and skills they acquire in this process will help them in their future lives.

The necessary knowledge and skills related to citizenship can be acquired by the citizenship education, which is taught within the scope of the social studies lessons to the primary school Syrian immigrant students that live in Turkey. Social studies, which is a lesson for primary school students, aims to raise effective and productive citizens who know the traditions and customs of the society they live in, know their roles and responsibilities well (Demircioğlu, 2007). In addition, it is a teaching program that combines the knowledge and methods obtained from social and human sciences with the aim of raising effective citizens who can make decisions on the basis of knowledge of the conditions that differ in almost every aspect and overcome problems (Öztürk, 2006). It can also be defined as a citizenship education program that can combine the findings obtained from social sciences and reduce it to the level of the student, and that aims to provide students with the necessary knowledge, skills, attitudes and values in order to adapt to social life and produce solutions for social problems by using these findings (Öztürk, Keskin, Otluoğlu, 2014). Social studies is a lesson based on scientific facts and aims to raise active citizens who have acquired skills, behaviors, positive attitudes and values instead of giving information to students concerning these scientific facts (Kuş, 2012). The most important feature that an active citizen must have is to adopt the values of citizenship and to live in line with these values. In order to achieve this, people must be given a good citizenship education. In Turkey, citizenship education is given to primary school students within the scope of social studies lessons. Therefore, subjects related to democracy and citizenship education have an important place in social studies lessons taught in primary schools. The purpose of teaching social studies as citizenship transfer is to convey the basic institutions, values, beliefs and teachings of the society in which they live. In this context, learning about the past, being proud of traditions, taking responsibility, showing appropriate behaviors and commitment are among the objectives to be conveyed (Öztürk, 2006).

Via this research, it is aimed to determine what Syrian immigrant students know and think about citizenship and the education they receive in Turkey, their tendencies and the variables that affect these ideas, in short, to determine their perceptions of citizenship. An important part of the knowledge, skills and values related to the life of the society is given to students studying in the Turkish education system via social studies lessons. Considering the development of the social studies lesson, which is seen as a tool in citizenship education, it is known that many values are involved in its content and these values are reflected in the curriculum. Therefore, what is the knowledge of Syrian immigrant students who came from abroad and continued their education taking social studies lessons at primary school level during their time in our country, about citizenship issues, and how is the importance they attribute to these issues, their perceptions of citizenship, and their citizenship behaviors?
In line with this problem, answers to the following questions were searched.

1. What are the expressions of Syrian immigrant students regarding citizenship concept considering what they learned from social studies lesson?
2. How do Syrian immigrant students express what their citizenship rights are considering their social studies lesson acquisitions?
3. How do Syrian immigrant students describe the characteristics that a good citizen must have today, considering the acquisitions in social studies lessons?

4. What are the opinions of Syrian immigrant students about being more sensitive and responsible citizens towards society?
5. What are the recommendations for solving problems related to the use of citizenship rights experienced by Syrian immigrant students?

2. Method

In this research, the phenomenology design, which is one of the qualitative research designs, was taken as the basis. The phenomenology design was used because it aims to reveal the citizenship perceptions of Syrian immigrant students, whether they can use their citizenship rights democratically, and their experiences and feelings regarding this issue. The phenomenological design focuses on the phenomena that we are aware of but do not have an in-depth and detailed understanding. Phenomena can appear in various forms such as events, experiences, perceptions, tendencies, concepts and situations in the world we live in (Yıldırım & Şimşek, 2018). In addition, if the circumstances of the phenomenon under investigation are informative, in-depth information from a small group of people may be more valuable than limited information from a large sample. Slighter information obtained from a large number of people can be helpful in determining the boundaries of a phenomenon and examining different situations or understanding their changes (Bryman, 2007). In phenomenological research, sample selection and application strategies are in a quite narrow range, and all participants in the sample must have had experienced the phenomenon or had contact with people who have experienced the phenomenon being studied (Rolfe, 2006). Phenomenology samples are usually selected from a group with a certain characteristic (teachers, convicts, abused people, etc.) (Staruss & Corbin, 2014). If the characteristics of the participants are very different from each other, it will be difficult to determine the principles and main themes that will emerge from the experiences of research participants (Miles & Huberman, 1994). Researchers who conduct phenomenological research generally prefer the purposive sampling method, as they will need items that have experienced a certain phenomenon (Rubin & Babbie, 2016). In the literature it is stated that the number of items that will constitute the sample can vary between 5 and 25 (Creswell, 2013; Neuman, 2014; Patton, 2005; Rubin & Babbie, 2016).

2.1. Study Group

In phenomenological research, there are studies with samples that range from one person (Miles & Huberman, 1994) to 325 people (Neuman, 2014). The study group of the research consists of 14 Syrian immigrant students who were studying in 7th grade in three schools affiliated to Hatay Provincial Directorate of National Education between September 2019 and December 2019 and they voluntarily accepted to answer the questions. Purposive sampling method was used to determine Syrian immigrant students. Purposive sampling is the purposive classification of systematic and randomly selected case samples in line with the purpose of the research (Marshall & Rossman, 2014). It is conducted in order to access richer data than the situations determined by sampling and to increase the credibility of the research (Flick, 2014). There are three factors in the purposive sampling selection approach used in qualitative research: (1) deciding who will be selected as the sample (or places) for the study, (2) the characteristic sampling methods, and (3) the size of the sample to be studied (Marshall & Rossman, 2014; Onwuegbuzie & Collins, 2007). The reason why the research was preferred to be conducted with 7th-grade students is the presence of citizenship-related topics in social studies lessons in 5th, 6th and 7th grades and the knowledge and skills these students acquired in other lessons. Participants consist of 11 male and 3 female students. These students were between the ages of 13 and 15, and all of them were Syrian immigrant students who started school in Turkey. In addition, female students in the study group were coded as "F" and male students as "M" and their real names were kept confidential.

2.2. Data Collection Tools

In the study, semi-structured interviews were made with Syrian immigrant students to collect data. Semi-structured student interview form was used. At the beginning of the study, firstly, the literature revealing the connection among social studies, citizenship, immigration and citizenship education was scanned. After

examining studies in the related literature, a semi-structured student interview form was prepared by the researcher. The prepared interview form was examined by two academicians who are experts in the field of social studies and a Turkish educator, and the pilot study of the prepared interview form was carried out with two participants. The final form of the semi-structured interview form was prepared after pilot application was carried out. Students participating in the pilot application were not included in the study.

2.3. Data Collection Process

In data collection step, the first interview was held when the participants agreed to be interviewed. The participants were informed that the study would be used for scientific purposes and their identities would be kept confidential. Preliminary interviews were conducted with 3 students studying in 7th grade of secondary school in order to understand whether they understood the questions correctly or not and after it was observed that the students correctly understood and answered the questions, interviews were held with other participants who agreed to be interviewed. In addition, these interviews were held in the most comfortable and quiet environment in schools where participants were attending.

2.4. Analysis of Data

The data obtained from the interviews were reported by conducting descriptive analysis. Direct quotations from the participants' expressions were included while using descriptive approach.

2.5. Reliability and Validity in Research

A common strategy for building reliability is member check or member questioning. This strategy, which is also called participant verification, predicts reaching some of the people interviewed or who was provided with the data and asking them for feedback regarding the findings that emerge (Merriam, 2013). While detailed descriptions were used in the analysis of raw data, direct quotations were frequently used in order to abide the data itself. By detailed description, readers will be allowed to picture the environment, in which the data was collected, in their minds. Considering validity of the research, data provided in interviews were evaluated and coding was made separately by the researcher and a lecturer who had comprehensive knowledge of qualitative research methods, consensus was considered in coding. For coding reliability calculation in the research reliability formula, [Reliability= Agreement / (Agreement + Disagreement)] which was prepared by Miles and Huberman (1994) for qualitative studies, was used. Data obtained via interviews and coding are kept by the researcher for providing the opportunity for whom it may concern in order to be examined.

2.6 Assumption and Limitations

It is suggested that Syrian immigrant students who participated in this research answered the measurement tool correctly, sources used in relevant literature section of the research are valid and reliable, validity and reliability of data obtained from semi-structured interview form that was used as data collection tool in the research is high, and Syrian immigrant students who participated in the research had a good command of Turkish. In addition, this research is limited to the interviews made with 14 Syrian immigrant students studying in 7th grade between September 2019 and December 2019, and also information and sharing including their experiences, perspectives, thoughts and evaluations. It is expected that the results will guide educators, families and researchers studying in this field.

3. Findings

At the end of the interview data analysis, detailed information was obtained regarding citizenship perceptions of Syrian immigrant students of social studies education. Descriptive analysis was used in the analysis of the data obtained from the experiences and opinions of participants. Sub-categories formed as a result of the analysis are

presented below. The categories are; definition of citizenship concept, citizenship rights, good citizenship, adaptation to social environment as a citizen, suggestions for solving violations of citizenship rights.

3.1. Findings and Comments Regarding the Expressions of Syrian Immigrant Students About Citizenship Concept Considering What They Learned in Social Studies Lesson

The analysis of the students' views regarding citizenship concept, considering their acquisitions in the environment they live after they emigrated from their country is given under this headline. The students evaluated citizenship concept in terms of universal values. Social studies education also emphasizes universal values in terms of its content. Citizenship values indicate universal characteristics although slight changes can be seen in some cases according to circumstances. Social studies education is directly related to the concept of citizenship. To put it more explicitly, conscious citizens can be raised when students are enabled to comprehend the concept of citizenship effectively in social studies teaching. All of the students, who participated in the interviews, emphasized universal values in terms of citizenship concept. Using similar expressions in terms of universal values of citizenship M-3, M-6, M-7, M-8, M-10, M-11, M-12, M-13, emphasized the concepts of respect, honesty, helpfulness, tolerance, freedom of thought and equality. Emphasizing the concept of peace, which is universally accepted for the whole world M-9 stated that *"I came to Turkey with my family from Syria because of war. We want to be citizens here, it would be better if people were more attentive to their surroundings. If they pay attention to traffic rules, if they pay attention to each other, the whole world will live in peace and no one will hurt each other."* Emphasizing the equality of men and women, which is a different dimension of the concept of equality, and the right to vote F-1 stated that *"Women must be given the right to vote, there must be no such thing as discrimination between people, and everyone must have rights: women and men must be equal."*

F-2, emphasized the right to education, which is the most natural right of people who have had an impact on people in political and social problems *"The right is not given to a woman in Syria, if given it is only 50%. Families would not send their children to school because there was terror there (in Syria). But everyone must be given rights."* Considering the quotation it is seen that people come from a social structure where even the most basic rights of women and girls are not exercised, and that this social structure can be improved with equality and education. While the concept of citizenship is used as a legal term, expressing that the concept of citizenship is not only a legal concept, but also a bond F-14 defined the concept of citizenship *"My future, my school, my family, my mother, my father it means everything; most importantly our home."* The concept of citizenship, which has an important place in social studies education, is important in terms of showing that it creates a sense of belonging to one's country and society, and how strong citizenship is considering geography.

3.2. Findings And Comments On The Citizenship Rights Of Syrian Immigrant Students According To Their Social Studies Lesson Acquisitions

Considering the students' views, the answers given to the question of what their rights are according to their acquisitions in the social studies lesson are analyzed in this part. M-11, M-12, and M-13 use similar expressions and consider the right to citizenship as the right to education and the right to freedom. In the changing world, internet and social media networks are now accepted as citizenship rights. F-1 stated that *"I log on to Internet networks, for example Facebook, 1 hour a day, to talk to my friends, etc.*" and F-2 stated that *"I don't use social media, but I log on conversation rooms, log on Whatsapp or Viber, look at my friends' pages and talk."* By means of social media networks that have entered our life, people can make friends in many different parts of the world; they can exchange information share common feelings, hobbies, fun activities and different cultures. In short, this situation can be called globalization in social media.

Individuals have private and indispensible rights that they have since birth. These are the rights that protect individuals against society and state. Different from these, individuals have rights that make it possible to demand certain things and attitudes from the society and state. The answer given by M-7, who is Syrian but came to Turkey from Jordan, to this question about human rights is very meaningful; *"Even though we were of*

the same religion, they were oppressing us, so people must be free. We were illegally watching movies that were banned in Syria. That's why people couldn't have their basic rights. We had to cut our hair the way they wanted, we must wear freely." Demanding rights can be seen as individual's doing something and asking others to do something. However it can only be achieved by law. F-14 stated that *"Going to school, the state must listen to us. We must also fulfill our responsibilities towards our homeland."* As F-14 expressed, both the state and the citizens have responsibilities and duties towards each other. These duties are regulated by the constitution, which forms the basis of the countries, and the constitution guarantees the rights and duties of individuals towards the state and the state's duties towards the individual. M-6 stated that *"People must participate in social activities, do activities at school, read the books they want, there must be no sectarian discrimination, but they threatened us. Because we are Sunni, we could not live comfortably and freely in our country."* There are values that originate from humanity. Identities and differences of human beings must not be considered as a means of exclusion, but as the richness of common life. If individuals can create common grounds built around common values, freedom can be protected and sustained. If there is no freedom, there is no country, and no citizenship. It can be stated that if there is no citizenship, there is no right.

3.3. Findings and Comments Regarding the Characteristics of a Good Citizen Today According to Acquisitions of Syrian Immigrant Students in Social Studies Lesson

Almost all of the students participating in the research emphasized social and moral dimensions of citizenship. Few students mentioned the sectarian discrimination and patriotism dimension of citizenship. M-6, who left his country because of the war, stated that, *"There must be love for the state, no war and poverty, no sectarian separation. There is war in Syria, we escaped from war. I don't want to go back to Syria anymore. I want to go to Europe or America with my family."* In this way, he revealed the extent of the sectarian discrimination he experienced in his country. M-3 stated that *"It must be a person who can share everything with everyone and must not consider himself or herself superior. It must be a social person and must be patriotic. He must fulfill duties."* M-4 stated that *"He must be honest, fair, respectful, and aware of his responsibilities."* M-5 stated that *"Must be honest, fair, see everyone equally, and respect."* M-9 stated that *"He must be careful, smart, respectful, clean and meticulous outside in the street as he is at home and he must obey the rules. He must take care of others as he protects his brother, mother, and father."* M-10 stated that *"He must be respectful, must help everyone and fulfill his duties."* F-1 stated that *"He has to be respectful. He mustn't kill anyone. He must do his duty."* F-2 stated that *"To be a good citizen, one must not swear, must be respectful, fair and tolerant."*

Considering these findings, it can be suggested that students primarily perceive people that adopt social and moral values approved by society as good citizens. Most of the students participating in the research consider people who have basic moral values accepted by the society as good citizens. Most of the students emphasized the basic values that a good citizen must have as honesty, responsibility, justice, tolerance, respect and loyalty to the country. In addition, very few students consider people who can share with their environment and keep their environment clean as good citizens. Most of the students emphasized that a good citizen must be honest, respectful and tolerant. The second emphasized fundamental value is responsibility and equality.

3.4. Findings and Comments Regarding the Opinions of Syrian Immigrant Students on Being a More Sensitive and Responsible Citizen Towards the Society

Social studies education provides awareness. Our prejudices result from interpreting the situations we encounter from our own perspective. When we recognize a phenomenon and have a detailed knowledge of it, our prejudices about that phenomenon may disappear. Elimination of prejudices creates tolerance among students. In this context, being aware of differences and accepting them as natural reinforce the bond among students. Similarities and differences between cultures are revealed more easily. From this point of view, while similarities connect students and reduce differences among them, recognizing cultural differences makes people respect these differences. This strengthens the friendship among students. It creates unity and solidarity among students. Citizenship education is important in terms of reducing these differences and strengthening the bond among students. In other words, one of the aims of citizenship education, which has an important place in social

studies lesson, is to bring together the differences and to synthesize different cultural components on a common ground. Information that will reveal the analysis given above is expressed by student M-4: *"I spend time playing basketball, volleyball, jumping rope, football, games we play in the classroom, and have barbecue with my friends."* M-7 stated that *"I have internet at home. I see my school mates on SKYPE, I play football with my friends, and we go outside."* F-14 *"I just came here, but I want to participate in sports activities at school. I want to learn Turkish better. I want to go to Turkish language lesson."*

It is seen that by actively participating in social environment of school via activities they join at school and social media, Syrian immigrant students are not different from other students and they can meet at a common point by doing the same activities. Everyone is free in democratic communities, but this freedom is not infinite. In other words, every freedom has a limit and in democratic communities these limits are provided by rules. As long as these rules are followed, the peace and welfare of the society will increase and it will be easier and faster to tolerate, accept and socialize the differences among people. Supporting this analysis, participant M-6 expressed that *"I am reading books to learn Turkish. I am trying to learn the rules in Turkey. I get information from my friends about rules in Turkey; I learn the rules at school."* Almost half of the students emphasized that adapting to social environment consists of behaviors such as helping each other, cultural awareness among people, responsibility, equality, honesty and being respectful. It is seen that they feel responsible towards society and try to adapt by acting in line with these principles in adapting to social environment. M-9 stated that *"If all people treat each other well, there will be no problem. I help my friend with lessons, we plant flowers in our garden, and we water the flowers."* M-12 stated that *"I don't throw away garbage; I throw it in the trash bin. I help my friends with their homework that they cannot do."* F-1 stated that *"A person who helps everyone, I mean helpful. He or she has to be responsible."* M-8 stated that *"Respectful, honest, helpful. He or she must not consider himself or herself superior to others. It must not be forgotten that everyone is equal."* M-11 stated that *"I treat my friends well, I help people. I keep my environment clean."* M-10 stated that *"I have to work hard for education. I must get along better with my family. I treat the people around me respectfully; people must treat well and love each other. They must be helpful."*

3.5 Findings and Comments Regarding the Recommendations of Syrian Immigrant Students to Solve the Problems About the Use of Right to Citizenship

Syrian immigrant students F-14, M-13, M-11, M-6, M-5 F-1 and F-2, who participated in the interview, stated that they had language problems in their first year in Turkey and that they went to language lessons to overcome this problem. They also expressed that they received help from the translators at school. F-2 *"I would like to stay in Turkey and vote like others. I would like to study and have a profession. Newly arrived Syrian citizens must attend a lesson to learn Turkish. I would like an interpreter for newcomers in hospitals, schools, police stations, so their problems can be solved."*

Another problem is the issue of respect among students. Being a stranger to the culture in the geography where one lives is the cause of this problem. Even if people are created equally, the most important factor that separates people from each other is their cultural differences. These differences cause undesirable behaviors among students. M-4 stated that *"First, people can be respectful to each other. There must be love also otherwise there will always be trouble. Everyone must be equal in school."* It is seen that there is a problem of respect among students and this situation can be resolved by providing equality among students. Among students who participated in the interview, problems such as economic and education constitute a great source of concern for the future lives of students. In order to overcome this problem, it is essential to provide financial support and a good education. M-8 stated that *"Our house was sold, we had to move out of the house and the United Nations did not help us."* M-12 stated that *"I want to get a good education and become an engineer, for this I want to get a good education. I want to be given a good education."*

4. Results and Recommendations

The results and recommendations about the effect of social studies lesson regarding citizenship perceptions of Syrian immigrant students are given under this headline.

4.1. Syrian Immigrant Students' Expression Results Regarding Citizenship Concept According to What They Learned in Social Studies Lesson

Syrian immigrant students considered neighborhood relations within the concept of citizenship in Syria. In addition, it is observed that there is a relationship between the problems students encounter in the country they come from and the answers they give, accordingly they emphasized the concepts of patriotism, love and peace. When the findings were examined, it was seen that the values that participants acquired in social studies lesson were universal, that active participation in society change in parallel with the needs of age, and participation in society occurs with the innovations brought by technology gradually getting rid of traditional methods. In the study of Göz (2010), it was concluded that the category in which teachers have the most knowledge and behavior is concepts such as "Democracy: Respect and Equality." On the other hand in this research considering the students' acquisitions in social studies lessons it is seen that students emphasized concepts such as peace, war, honesty, and respect in their answers to the question what must be the qualities that a good citizen must have today. It was observed that participant students had difficulty expressing themselves and taking advantage of their rights in acquiring citizenship awareness. In this respect, it was concluded that these difficulties can be resolved with an effective social studies education. Ersoy and Öztürk, (2015) examined the perception of patriotism as a citizenship value by social studies teacher candidates in terms of democracy and human rights, and it was seen that the importance of equality and tolerance concepts was emphasized. As a result of the research, it was determined that the concepts such as tolerance, equality, the right to elect and be elected, respect and love, which are universally common values, were emphasized in students' definitions of citizenship concept. In this respect, it was concluded that universal values are common in different cultures in both studies.

4.2. Results Regarding What Citizenship Rights Are According to Syrian Immigrant Students' Social Studies Lesson Outcomes and How They Exemplify

Social studies education, which has a relationship with different disciplines, has a great role in raising conscious, sensitive and responsible citizens. Culture is the most important element that shapes a society. In addition, the form of life and elements, attitudes and values while acquiring this form may be common among cultures (Kösoğlu, 1997). In today's multicultural societies, students need to adopt the cultural values of the society. Social studies lesson is important in terms of learning citizenship rights and duties. Korkmaz, (2015) stated that social media, which emerged as a new media understanding, has increased communication and interaction between people. It has also removed the limitation of time and space between people. In their study, Christakis and Fowler (2012) stated that face-to-face communication was used in social relations for thousands of years, however technology has changed this situation via inventions such as letters, telegraph and telephone calls, various ways of disseminating information and ways of communicating among people at long distances. In this study, results that were similar to the findings of Korkmaz, Christakis, and Fowler were obtained. It was observed that foreign students use social networks. People around us, such as relatives, reference groups, friends and teachers, also have an important place in the formation and preservation of people's attitudes (Sakallı, 2001). Similar results were obtained in this study. It was observed that Syrian immigrant students are influenced by the people around them. Syrian immigrant students, who have been in our country for a long time, have established friendships with Turkish students and made themselves accepted in the school environment.

4.3. Results Regarding How Syrian Immigrant Students Explain the Characteristics of a Good Citizen Based on the Acquisitions of Social Studies Lesson

Social studies lesson aims to eliminate the adaptation problem of students. It guides students for solving the problems they encountered and aims to prepare students for the future and to raise effective citizens who are

sensitive to events that occur around them. It is possible to define an effective citizen as a thinking, sensitive and competent citizen (Öztürk & Dilek, 2004). It was determined that majority of the participants generally mphasized differences, respect, to elect and be elected, and doing favors regarding citizenship rights in Syria. Some of the participants stated that they came to Turkey through a second country and that they were not respected in the countries they came from. In this way, it was concluded that they have no sense of belonging to these second countries mentioned. These emotional and relational commitments, which increase or decrease in parallel thanks to mutual interactions, are important for societies and cultures (Alptekin, 2011). It can be stated that this opinion was confirmed in this study. When the participants were asked about their citizenship opinion after they came to our country, they emphasized universal values such as love, equality, and the right to elect and be elected. Raising good citizens has been the general aim of the education system implemented by countries (Safran, 2014). While the aims of social studies programs implemented in Turkey are evaluated as being suitable for the purpose of raising global citizens; schools and teachers need to be renewed more in the education system in order to raise global citizen awareness (Kan, 2009). When the research findings were examined, it was concluded that Syrian immigrant students were willing to try to overcome adaptation problem in society with citizenship education systematically given at school. Aydın (2011) states that a human is a social being and he or she needs to experience a regular socialization process in order to continue his or her life in a healthy way, and family is the first step of this process. In the research, it was seen that students had difficulties in socializing, the families' inability to socialize at the desired level negatively affected the children attending school, and Syrian students remained shy in the society. Thanks to developing technology, our world has now turned into a “digital village”. People have contacted with different cultures. Accordingly, universal values that are accepted all over the world have emerged. In order to teach these universal values, citizenship education has great importance within the scope of social studies lesson. Citizenship education globally means raising individuals, who aware of intercultural interaction by tolerating and accepting differences among cultures, acting with a sense of devotion to whole world and to whole humanity as well as to their own country without losing their identity and self, in order to overcome global problems being aware of the fact that with responsibility their little effort can reach great results (Çolak, 2015). Raising citizens with a sense of responsibility is among the objectives of social studies lessons. However, Syrian immigrant students are slower to acquire this awareness compared to Turkish students due to both physical conditions of schools and social prejudices. Considering the findings of the research, it can be stated that there is need for social awareness in overcoming prejudices and raising awareness regarding this issue by reaching the large mass of the society via media publications. The basic characteristic that a good citizen must have is respecting the rights and freedoms of others as much as himself or herself and sustaining it for life. Social studies education must prevent the formation of prejudices by raising awareness of different cultures, and religious, sectarian and ethnic conflicts by bringing individuals together while revealing the common points of citizens in the society.

4.4. Results of Syrian Immigrant Students' Opinions Regarding Being a More Sensitive and Responsible Citizen Towards Society

It was observed that Syrian immigrant students participating in the research were not actively involved in non-governmental organizations and did not mention this issue. The lack of participation of Syrian immigrant students in non-governmental organizations indicates that the concept of active citizenship has not developed. The solidarity of the people who constitute communities has emerged with a shared value and belief, and it is the common design of both commitment to the land and the country (Duverger, 2011). In the research, it was concluded that Syrian immigrant students see their future in Turkey, adapt to community, adopt the culture and want to stay in Turkey. It is seen that recognizing the similarities and differences between the society and individuals of Syrian immigrant students will provide an environment of solidarity and tolerance. It was concluded that an immigrant student who adapts to social environment will contribute more to society in the future. In parallel with the ability of countries to examine beliefs and values, some affective purposes have been attributed to citizenship education. Development of national pride and patriotism is the primary purpose (Öztürk, Keskin, Otluoğlu, 2014).

Hereby, especially the effective citizenship and patriotism qualification acquired by students will be protecting the rights and freedoms of others as well as themselves and maintaining an effective understanding of democracy. The meaning attributed to social studies education in contemporary communities is not to transfer the knowledge to students via statements, on the contrary, it is aimed to raise students who can reach information and use the information they reach (Demircioğlu, 2007). Providing citizenship awareness and patriotism to be acquired by students is important for the future of Turkey. As long as the war and turmoil in Turkey's neighboring countries continue, the search for a country where people can feel safe will continue. Providing a good education for the children of these immigrants is important in order to enable them to acquire citizenship awareness and develop their sense of belonging. The contribution of citizenship acquired in social studies lessons must prevent the formation of prejudices by creating awareness among students. It must bring students closer to each other while revealing the different and similar characteristics of societies. People must respect differences. Religious, sectarian and ethnic conflicts must be avoided. This is only possible when students respect the rights and freedoms of other people in the society. It is important for the peace of society that students live with these acquired values. In the research findings, it was concluded that Syrian immigrant students respect the rights and freedoms of other citizens in the society, they know the similarities and differences among students from different cultures, and so there is an atmosphere of tolerance at school.

4.5. Conclusions Regarding the Recommendations of Syrian Immigrant Students for Solving the Problems Regarding the Use of Right to Citizenship

Some Syrian immigrant students stated that when they first came to Turkey, they had difficulties in making friends, adapting to social environment, and language, in addition because of prejudices in society they had very few friends and did not like being alone. In the light of these findings, it was concluded that Syrian immigrant students had difficulties in adapting to social environment when they first came to Turkey. In Bilgili's (2016) study, which is titled "Being a Foreign Student at İnönü University: An Ethnographic Research," it was stated that foreign students who have not adapted to social environment yet have difficulties in making friendship and prefer to be together with students coming from their own countries. These results are in line with the results of this study. In addition, it was concluded that male students preferred sports in order to socialize and make themselves accepted among their friends, but they did not engage in social activities. In the study of Talimciler (2012) it was stated that sports teaches people to obey rules, fulfill the given responsibilities, team spirit, working in cooperation and solidarity, competition, respect to the opponent and self at a young age and in addition it was found that when the sport is performed in groups it is an important activity in terms of belonging, social environment and indicating how power relations works. Similar results were found in this study. Participants complained about the prejudiced approaches towards immigrants. It is emphasized that being well-intentioned is a must for social harmony, and when there is no respect and tolerance, the feeling of alienation from the society will emerge. The idea that trust, respect and tolerance must be considered as the basis for an equal society has gained importance. Together with participatory democracy, which has developed in Turkey and in the world in recent years, the concept of civil society has also been discussed and the importance of these organizations has gradually increased. Non-governmental organizations, which are among the actors of participatory democracy and active citizenship, act as a bridge between the state and the citizen. Non-governmental organizations play an intermediary role in conveying the opinions and thoughts of society to the state and in conveying the policies implemented or desired by the state to the public (Usta, 2006).

The majority of the participants emphasized that they had language problems in the first years they came to Turkey and emphasized the importance of language learning. Being in contact with people provides intercultural interaction. While the participants emphasized language, they also expressed the opinion that Turkish must be learned in order to ensure the continuity of daily life and to adapt to social life. As a matter of fact, in Er, Biçer and Bozkırlı's (2012) study, which is titled "Evaluation Of The Problems Encountered In Teaching Turkish To Foreigners In The Light Of The Relevant Literature" it was found that the existence of problems such as lack of equipment, insufficient program, problems regarding students and lecturer in training Turkish teachers, technological handicaps, and the limitation of resources that can be used in teaching as a language were mentioned, and it was concluded that the difficulties in teaching Turkish and the problems of immigrants who

learn Turkish are similar. In İbrahimoğlu's (2014) study which is titled "Citizenship and Citizenship Education in Turkey According to Non-Muslim Minorities" it was found that in Turkey while there are practices that help minorities to learn their first language, there are also countries where the situation is just the opposite. It was concluded that in addition to their first language education Syrian immigrant students must have the opportunity to learn the official language well in the country they live in, in order to have a proper and permanent harmony with the society they live in. In addition, in the study it was seen that Syrian immigrant students were willing to learn Turkish. In the study of Arslan (2014), which examined the opinions of teachers and students regarding citizenship education in multicultural societies, it was seen that the language in which the education is given at schools is very important in terms of realizing target behaviors in classrooms where students from different cultures are educated. In the study, it was concluded that Syrian immigrant students have language problems in and out of school. From this point of view, the findings of both studies indicate overlapping qualities.

Recommendations made based on the results of the research:

1. In-school and out-of-school activities must be organized to activate the knowledge and skills that will create citizenship awareness in Social Studies lessons.
2. Studies must be carried out to gain awareness, tolerance, respect and understanding that other people can be different by getting to know people from different cultures.
3. Seminars must be organized to inform teachers and teacher candidates about the phenomenon of multiculturalism so that students with different cultural backgrounds living in Turkey do not feel excluded.
4. Language lessons can be opened for students studying at schools via public education centers and schools.
5. Publications must be made in the written and visual media creating awareness that people from different cultures exist.
6. This study can be repeated by being supported by quantitative findings.

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Forgivingness among Meranao Students in Southern Philippines

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Abstract
People have the tendencies to be involved or engaged in transgression. While some may be forgiving and move forward, others hold grudges, resentment, or feel remorse. In the context of social, behavioral science, this is worth investigating. Thus, this study aimed at analyzing the indicatives of forgivingness in a transgression-related act and if these are associated with Gender and age. The main instrument used is the Transgression Narrative Test of Forgivingness (TNTF) which is a tool to measure forgivingness of the Meranao living in Lanao del Sur, Philippines. The respondents were the 150 Meranao Students (senior high and college students). This study employed a quantitative design that described, compared and correlated variables. Findings indicated that Meranao students are most forgiving towards scenarios in which a transgressor causes a friend to fail in the submission of a job application and least forgiving towards a scenario where a transgressor causes one of the family members to die. Meranaos' age range from 15 to 25 shows no difference in forgivingness between men and women. Results showed a very weak association in age groups. Future researchers may use other situational scales and tools to identify further results and use comprehensive age groups (young, middle-age, and old adult) examining respondents' forgivingness and its significant differences.

Keywords: Forgivingness, Transgression, Transgression Narrative Test of Forgivingness, Meranao

1. Introduction

Human beings are branded as social beings because of their ability to interact and communicate with each other regardless of what nation and tribe they belong. These interactions of people often result in either positive or negative conversations. These conversations involve emotions present when two people start to interact and allow themselves to be in a relationship either, forming an alliance or dissociation among families, relatives, friends, and other close acquaintances. Dissociation or separation may happen when someone transgresses or violates one's limit.

Madsen (2014) defines transgression as an act of violating norms, laws and a doing that is undesirable. According to James (2019), transgression takes place most often with people in different relationships with various instances. Some transgressions like criminal offenses, medical mistakes, or accidents occur with an

unfamiliar individuals. Others happen in close acquaintances like family, partners, and friends (Miller, Worthington, and McDaniel, 2008). There may be a situation where forgivingness is needed to save relationships that have been interrupted. Forgivingness is a disposition to forgive diverse conditions (Roberts, 1995). Accordingly, the type of transgressions may have different impacts with men and women in terms of how they are going to respond (Miller et al., 2008).

Most researchers suggest that dispositional forgivingness, which is the mode to forgive transgressions, helps in the physical health and psychological well-being of an individual by overcoming negative traits and affects. Anger is described as the leading emotional obstacle to forgiveness, the emotion that must be overcome if forgiveness is to occur (Enright, Gassin & Wu, 1992 as cited in Berry, Worthington, Parrott, O'Connor and Wade, 2001). Disposition pertains to forgivingness, which is a term suggested by Roberts (1995) as cited in (Berry et al., 2001) to distinguish the personal trait from acts of forgiving. It also entails forgivingness from a transgression committed eventually and across situations (Berry et al., 2001).

In Kohlberg's Moral Development, in the cognitive view, he emphasizes the process of how an individual reasons to affirm that a behavior is right or wrong. Their behavior is measured by responding to a given moral dilemma situated under the six stages of Kohlberg's theory which are comprehensively arranged from moderate to complex level. There were categorized into three general stages of moral development (Sanders, 2021). In the present study, this theory was the basis to identify how a participant judge situation after reading different scenarios.

This current study is also under the umbrella of cultural anthropology, which is the study of human cultures, beliefs, practices, values, ideas, technologies, economies and other domains of social and cognitive organization. In relevance to the study, individuals may perceive the behavior as a forgivable act if it was patterned to what their cultures already believed. Culture influences how people think and express themselves from the inherited beliefs that shape the perceptions of individuals (Lumen Learning Website, 2021a).

Miller et al. (2008) used a meta-analysis conducted with 53 articles reporting 70 studies that addressed gender and forgiveness. Results showed that females are more forgiving than males while males are less forgiving than women are when responding to vengeance measures. They suggested several factors that indicate why differences between females and males happen. It includes functional differences in the processing of emotional hurts and forgiveness, differences in dispositional qualities, differences in situations that may affect gender differentially, and gender differences in religion.

Mellor, Fung, and Mamat (2012) explored forgiveness and empathy among Malaysian men and women and the relationship between them. The study involved a sample of 233 Malaysian undergraduate students recruited from four English-mediated universities in Malaysia. Two measuring tools were used, namely, Interpersonal Reactivity Index (IRI), which measured empathy, and the Transgression- Related Interpersonal Motivations Inventory-12 (TRIM), which measured Forgiveness. Finding revealed that women are more empathic and forgiving than men. Furthermore, the authors concluded that there is an association between empathy and forgiveness.

Thompson et al. (2005) used Heartland Forgiveness Scale (HFS) to assess forgiveness of self, others, and situations that relied on self-report measures. The findings suggest that forgiving people can be able to reframe transgressions and construct a new narrative such that they are no longer affected by negative thoughts, feelings, or behaviors about the wrongdoer, transgressor, and associated outcomes.

A study of Takada and Ohbuchi (2013) used TNTF as a reliable measure of forgiveness to re-examine the hypotheses of the second study after using the initial method in the first study. Findings revealed that participants were classified as true forgivers by being collaborative in conflict resolution strategy and tend to be satisfied with the outcome of the conflict. In contrast, participants were classified as hollow forgivers by preferring avoidance as a conflict resolution strategy and less satisfied with the outcome of the conflict.

After reading articles about the reviews of forgiveness scales, the researchers tried to utilize a measuring tool to measure the forgivingness of Meranaos in their local areas and explore the significance of specific demographic variables to forgivingness. Meranaos were chosen as the respondents because they are rarely investigated in terms of their behavior or emotions. Moreover, measuring the identities of Meranao tribe withstand as a probable cause of why Meranao tends to forgive and not. These identities may influence how Meranao behaves culturally and personally into different situations. Pride as one of the identities of a Meranao (Alaya-Ay, Cuizon, Branzuela, Romarez and Talaid, 2013) leads one family to engage in a feud or rido (in a Meranao term) such as family feuds, conflicts, revenge, retaliatory acts on the other and murder and theft were the causes.

This present study tried to utilize a tool to measure forgivingness of the Meranao and to find out if there is a significant difference of gender and of age to the forgivingness of the respondents. By finding so, results will tell us if men are easier to forgive than women and vise-versa. And if younger people forgive easier than older ones and vise-versa. Thus, it specifically sought to answer the following research questions: 1.) In which situation from the given transgression scenarios were the respondents mostly forgive and least likely to forgive? 2.) Was there gender difference in forgivingness? 3.) Is there a significant relationship between age groups and forgivingness?

2. Method

The study employed a quantitative design that described, compared, and correlated variables. It describes the forgivingness in the study through the transgression scenarios and measures the correlations of forgivingness in gender, and age group, respectively. This research design collected information from the respondents using sampling methods in which participants responded in different conducts, including an online survey, online polls, and questionnaire. Results were shown in a numerical form (Bhat, 2019).

A total of 150 Meranao Students (senior high and college students) served as respondents in this study who all lived in Lanao del Sur and were invited to respond thru online. Of the 150 respondents, 118 were women, and 32 were men. Ages of respondents ranged from 15 to 25.

A measuring scale was adopted and modified from Berry and his colleagues (2001), namely Transgression Narrative Test to Forgivingness (TNTF), to measure the forgivingness of the respondents. The researchers implemented four items (4, 5, 6, and 7 items) from the five developed scenarios of the TNTF, constructed three scenarios (1, 2, and 3 items) added to the adopted items to suit the context of Meranaos and purpose of this research and modified some conditional details of the scenarios. In modifying the scenarios, the central theme of transgressions was preserved.

Each item has confined situational transgressions, respectively. Two items: item 4 and item 6 reflect intentional transgressions done by an acquaintance. Item 5 reflects negligent transgression by a friend. Item 1 reflects biased transgression by the school. Item 2 reflects betrayal transgression by a loved one. Item 3 reflects murder transgression by a stranger. Lastly, item 7 reflects an intentional transgression by a relative followed by an apology (Berry et al., 2001).

The researchers used content validation and reliability of items to utilize the seven-item scale, and after having the validity and reliability of the research instrument, the researchers then proceeded with the data gathering.

In collecting the data, Google form was used. A link was generated, allowing respondents to answer the questions. The form was shared with respondents by sending a link or email. The data gathered using the Google form is typically stored in a spreadsheet (Love, 2021). All the responses were recorded automatically in a linked spreadsheet connecting to the main author's Gmail account that was used in creating the form. After collecting 150 responses from the respondents, it was followed by calculation and analysis of data using statistical tools.

Mean and Standard Deviation was used to describe the range of forgivingness of the respondents. Eta Coefficient Test and ANOVA were used together for nominal data, specifically the sex and age group, and continuous data, which is the extent of forgivingness of the respondents.

3. Findings and Discussion

This presents the tabulated and analyzed data of the study. Interpretations and discussions were also given to exemplify the meanings of the data and for further understanding. The information was interpreted for the purpose of answering the research questions.

Table 1: Respondents' Extent of Forgivingness

Indicators	Mean	SD	Description
Item 5: You asked a favor to your friend to drop off your job application to a school or company. A week later, you received an SMS from the potential employer informing you that your application cannot be considered because it was submitted after the deadline. You learned that your friend forgot to drop off your application due to errands she had to attend to and because of her forgetfulness. Imagine yourself in such situation and mark how likely you are to forgive your friend for not delivering the application on time.	3.63	1.032	Likely to Forgive
Item 7: You have a distant cousin from country side and he/she was admitted to a university where you also enrolled and you agreed to look for a dormitory where you can stay together. You've been together for months. You observed that you could not get along all the time because of his/her intrusive attitude. One day, one of your most precious things got him/her broken. Instead of apologizing, he/she said that it wouldn't be a bother. He/she knows you have scholarship to buy again. Imagine yourself in such a situation and mark how likely you are to forgive your cousin.	2.9667	1.108	Undecided
Item 4: Someone you occasionally see in a class has a paper due at the end of the week. You have already completed the paper for the class and this person says he or she is under a lot of time pressure and asks you to lend him or her your paper for some ideas. You agree, and this person simply retypes the paper and hands it in. The professor recognizes the paper, calls both of you to her office, scolds you, and says you are lucky she doesn't put you both on academic probation. Imagine yourself in such a situation and mark how likely you are to forgive the person who borrowed your paper.	2.88	1.158	Undecided
Item 6: You just started a new job and it turns out that a classmate from high school works there, too. You think this is great; now you don't feel like such a stranger. Even though the classmate wasn't part of your crowd, there's at least a face you recognize. You two hit it off right away and talk about old times. A few weeks later, you are having lunch in the cafeteria and you overhear several of your coworkers, who do not realize you are nearby, talking about you and laughing; one even sounds snide and hostile toward you. You discover that your old classmate has told them about something you did back in school that you are deeply ashamed of and did not want anyone to know about. Imagine yourself in such a situation and mark how likely you are to forgive your old classmate for telling others your secret.	2.7	1.11	Undecided
Item 1: Mariam is known to be the top 1 at their school. However, during the graduation day, she was not recognized as the class valedictorian but her classmate, Aisah which is a transferee and happened to be the granddaughter of the school principal. If you were Mariam, given the instance that the school was unfair to you, would you be able to forgive what happened?	2.64	1.271	Undecided

Item 2: Ali who was happily married to Fatima a year ago went abroad to work. Fatima, at first didn't want Ali to go but had no choice because Ali really promised her that he's going there just for Fatima's sake and for their future children. However, after a few months of Ali's stay abroad, Fatima was notified by Ali that he is going to marry Sittie, his co-worker. If you were Fatima, will you forgive Ali for betraying his promise to you?	2.4133	1.249	Not Likely to Forgive
Item 3: After 5 years, your brother Yusoph was able to go home after earning a degree overseas. Your parents had to work full time for your brother to graduate. However, a shoot-out happened outside the airport and accidentally killed Yusoph on the spot before he can reach home. Imagine your family in such a situation and mark how likely you are to forgive the person who killed your brother.	2.04	1.181	Not Likely to Forgive
Overall Mean	2.753	1.158	Undecided

Legend: 1.00 – 1.79 = Definitely Not Forgive; 1.80 – 2.59 = Not Likely to Forgive; 2.60 – 3.39 = Undecided; 3.40 – 4.19 = Likely to Forgive; 4.20 – 5.00 = Definitely Forgive

Table 1 shows the respondents' extent of forgivingness, which was arranged from highest to lowest. The result showed as "undecided" in items 1, 4, 6, and 7 because when the average was computed it falls to the middle. Thus, responses were very polarized in items 5 and 3. Similar results were obtained from the responses in the average when "likely to forgive" and "not likely to forgive" were calculated.

Item 5 that indicates the highest extent of forgivingness implied that this situation was the most forgiving scenario that respondents were most likely to forgive. It suggests that people forgive negligent transgressors specifically a friend, in a scenario, probably because of empathy. According to Davis (1983), as cited in Mellor et al. (2012), consensus revealed that empathy is associated with forgiveness, with the related assumption being that an empathic person is more likely to forgive an intrapersonal transgression.

By showing empathic concern towards a transgressor, it implies that if it happens to a person, he/she will do the same thing similar to the situation that happened to a friend. Toussaint and Webb (2005) stressed that a person was able to forgive others when he or she has the ability to understand and relate to others and be treated like just how he or she wants to be treated. Toussaint and Webb (2005) contended that people who forgive faults have likely to have less anxiety, anger, and depression. Moreover, McCullough (2000) indicated that forgiveness is certainly given with people having a close intimate relationship.

Meanwhile, item 3 indicates the lowest extent of forgivingness. Accordingly, when people experience transgressions, they typically develop negative thoughts (e.g., ''This has ruined my life''), feelings (e.g., anger), or behaviors (e.g., seeking revenge) related to the transgressor, transgression, or associated outcomes that reflect how they are responding (cognitively, affectively, or behaviorally) to the transgression (Thompson, et al., 2005). One causes for a person to be unforgiving is anger (Williams, 1989 as cited by Berry et al., 2001). In the study of Mauger et al. (1992), as cited in Kamat (2005), he revealed that participants with low scores on forgiveness of others measured higher on anger. These imply that people become unforgiving because of anger. In addition, Darby and Schlenker (1982), as cited in Kamat (2005), concluded that "more serious offenses with higher responsibility and larger consequences of the transgressions towards the victim would generate less forgivingness." In a Meranao setting, when pride was triggered in the family, especially in a murder situation, *rido* eventually occurred (Alaya-Ay et al., 2013). It implies that conflicts could arise when Meranao became unforgiving, which leads them to unlikely forgive.

Culture may also influence how people think of certain transgressions. Accordingly, a culture is owned by any certain group having the same attributes such as social, ethnic, or age, reflecting the same customs and behavior (Lumen Learning Website, 2021b). It suggests that Meranao is unforgiving if a shared cultural norm was violated from the transgressions that occur.

Table 2a: The Difference in Forgivingness in terms of Gender

ANOVA Table								
			Sum of Squares	df	Mean Square	F	Sig.	Interpretation
Forgivingness * Sex	Between Groups	(Combined)	.560	1	.560	1.023	.314	Not Significant
	Within Groups		81.084	148	.548			
	Total		81.644	149				

Table 2b: The Difference in Forgivingness in terms of Gender

Measures of Association			
	Eta	Eta Squared	Interpretation
Forgivingness * Sex	**.083**	.007	No relationship

Table 2a and Table 2b present the results to the research question 2. Data revealed that forgivingness in terms of gender has no significant difference with an obtained result of 0.314. It implies that people ages 15 to 25, either man or woman, is easily influenced by the society, thereby affecting their opinions, judgment, and even their forgivingness. For Meranaos, life experiences are mostly experienced within these ages that cause them to consider and reflect on their decisions. These experiences are the same for both men and women. Hence, the age 15 to 25 years has no difference for both men and women in forgivingness.

Similarly, the result of Berry et al.'s (2001) study, as they had anticipated, revealed that there is no difference in forgivingness between men and women. Nevertheless, this result contradicts with the study of Miller et al. (2008), in which they concluded that a significant difference exists in gender responses to forgiveness. Gender difference in forgivingness was found to have small to moderate impact.

Further, more variables might affect the relationship between gender and forgiveness, according to Miller et al. (2008). These are the injustice in the society, religion, and culture. In the present study as it was revealed in table 3.2b gender and forgivingness have no association at all, with an obtained result of 0.83. It implies that because in the age group of the study that limits to 15 to 25, association along these ages are not possible. The support to this implication was revealed in Table 3a.

Table 3a: The Difference in Forgivingness in terms of Age Group

ANOVA Table								
			Sum of Squares	df	Mean Square	F	Sig.	Interpretation
Forgivingness * Age Group	Between Groups	(Combined)	.952	3	.317	.574	.633	Not Significant
	Within Groups		80.692	146	.553			
	Total		81.644	149				

Table 3b: Relationship between Age Group and Forgivingness

Measures of Association			
	Eta	Eta Squared	Interpretation
Forgivingness * Age Group	.108	.012	Very weak association

Table 3a and table 3b presents the significant relationship of the respondents' forgivingness in terms of age group. The data reveals no significant difference with an obtained result of 0.633.

The result implies that their age does not influence their opinion in forgiving certain circumstances and situations. Most of them particularly the younger ones forgive because they were often influenced by factors such as life lessons, mistakes from the past, and experiences. These factors drive them in making their opinion of whether to forgive or not. Hence, their age has nothing to do with them to forgive or not to forgive.

These findings confirm the study of Enright et al. (1992), as cited in (Berry et al., 2001), in which they examined the relationship between forgivingness and other demographic variables. The result shows that forgiveness develops from childhood to early adulthood, but after college age, no age differences have been found. However, this contradicts Ghaemmaghami, Allemand, and Martin (2011), in which they found significant association between age, and forgiveness for others but not with self-forgiveness.

The moral development in Kohlberg's theory was probably the reason why perceptions of certain scenarios affects the age. In the present study, the focus is on the youth, specifically, age group of 15 to 25 (World Health Organization, 2021). It suggests that with these ages, their likelihood to forgive was similar. Stage 5 in Kohlberg's moral development (Kurt, 2020) states that, initially, people as always good until they get confused between what is right and what is not. They contemplate on this to continuously create a good society rather than creating a society to be good. It showed that how they respond to hypothetical scenarios reflects their judgment to forgiving such.

4. Conclusions and Recommendations

Based on the findings, it was found out that Meranao students forgive mostly towards neglecting scenarios, meaning scenarios that a transgressor causes a friend to fail in the submission of a job application and least forgiving towards a scenario where a transgressor causes one of the family members to die. According to Toussaint and Webb (2007), empathic person became forgiving because they became understandable by putting their shoes towards similar condition. While Meranao students became unforgiving in a state where a death of family is involved, anger holds the disposition to forgive. In addition, gender has nothing to do with forgivingness of the Meranao students along with their age. Hence, the scenario-based scale revealed the situations where Meranao students mostly forgive and less likely to forgive.

To recommend, a similar study may be conducted in other provinces in Southern Philippines with dominant Meranao student populations to compare with the findings of this paper. More situational cases and tools can be added to confirm further the results. Future researchers can study the implication of age difference in forgivingness.

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Educational innovation into English as a Foreign Language Practices for Early Children: Neuroeducation and the Total Physical Response Method

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Abstract
This work aims to improve the practices of English as a foreign language of early children through the articulation of Neuroeducation and the Total Physical Response methodology. This work subscribes to the postmodern paradigm and the mixed educational research approach. The participants were thirty-five students from the second grade of primary education from Ecuador. The research team designed an educational intervention that mixed music and dance for creating more meaningful learning environments in language practices. The instruments used were contextualized observation, semi-structured interviews, and tests of English knowledge. The results allow determining the increase in the significant level of the classes and the motivation for learning English in all students. It is concluded that the articulation of the Total Physical Response methodology and Neuroeducation can contribute positively to the creation of meaningful learning environments and to the innovation of didactics for teaching young children of English as a foreign language.

Keywords: English as a Foreign Language, Educational Innovation, Neuroeducation, Motivation to Learn

1. Introduction

This work proposes the use of physical activities and musical videos as resources for the innovation of the English as a Foreign Language (EFL) practices since neuroeducation. The articulation proposed offers learners more rhythmic environments, faster learning, creativity sense, and improving of the learners memorizing through their motor actions. Furthermore, Ibrohim, Septianti, & Sadikin (2018); Bonnin, Alarcón, & Colomer (2020) argue that one of the important parts in the acquisition of a new language is the vocabulary allowing to learners communicate efficiently and exactitude their feelings and needs.

When, teachers mix Total Physical Response methodology and Musical videos for learning vocabulary in a foreign language, they encourage students' listening comprehension and oral expression (Hernando, Hortigüela, & Pérez, 2017). They applied Neuroscience using music and body movement coordination (Carballo, 2017; Joldersma,

2016). Nevertheless, in Ecuador persists a limitation concerning educational research on the relevance and efficiency of articulating arts, sport, music, body movements, etc., to the learning of a foreign language in childhood ages.

Total Physical Response (TPR) has a more friendly operational way that traditional methodology for teaching a language. It is more efficient for helping students learning English vocabulary because, students enjoy moving around and do not sit on the chair only (Susanti, 2019). They are activities that contribute to creating learning experiences to be remembered even the pass of the time (Bueno, 2019).

Teachers permanently review their procedures to introduce changes in didactics expecting to help learners to improve their educational results in the conditions of living (Rueda, Acosta & Cueva, 2020). Thus, physical and dancing activities can increase early children's motivation for learning a foreign language (Sari, Gea, & Fajrina, 2021).

The motivation of the authors to investigate Neuroeducation in the instruction of English as a foreign language in early childhood with the hope of contributing to the improvement of didactics for the teaching of hundreds of thousands of young children in the region. The research questions to answer in this work are:

- How is the teachers' experience using Neuroscience in EFL practice?
- What are students' parents impressions concerning physical activities and dance used in EFL practices?
- What are the differences between boys and girls about their participation, oral practice, and vocabulary acquisition during the EFL practices using music and Total Physical Response?
- What are the changes in students' motivation for learning EFL when they are exposed to the mixture of Musical videos and Total Physical Response?

This work aims to innovate the practices of English as a foreign language of young children through the articulation of Neuroeducation and the Total Physical Response methodology.

1.1. Neuroeducation

According to Joldersma (2016), Neuroeducation emerges as a relationship between the study of the brain and its use in education. The objective of Neuroscience is to integrate knowledge regarding the functioning and development of the brain to improve the pedagogical practice of teachers and professors. Scientists make use of technology and the study of images to explore the functioning of the human brain. In addition, neuroscience seeks to know the links between the brain, mind, and nervous system (Nouri, 2016).

According to Carballo (2017), Neuroscience is a transdisciplinary science that emerges from the interaction and interrelation between neuroscience, psychology, and education. The study of the brain through neuroscience confirmed its relationship with the learning process. However, brain plasticity is higher when the brain is more immature, that is, during childhood and early school grades. Therefore, the relationship between educational processes and relationships in the classroom emerges in this sense. Neural and synaptic plasticity allows the brain to modify itself based on lived experiences (Zhou & Shu, 2017). Therefore, quality, loving early care responds to the child's needs to support facing and overcoming stressors and negative situations that could arise in life. Its development contributes to the construction of a more resilient and assertive personality and is a protective factor of people in the presence of physical and mental illnesses (Dubinsky, Guzey, Schwartz et al., 2019).

Epigenetic modifications in the field of education are established by the interaction of people with the surrounding environment. Thus, to Bueno (2019), life experiences and learning themselves condition the functioning of genes to influence people's learning processes. In this sense, Doukakis (2019) argues that the study of the brain aims to expand the understanding capacity of the individual or team. In other words, it enhances the capacity for attention, decision-making, and communication. Thus, it is possible to generate specifically suitable learning itineraries for each person from the study of their brain activity and its contrast with factors such as each person's profile and educational framework.

Ruifeng, Qiaoyun, Jie, and Lun (2021) articulated that the neuroscientific evaluation method has processes of evaluating the knowledge of students and teachers. They studied the attention and emotion indexes of students and teachers. They centered their interest on teachers' capacity to teach, students' learning attitudes, students' learning effect, the selection of the course content evaluated to have a more objective evaluation base of the teaching-learning process.

1.2. Total Physical Response (TPR)

It combines psychology and human movement principles to increase the students' confidence tracing their memory towards a foreign language in a natural way (Saehu, Sariyati, & Syah, 2017). The evidence shows children have a good acceptance of this method, allowing students to improve their vocabulary acquisition through the physical and verbal movement articulation (Nafkhatul and Taranindya-Zulhi, 2017). One of the most common teachers' problems is to find a methodology to teach vocabulary to early children because, this age cannot write to copy the words and the memory is a key factor to develop using repetitions and activities children of this age can do (Ibrohim, Septianti, Sadikin, 2018).

When teachers use TPR techniques along with sports and games, they teach in a more entertaining way. It is very useful for teaching Mathematics in a foreign language (Coşar & Orhan, 2019). Nevertheless, not all teachers are comfortable using music and dancing in their practices (King, 2018) because, they do not have evidence of its real impact on students learning process.

To Englishtina (2019) TPR incorporates skills and language components when learners execute different instructions given by the teacher, expecting students feel prepared and safe to repeat new words in the target language. Thus, the method used to introduce language skills in an action in which a teacher serves. It can help learners perform their movements joined to a foreign language until they can speak out without any limitation. It generally has three roles (1) an order taker, (2) a model provider, and (3) an activity monitor.

According to Khakim & Anwar (2019) teachers support students learning helping them to understand vocabulary and the correct ways to describe everyday situations in the use of the target language. Thus, TPR method contributes the children's learning process making the classes fun for reducing the monotonous traditional classes focus on the teacher (Susanti, 2019). Besides, *Mariyam & Musfiroh* (2019) argue the children show a great initiative for the development of learning through the EFL vocabulary acquisition. They dominate the use different categories of words used in diverse levels of complexity. TPR focused on stimulation through a response, this method helps students to learn through dance as an artistic expression, but also, as a more natural way to learn a language (Bonnin et al., 2020).

1.3. Music and Motivation for learning a foreign language

Motivation for learning ratifies its contribution as an essential factor in reaching learners' communication on the use of a foreign language, helping learners develop listening, reading, writing, or speaking skills constantly and progressively (King, 2018; Tobar and Álvarez, 2018).

Young children have movement as an everyday activity because they do it at home. For example, dancing and singing motivate learners and help them reduce the learning complexity barrier, allowing them to respond more efficiently to teachers' instructions (Yusuf and Rusdi, 2017). Music and movement provide students the motivation for learning probably because of diverse, colorful, new, sound materials. Those renewable resources may help them break the ice in language lessons and create a more positive atmosphere for learning (Kovacikova, 2018). Students meet the dancing steps, practice them, and use those steps to encourage their artistic expression (Amutan, Amutan, Ching, Ramalingam, Maruthai, & Ravindranath, 2018).
When teachers select their didactic material, they think about the most appropriate pieces according to learners' ages (Shi, 2018). Thus, dancing as a motivational act is extensively used in language training centers, expecting to enhance vocabulary learning (Tobar and Álvarez, 2018). Furthermore, teachers adapt classes and didactic

material to their learners' motivation and need to achieve class achievement (Purnama, Rahayu, & Yugafiati, 2019). However, a large amount of learning material is available in English, being one of the main factors that influence the learners' curiosity (Siregar and Siregar, 2020). Thus, songs motivate sources that benefit students' foreign language learning process in vocabulary acquisition, pronunciation, listening, and memory improvement (Ningsih, 2019; Kralova, Kovacikova, Repova, Skorvagova, 2021). In addition, music can help to improve those disruptive behavior appearing in some learners face to the complex lesson. It can help students memorize new language patterns, facilitate the assimilation of grammar rules, and relax after mastering a complex topic without departing from the main lesson's topic (Vishnevskaia and Zhou, 2019). Therefore, teachers need to provide feedback for the students to help them learn from their mistakes (Sari et al., 2021).

In addition, dance provides relaxation to some and creativity to others. It serves as a platform for the learner dance practicing (Yusuf and Rusdi, 2017). However, music is not present daily in classes, it is not established as a learning method yet, but through music, teachers allow learners to improve their integral development (King, 2018).

According to Amutan et al. (2018), dance produces a calm environment for emerging in people the security sensation. Such an effect may be caused because people communicate in the same way by practicing a speech until they can express it more naturally. Such activities represent a learners' challenge to reach, but they can also offer fun and meaningful experiences that active learning process (Nuraeni, 2019). Thus, music also helps teachers in cases where students are restless in classes. It allows students to assimilate and relate what they have learned without stray from the topic (Vishnevskaia and Zhou, 2019).

In previous studies appear the work of Windi (2017) assessed English vocabulary acquisition in autistic primary school students before and after an educational intervention using TPR method, reporting an increment of correct answers from 13.3% to 67.7%. Another study cited belongs to Bonnin et al. (2020), considers that even dance offers students the opportunity to develop skills in terms of creativity, identity, and sense of community. It seems that subjects of the curriculum do not use the dance contributions.

2. Material and Methods

This work is an action research project held for EFL instruction of early children executed in 2019-2020 in Ecuador. It used qualitative and quantitative approaches of educational research to collect information following the strategies presented by Buchanan and Bryman (2018).

2.1. Participants

The participants were 35 students of the 2nd grade of elementary schools located in Ecuador. The were 20 girls and 15 boys in ages between 6 and 7 years. Parents accepted the invitation to participate in this research project. They signed the informed consent letter.

The identity of the participants will be kept anonymous, and the information will be protected by the research team for 7 years. The information will be used only for research purposes.

2.2. Instruments

The research team chose the following instruments.

In-depth interview guide. - This instrument aims to collect data regarding teachers' perception about the use of the movement and dancing didactic for teaching EFL to children. The Instrument was developed *ad hoc,* by the researcher team. It consisted of 5 questions in-depth interview. The instrument was evaluated for specialists panel integrated for professors of English teachers as a foreign language TEFL. They were affiliated to a national university located in Manabí, Ecuador. The interviews to three EFL teachers that commonly use movement and

dance activities in the EFL instructions participated in the in-depth interview using the informatic application ZOOM.

Focus group guide- The researcher team *ad hoc,* designed the instrument to collect EFL teachers' information regarding to 'Teachers´ experiences using dance and movements in EFL practice'. The categories used in the analysis were (1) Activation of learning in children through stimulation with dancing in EFL practices. Subcategories (1.1.) Neural development: Affections, Collaborative work, (1.3.) Communicative process, and (1.4.) Physical laterality. The instrument was evaluated by a panel of specialists in the fields of EFL instruction, Education management and Psychology, all affiliated to a public university in Ecuador, They recommended to concentrate the instrument on the category related to the stimulation with dancing in EFL practices.

Assessment rubric. - The instrument used was Windi (2017) to assess vocabulary learning in EFL students at high school. However, the version used was adjusted to work with minors and online education. It consists of two moments: (1) Group evaluation: The class is asked about images/vocabularies previously taught. Then, students raise their hands to indicate they know the word and its meaning. (2) Individual evaluation: Each participant was evaluated individually following the same process. The scoring rubric indicates the response levels: (a) totally correct, (b) almost correct, (c) acceptable, and (d) incorrect.

A panel of specialists in EFL instruction evaluated the instrument. The panel of specialists recommended using the instrument before and after each EFL session as a permanent evaluation procedure.

2.3. Procedures

Stage 1: Selection of participants and schools. Obtained from parents' permission.
Stage 2: Interviews with English teachers and parents.
Stage 3: Execution of the educational intervention plan. The pre-test is administered at the beginning of the process and the post-test at the end of the 6 sessions of music video and body movement activities.
Stage 4: analysis of the information with categorical techniques and statistical analysis of the data.

3. Results

3.1. Teachers' experience using Neuroeducation in English as a Foreign Language practice.

Teachers' voices collected in the focus groups about their experiences using Neuroeducation and physical activities in EFL class. See table 1.

Table 1: Teachers' experiences using Neuroscience and Physical activities in EFL practice.

Categories	Teachers' voices evidence	Sub-categories
Activation of learning using body movements in EFL practice	*GF1.P5.19:30 "Students usually communicate their feelings using body postures or movements. Teachers should be in attention of such process."*	Communicational process.
	GF1.P1.0:30 "Through dance, we can transmit a message, this has a lot to do with the brain because dance helps to express your emotions through coordination."	Neural development. Affection.
	GF1.P2.2:10 "Contributes to mental and physical balance. The brain works out by following the rhythms of music. This is a brain coordination activity."	Physical laterality.
	GF2.P1.2:50 "It helps to control the energy of the group, unlike a monotonous class in which the children have a lot of energy collected in their bodies.	Neural development: Energy management.
		Neural development:

	GF2.P2.3:30 "Physical activity helps children to be more concentrated when they have linguistic practice using a foreign language. They really need the movements". *GF2.P3.4:08 "Through body movement stimulates and motivates to achieve greater verbal and physical expression."* *GF2.P4.6:30 "The first thing that must be developed is fine motor skills, knowing kids' right and left side, this allows children to keep a body balance.* *GF2.P5.24:00 "Kids communicate to others their feelings using their body language. However, when they spend hours and hours sat down it is hard to have the opportunity to express themselves".*	Energy management. Communicational process. Physical laterality. Communicational process.
Movement for stimulation of Students' thinking process stimulator	*GF2.P1.22:00 "People who practice dance improve their mastery of movement. In a similar way it happens when people think about solutions for math problems."* *GF1.P3.22:00 "Dance is related to neuroscience and the management of emotions.* *GF1.P4.24:20 "Dance can be related and mentally processed with culture and with the ancestral legacy.* *GF1.P5.25:30 "Activates the hemispheres of the brain and activates people's thinking."* *GF2.P4.36:20 "The motor skills are exercised with dancing and singing contribute to the development of neural branches that provide children logical thinking. "* *GF2.P5.43:00 "Students think for possible solutions to the issues that affect them. They relax their bodies doing movements and their affective thinking is activated.* *GF2.P3.43:00 "Movement also helps a lot with memory, mental agility because, through this practice people understand situations and issues around them.*	Mathematic and logic thinking. Affective thinking. Cultural thinking. Mathematic and logic thinking. Mathematic and logic thinking. Affective thinking. Cultural thinking.

Resource: Teachers' voices collected in focus groups (Feb/2020).

3.2. Parents' impressions about the use of dancing in English as a Foreign Language practice

Table 2 shows the teachers' voices concerning the parents' impressions when the students are exposed to physical activities and dancing in school. They were organized in (1) the benefits of physical activity and dance and (2) the barriers to dance as a learning activity.

Table 2: Parents' impressions for the use of physical activities and dancing in EFL practices

Evidence	Sub-categories
Category 1: Benefits of physical activity and dance on children's development	
E1.3:00 "Through movement, possible bad formations, postures are detected, and it is possible to work on correction to help children." *4:15 "Physical activity helps a lot, timid children. They coordinate their bodies through dance and movement".* *5:00 "The minors concentrate on physical activity that helps them to interact with classmates and teachers.* *12:00 "Through Physical Education and Culture at the initial level, we have the part of gross motor skills and body movement. They use physical activities and dance".*	Detection of harmful formations, disability, or diseases. Strengthening of self-confidence. Promotes concentration. Socialization interaction. Motor development. Self-recognition of the body.

E2.3:00. "Motor skills and movements that are incorporated into their knowledge of what children are capable of and develop skills as the child experiences movement techniques such as agility, endurance, strength."	Motor development Motor development. Learners' concentration.
E.4:30 "Activate children's brains. The hemispheres of the brain help control balance. Dance helps release that energy. Children are more focused because they like to move.	Motor development. Learners' concentration.
E.5:20 "Dancing brings a message, and it helps to develop physical abilities and motor skills through the execution of movements."	Discipline. Learners' concentration.
E.9:00 "Help students to have discipline, they begin to respect the times in music, they are disciplining themselves through body movement."	Strengthening of self-confidence.
E.12:20 "Dancing helps people to have the confidence to convey a message or feelings." GF2 P5 18:00 "Helps to learn and everything that has to do with activating and exercising their brains."	Learners' concentration.
E.21:30 "Dance is related to neuroscience. When people dance, they create more neural branches in the brain as a process of learning. Physical activity gives students a more significant learning capacity".	Learners' concentration. Improve learning environments.
E3.4:00 "Children repeat in the same way as the mother tongue is acquired as it creates a more natural and relaxed learning environment."	Improve learning environments.
7:00 "Ease of being used especially with initial education children, the pre-writing processes, to get to writing you must learn to have fine movements. E. 16:00 "Everything that has to do with fine motor skills, Spanish dance-type hand movements, start moving your hands.	Motor development.

Source: Focus groups (August/2020).

To answer the question. What are the differences between boys and girls about their participation, oral EFL practice?

Ho: There are not significant differences for the variables: participation, oral practice, and vocabulary acquisition

Ha: There are significant differences for the variables: participation, oral practice, and vocabulary acquisition

Re-account

		Participation					Total
		6,00	7,00	8,00	9,00	10,00	
Students' sex	1,00	5	0	1	1	8	15
	2,00	2	7	3	1	7	20
Total		7	7	4	2	15	35

Re-account

		Oral practice and repetition of vocabulary						Total
		5,00	6,00	7,00	8,00	9,00	10,00	
Students' sex	1,00	0	3	2	3	1	6	15
	2,00	1	1	8	5	3	2	20
Total		1	4	10	8	4	8	35

Re-account

	Students' concentration in the class						Total
	5,00	6,00	7,00	8,00	9,00	10,00	

Students' sex	1,00	0	2	2	3	4	4	15
	2,00	1	3	8	4	2	2	20
Total		1	5	10	7	6	6	35

Re-account

		Oral repetition of movements practice						Total
		5,00	6,00	7,00	8,00	9,00	10,00	
Students' sex	1,00	0	2	3	3	2	5	15
	2,00	1	3	3	8	2	3	20
Total		1	5	6	11	4	8	35

Table 3: Chi-square of Pearson variables and factor sex

Variable	Factor Sex	Hypothesis
Participation	,066	Accepted Ho.
Oral practice and repetition of vocabulary	0,128	Accepted Ho.
Concentration in the class	0,339	Accepted Ho.
Repetition of movements	0,650	Accepted Ho.

The result of Pearson's Chi-square for all variables is greater than 0.050. The null hypothesis is accepted for all cases.

3.2. Changes in Students' motivation for learning EFL

The changes detected in the motivation of the participants when they are exposed to movement and dancing activities. It shows a comparation of the pretest and posttest in students' motivation.

Table 3: Motivation for learning of the participants before and after the educational intervention

Pretest: No stimulation with dancing and singing		Levels of motivation						Total
		4,00	5,00	6,00	7,00	8,00	9,00	
Student	Female	0	1	4	4	6	0	15
	Male	1	1	3	7	7	1	20
Total		1	2	7	11	13	1	35
Post-test: Stimulation with dancing and singing		Levels of motivation						
		5,00	6,00	7,00	8,00	9,00	10,00	
Student	Female	0	1	2	2	4	6	15
	Male	1	1	5	6	6	3	20
Total		1	2	7	8	10	9	35

Source: Research project registers (March. /2020).

The results show that Children's motivation for learning increases from the median of 8.00 pretest to 9.00 in the posttest. In the pretest, motivation reaches 9.00 points with a frequency of 1 participant, while the posttest reports a level of 10.00 in motivation, presenting a frequency of 9. Consequently, there is a significant increase in motivation for student learning.

The inferior line shows the number of words students remember when the class uses a conventional methodology. The upper line shows the students' new vocabulary when the class uses dance and singing activities, offering a more meaningful experience.

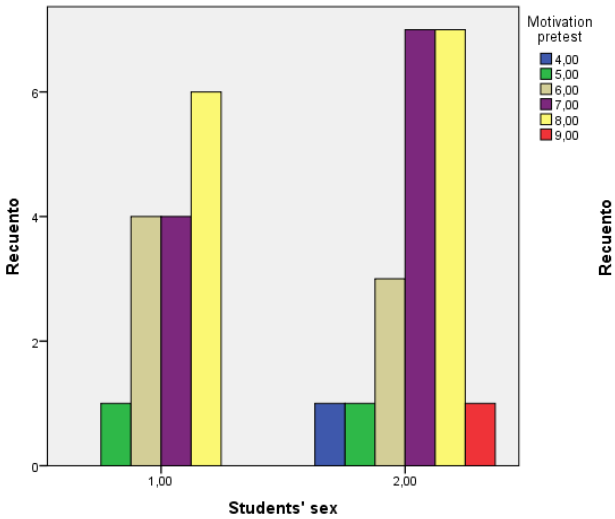

Figure 1: Pre--Test Motivation

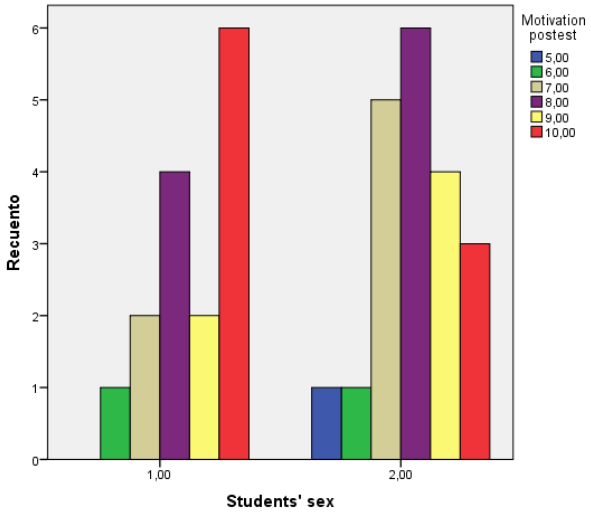

Figure 2: Post-test Motivation

Resource: Research project records (March /2020).

3.4. Hypothesis testing

The null hypotheses are:

Ho1: There are no significant changes in the motivation to learn English in children when working with and without dancing and singing.
Ho2: There are no significant changes in the vocabulary acquisition in pretest and post-test.
Ho3: There are no significant differences between the gender factor of the participants and the levels of the variables of participation, vocabulary acquisition, concentration, accuracy in the repetition of movements, and motivation to learn the EFL.

Table 4: Normality tests – motivation for learning

Normal Series test

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Estadístico	gl	Sig.	Estadístico	gl	Sig.
Motivation pretest	,212	35	,000	,886	35	,002
Motivation postest	,154	35	,034	,909	35	,007

a. Significance correction Lilliefors

The results of the test Kolmogorov-Smirnov for the normality of the data series showed that motivation for pretest *p-value*=0.000 and postest *p.value*=0,034 did not pass. Then, researcher team chose to use the nonparametric Wilcoxon test.

Motivation for learning. - The Wilcoxon test for the hypothesis motivation for learning shows *p-value* = 0.000. Thus, it rejects the null hypothesis, and the alternative hypothesis is accepted. Consequently, there are significant changes between the pretest and posttest of student motivation for learning when the classes use dancing and singing as a teaching tool. Asymptotic significances are shown. The significance level is .050.

	Hipótesis nula	Test	Sig.	Decisión
1	La mediana de las diferencias entre Motivation for learning y Motivation without stimulation with dance and singing es igual a 0.	Prueba de Wilcoxon de los rangos con signo de muestras relacionadas	,000	Rechazar la hipótesis nula.

Figure 4: Test of the Hypothesis Motivation for learning

Discussion

Based on the literature review and results obtained in this research, the authors agree with the position of Windi (2017) when affirm that, students achieve to retain more information and in a faster way.

Regarding the vocabulary acquisition variable results. - All students managed to improve the number of new English language words acquired when working with a methodology that stimulates learning and makes it more significant, achieving that the students maintain more excellent learning.

Teachers are encouraged to incorporate dancing and singing into the educational processes they carry out, Results are consistent with Rueda et al. (2020) regarding the fact that education requires teachers with a global vision, capable of using innovative communication styles to overcoming socio-educational problems in Ecuador, a result that is consistent with the position of Alemán et al. (2020) regarding the idea that each teacher should responds to their students' needs and the context.

Besides, the results allow to ratify the position of Sari (2021) concerning Total Physical Responds is a methodology that promotes the articulation of thought and movement of the body to activate the learners' act of learning.

Regarding the teachers and the use of dance and music. - They recognize the dance and singing contributions to EFL learning of children. However, it is an activity that the formal education does not practice very frequently due to:

> *"The dance requires unusual music and movement in the school context, which generates noise and disorder; and although it is not an expensive activity to implement, the teachers acknowledge that it creates difficulties for them with the school authorities, especially in the more traditional schools." E4.10.*
> *"Dance undoubtedly promotes the generation of more relaxed learning environments. For its part, music has been frequently used in English classes, although in this case, the difficulty is in the selection of the ideal music; since the classes with a diverse population, minors have a wide diversity of preferences from a very young age." E5.19.*

The didactic use EFL practices using dance allows better learning environments where children feel more confident, resulting in a more efficient learning process. It emerges as a learners' stimuli for more participatory and positive attitudes where kids learn faster and exercise their motor skills.

However, teachers should select the didactic materials in harmony with students' age and needs and evidence emphasized that teachers agree about the lack of balance between the activities of reading, writing, listening, and speaking in the teaching of English.

It is necessary to remind that most of the activities focus on reading comprehension and at times the traditional method that concentrates on learning grammar persists, causing children to lose interest in learning complex topics. Therefore, the authors of this work insist that teachers are permanent promoters of innovation for the improvement of education.

The authors recommend that the design of educational interventions that use music videos and that articulate images or movement with vocabularies in English are the most appropriate resources to work on this methodology. These are materials available on YouTube and other social networks that distribute free music videos.

Conclusion

Based on the literature review and the results obtained in this study, the authors declare the fulfillment of the proposed objectives presented in the introduction section. Thus, they concluded motivation for learning EFL increases in students when their EFL practice includes dancing and body movements activities. The results of the non-parametric Wilcoxon test confirmed this by evaluating the hypotheses for motivation and vocabulary acquisition before and after the educational intervention using dancing and singing as learning tools. Therefore, all the participants remember more new words in English as a foreign language. Total Physical Response generates more participatory learning classes and students feel stimulated and more active. When children practice English in a funny way, they do retain more information in the target language. Thus, dancing and singing as learning activities contribute positively to the children's acquisition of vocabulary.

The weakness of this research could be the size of its corpus which does not allow the results to be generalized. However, this work contributes to the decision of the teachers to introduce total physical responses in dancing and singing activities in the teaching of English to young children. This experience could open a work route to promote the teaching of English through TPR in Ecuador and in other nations of the region. Other teams of researchers in the field of the EFL are invited to carry out new studies in this line of research within the framework of public policies in this country.

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Acute Effects of Static and Dynamic Stretching on Jump Performance of Volleyball Players

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Abstract
The aim of this study is to examine the acute effects of different stretching methods on jump performance of volleyball players. 11 female volleyball players (age: 24.36 ± 5.10 years; height: 177.81 ± 7.30 cm; weight: 68.17 ± 11.69 kg; body mass index (BMI): 21.46 ± 2.56 $kg.m^{-2}$; sports age: 12.72 ± 5.31 years) have participated voluntarily in this study. The players have applied three different stretching protocols such as control (no stretching), static and dynamic stretching on non-consecutive days. The protocols have included 5 minutes general warm-up, 1 minute rest, 30-second stretch program for each muscle group (control group not included), 1 minute rest and countermovement jump (CMJ), squat jump (SJ) and standing long jump (SLJ) tests. Friedman analysis has been used for data analysis. Wilcoxon Signed Rank Test has been implemented in order to determine the difference among groups. At the end of the study, a significant difference has been found between control and dynamic stretching groups with regard to static stretching groups in view of CMJ and SJ performance findings ($p < 0.05$). It has been found that there is a statistically significant difference in the test averages of dynamic stretching group compared to static stretching group in view of SLJ performance findings ($p < 0.05$). This study shows that static stretching practices reduce the jumping performance of the players. As a result, it can be suggested that trainers should use dynamic stretching methods before the trainings on jumping properties containing explosive movements.

Keywords: Static Stretching, Dynamic Stretching, Jump, Volleyball

1. Introduction

Volleyball is an intermittent and non-contact game including periods of short loading and rest and requiring the players to change places during the match (Turnagöl, 1994). The maximum height of the player above the net is seen as the key determinant for successful offensive and blocking performance in volleyball (Ruffieux, Wälchli, Kim, & Taube, 2020). Therefore, a high vertical jumping skill in volleyball is a critical component of hitting and blocking (Dalrymple, Davis, Dwyer, & Moir, 2010). Jumping force is a skill that comes up with the combination of many factors such as explosiveness, flexibility, muscle strength and jumping technique (Şimşek, Tuncel, Ertan,

& Göktepe, 2005). Anthropometric features (body height and arm length) and vertical jumping skills are important factors for maximum achievable height for athletes. An athlete's jumping skill can be significantly improved through training while the anthropometric properties cannot be changed. Therefore, volleyball trainers look for the most effective and efficient exercises to improve their players' jumping skills (Ruffieux et al., 2020).

Warm-up routines, which include stretching exercises after light aerobic activity, are carried out to prevent sports injuries and to maximize motor performance capacity. Increasing physiological responses, blood flow and temperature are among the primary goals of warming up (Gelen, Meriç, and Yıldız, 2010). In addition to these objectives, stretching exercises are also applied to lengthen the connective tissue and muscle length (Amiri-Khorasani, Sahebozamani, Tabrizi, & Yusof, 2010).

The studies conducted have determined that the increase in flexibility in the musculoskeletal system occurs as a result of the interaction of neurological (Guissard, Duchateau, & Hainault, 2001) and mechanical (Kubo, Kanehisa, & Fukunaga, 2001) features in the muscle-tendon unit with static stretching exercises. However, ideas regarding the effectiveness of the static stretching practice before the competition have been questioned recently (Gelen, 2008). While there are studies showing that static stretching practices during warm-up do not have any effect on sports performance (Beydokhti & Haghshenas, 2014), there are studies arguing that when it is carried out in addition to the warming up, the range of motion increases the running performance to a higher level and that it positively affects sports performance (Samson, Button, Chaouachi, & Behm, 2012). Due to these disagreements, some researchers state that dynamic stretching should be used instead of static stretching before sportive performance (Kilit, Arslan, & Soylu, 2019).

Dynamic exercises have an important place in the formation of the basis of sportive movements. Current studies have shown that the stimulation of the nervous-muscular system before performing a sportive activity can be achieved by voluntary contraction movements from medium to high intensity such as dynamic stretches. In this direction, it is suggested that nerve-muscle activation will have a positive effect on sports performance (Gelen et al., 2010; Thompsen, Kackley, Palumbo, & Faigenbaum, 2007). McMillian, Moore, Hatler, and Taylor (2006) stated that horizontal jump performance of the athletes increased significantly after a series of dynamic stretches compared to static stretches. However, Unick, Kieffer, Cheesman, and Feeney (2005) reported that static and dynamic stretching does not affect the vertical jump performance of female athletes. Although many studies report that dynamic stretching protocols have a positive effect on athlete performance, inconsistencies are observed among the current research findings.

When the literature is examined, although there are studies that examine the effects of static and dynamic stretching exercises on performance parameters in volleyball (Kruse, Barr, Gilders, Kushnick, & Rana, 2013; Durukan & Göktepe, 2020), more precise studies are needed to determine the effects of different stretching protocols on sportive performance. Therefore, the aim of the study is to investigate the effects of branch-specific static and dynamic stretching methods conducted on female volleyball players on their jumping performance.

2. Method

2.1. Participant (subject) Characteristics

11 female volleyball players playing for Sivrihisarspor in the 2nd League (age: 24.36 ± 5.10 years; height: 177.81 ± 7.30 cm; weight: 68.17 ± 11.69 kg; body mass index (BMI): 21.46 ± 2.56 kg.m^{-2}; sports age: 12.72 ± 5.31 years) participated voluntarily in this study. The players were not involved in any training or competition during the study. According to the inclusion criteria, the participants should have no musculoskeletal injuries at least 6 months prior to the study, should actively attend the training or at least 4 days a week, and have regularly participated in trainings such as endurance, strength, sprint and the ones specific to volleyball. Written informed consent forms were obtained from the athletes after all players were informed about the research procedures, requirements, benefits and risks before the test.

2.2. Study Design

Anthropometric variables including height (cm) and body weight (kg) of each participant were measured. A portable stadiometer was used for height measurement and an electronic weighing machine was used for body weight measurement of volleyball players. The players were bare feet and wore shorts and T-shirts during measurement.

The present research protocol has been adapted from the studies of Chtourou et al. (2013). All volleyball players participated in three stretching methods: control (no stretch), static stretching, and dynamic stretching. The order of performance tests for the players was randomly selected with 48-hour rest intervals. The protocols included 5 minutes of general warm-up, 1 minute of rest, a 30-second stretch program for each muscle group (control group not included), 1 minute of rest and CMJ, SJ and SLT tests. Both static and dynamic stretching protocols were adapted from the study of Kruse, Barr, Gilders, Kushnick, and Rana (2015). The experimental procedure was summarized in Figure 1. All measurements were taken at the same time of the day (15.30-16.30) in the indoor sports hall. This part of the research should be carefully organized taking into account the principles of scientific research methods.

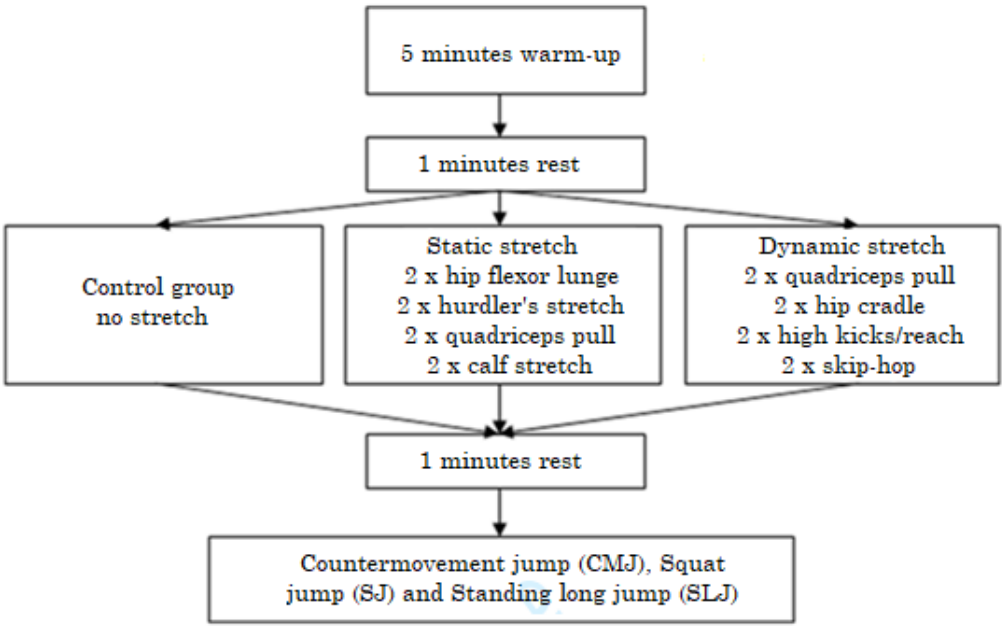


Figure 1: Experimental design

2.3. Warm Up and Stretching Protocols

The participants performed a general warm up by running at low and medium intensity in order to get prepared for the performance. All players were instructed to carry out stretching for 30 seconds for each of the lower extremity muscle groups during both static (hip flexor lunge, hurdler's stretch, quadriceps pull, calf stretch) and dynamic stretching (quadriceps pull, hip cradle, high kicks / reach, skip-hop). No resting period was given between the different stretching exercises. All warm-up exercises were implemented bilaterally with the help of a trainer. Dynamic stretches were performed slowly and continuously during the exercises. Total stretching time consisted of 2 sets for each muscle group of both legs. In the control group, the players rested after an 8-minute warm-up session.

2.4. Data Collection Tools

Jump test (SJ and CMJ): Two different techniques, countermovement jump and squat jump, were used to determine the acute effects of different stretch protocols on vertical jump performance. Participants are positioned

within a specified area. A camera was placed right across the area to see the participant and the participant was asked to perform an active squat jump. The jump was considered invalid when the knees were bent, hip flexed with legs in air, and landed on or outside of the marked field lines. The athletes performed 3 jumps after sufficient rest and the best jump was recorded. The flight time of the participants was calculated using the Kinovea 0.8.15 program by looking at the transferred images. The jump heights of the participants whose flight times were determined were calculated with the formula (Markovic, Dizdar, Jukic, & Cardinale, 2004).

$$h = t_f^2 \cdot g^{-1} \cdot 8^{-1} \text{ (m)}$$

h = height g = 9.81 $m \cdot s^{-2}$ *t* = flight time

Standing long jump test (SLJ): Participants stood with their toes behind the long jump line and feet together. The participant jumped forward strongly by bending his knees, swinging his arms back and forth. He tried not to fall backwards after the jump. The distance between the starting line and the athlete's heel closest to this line was measured. The test was repeated twice and the best score was recorded (in cm), (Kamar, 2008).

2.5. Research Ethics

Ethical approval of this study was obtained with the decision of Atatürk University Faculty of Sport Sciences dated 22.03.2021 and numbered 70400699-000-E.2100083829.

2.6. Data Analysis

All statistical analyzes were made using SPSS 18.0 version software. It was determined that all data did not show normal distribution. The effects of different stretching methods on CMJ, SJ and SLJ were determined using Friedman analysis. The Wilcoxon Signed Ranks test was used to find the difference between the groups. Effect dimensions (Cohen's d) were calculated for the significance of the comparisons. Thresholds for effect size statistics are as follows: <0.20 = trivial, 0.20-0.59 small, 0.6-1.19 = moderate, 1.2-1.99 = large, ≥ 2.0 very large (Hopkins, Marshall, Batterham & Hanin, 2009). Statistical significance level was determined as $p < 0.05$.

3. Results

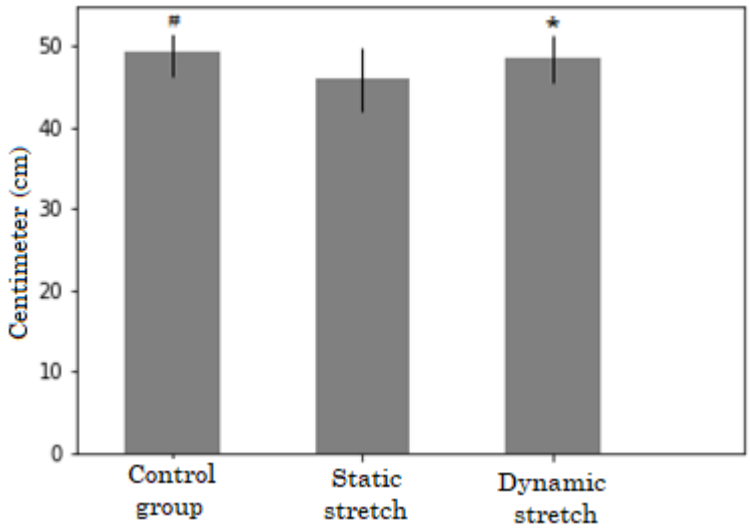
Table 1: Friedman Test Results of CMJ, SJ and SLJ Performance Values of Different Stretching Methods

Performance tests	Stretch protocol	Ort. ± S	Min.	Maks.	Chi-Square	p
CMJ	Control	49.36±.03	43.00	56.00	11.64	.003*
	Static stretch	45.91±.04	40.00	53.00		
	Dynamic stretch	48.45±.03	43.00	53.00		
SJ	Control	48.73±.02	46.00	53.00	12.20	.002*
	Static stretch	45.18±.03	40.00	50.00		
	Dynamic stretch	46.64±.03	43.00	53.00		
SLJ	Control	217.00±18.31	186.00	248.00	6.45	.040*
	Static stretch	215.09±20.57	184.00	252.00		
	Dynamic stretch	219.36±22.20	181.00	252.00		

*p<0.05

The average, minimum and maximum values of the CMJ, SJ and SLJ performances of the different stretching methods of the athletes participating in the study are given in Table 1. In the comparison of different stretching methods, a statistically significant difference was found in the performance values of CMJ, SJ and SLJ ($p < 0.05$) (Table 1).

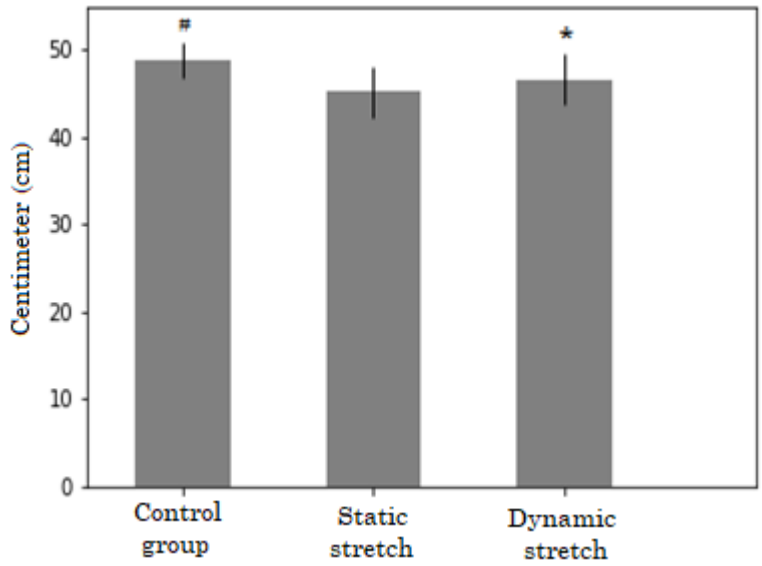
Figure 2: Wilcoxon Signed-Ranks Test Results of the CMJ Performance of Different Stretching Methods



#Control group - Static stretch; *Dynamic stretch - Static stretch

When the CMJ performance findings of different stretching methods in volleyball players were examined, a statistically significant difference was found in the test averages after the control ($p = .011$; $\eta 2 = 0.99$) and dynamic stretching ($p = .024$; $\eta 2 = 0.99$) groups ($p < 0.05$), compared to the static stretching group (Figure 2).

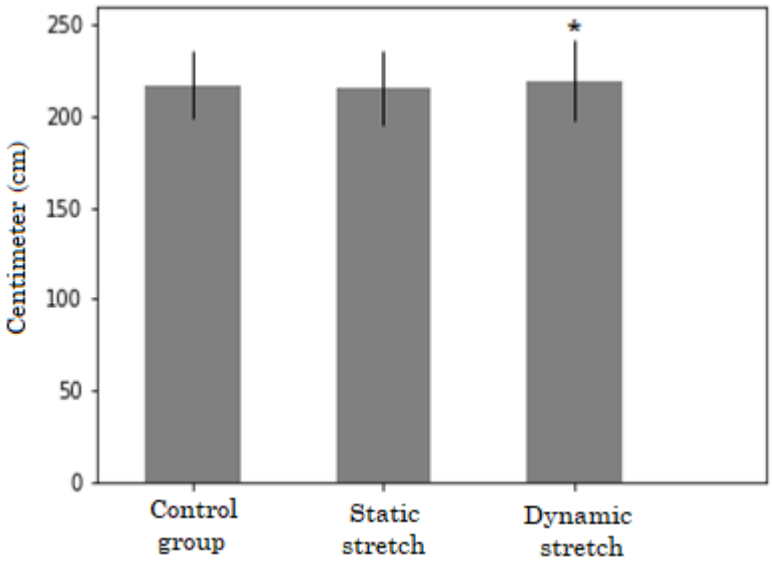
Figure 3: Wilcoxon Signed Ranks Test Results of The Squat Jump Performances of Different Stretching Methods



Control group - Static stretch; * Dynamic stretch - Static stretch

When the squat jump performance findings of different stretching methods were examined, it was found that there was a statistically significant difference in the test averages after the control ($p = .011$; $\eta 2 = 0.99$) and dynamic stretching ($p = .034$; $\eta 2 = 0.99$) groups compared to the static stretching group ($p < 0.05$), (Figure 3).

Figure 4: Wilcoxon Signed Ranks Test Results of The Standing Long Jump Performances of Different Stretching Methods



* Dynamic stretch - Static stretch

According to Figure 4, when the performance findings of different stretching methods with standing and long jump are examined, it was found that there is a statistically significant difference in the test averages after the dynamic stretching group ($p = .028$; $\eta 2 = 0.09$) compared to the static stretching group ($p < 0.05$), (Figure 4).

4. Discussion

This research was conducted to evaluate the acute effects of static and dynamic stretching on the jump performance of volleyball players. When the results of the study were evaluated, it was determined that the acute effect of static stretching had a negative effect on jumping performances and dynamic warming-up caused an increase in jumping performance. It was determined that there was no statistically significant difference between control and dynamic warm-up performances.

It is observed in the literature review that there are studies examining the effect of stretching protocols applied on performance outcomes. However, it has been determined that there are differences in the results of the stretching protocols applied in the current literature. When the studies conducted were examined, it is seen to be focused on the differences between static and dynamic stretching methods (Işıkdemir, Uzlaşır, & Köklü, 2020).

In this study, performance outcomes of the female volleyball players in view of CMJ, SJ and SLJ after static stretching have been found significantly lower compared to the values of the control group and dynamic warm-up group. This result shows that applying only static stretching exercises is not sufficient to prepare the athletes for activities that require high power production (such as jumping). Kruse et al. (2013) examined the acute effect of three different stretching protocols on female volleyball players and reported that they negatively affected the anaerobic power performances of the players after static stretching. In another study, it has been shown that static stretching practices have more negative effects on vertical jump performance than dynamic stretching (Werstein & Lund, 2012). Nevertheless, Paradisis et al. (2014) reported that static stretching after the acute effects of different stretching methods negatively affected the jumping performance of young girls. In addition to these studies, Yildiz et al. (2020) found that static stretching decreases the jumping performance of athletes. Moreover, Hough, Ross, and Howatson (2009) suggested that static stretching may cause some neurological disorders resulting in decreased muscle activation. Contrary to these findings, some existing studies reported that static stretching does not have a negative side effect on performance outcomes (Behm & Chaouchi, 2011; Little & Williams, 2006; Samson et al., 2012). Durukan and Göktepe (2020) found that there was no statistically significant difference in the jump

performances of female volleyball players in view of different acutely practiced stretching exercises. In another study, it has been determined that static and dynamic stretching does not make a statistically significant difference between jumping performance of male athletes (Köse & Atan, 2015). Although there are studies in the literature reporting that static stretching does not negatively affect the jumping performance of athletes, many studies show performance disorders due to static stretching (Behm & Chaouchi, 2011; Yildiz et al., 2020). Researchers have suggested that static stretching can reduce the performance requiring power generation due to the muscle-tendon stiffness that inhibits the generation of force in the contractile component of the muscle (Holt and Lambourne, 2008).

In addition to the changes in the relationship between warming and force velocity, it has been stated that dynamic warming-up can increase power performance (McMillian et al., 2006). Many studies have shown that dynamic warming has positive effects on power generation and jump performance (Sekir, Arabaci, Akova, & Kadagan, 2010; Hough et al., 2009; Holt & Lambourne, 2008; Faigenbaum et al., 2006; Thompsen et al., 2007). Haghshenas, Beydokhti and Avandi (2014) examined the acute effect of different stretch protocols in volleyball players and reported a significant increase in anaerobic power in favor of dynamic stretching when dynamic and static stretching were compared. Faigenbaum et al. (2006) found that dynamic warm-up exercises increase vertical jump and long jump performance in female athletes. Kruse et al. (2015) examined the vertical jump performances of female volleyball players at different time intervals after static and dynamic warm-up practices and showed that there was a significant difference in the vertical jump performances of volleyball players 1 minute after the dynamic warm-up method according to static warm-up. The findings of this study show similarity with some studies which state that dynamic warming-up practices increase jumping performance. In addition, contrary to the current findings in the literature, some studies have reported that dynamic stretching does not improve short-term explosive performance (Bradley, Olsen, & Portas, 2007; Aydın et al., 2019; Balcı, Çelebi, Zergeroğlu, & Güner, 2020). Dalrymple et al. (2010) reported that there is no significant difference in vertical jump performance of female volleyball players after different warm-up practices. Unick et al. (2005) stated that there is no statistically significant difference on the vertical jump performance values of female participants carried out for different periods after static and dynamic warm-up exercises. It is thought that the inconsistencies in the findings of this study and some existing studies may be due to the age of the participants participating in this study, training status, stretching time, volume, density or other factors used in the current protocols.

Before the final results, the low sample size used in this study and the fact that the stretch protocols used did not analyze the chronic effect were determined as limitations of the study considering the population of female volleyball players. Another limitation is that the jump tests used for performance evaluation were evaluated by warming-up using static and dynamic stretching. However, a major strength of this study is that the short-term procedure was chosen to minimize performance changes that may come out over a longer period of time.

As a result, in this study, it was found that static stretching affects the jumping performance of female volleyball players negatively, while dynamic stretching has a positive effect on jumping performances of female volleyball players. According to the study findings, trainers and sports scientists should take notice of choosing stretching methods after the warm-up session. In future studies, studies on the physiological performance of athletes of different ages and performance levels with static, dynamic and combined (static + dynamic) stretches are recommended.

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University Students' Opinions on Translation Course for Special Purposes (Legal Translation Sample)

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Abstract
The need for translation, which is an important bridge in intercultural communication, is increasing day by day. In recent years, because of the development of economic, political**,** and cultural relations with the countries whose official language is Arabic, the interest in Arabic translation has increased. In this context, Arabic Translation and Interpretation departments have been opened at universities. In these departments, translation courses for students' ability to translate in different fields are also given in areas of specialization such as medical translation and legal translation. Since translations for areas of specialization have their own terminology, it brings various difficulties in the translation process. In this study, it was tried to determine the problems experienced in the process of legal translation by taking the opinions of the students who took the legal translation course in the Department of Arabic Translation and Interpretation at Ankara Yıldırım Beyazıt University. In this context, 7 open-ended questions were asked to 15 students who took the course of legal translation in this department. Based on the answers given to these questions, the problems experienced by the students during the legal translation process were determined and suggestions were made for the solution of these problems.

Keywords: Translation, Legal Translation, Translation Departments, Arabic Translation

1. Introduction

Translation, which emerges with the need of communities speaking different languages to communicate with each other, increases its importance day by day. Translation, which is a bridge in the transfer of knowledge between societies, plays an important role in ensuring that societies get to know each other closely. Because societies speaking different languages provide each other through translation. In this context, it is possible to say that the globalizing world where the interaction between societies increases rapidly, the importance of translation increases as well. Yalçın (2015: p. 9) defines translation as an indispensable activity of the age, which plays a vital role in the life of societies and is an indispensable activity in the information exchange between societies, and the process of transferring the statements in one language to another language by providing equivalence in terms of meaning and style and the resulting product. Catford (1965: p.1) further considers translation as "an operation performed on languages: a process of substituting a text in one language for a text in another" is needed in every field from science to art and from literature to international relationships."

In this context, it is possible to say that translation, which is a tool in intercultural knowledge transfer, takes place in every field. As a result of the use of translation in all areas of life, special purpose translations such as literary translation, legal translation, medical translation are done as well. Special-purpose translations are intended for a specific field and require the use of language for that field in the translation process. Training for special purpose translation is included in the curriculum of translation and interpretation departments of universities. Because it is necessary to have a command of the terminology of that field to translate in different fields. In this study, the opinions of university students on legal translation will be discussed.

1.1. Literature review

Language for specific purposes (LSP) courses are those in which the methodology, the content, the objectives, the materials, the teaching, and the assessment practices all stem from specific, target language uses based on an identified set of specialized needs Hyland (2002). further states that LSP courses should be designed for students targeting one professional or academic environment discipline. In this context, we can list the features of the special purpose translation courses in the translation and interpreting departments as follows:

- Designed to meet the needs of students in the relevant field
- It is intended for a specific field
- Focus on the appropriate language for the relevant field

Trace, Hudson, and Brown (2015, p.6) state that it is something of a misconception to view the development of an LSP course as different from the development of any other kind of language course. Certainly, there are different challenges and areas of focus, but LSP curriculum development, to a great extent, involves the same kinds of processes as any other language course. In this context, we can say that the process of preparing the curriculum of special purpose translation courses is not different from other courses, but only focuses on different points.

Translation is simply defined as the transfer from one language to another. However, it may not be appropriate to define legal translation in this way as it is one of the special purpose translation fields. Sarcevic (1997: p.13) states that it is a translation from one legal system into another – from the source legal system into the target legal system. Based on this, we can define legal translation as transferring from one system to another rather than from one language to another.

Cao (2007: p. 10-11) gives the following classification for purposes for legal translation:

- Legal translation for the normative purpose: authentic legal texts in bilingual and multilingual jurisdictions of domestic laws and international legal instruments and other laws
- Legal translation for the informative purpose: statues, court decisions, scholarly works, and other types of legal documents
- Legal translation for legal or judicial purpose: statements of claims or pleadings, contracts and agreements, and ordinary texts such as business or personal correspondence, records, and certificates

According to this classification legal translation refers to the translation of texts used in law and legal settings, and it is used as a general term to cover both the translation of law and other communications in the legal setting (Cao: 2007 p. 25).

Legal translation, which is an important tool in the development of relations between countries, has brought developments in the field of legal translation with the developments between countries in recent years. Because with the development of relations between countries, the need for translations in the field of law has increased. Because countries need translation in this field to develop and maintain their relations with each other. This increases the importance of legal translation every day.

In order to meet the need for legal translation, legal translation courses are given in the translation and interpretation departments of universities. In this context, legal translation courses are given in Ankara Yıldırım Beyazıt University, Department of Arabic Translation, and Interpretation. These lessons are as follows:

Table 1: Legal Translations in Ankara Yıldırım Beyazıt University Arabic Translation and Interpretation Program Curriculum (Arapça Programı Müfredatı, 2021)

1. Year	
1. Semester	**2. Semester**
Legal Translation I (Arabic-Turkish)	Legal Translation II (Turkish-Arabic)
2. Year	
1. Semester	**2. Semester**
Legal Translation III (Arabic-Turkish)	Legal Translation IV (Turkish-Arabic)
3. Year	
1. Semester	
Legal Translation V	

According to this table, of legal translation is given in five semesters in the Department of Arabic Translation and Interpretation at Ankara Yıldırım Beyazıt University. In this study, it was tried to determine the opinions of the students who took the legal translation course in the Department of Arabic Translation and Interpretation at Ankara Yıldırım Beyazıt University.

1.2. Aim of Study

In the Arabic Translation and Interpretation departments of the universities, education is given to train students competent in the field of legal translation in Arabic-Turkish language pairs. Different terminology in legal and different legal systems bring various difficulties in the translation process. In this research, it is aimed that students who take legal translation courses in Arabic Translation and Interpretation departments of universities will improve themselves in this field. In this context, it is aimed to provide suggestions to increase the competence of the students in the field of legal translation.

2. Method

In the first step of the study, a literature review was conducted about legal translation In order to determine the problems faced by the students in the legal translation process, open-ended questions were created by taking expert opinion. A seven-item open-ended question regarding the legal translation course was applied to 15 students who took a legal translation course in the Department of Arabic Translation at Ankara Yıldırım Beyazıt University. The data obtained were categorized and examined, and evaluations were made on the difficulties they faced in legal translation and their solutions.

2.1. Sample

The universe of this research consists of students taking legal translation courses in Arabic Translation and Interpretation departments of universities. The sample of the study is composed of students taking legal translation course in Ankara Yıldırım Beyazıt University, Department of Arabic Translation, and Interpretation.

2.2. Data collection procedures

Answers were sought to seven basic open-ended questions used in the study, and students were asked to answer each question in detail:

1. What kind of method do you follow in the legal translation process and what are the difficulties you experience in this process?
2. If you have difficulties in the legal translation process, why do you think you have difficulties?
3. Which methods and techniques are used in legal translation courses?
4. Do you think the methods and techniques applied in the legal translation course are sufficient? If not enough, what are its shortcomings?
5. Is the teaching of the legal translation course efficient for you? If not, what are its shortcomings?
6. Are there any problems arising from emotional reasons (fear of making mistakes, anxiety, refraining from making mistakes) that negatively affect you during the legal translation process? If so, can you explain?
7. What kind of materials do you use in the legal translation course? Can you explain in detail?

2.3. Data analysis

Data collection procedures and data analysis can be combined under "Data collection and analysis."

3. Results

Table 2: What kind of method do you follow in the legal translation process and what are the difficulties you experience in this process?

Participant Opinions
Participant 1: I am **searching for** examples of the document which I translate. Then I create a translation draft. Then I find the meanings of the words and phrases from dictionaries. After that, I complete the process by translating it. I can say that the biggest difficulty I have experienced in Arabic legal translation is that Arab countries have different types of documents.
Participant 2: During the translation process, I usually take care to translate verbatim. The difficulty is that each country has its own local uses.
Participant 3: First I do the translation myself. Later in the lesson, I see my mistakes by comparing with the lecturer's translation. Not being able to remember legal terms or knowing where to start is one of my difficulties.
Participant 4: Since I think it is necessary to have knowledge in the field of law in the translation process, I try to get information in this field. In addition, I think that both languages should be mastered in the translation process. During this process, we faced a completely different jargon, so I had a hard time conveying the patterns and definitions of the source language to the target language.
Participant 5: I try to be systematic in this process. I keep the translations we have made, thinking that it will be useful in future translations. The difficulty I faced during the legal translation process was not being able to master the legal terms and concepts in legal language very well in my native language.
Participant 6: In the legal translation process, I first look at the content of the document and decide what course I should follow and translate it in general terms. The biggest challenge I faced in this process is the structure of the documents.
Participant 7: In legal translation, I first read the document and create in my head where to connect the sentence and where to start the translation. Then I start the translation based on the source text, find the words I do not know the meaning of and insert it into the translation. One of my biggest difficulties is that I am unfamiliar with the expressions used in legal texts.
Participant 8: The translation process often differs from text to text. If the sentences in the text are short, I translate them by considering the subject-verb harmony. However, if the sentences are long, I break the sentence and translate it. Then I combine these sentences. The most difficult point is to keep the flow of the text in both languages without distorting the meaning.
Participant 9: I am trying to translate by dividing the source text. Generally, I first determine the subject and predicate, placing all the remaining parts between these two elements in turn. One of my main difficulties is not being able to translate an expression I understand in the source language into the target language.

Participant 10: I am reading the text to be translated from beginning to end. Then I divide the text in certain places. Then I translate the places I divided. The use of grammatical structures and tenses in legal language in a different way is one of my difficulties.
Participant 11: In the legal translation process, I read the entire text or document once. Then I look at the meaning of the words I do not know. Then I try to translate using expressions in accordance with the content of the document or text. Special terms in the texts are at the top of my difficulties.
Participant 12: I pay attention to ensuring fluency in the text and using a language suitable for the text. I prefer the translation of phrases rather than word translation. Having different legal systems makes me difficult in the translation process.
Participant 13: I take care to translate according to the document type. It is difficult for me that the documents are diverse and contain unique words and phrases.
Participant 14: I prefer to translate after listening to the lesson. Because after the lesson I understand the translation better. The long texts make it difficult for me in the translation process.
Participant 15: While translating, I try to be impartial, to give the meaning precisely, and to use words in accordance with legal terminology. I am having trouble finding the right word while translating it into Turkish.

This item attempts to determine the path the students follow in the legal translation process and what problems they encounter. According to the data obtained, students use methods such as reading the text from beginning to end and determining where to connect it to the translation, benefiting from previous translations, using jargon suitable for the legal language by finding the equivalents of the words and phrases by dividing the text according to the length of the text or using expressions appropriate to the text in order to provide translation fluency as a whole. In addition, students face difficulties such as having different types of legal documents of Arab countries in legal translation, finding the right word in the translation process, being the texts quite long, having different legal systems and not being able to master legal concepts in the mother tongue.

Table 3: If you have difficulties in the legal translation process, why do you think you have difficulties?

Participant Opinions
Participant 1: I can say that the biggest difficulty I have experienced in Arabic legal translation is that Arab countries have different types of documents. Because not seeing many of the documents and gradually mastering words and phrases makes translation difficult at first glance.
Participant 2: The difficulty is that each country has its own local uses. I often have a lack of which word is used instead of which word in local use.
Participant 3: Not being able to remember legal terms or knowing where to start is one of my difficulties. The reason for this may be that I have not mastered Arabic very much and I have not seen legal texts in such detail before.
Participant 4: During this process, I faced a completely different jargon, so I had a hard time conveying the patterns and definitions of the source language to the target language. I was having a hard time because of the lack of competence in the field of law, for example, being in between long and difficult sentences such as a power of attorney, and the specific language of contracts. Currently, it is difficult to find equivalents in translation from Turkish to Arabic.
Participant 5: I am having difficulties in the translation process because I am not able to master the legal terms and concepts in legal language very well in my native language.
Participant 6: The biggest challenge I faced in this process is the structure of the documents. Because I have difficulty in creating the document structure.
Participant 7: One of my biggest difficulties is that I am unfamiliar with the expressions used in legal texts. This is **because** we do not see such documents in normal life.
Participant 8: It is the most difficult point to be able to keep the flow of the text in a way that does not distort the meaning in both languages. This is because I have difficulties in the legal terms of the Arab culture, which we are just learning, while we are unfamiliar with these texts in Turkish.

Participant 9: One of my main difficulties is not being able to translate an expression that I understand in the source language into the target language. I think that the difficulties I experienced are caused by not knowing this jargon in general, my inadequate vocabulary and desire to be the best in translation.
Participant 10: The use of grammatical structures and tenses in legal language in a different way is one of my difficulties. This is because I do not know the tradition of texts and the culture of the area.
Participant 11: Special terms in the texts are at the top of my difficulties. I think I have a hard time finding the equivalent of the special terms used in translation.
Participant 12: Having different legal systems makes me difficult in the translation process. I have difficulty in translation since the laws and concepts used in legal systems are different.
Participant 13: I am challenged by the variety of documents and their unique vocabulary and phrases. This is **because** it is impossible for us to dominate all areas.
Participant 14: The length of the texts challenges me in the translation process. This is because I am afraid of translating long texts.
Participant 15: I am having trouble in finding the right word when translating it into Turkish, as I cannot master the legal terminology

This item tried to determine the reasons for the problems faced by the students in the process of legal translation. According to the data obtained, the reasons for the problems faced by the students in the process of legal translation are not able to master legal terminology, the differences in the laws and the usage of the legal systems, the inability to know the text tradition and the field culture, the insufficient vocabulary, the length of the text, not using legal terms in daily life.

Table 4: Which methods and techniques are used in legal translation courses?

Participant Opinions
Participant 1: To consider both the meanings of the words and expressions in the document and their use in the country where the document belongs, to evaluate the uses and equivalents in the field of law and to form the document according to them.
Participant 2: Sending the text to the student beforehand and then translating it in the lesson with the student.
Participant 3: First we translate it ourselves, then we translate with our lecturer practically.
Participant 4: Document translation-based methods and techniques are used.
Participant 5: There is an interactive process in the lesson. The student prepares for the lesson by translating the document samples in the source language.
Participant 6: An interactive student-oriented method is followed in the lessons.
Participant 7: We translate from part to whole. We focus on the phrases in the text. We pay attention to the formal correctness and appropriateness of the text.
Participant 8: In the legal translation course, the first attempt is to create a translation competent. While providing this, the way of developing cultural, text, mother tongue and foreign language skills is followed for the translation competent which is acquired by creating theoretical background knowledge and undertakes the upper umbrella role.
Participant 9: In the legal translation course, the document we will translate is delivered to us before the lesson. Before the lesson, we try to translate the document with our own efforts. By comparing the translations**,** we made during the lesson, we translate the document again with our lecturer.
Participant 10: During the lesson, we generally exchange ideas, this method helps us find the most accurate and best sentence.
Participant 11: In legal translation lessons, methods such as question-answer technique, demonstration technique, observation technique, laboratory technique, and expression method are used.
Participant 12: In the lessons, our lecturer first gives us the right to speak in order for us to learn better and to eliminate the question marks in our minds, and then corrects our mistakes. It emphasizes important places and pays attention to the use of these expressions in subsequent documents in order for them to be permanent.
Participant 13: In the legal translation course, we learn the terms of the language in which the translation will be made, and after gaining knowledge on the subject, we perform our translations.

Participant 14: The method used in the lesson was based on the student seeing the document before the lesson and translating it as he/she understood it and showing where the student made a mistake during the lesson.
Participant 15: The document, whose translation is in question, is translated by offering translation alternatives with the contributions of lecturer and students, and then the translation, which **is** the most appropriate, is taken as basis.

This item tried to determine which methods and techniques were used in the legal translation course. According to the data obtained, we can say that methods and techniques such as translating the text first, learning the terms of the text to be translated with the lecturer, then translating the text and exchanging ideas about the translation of the text during the course.

Table 5: Do you think the methods and techniques applied in the legal translation course are sufficient? If not enough, what are its shortcomings?

Participant Opinions
Participant 1: I would like to say that the course is sufficient as it provides us with the opportunity to translate different types of documents and learn different uses.
Participant 2: I am satisfied with the course. I would love to just let the lecturer show us more examples and explain how we should follow the path if we want to specialize in the future.
Participant 3: I think the methods and techniques used are sufficient. However, it may be useful for us to see more documents.
Participant 4: Quite enough. But in terms of the course (due to the differences in documents from country to country) it would be better to see more documents.
Participant 5: I think it is enough for me.
Participant 6: I think it is enough.
Participant 7: Considering the course time and opportunities, it is sufficient, but we see that this is not enough for professional life. As guides and experienced lecturers, I believe that our lecturers should shed light on us and give us the necessary work experience.
Participant 8: I think the methods we use have improved me a lot.
Participant 9: I find the course methods and techniques sufficient, and the duration of the course insufficient in terms of seeing different documents.
Participant 10: I think that the methods and techniques applied in the legal translation course are generally sufficient, but I think that the students should be guided more actively with translation studies in the applied part of the course after the theoretical knowledge part.
Participant 11: Although the method applied in the legal translation course is sufficient, additions can be made.
Participant 12: I think it is enough.
Participant 13: I think these methods are sufficient if the necessary relationship and communication is established between the student and the teacher.
Participant 14: I think it is enough.
Participant 15: I think it is sufficient because our lesson is generally based on the documents we will translate while performing this profession.

In this item, it has been tried to determine whether the methods and techniques used in legal translation are sufficient and if not, what are their shortcomings. Students generally think that the method and techniques used in the course are sufficient. However, in addition to this, the students stated that it would be more beneficial to show more examples of documents in the course, to make more applications and to guide the students in order to gain professional experience in this field.

Table 6: Is the teaching of the legal translation course efficient for you? If not, what are its shortcomings?

Participant Opinions
Participant 1: I think that our systematic progress with the translation techniques and methods used in the course is sufficient to make the translation process effective.

Participant 2: The fact that students sometimes are so involved in translation, and this discourages me from listening to the lecture. The information given by the lecturer is very useful for me. I usually use that information both in the exam and when I translate myself.
Participant 3: It is a very efficient and favorite lesson for me.
Participant 4: It is one of my favorite lessons and it helps me a lot as I want to work in this field in the future.
Participant 5: Based on the number of students, I think it is efficient. Of course, if we had the opportunity to learn in smaller groups, this would also allow us to make more translations.
Participant 6: The legal translation course is extremely efficient for me.
Participant 7: It is efficient, but I think it can be more efficient.
Participant 8: The methods and techniques used in the legal translation course are very efficient for me. Of course, the study and repetition that the student has to do outside the classroom is also very important in this regard.
Participant 9: Especially in the distance education process, one of the lessons that were taught in the most efficient way for me was the legal translation course.
Participant 10: The teaching of the legal translation course is generally efficient for me, but at times, when the course continues monotonously, my mind gets tired, and I have difficulties in focusing.
Participant 11: Legal translation course is efficient for me, but some methods can be used to increase the efficiency of the course.
Participant 12: It is very productive for me. The only point I have trouble with is that some friends constantly ask questions during the lesson. This is their most natural right, but some questions can be really out of place. That's why I get distracted from time to time.
Participant 13: Both the documents sent by the teacher beforehand, and the documents translated in the course make the teaching of the course efficient in general.
Participant 14: When the lecturer does the explanation and analysis in the lesson, the teaching of the lesson is very efficient for me, but since many of our friends, other than our lecturer, express their opinions, my mind and knowledge get confused and I may have difficulties when listening to the lesson at that moment.
Participant 15: Yes, it is very efficient for me I think that many document translations and the phrases, terms and words that I learned from each document prepares me for the profession.

In this item, the students were asked whether the course of legal translation was efficient and, if not, what are its shortcomings. Students generally state that the lesson was efficient. However, in addition to this, students express that their motivation for the lesson decreases when they are very involved in the lesson and when the lesson continues monotonously.

Table 7: Are there any problems arising from emotional reasons (fear of making mistakes, anxiety, refraining from making mistakes) that negatively affect you during the legal translation process? If so, can you explain?

Participant Opinions
Participant 1: Although I sometimes worry about making mistakes for legal translation, I prefer not to hesitate to make mistakes in general context and to convey the information I know. I consider making mistakes as a way to learn true translation and get new information.
Participant 2: Yes. I feel afraid of not giving exact meaning in translation and problems like If I cannot translate the names correctly and what is the equivalent in that country are very stuck in my mind.
Participant 3: Yes, I'm afraid of making mistakes in translation. The reason for this is that I have a lot of competitors and people who have developed themselves in this field. And, when I make mistakes, I can get negative results in my business life and put people in a difficult situation.
Participant 4: Of course, I have the fear of making mistakes in translation as everyone else.
Participant 5: Wouldn't it? I have said that the most important factor in legal translation is the accuracy of the information. Sometimes, misreading a letter or missing a zero in a contract can seriously harm us. We must **be** very meticulous. While observing all these, you are inevitably afraid of making mistakes in translation.
Participant 6: I have no emotional problems in the legal translation course.
Participant 7: I get nervous when I see documents with different structures.

Participant 8: Legal translation is the field I want to specialize in the future. Therefore, it is very important for me to learn this lesson well. This sometimes puts pressure on me.
Participant 9: There are two main reasons that negatively affect me in this process; The first is that I want the translation to be perfect from beginning to end, and the second is the worry of a mistake that may occur when translating in this area can have big consequences
Participant 10: Since legal translation is a field that does not accept making mistakes, the fear of making mistakes from time to time worries me and it delays my focus on the translation process.
Participant 11: I naturally have the worry of making mistakes in the legal translation process. Because our translation is usually a document and of course there is a sense of responsibility. For this reason, the worry of making mistakes is inevitable.
Participant 12: Making mistakes is not a problem for me, as I usually learn from mistakes I make.
Participant 13: Of course, we, as translator candidates, are experiencing emotional problems at this stage. This also varies according to the importance and length of the translated document.
Participant 14: Unfortunately, I have the problems written above. Because we have friends who are good at Arabic in the classroom, and they know most of the things. For this reason, I am reluctant to attend classes. This is not because of the fear of making mistakes, but because they are too advanced, and I feel too far behind in the classroom.
Participant 15: While trying to choose the most appropriate word and give the best meaning to the translation, I usually fear and worry about making mistakes.

In this item, students were asked if there are there any problems arising from emotional reasons (fear of making mistakes, anxiety, refraining from making mistakes) that negatively affect them during the legal translation process? According to the data obtained, we can say that the biggest problem faced by the students in the legal translation process is the worry of making mistakes.

Table 8: What kind of materials do you use in the legal translation course? Can you explain in detail?

Participant Opinions
Participant 1: In the lesson, if we are translating a similar document with the documents we have translated before, I will benefit from the documents we translated before. I use a dictionary.
Participant 2: I usually translate from the dictionary, but when it's not enough, I get support from sites like Wikipedia.
Participant 3: I keep the documents we translate in the lesson and work from them.
Participant 4: Due to the insufficiency of Turkish resources in this field, problems such as photocopying and therefore not collecting all materials in one hand during the term may occur.
Participant 5: The sine qua non of the legal translation course is a computer that will help us in translation process. In this context, it is important to transfer the documents and translation drafts we have made to digital memories.
Participant 6: We generally use legal documents in the legal translation course.
Participant 7: I do not use any materials other than the documents our lecturer gives us in the lesson.
Participant 8: Documents we previously translated, dictionaries and flashcards.
Participant 9: I use digital dictionaries in the translation process.
Participant 10: We usually use printed materials in the legal translation course. We use the texts determined in the weekly course schedule both as digital and printed materials in our lessons.
Participant 11: We usually use samples of legal documents in the lesson.
Participant 12: Documents, dictionaries, and document translation book.
Participant 13: We use the sample legal documents brought by the lecturer in the course.
Participant 14: I use digital dictionaries and printed dictionaries.
Participant 15: We use documents that can be translated in the field of legal translation.

In this item, it is tried to determine what kind of materials students use in the legal translation course. According to the data obtained, students use digital dictionaries and printed dictionaries in addition to the sample legal documents brought by the lecturer.

4. Conclusions

In this study, the opinions of the students regarding the legal translation course were taken, and the problems experienced by the students in the translation process were determined and suggestions were presented. This study, which aims to identify the problems encountered in the legal translation process and offer solutions, was carried out with 15 Participants. According to the data obtained, students usually encounter the following problems during the legal translation process:

- Worry about making mistakes in the translation process.
- Inability to master legal terminology.
- Differences in legal systems.
- Insufficient vocabulary.
- Not being able to master Arabic completely.
- Differences in legal documents from one Arab country to another.
- Legal field has its own unique terms.
- Legal texts are quite long.
- Not being able to fully master the concepts of the legal language in the mother tongue

Legal translation brings with it various difficulties, as it has a unique language and legal systems differ from country to country. According to the data obtained, the fact that the legal documents seen by the students are limited to the sample documents brought by the lecturer during the course reduces the opportunity for students to practice more legal document translations and see different types of documents. In addition to the documents seen in the course, students will be able to translate different documents outside of the course by obtaining sample documents from documents such as translation books, etc., which will enable students to develop in this field. In addition, students' familiarization with both the legal system in Arab countries and the Turkish legal system will facilitate the translation process.

Students' translation in a different field and being confronted with a different terminology will bring the worry of making mistakes. However, if the students master in target language and the source language, and translate in the field of law, it will contribute to the students to relieve these worries. Long legal texts may cause students to worry about the translation process. However, understanding the structure of legal texts and gaining familiarity with the texts can contribute to relieving the worry in the translation of long texts.

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Factors Predicting Middle School Pupils' Learning Orientations: A Multilevel Analysis

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Abstract
Investigating on what school- and student-level factors are related to pupils' learning orientations was the main purpose of this study. The study used a sample of 2917 middle school pupils across Turkey. The Test of Science Related Attitude, Learning Approach Questionnaire and the Achievement Motivation Questionnaire were utilised as data collection tools. Analysis revealed that there were significant differences in pupils' learning orientations with respect to both meaningful learning orientation and rote learning orientation. When learning and motivational factors were examined it was found that performance goal orientation and learning goal orientation positively contributed to both meaningful learning and rote learning orientations. Upon examination of sub-dimensions of attitudes toward science, it was determined that the adaptation of scientific attitudes and leisure interest in science made positive and significant contributions to meaningful learning orientation while enjoyment of science lessons contributed to students' meaningful learning orientation negatively. With respect to rote learning orientation, both adaptation of scientific attitudes and enjoyment of science lessons negatively contributed.

Keywords: Students' Learning Orientations, Attitude Toward Science, Motivational Goal Orientation, Hierarchical Linear Modeling (HLM), Student and School Level Factors

1. Introduction

1.1 Introduce the Problem

Objectives of science education include improving scientific process skills, imparting life skills by adopting a research and investigation approach while discovering the nature, bringing in the skill to solve problems that might come about in daily life, helping students understand how scientific information is created and through which processes and how it is used in different situations, arising curiosity and interest on natural events, and developing positive attitude towards science. Science education programmes with a holistic approach are structured so that learners are responsible for their own learning and actively participate in the learning process through researching, investigating, and transforming information to product learning is encouraged and guiding. Learning approach of students is one of the important factors whereby science education achieves its targets

(MoNE, 2018). Learning orientation is categorized as meaningful learning orientation or rote learning orientation (Bou Jaoude, 1992; Cavallo, 1996; Cavallo, Rozman, & Potter, 2004; Cavallo, Rozman, Larabee, & Ishikawa, 2001).

Students with a rote learning orientation tend to read up on a topic on science (for instance electrical circuits) carefully from the text book, read and memorise passages word by word and remember the entire subject and concepts. When they are asked to define concepts and answer certain questions based on information, they give correct answers. For instance, they can list materials required to construct install an electric circuit. However, they cannot use information they have learned to solve problems. Such students also cannot sufficiently answer open-ended questions that require transferring information learned to new situations. This learning orientation is labelled rote learning orientation (Mayer, 2002). Students with meaningful learning orientations read a science subject (for instance electrical circuits) carefully from text book and understand. In contrast, students' with meaningful learning orientations read up on a science topic with understanding. They remember the entire subject and concepts. Such students can use information they learned to solve problems, create possible solutions, and transfer information they learned to new situations. This learning orientation is labelled meaningful learning orientation (Mayer, 2002).

In constructivist learning environment learners mentally combine new information with existing information to organize them in a meaningful manner. In rote learning which is the direct opposite, the goal is to add new information to existing information stored in the memory. Meaningful learning is accepted to be an important purpose in education (Ahmed and Ahmad, 2017; Hamm & Robertson, 2010, Hasnoor, Ahmad and Nordin, 2013, Mayer, 2002). Promoting *retention* and promoting *transfer,* which indicates meaningful learning when achieved, are two of the most significant educational goals. *Retention* could be described as the aptitude recall material sometime later close to the manner it was introduced in instruction. *Transfer* could be described as the aptitude to use information learned to figure out new issues, respond to new problems, or assist with capturing new material (Meyer, 2002; Mayer & Wittrock, 1996). According to Biggs (1987), regarding relationship of students with learning, it is possible to mention two elements: learning motivation and environmental influence (as cited in Ahmed and Ahmad, 2017), namely the learning environment is a critical factor in this regard. Bandura drew Motivational goals from social cognitive theory. According to Bandura, goal-setting constitutes an important motivational process. Peers or academic achievement could impact motivation goals of students (Pintrich & Schunk, 2002).

Vision of the new science program is to make all students science literate. Therefore, the new science curriculum supports a constructivist learning environment and teaching based on questioning. Suggested activities in science curriculum encourage students to research and learn ways of gathering information in a student-centered learning environment. Meaningful learning orientation and determination of its predicting factors are important in terms of development of analysis and synthesis skills towards such purposes by students and integrate their learnings to daily life.

The literature contains numerous studies exploring the relationship among learning orientation, motivational goal, science achievement, attitude toward science, and also there are studies discussing factors predicting these variables (Hacıeminoğlu, 2016; Bou Jaoude, 1992; Cavallo, 1996; Cavallo et al., 2001; Cavallo, Rozman, Blickenstaff and Walker 2003; Cavallo et al., 2004; Chan and Lai, 2008; Guo and Leung, 2021; Ho and Hau, 2008; Kaplan and Midgley, 1997; Kizilgunes, Tekkaya and Sungur, 2009; Kang, Scharmann, Noh and Koh, 2005; Ozkal, 2007). In the study Özkal (2007) conducted with 1152 eight graders, the author studied the extent to which attitude towards science, epistemological beliefs, prior knowledge, perceptions of constructivist learning environment and gender predicted learning orientation of pupils. The results were analyzed using multiple regression analysis. Attitude towards science, prior knowledge, epistemological beliefs and constructivist learning environment contributed significantly to both meaningful learning orientation and rote learning orientation. Among these variables what predicted learning orientation more was attitude towards science for both meaningful learning orientation and rote learning orientation. Purpose of the study Chan and Lai (2008) conducted with 1381 Hong Kong secondary students attending schools in rural and urban areas was

to propose a structure model that demonstrated the relationship between learning goal orientation mastery, goal orientation, and learning strategies. Results of this study demonstrated that while academic achievement learning had a positive relationship with goal orientation and performance goal orientation, it had a negative relationship with performance avoidance goal orientation. In addition, while meaningful learning orientation (deep strategy) has a positive relationship with academic achievement, rote learning orientation had a negative relationship with academic achievement. Path analysis results showed that learning goal orientation and meaningful learning had a strong relationship with $\beta = 0.80$ value. While the relationship of performance-approach goals with rote learning strategy was moderately weak with $\beta = 0.24$ value, the same with meaningful learning strategy was insignificant with $\beta = 0.03$ value. On the other hand, while performance avoidance goal had a moderate level of relationship with rote learning orientation with $\beta = 0.43$ value, it had a moderate negative level of relationship with academic success with $\beta = -0.34$ value. Boz, Yerdelen-Damar and Belge-Can (2018) studied the relationship between learning approach, constructivist learning environment perceptions of 245 students at 6th, 7th, and 8th grades of secondary schools and their science achievements using structural equation modeling. While there was no direct relationship between gender and meaningful learning approach, there was a direct relationship between gender and rote learning. They found that male students preferred rote learning more than female students. No direct relationship was established between science achievements of students and meaningful learning approaches they used. However, a significant negative relationship was found between science achievements of students and their memorization based learning approaches. There was a significant positive relationship between constructivist learning environment perceptions of students and meaningful learning approaches they used and this relationship had a large effect size. One of the studies on this subject in recent years was conducted by Guo and Leung (2021). Purpose of the study was to create a relationship model between learning orientations, motivational goals, and mathematics successes of 532 Chinese students attending 5^{th} and 6^{th} grades in two separate regions. Structural Equation Modelling was used to propose the model regarding the variables. Results showed that the relationship between learning orientations, motivational goals, and mathematical successes of Chinese students studying in two different regions was similar. Results revealed that students' both meaningful and rote learning orientation was positively related to learning goal orientation and achievement in both samples. In addition, learning goal orientation was positively correlated with rote learning approaches of students in both samples. Findings Jiang and Liu (2005) (as cited in Guo and Leung, 2021) and Ho and Hau (2008) support these findings. It is considered that the reason why students in two different regions preferred memorization, meaning surface learning strategy was based on the cultural structure. In Chinese education system "memorization with understanding" (Ho & Hau, 2008; Leung, 2001) is considered to be an important teaching method. In addition, the proverb: "You can understand the book when you read it many times," motivates students to learn by memorizing. Thus, students displayed a positive attitude towards rote learning orientation and there was a positive relationship between their learning goal orientations and rote learning approach. On the other hand, the two groups (Han and Mia) have differences in terms of variables predicting meaningful learning orientations. While meaningful learning orientations of students in Han region were predicted by performance-approach goal orientation, it had not significant contributions to meaningful learning orientations of students in Mia region. In terms of cultural structure, students in Han region believe that if they would believe in everything in the books without using critical thinking, it is better to not read those books at all. Thus, they use meaningful learning orientation to achieve success with performance approach goal orientation. Another explanation of this consequence is that competition had a positive impact on learning processes of studentsint Han region. Students had to adjust to this competitive education system to be successful and internalized these exams. People living in Mio mountain area might be affected from such highly competitive imperial examinations to a lesser extent. Families of students in Mio region brought their children in a cooperative approach rather than competitive approach.

Such variables are mostly discussed in terms of student level variables while there are a small number of studies discussing in terms of school or classroom level variables. In addition, a few number of studies on variables predicting learning orientation were determined while studying students' learning orientation with nested data structure is important for education studies. Thus the aim of this study was to explore the school- and student-level factors are associated with student' learning orientations. The specific research questions were:
(1) Are there any differences among schools in terms of pupils' learning orientations?

(2) Which school-level factors are related to pupils' learning orientations?
(3) Which student-level factors are related to pupils' learning orientations?
(4) Whether school level factors predict pupils learning orientations and the strength of relations between pupils' learning orientations and student level factors with respect to learning orientations?

2. Method

2.1. Sample and Design of This Study

The overall design of this study is principally correlational and includes a cross-sectional survey. In order to describe the characteristics of a population, survey type of research is conducted by asking a set of questions. Besides, the relationships among two or more factors are determined using correlational type of research without any manipulations Fraenkel and Wallen (2003). This study used the convenience sampling method with sample that was formed of 2917 middle school pupils in different schools and cities of Turkey.

2.2. Instruments

Characteristics of the instruments were described in Table 1.

Table 1: Characteristics of the instruments

	Developed and used by	**Translated**	**Type and number of items**	**Reliability**
The Test of Science Related Attitude (TOSRA)	Fraser (1978)	Arisoy (2007)	5-point Likert-type 40 items and four dimensions	Cronbach alpha coefficients 0.78 (Fraser ,1978)
Adaptation of scientific attitudes	I like using new methods I have not used before in science classes			0.68
Enjoyment of science lessons	If there were no science classes, the school would have been more fun			0.83
Leisure interest in science	I like going to science museum on the weekends			0.84
Career interest in science	After I graduate from school, I would like to work with people making scientific discoveries			0.80
Learning Approach Questionnaire	Bou Joude (1992) and Cavallo and Schafer (1994)	Caliskan (2004)	4-point Likert scale 22 items and two dimensions (11 items for each dimensions)	0.81 (MLO) 0.76 (RLO)
Meaningful learning orientation (MLO)	I try to associate what I learn on one subject with what I learn on another			Hacıeminoğlu, Yilmaz-Tuzun & Ertepinar (2009) 0.77 (MLO)
Rote learning orientation (RLO)	I usually learn by memorizing, I repeat until I can remember all			Hacıeminoğlu, Yilmaz-Tuzun & Ertepinar (2009) 0.71 (RLO)
Achievement Motivation Questionnaire	Cavallo et al. (2004)	Caliskan (2004)	5-point Likert scale 14 items three dimensions	0.94(LGO) 0.82(PGO) 0.89 (SE)
Learning-goal orientation (LGO)	One of my main goals in this class is to learn something new whatever grade I receive			0.83
Performance-goal orientation (PGO)	One of my main goals in this class is to be more successful than other students			0.73
Self-efficacy (SE)	I have the necessary skills to solve problems like those we see in			0.75

	class	
School Background Information	OECD Publications (2004, p.316)	Hacıeminoğlu, Ertepinar, Yilmaz-Tuzun &Cakir (2015), Hacıeminoğlu (2019)
	School SES, parents' highest educational level, ability grouping between science classes, quality of school's physical infrastructure, and quality of school's educational resources were used as school level variables for this study.	

2.3. Data analyses

In this nested structure data sets students were nested in schools. Thus, in order to analyze the relationship between school-level factors and student-level factors and students' learning orientations, Hierarchical Linear Modeling (HLM) was utilized as data analyses technique. In case a traditional linear model was used to analyze these hierarchical data, some of the basic assumptions would be violated, staring from the independence of observation (Raudenbush and Bryk, 2002). Thus for authors to determine relations within hierarchical-structured data, Hierarchical Linear Modeling would be a more reliable statistical method (Hacıeminoğlu, 2019; Raudenbush and Bryk, 2002).

3. Results

One-way ANOVA random effects model was employed for the first research question of if there are any differences in pupils' learning orientation among schools. According to the results, a significant ($p< .005$) variation exists among schools in terms of their meaningful learning orientation ($X^2 = 58.46470$, df = 22) and Rote learning orientation ($X^2 = 73.64767$, df = 22). The results also suggested that factors at school level might explain the differences among learning orientations of pupils. The intraclass correlation (ICC), represents the proportion of variance in Y among schools and suggests that about 1.3% of the variance in meaningful learning orientation and 2% of the variance in rote learning orientation are among schools.

Means-as-outcome model was carried out for the second research question of which of the school level factors are related to pupils' learning orientation. The model was first run with all five factors for pupils' meaningful learning orientation (*medium level school socio economic status, high level school socio economic status,* undergraduate education level *as a highest educational level of mother and father, and quality of school's educational resources*) however, *high level school socio economic status,* undergraduate education level *as a highest educational level of mother and father, and quality of school's educational resources* were removed from the final analysis for not being significant. Chi-square statistic was employed to determine the level of variance of the pupils' meaningful learning orientation when medium level school socio economic status was controlled. Chi-square statistic χ^2 was found to be 50.58164 (df=21, $p< .05$). This finding suggested that all variation in the intercepts could not be explained by this school level factor. However, even when medium level school socio economic status was controlled, schools still varied significantly in their pupils' meaningful learning orientation averages. Regarding the pupils' rote learning orientation, the model was initially run with all five factors, but *medium level school socio economic status,* undergraduate education level *as a highest educational level of father, and quality of school's educational resources* were removed from the final analysis for not being significant. Chi-square statistic was conducted to determine whether the pupils' rote learning orientation means varied significantly when medium level school socio economic status was controlled. Chi-square statistic χ^2 was found to be 41.73450 (df=21, $p< .05$). Based on this finding it could be argued that this school level factor did not account for all the variation in the intercepts. However, even after high level school socio economic status and mother's education level were controlled, schools still varied significantly regarding their pupils' rote learning orientation averages.

Random Coefficient Model was employed for the third research question on which of the student level factors helped to explain the difference in students' learning orientation. The building strategy proposed by Raudenbush and Bryk (2002) was utilized. The final Random Coefficient Model for students' meaningful learning orientation included eleven student level factors which were *science achievement, students' reading articles or books regarding science, students' searching internet sites regarding science, students' watching documentary film*, *students sharing their ideas about science subjects with their families, students' performance goal orientation, learning goal orientation, self-efficacy, adaptation of scientific attitudes, enjoyment of science lessons, and students' leisure interest in science.* None of these eleven student level factors were determined to be randomly varying. Thus, all of the factors found to be non-randomly varying were covered in the model as fixed. Variance among the school means τ_{00}= 0.0073 was found to be statistically significant (p< .005) with a chi-square statistic of 115.08168. Including school-level factors in the model could explain this significant difference (variability) among schools. By incorporating such student level factors (science achievement, reading articles or books regarding science, benefit from internet sites regarding science, watching documentary film, sharing their ideas about science subjects with their families, performance goal orientation, learning goal orientation, self-efficacy, adaptation of scientific attitudes, enjoyment of science lessons, students' leisure interest in science) as predictors of meaningful learning orientation, within school variance was decreased by 47.3%. Thus, it could be argued that such factors explain about 47% of the student level variance in meaningful learning orientation.

The final Random Coefficient Model for students' rote learning orientation encompassed nine student level factors: grade 7, grade 8, *science achievement, gender, students' performance goal orientation, learning goal orientation, self-efficacy, adaptation of scientific attitudes, and enjoyment of science lessons.* Among such nine student level factors, none of them were found to be randomly varying. Thus, all of the factors that were found to be non-randomly varying, were included in the model as fixed. Variance among the school means τ_{00}= 0.0054 had a chi-square statistic of 87.83827 and was found to be statistically significant (p< .005). Including school-level factors in the model could explain this significant difference (variability) in schools. Incorporating these student level factors (Grade level, science achievement, gender, performance goal orientation, learning goal orientation, self-efficacy, adaptation of scientific attitudes, enjoyment of science lessons) as predictors of rote learning orientation, within school variance was decreased by 21.2%. Thus, it could be argued that such factors explain about 21% of the student level variance in rote learning orientation.

Intercepts and Slopes as Outcomes Model was employed to answer the research question of whether school level factors predict student learning orientations and investigate the strength of connections between learning orientation of students and student level factors regarding meaningful and rote learning orientation. In this model, a design was prepared with the coefficients (slopes) of the factors to explain the variance regression equations have across classes. The coefficient indicates the amount of effect a factor has on the endogenous factor. Those Level-2 factors that are critically related with Level-1 factors are defined as cross-level interactions. In this model each Level-1 Beta value will be associated with only one Level-2 equation.

This research question encompassed three previous research questions. The first model was the Analysis of Variance Model which was explained the differences in students' learning orientation among schools (Research Question 1). School level factors in the Means as Outcomes Model was used to model the variability of learning orientation of students (Research Question 2). None of the student level factors were ascertained to be randomly varied in the Random Coefficient Model (Research Question 3). Thus, this coefficient could not be modeled with school level factors. Therefore, only the intercept was modeled.

Lastly, the full final Intercepts and Slopes as Outcomes Model was studied and the equations for the final full model were demonstrated in Table 2.

Table 2: The equations for the final full model

Outcome Factors	Equations *Level 1(Students level):*	Equations *Level 2 (School level) Model:*
Meaningful Learning Orientation	$Y_{ij} = \beta_{0j} + \beta_{1j}$(SCIENGRA) β_{2j}(READINGB) + β_{3j}(INTERNET) + β_{4j}(DOCUMENT) + β_{5j}(SHARINGI) + β_{6j}(PERFGOAL) + β_{7j}(LEARNGOA) + β_{8j}(SELFEFFI) + β_{9j}(ADOPTATI) + β_{10j}(ENJOYMEN) + β_{11j}(LEISURE) + r_{ij}	$\beta_{0j} = \gamma_{00} + \gamma_{01}$ (MEDINCSC) + u_{0j} $\beta_{1j} = \gamma_{10}$ $\beta_{2j} = \gamma_{20}$ $\beta_{3j} = \gamma_{30}$ $\beta_{4j} = \gamma_{40}$ $\beta_{5j} = \gamma_{50}$ $\beta_{6j} = \gamma_{60}$ $\beta_{7j} = \gamma_{70}$ $\beta_{8j} = \gamma_{80}$ $\beta_{9j} = \gamma_{90}$ $\beta_{10j} = \gamma_{100}$ $\beta_{11j} = \gamma_{110}$
Rote Learning Orientation	$Y_{ij} = \beta_{0j} + \beta_{1j}$(GRADE7) + β_{2j}(GRADE8) + β_{3j}(SCIENGRA) + β_{4j}(GENDER) + β_{5j}(PERFGOAL) + β_{6j}(LEARNGOA) + β_{7j}(SELFEFFI) + β_{8j}(ADOPTATI) + β_{9j}(ENJOYMEN) + r_{ij}	$\beta_{0j} = \gamma_{00} + \gamma_{02}$ (HIGHINCS) + γ_{03} (MOTUNDRG) + u_{0j} $\beta_{1j} = \gamma_{10}$ $\beta_{2j} = \gamma_{20}$ $\beta_{3j} = \gamma_{30}$ $\beta_{4j} = \gamma_{40}$ $\beta_{5j} = \gamma_{50}$ $\beta_{6j} = \gamma_{60}$ $\beta_{7j} = \gamma_{70}$ $\beta_{8j} = \gamma_{80}$ $\beta_{9j} = \gamma_{90}$

The final Intercepts and Slopes as Outcomes Model included the factors significantly related to meaningful learning orientation and rote learning orientation of students. The final estimations of fixed effects acquired from Intercepts and Slopes as Outcomes Model were displayed in Table 2. An explanation about Tables 2 and 3 was given below.

Table 3: Final Estimation of Fixed Effects of Final Full Model for Intercepts and Slopes as Outcomes Model for Learning Orientation dimensions

Learning Orientation dimensions	Fixed Effect	*Coefficient*	*Standard Error*	*t-ratio*	**p-value**
Meaningful Learning Orientation	Overall mean Meaning Learning Orientation, γ_{00}	3.041	0.017	169.528	0.000
	MEDINCSC, γ_{01}	0.003	0.001	2.550	0.019
	SCIENGRA, γ_{10}	0.022	0.007	3.124	0.002
	READINGB, γ_{20}	0.050	0.018	2.789	0.006
	INTERNET, γ_{30}	0.042	0.016	2.509	0.012
	DOCUMENT, γ_{40}	0.035	0.017	1.956	0.050
	SHARINGI, γ_{50}	0.069	0.017	4.016	0.000
	PERFGOAL, γ_{60}	0.098	0.010	9.743	0.000
	LEARNGOA, γ_{70}	0.382	0.015	24.074	0.000
	SELFEFFI, γ_{80}	0.170	0.014	11.712	0.000
	ADOPTATI, γ_{90}	0.086	0.015	5.490	0.000
	ENJOYMEN, γ_{100}	-0.033	0.014	-2.332	0.020
	LEISURE, γ_{110}	0.085	0.014	5.994	0.000

Rote Learning Orientation	Overall mean Rote Learning Orientation, γ_{00}	2.482	0.014	171.159	0.000
	HIGHINCS, γ_{01}	0.006	0.002	2.735	0.013
	MOTUNDRG, γ_{02}	-0.010	0.002	-3.652	0.002
	GRADE7, γ_{10}	-0.067	0.017	-3.788	0.000
	GRADE8, γ_{20}	-0.187	0.041	-4.526	0.000
	SCIENGRA, γ_{30}	-0.039	0.008	-4.866	0.000
	GENDER, γ_{40}	-0.103	0.017	-6.088	0.000
	PERFGOAL, γ_{50}	0.189	0.011	16.134	0.000
	LEARNGOA, γ_{60}	0.105	0.018	5.747	0.000
	SELFEFFI, γ_{70}	-0.089	0.016	-5.324	0.000
	ADOPTATI, γ_{80}	-0.131	0.017	-7.335	0.000
	ENJOYMEN, γ_{90}	-0.052	0.013	-3.776	0.000

3.1. For meaningful learning orientation;

For meaningful learning orientation, as stated before, the results from Means as Outcomes Model were described in the final full Intercepts and Outcomes Model. According to the results, a significant and positive relationship between medium level school socio economic status and meaningful learning orientation was determined (γ_{01}= 0.003, se= 0.001). In addition, the final full Intercepts and Slopes as Outcomes Model included the results from the Random Coefficient Model.

The Science grade- Meaningful Learning Orientation slope coefficients (γ_{10}= .022, se= .007) suggested a significant and positive relationship between science achievement of students and their meaningful learning orientation. Students with higher science achievements had more meaningful learning orientations than other students.

The Students' *reading articles or books regarding science* - Meaningful Learning Orientation slope coefficients (γ_{20}= .050, se= .018) suggested a significant and positive relationship between students' *reading articles or books regarding science* and their meaningful learning orientation. The students that were *reading articles or books regarding science* had more meaningful learning orientation.

The Students' benefit from internet sites regarding science - Meaningful Learning Orientation slope coefficients (γ_{30}= 0.042, se= .016) suggested a significant and positive relationship between that students' benefit from internet sites regarding science and their meaningful learning orientation. The students that used internet sites about science had more meaningful learning orientation.

The Students' watching documentary film- Meaningful Learning Orientation slope coefficients (γ_{40}= 0.035, se=.017) suggested a significant and positive relationship between watching documentary film by students and their meaningful learning orientation. The students that were watching documentary films had more meaningful learning orientation.

The Students' *sharing their ideas about science subjects with their families* - Meaningful Learning Orientation slope coefficients (γ_{50}= .069, se= .017) indicated a significant and positive relationship between students' *sharing their ideas about science subjects with their families* and their meaningful learning orientation. The students that were *sharing their ideas about science subjects with their families* had more meaningful learning orientation.

The Performance goal orientation- Meaningful Learning Orientation slope coefficients (γ_{60}= 0.098, se= .010) suggested a significant and positive relationship between students' performance goal orientation and their meaningful learning orientation. Students that had performance goal orientation had more meaningful learning orientation.

The Learning goal orientation- Meaningful Learning Orientation slope coefficients (γ_{70}= 0.382, se= .015) suggested a significant and positive relationship between students' learning goal orientation and their meaningful learning orientation. Students that had learning goal orientation had more meaningful learning orientation.

The Self-efficacy- Meaningful Learning Orientation slope coefficients (γ_{80}= 0.170, se= .014) suggested a significant and positive relationship between students' self-efficacy and their meaningful learning orientation. Students that had high self-efficacy had more meaningful learning orientation.

The *adaptation of scientific attitudes* - Meaningful Learning Orientation slope coefficients (γ_{90}= 0.086, se= .015) suggested a significant and positive relationship between students' *adaptation of scientific attitudes* and their meaningful learning orientation. Students with high level of *adaptation of scientific attitudes* had bemoretter meaningful learning orientation.

The *enjoyment of science lessons* - Meaningful Learning Orientation slope coefficients (γ_{100}= -.033, se= .014) suggested a significant and negative relationship between students' *enjoyment of science lessons* and their meaningful learning orientation. Students with high levels of *enjoyment of science lessons* had more meaningful learning orientation.

The *students' leisure interest in science* - Meaningful Learning Orientation slope coefficients (γ_{110}= .085, se= .014) suggested a significant and positive relationship between students' *leisure interest in science* and their meaningful learning orientation. Students having high *leisure interest in science* had more meaningful learning orientation.

3.2. For rote learning orientation;

For rote learning orientation, as stated before, the results from Means as Outcomes Model were reported in the final full Intercepts and Outcomes Model. The results presented a significant and positive relationship between high level school socio economic status and rote learning orientation (γ_{01}= 0.006, se= 0.002); but the results revealed a significant and negative relationship between undergraduate education level *as a highest educational level of mother and* rote learning orientation (γ_{01}= -0.010, se= 0.002). In addition, the final full Intercepts and Slopes as Outcomes Model included the results from the Random Coefficient Model.

The Grade- Rote learning orientation *slope* coefficients suggested that students from different grades had significantly different Rote learning orientations. Rote learning orientation scores of students from seventh grades (γ_{10}= -0.067, se= .017) and eighth grades (γ_{20}= -0.187, se= .041) were significantly higher than the rote learning orientation scores of students from sixth grades.

The Science Grade-Rote learning orientation slope coefficients (γ_{30}= -0.039, se= .008) suggested a significant and negative relationship between students' science achievement and their rote learning orientation. Students having lower rote learning orientation had higher science achievement scores than the other students.

The Gender- Rote learning orientation slope coefficients (γ_{40}=-0.103, se= .017) indicated that females had more Rote learning orientation.

The Performance goal orientation- Rote learning orientation slope coefficients (γ_{90}= 0.189, se= .011) suggested a significant and positive relationship between students' performance goal orientation and their rote learning orientation. Students having performance goal orientation had more rote learning orientation.

The Learning goal orientation- Rote learning orientation slope coefficients (γ_{90}= 0.105, se= .018) suggested a significant and positive relationship between students' learning goal orientation and their students' rote learning orientation. Students with learning goal orientation had also rote learning orientation.

The Self-efficacy- Rote learning orientation slope coefficients (γ_{100}= -0.089, se= .016) suggested a significant and negative relationship with students' self-efficacy and their rote learning orientation. Students with high self-efficacy had low levels of rote learning orientation.

The *adaptation of scientific attitudes* - Rote learning orientation slope coefficients (γ_{100}= -0.131, se= .017) suggested a significant and negative relationship between students' *adaptation of scientific attitudes* and their rote learning orientation. Students with high level of *adaptation of scientific attitudes* had low level of rote learning orientation.

The *enjoyment of science lessons* - Rote learning orientation slope coefficients (γ_{100}= -0.052, se= .013) suggested a significant and negative relationship between students' *enjoyment of science lessons* and their rote learning orientation. Students with high level of *enjoyment of science lessons* had low level of rote learning orientation.

The final estimation of variance components obtained from the full final Intercepts and Slopes as Outcomes Model is displayed in Table 4.

Table 4: Final Estimation of Variance Components for Intercepts and Slopes as Outcomes Model for Learning Orientation dimensions

Learning Orientation dimensions	Random Effect	*Variance Component*	*df*	*Chi-square* χ^2	**p-value**
Meaningful Learning Orientation	School mean, u_{0j}	0.00563	21	103.78393	0.000
	Level-1 Effect, r_{ij}	0.14896			
Rote Learning Orientation	School mean, u_{0j}	0.00266	21	50.38586	0.000
	Level-1 Effect, r_{ij}	0.20213			

It can be concluded that medium level school socio economic status accounts for 23.6% of the variance in school differences in mean Meaningful Learning Orientation. However, significant differences still remain (χ^2= 103.78, p< .005) between schools. In addition, high level school socio economic status and *undergraduate education level* as a highest educational level of mother account for 51.1% of the variance in school differences in mean Rote Learning Orientation. However, significant differences still remain (χ^2= 50.38, p< .005) between schools.

4. Conclusion and Discussion

This study provides a general overview about learning orientations of students and the predictive variables associated with their learning orientations. Results of the One-Way ANOVA with random effects in HLM analysis disclosed important differences in learning orientations of students among schools. Various factors including schools, classrooms, teachers, and students are among sources of differences among schools in terms of learning orientations of students. This study investigated factors concerning schools and students and discussed results.

HLM analysis revealed that there were significant differences in students' learning orientations among schools with respect to both meaningful learning orientation and rote learning orientation. When school level factors were examined, it was determined that while medium level of school socio economic status significantly contributed to the students' meaningful learning orientation, high level of school socio economic status significantly contributed to the students' rote learning orientation.

Such results revealed that learning orientations of students were related to socioeconomic statuses of schools, but that this relationship was not directly proportional. Characteristics that would contribute to meaningful learnings of students were found at schools with medium level of school socio economic status. Students at schools with high levels of school socio economic status preferred rote learning orientation. In Turkey students at 8th year of

secondary education take a centrally administered exam known as high school entrance exam to enroll at special quality high schools. At schools in regions with high socioeconomic status, families expect their children to be succeed at the high school entrance exam given in the final year of secondary education. School principals and teachers declared that families pressure them to a large extent on this subject. Teachers mentioned that families perceived activities such as role play they organize in classes to encourage meaningful learning as playing games and requested them to work on tests to prepare for the exam. School administration and in turn, teachers encourage students to solve many multiple-choice questions to prepare students for this multiple-choice exam in line with such requests and expectations. It is considered that while students work on such multiple-choice questions, they orient towards rote learning. These conclusions are supported by the studies of Aydın and Cakiroglu (2010), Cetin ve Unsal (2019), Gecer and Ozel (2012), Gelbal ve Kellecioğlu, (2007); Gundogdu, Kızıltas and Cimen (2010), Hasnoor, Ahmad and Nordin (2013), Kırıkkaya (2009), Unsal (2015). Families of students at schools with medium level of school socio economic status apply less pressure on school administration and teachers and teachers find the opportunity to organize activities to encourage students towards meaningful learning orientation as foreseen by the program and prepare students for the exam.

However, undergraduate education level as the highest educational level of mother significantly and negatively contributed to the students' rote learning orientation. Students whose mothers did not have university education had lesser rote learning orientation. While in recent years in Turkey parents increasingly assume childcare jointly, it is mothers that care for the children more. When data was examined, it could be noted that most of the mothers who did not have university education were not employed. Thus, it was considered that mothers found more time to contact teachers and cared for education of their children. The other school level factors such as quality of school's educational resources did not significantly contribute to the model related to students' learning orientation. Facilities schools had such as instructional materials, science laboratory equipment and materials, computers for instruction, library materials, and audio-visual resources did not make significant contributions to students' learning orientations. On the other hand these variables made significant contributions to students' attitude towards science as indicated in the study of Hacıeminoğlu (2019).

When characteristics variable (grade level, science achievement, gender) among student level variables were examined, it was seen that students' science achievement had significant and positive contribution to both students' meaningful and rote learning orientation. Successful students preferred which learning orientation they need among meaningful and rote learning orientations in order to achieve success as supported by the studies of Ahmed and Ahmad , (2017), Guo and Leung, (2021). While other student characteristics variables did not significantly contribute to the students' meaningful learning orientation, grade level and gender negatively contributed to the students' rote learning orientation. As class level increased, rote learning scores of students decreased. In addition, there was a significant difference between girl and boy students in favor of girl students regarding rote learning orientation as opposed to the study of Kılıç and Sağlam (2010). In one of the meta-analysis with conducted by Severiens and Ten Dam (1994) revealed and supported our finding that while females widely used rote learning approach, males used deep learning approach. On the contrary, there are some studies indicating no significant difference between gender and learning orientations (Cavallo, 1994; Wilson, Smart and Watson, 1996).

When Learning and Motivational factors were examined it was found out that interestingly, performance goal orientation and learning goal orientation positively contributed to the students' both meaningful learning and rote learning orientations. One of the main targets of students with learning goal orientation was to understand what was in fact happening during science activities. One of the main targets of a student with performance goal orientation was to get good grades and be more successful than other students (Pintrich and Shunk, 2002). Literature review demonstrated that students with performance goal orientations mostly preferred rote learning orientation while students with learning goal orientations preferred meaningful learning orientation (BouJaoude, 1992; Cavallo et al., 2003; Cavallo et al., 2004; Chan and Lai, 2008; Guo and Leung, 2021; Ho and Hau, 2008; Kizilgunes, Tekkaya and Sungur, 2009; Kaplan and Midgley, 1997; Kang, Scharmann, Noh and Koh, 2005). Learning goal orientation came forward as a consequence of a situation rather than a personality characteristic of students. These two orientations could not be separated from each other with a sharp line as two opposing poles.

On the contrary, a person could display both performance goal orientation and learning goal orientation even in the same situation. Thus, students have learning goal orientations when they were dealing with a work that they liked while they could have performance goal orientationd in situations such as performance tests. In the process of activities conducted in science classes, they might make an effort to learn new information while also they might want to come forward by voicing their opinions. Following discussion of the activity they might ask their teachers with equal enthusiasm if a question on the subject would come or what kind of questions would come in the exam (Svinicki, 2005). As it could be seen in this example, performance goal orientation and learning goal orientation could not be separated from each other with a sharp line and both approaches positively contribute to the students' both meaningful learning and rote learning orientation as supported by the studies of Svinicki (2005) and Guo and Leung (2021). In the light of arrangements in goal orientation theory, performance goal orientation was separated into two as performance-approach and performance-avoidance goals (Darnon, Harackiewicz, Butera, Mugny and Quiamzade, 2007; Elliot & Church, 1997; Middleton and Midgley, 1997). Purpose of those with performance-approach goal orientation was to receive high grades and pass their peers rather than learning while purpose of students with performance-avoidance goals was to avoid making mistakes and appear incompetent (Pintrich and Shunk, 2002; Svinicki, 2005). Performance approach orientations of students in competitive environments had a significant contribution to their meaningful learning orientations (King, McInerney, & Watkins, 2012). Results of this study that was conducted in recent years demonstrate similarities with results of our study. In Turkey students have to take an exam to enroll at a specialized high school which creates a competitive environment among students. In addition, the understanding of 'the more you repeat the better you learn' in our education system directs our students to learn by memorizing. Results of study made by Hacıeminoğlu, Yilmaz-Tuzun & Ertepinar (2009) reflected that approach performance orientations and rote learning orientation were negatively correlated with self-efficacy. Purpose of students with approach performance orientation was to receive higher grades rather than learning, thus they could prefer rote learning orientation and because they do not understand the subject well, their self-efficacy would be low. Related to and supporting such results, this study established that self-efficacy made a positive and significant contribution to meaningful learning while it contributed to students' rote learning orientation negatively.

Upon examination of sub-dimensions of attitude toward science, it was determined that adaptation of scientific attitudes and leisure interest in science made positive and significant contribution to meaningful learning orientation of students while enjoyment of science lessons contributed to students' meaningful learning orientation negatively. With respect to students' rote learning orientation, both adaptation of scientific attitudes and enjoyment of science lessons negatively contributed to the students' rote learning orientation. Ozkal (2007) conducted a study explaining 8th grade stdudents' predictors of learning orientation. Similarly, results revealed that attitude towards science is the best predictor of both meaningful and rote learning approaches as supported by BouJaoude (1992). However, career interest in science did not contribute to either meaningful learning or rote learning orientation of students.

When items of adaptation to science attitude sub-dimension were studied, it was noted that the more positive attitudes students had against repeating tests to control whether same results were achieved every time, using new and unused methods in tests, being curious about the world they live in, valuing unexpected results as much as expected results in science classes, the higher meaningful learning orientations they had. On the other hand, students that had negative attitudes against such behaviors, found learning information on new ideas boring, and declared making new discoveries was unimportant had high rote learning orientation levels.

Leisure interest in science that was one of the sub-dimensions of attitude variable made positive and significant contribution to meaningful learning orientations of students while it did not contribute to rote learning orientation of students. Another result of this study that supported these results was that out of school activities of students (reading articles or books regarding science, searching from internet sites regarding science, watching documentary film, sharing their ideas about science subjects with their families) positively contributed to the students' meaningful learning orientation, while it did not significantly contribute to students' rote learning orientation. Upon studying of items in leisure interest in science dimension, it was determined that out of school activities such as joining science club or society, reading science books during school break, making

science experiments at home, making science discussions with friends after school, working at science laboratory on school breaks, listening to science programs on the radio, going to science museum on the weekends, reading science articles on the newspaper made positive contributions to meaningful learning orientations of students. Results of the study supported each other. This result demonstrates significance of out of school learning environment in terms of having meaningful learning orientation as supported by Jeffery-Clay (1998). Jeffery-Clay (1998) indicated that out-of-school learning environments such as museums allow students to move freely and explore. In this proses they encourage group interaction and sharing. With the said out of school learning activities, students make more meaningful learnings while sharing what they learn with their family and friends positively support their meaningful learning.

As demonstrated in study of Boz, Yerdelen-Damar, Belge-Can (2018), there is a significant relationship with large effect size between perception of constructivist learning environment and meaningful learning orientations, as supported by the results of the studies by Dart, Burnett, Boulton-Lewis, Campbell, Smith & McCrindle (1999), Dart, Burnett, Purdie, Boulton-Lewis, Campbell, & Smith (2000), Eley (1992), Karagiannopoulou and Christodoulides (2005), Ozkal, Tekkaya, Cakiroglu and Sungur (2009), Uysal (2010), Yerdelen-Damar and Aydın (2015). Variables such as reading articles or books regarding science, searching from internet sites regarding science, watching documentary film, sharing their ideas about science subjects with their families examined in this study were supportive of constructivist learning environment. Thus, these results in the literature support that these variables are significant predictors of meaningful learning orientations of students.

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Rethinking the Design of English Language Teaching Online Using the Flipped Classroom Approach

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Abstract
Online teaching has been in use for a while, but not many people cared to embrace it as a method of teaching until the COVID-19 pandemic literally forced them into giving it a consideration. The sudden outbreak of the COVID-19 pandemic led to the shutting down of schools across the country and several parts of the world. Consequently, many state governments and educational institutions turned to media broadcasts as well as online teaching to keep learners engaged. For the first time in decades, teleconferencing applications and Internet services such as Zoom, Microsoft Teams and Skype witnessed a surge in their use for teaching and learning as well as for conducting meetings in different spheres of life such as governance and business. Thus, many English language instructors began to teach online without any appreciable time to understand the specialized techniques for the design of online teaching for maximum benefit to learners. Many English language instructors arranged for synchronous online classes that lasted between one to three hours. From personal experiences, the researchers observed that many learners in such classes experienced boredom and disengaged from the live online classes. This prompted the researchers to rethink how online English language teaching can be designed for maximum engagement of learners. This paper proposes the incorporation of the flipped classroom approach into the design of online English language teaching and presents steps that English language instructors need to take to be able to incorporate the flipped classroom approach into online English Language teaching for maximum benefits and learners' engagement.

Keywords: Design, Online Teaching, Flipped Classroom Approach, English Language

Introduction

The innovation of online teaching has been around for a while, even though not many people cared to embrace it as a method of teaching, especially in Nigeria, until the COVID-19 pandemic literally forced them into giving it a trial. The outbreak of the corona virus pandemic led to schools being shut down across the country and in many parts of the world. Consequently, many state governments and educational institutions turned to radio and television broadcasts as well as online teaching to keep learners engaged. For the first time in decades,

teleconferencing and Internet services such as Zoom, Microsoft Teams and Skype applications witnessed a surge for teaching and for conducting meetings in different spheres of life such as governance and business.

English language instructors also joined the bandwagon and took to online teaching. Many English language instructors delved into online teaching without any previous experience in the design of online teaching for maximum benefit to learners. Many English language instructors arranged for synchronous online classes that lasted between one and three hours. From personal experiences, we observed that many learners in such classes experienced boredom and withdrew from the live online classes. This prompted us to rethink how online English language teaching can be properly designed for maximum engagement of learners. In this paper, we propose the incorporation of the flipped classroom approach into the design of online English language teaching and present steps that English language instructors need to take to be able to incorporate the flipped classroom approach into online English Language teaching for maximum benefits and learners' engagement.

What is Online Teaching?

Manoj (2019) defines online learning as "education that takes place over the Internet. It is often referred to as [online learning or] e-learning among other terms" (para. 18). Online learning and online teaching are used interchangeably in this paper to refer to teaching and learning activities conducted over the Internet using computers, mobile phones and other Internet-enabled devices. Online teaching refers to the processes of presenting ideas and knowledge content to students through the Internet medium. Zhu, Payette and DeZure (2003) described online teaching as the delivery of instruction using different Web-based technologies, from the Internet or an Intranet and other communication technologies that enable students to participate in learning activities beyond the campus, from students' homes to workplaces and other locations. Online teaching involves delivering instruction using a computer or other devices via the Internet without the need for face-to-face meetings of students and their instructors. Online teaching is a form of distance education conducted over the Internet. Distance education is any form of teaching and learning that takes place over a distance without the necessity of the instructor and learner being in the same place. Mobile learning and Online teaching, also known as online learning or e-learning are the most popular forms of distance learning today (https://www.igi-global.com).

Online teaching can be conducted both asynchronously as well as synchronously. Asynchronous online teaching involves placing content in a learning management system for learners to interact with at their convenience. In this form of online teaching, there is little or no live, real-time interaction between the instructor and the students. However, that does not mean that there is no communication between the teacher, student, and classmates (Zucker & Kozma, 2003).

Synchronous online teaching on the other hand, is a form of online teaching in which the instructor and learners arrange to meet at regularly pre-agreed times to transact teaching and learning interactions in real-time over the Internet without having to meet face-to-face. In synchronous online teaching, "students interact with the [instructor] and other students in real time; they are separated by distance but come together during regularly scheduled periods" (Barbour, Siko, Gross, & Waddell, 2013, p. 62). Synchronous online teaching is considered the most similar to the traditional face-to-face teaching because of the possibility of real-time interactions.

Why Teach English Language Online?

Learning English language, especially as a second language has been challenging especially for non – native speakers. This is especially so for low proficiency learners, who are less motivated to learn the language. Teaching online, especially asynchronously, enables English language instructors to make content available for learners to access at any time, and from anywhere. This flexibility afforded by online teaching means that learners can access content and work at their own pace and time. Teaching English language over the Internet gives learners the opportunity to broaden their knowledge because they can learn on their own and this increases their level of confidence and independence. Compared to the traditional face-to-face classroom teaching where

lessons are paced to accommodate the slowest learner in the class, online teaching and learning, especially those that incorporate asynchronous modules, allow learners to move at their own pace without having to wait for the slow learners or having to hurry to catch up with the fast learners.

According to Appana (2008), "studies (Hill, 1997; Webster & Hackey, 1997) have shown that online instruction offers a major breakthrough in teaching and learning [English language because] it facilitates the exchange of information and expertise [among learners] while [also] providing opportunities for [all types of] learners in distant or disadvantaged locations (p. 6). This can result to greater participation of all learners, including shy ones if instructors deliberately incorporate elements of anonymity through the use of pseudonyms. Research shows that given the same conditions, learners in online settings outperform their counterparts in face-to-face classes (Bourelle, Bourelle, Knutson, & Spong, 2016; Means, Toyama, Murphy, Bakia, Jones, SRI International, U. S. Department of Education, 2004). Other research reports have however demonstrated contrary outcomes. For instance, Ni (2013) and Al-Maqtri (2014) reported no significant differences between face-to-face and online learners, while Heppen, Sorensen, Allensworth, Walters, Rickles, Taylor and Michelman (2017) reported that learners in face-to-face classes outperformed their online counterparts. Despite these mixed outcomes, the innovation of online teaching and learning continues to gain traction around the world, especially in this era of the COVID-19 pandemic.

Several factors have driven and continue to drive the transition to online teaching among educational institutions across subject disciplines. Tschida, Hodge and Schmidt (2016) citing Wise and Rothman (2010), stated that "online [teaching] is cost effective in a variety of ways [; for instance, there is no need for] physical classroom space and accompanying tools [, and] courses can be developed, copied, and reused by other instructors" (p. 665).

Challenges of Teaching English Language Online

As promising as online teaching is, it is not a safe sail for all instructors and learners. Online teaching and learning are fraught with different challenges ranging from learners' dissatisfaction to non-completion of online courses. According to Tschida, Hodge and Schmidt (2016), "the move to online teaching can be quite unsettling for some faculty who are successful in the classroom but then struggle to interact with students in cyberspace or design online courses" (p. 665). Tschida, Hodge and Schmidt (ibid) further stated that instructors who are "used to teaching in the traditional face-to-face classrooms now find themselves transitioning to teaching online. In the process, they are learning that teaching online is not as simple as transferring face-to-face courses to the Internet. [And] that many instructors teach as they were taught" (p. 666); and because many of them have not even taken online courses as students, they struggle to find a model to imitate.

Not having a model to imitate has led many online instructors to delve into online teaching by simply moving their boring traditional lectures to the online environment via teleconferencing services such as Zoom or Microsoft Teams. Presenting lengthy lectures over the internet without offering opportunities for active participation of learners and facilitating interactivity could lead to learners being disinterested and disengaging from the learning experience being offered. Cole, Shelly and Swartz (2014) in a three-year study of student satisfaction with online courses reported the absence of interaction as the most often cited reason for course dissatisfaction. Hence, English language instructors need to provide opportunities for active participation in their online course design to ensure greater satisfaction, increase progression and completion rates.

Mitigating the Challenges of Teaching English Language Online Using the Flipped Classroom Approach

Tschida, Hodge and Schmidt (2016) assert that "for online [teaching and] learning to be effective, institutions must recognize the importance [of] providing [instructors] with support in designing online courses and transitioning the content of specific areas of study to the online platform" (p. 676). This is because the instructor's role is different in an online setting. Rather than acting as a traditional 'lecturer', the instructor assumes the role of a learning facilitator. Most 'traditional' instructors thus struggle to shift roles, and as noted

by Fish and Wickersham (2009), many of them often simply put their poorly designed face-to-face course materials into the online delivery system.

However, simply transferring face-to-face course materials into an online teaching and learning situation is not considered best practice because the factors that influence student success in a traditional face-to-face classroom differ significantly from those in an online classroom. To ensure that students succeed in an online teaching and learning situation, instructors "must be able to provide opportunities for interaction when convenient for the student, provide authentic feedback without ever coming in direct contact with the students, and be able to monitor students who are becoming isolated from the rest of the class" (Barbour, Siko, Gross, & Waddell, 2013, p. 62).

Bormann (2014) stated that: "the lower activity levels of Bloom's Taxonomy- Remembering, Understanding and sometimes, Applying- are addressed within the classroom [while] the top levels of Blooms Taxonomy- Analyzing, Evaluating and Creating- are then left for the student to do on his or her own with no assistance than parents and the occasional classmate(s)" (p. 7). The problem with this approach to teaching is that it assumes that all learners come to class prepared to learn, which often, is not the case. Leaving the more complex tasks of: analyzing, evaluating and creating to the learner to tackle alone at home leaves many struggling and in a state of disequilibrium.

The flipped classroom is presently one instructional practice growing in popularity in education because it supports the active participation and success of learners. The flipped classroom is an instructional strategy in which learners are pre-exposed to contact before coming to live face-to-face class. It involves the "organization of the educational process in [such a way that] when students attend face-to-face classes, they already have some theoretical knowledge and understanding of the matter that will be discussed in the classroom. [This] makes the interaction more effective and fruitful [because] students feel more comfortable and confident asking questions and discussing the issues with the teacher and peers" (Evseeva & Solozhenko, 2015, p. 207). The instruction is organized in such a way that the lower levels of Bloom's Taxonomy are catered for through the pre-class activities, usually in video format. Learners watch the videos that are sent to them via the Internet or uploaded to an online platform for them to access at any time and place that is convenient for them. By the time they converge in a face-to-face class, they already have the basic knowledge about the topic and this aids active participation in the discussions and hands - on - activities that take place in the classroom.

Research shows that the flipped classroom approach has been effective in science, technology and mathematics (Strayer, 2007; Bergmann & Sams, 2012; Marcey & Brint, 2012; Gehringer & Peddycord, 2013), but not much research is available about the effectiveness of this approach in English language classrooms. Despite this, the flipped classroom has continued to attract the attention of language instructors.

The face-to-face component of the flipped classroom is not feasible in many schools today due to COVID-19 restrictions and social distancing rules. However, teleconferencing applications such as Zoom can be used to implement the face-to-face component of the flipped classroom in an online teaching environment while applications such as Edpuzzle can be used as a medium to share pre-live class videos. Rather than trying to engage learners in two to three hours live video calls via Zoom to present boring lectures, English language instructors can create engaging videos as pre-class content and upload them to Edpuzzle.

Engaging videos are videos that have elements of interactivity. Interactive videos contain quizzes or questions strategically placed at intervals within. When learners watch the videos to the points where quizzes or questions are embedded, they are prompted to enter their responses before they are allowed to continue watching. According to Li (2016), when students have the chance to interact with multimedia module, it increases their interest in learning, makes learning more fun as well as fosters better understanding of the content. Various online quiz programmes can be utilized to add interactivity to videos or text-based materials. Edpuzzle for instance, enables the instructor to add interactivity to videos by offering the capability of adding comments, voice-over, and quizzes. As learners watch the videos before class, Edpuzzle gives the instructor the ability to

check to see those who are fully engaged with the video and those who are not. The instructor can do a follow-up on such learners by sending them direct messages via their e-mails or placing personalized messages on Google Classroom for such learners. Such learners can in turn, be helped individually by instructors to overcome whatever challenges they might be experiencing.

There is an emerging model of the flipped learning approach that holds much promise for designing online courses. It is called Synchronous Online Flipped Learning Approach (SOFLA). According to Marshall and Kostka (2020), "the model was developed by Marshall (2017) and Marshall and Rodriguez Buitrago (2017) in order to align flipped learning principles with online instruction. SOFLA mirrors flipped learning in that work that is completed outside of class now moves to the asynchronous space, and in-class work is completed in synchronous class sessions when the teacher and students' peers are present" (p.4).

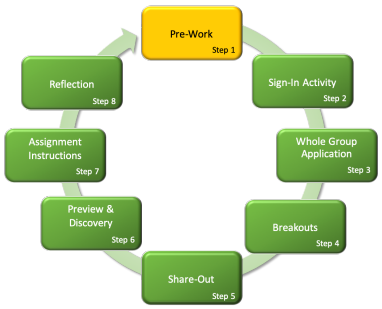

Figure 1: The SOFLA cycle of Learning

Source: Marshall & Kostka (2020)

The first step of SOFLA, *Pre-work*, involves placing video, textual material or other types of multimedia online for learners to access asynchronously. The video is usually interactive and may be uploaded onto Edpuzzle or PlayPosit. These two platforms enable the instructor to add interactive elements to the video such as quizzes or questions, which learners must respond to as they watch the video. This ensures that learners are not just passive watchers of the video. Responding to the embedded quizzes helps to check the level of understanding and ensures that learners are grasping the concept(s) being presented through the video. The instructor might also place textual content such as book chapters or articles on Perusall. Perusall helps to make the textual material an interactive textbook. Every participant in the class gets to read the same copy asynchronously. The instructor can highlight some portions of the text, and add questions for all learners to discuss. Learners on their parts can highlight portions that they find interesting or confusing and ask for clarifications within the same copy of the text.

The instructor might decide to use video or textual material as pre-work. What matters in this step of SOFLA is that the out - of - class work now being placed in the asynchronous space should contain interactive elements that can help learners engage fully with the content and foster learning.

Step two, *Sign-in Activity*, begins the live or synchronous component of the SOFLA framework. At this stage, all learners must have watched the video or read the textual material. So, the instructor and the learners converge online in a live session. This can take place in Zoom, Microsoft Teams or any other teleconferencing application. It involves learners answering some questions that may or may not be related to the pre-work. The instructor can have all learners who are connected to the live class write one or two sentences in response to the question posed. Responses can be posted to Jamboard, an interactive whiteboard or on the chat box within the Zoom application.

Step three of the SOFLA framework is whole group application. This step is instructor led. It is not a time to lecture. Rather, it is a time for the instructor to guide the whole class in applying the principles of what they learned in the pre-work. The instructor might also use this time to clarify misconceptions that might have arisen from the pre-work as revealed in the data downloaded by the instructor prior to the synchronous session.

Learners may utilize audio, whiteboard, or the chat box within the Zoom application for the whole group application step.

Step four of the SOFLA framework is breakouts. At this stage of the live session, learners are divided into several small groups. The breakout groups allow the instructor to implement peer instruction. The instructor might give the same or different tasks to each of the groups. Within each breakout group, learners are encouraged to collaborate by teaching or explaining certain concepts to their peers within the groups. At the end of explaining, the peer tutor within the group then asks the group members some questions to check for understanding. The Zoom application is an excellent tool in helping to divide learners into breakout groups as well as for polling.

Step five of the SOFLA framework is share out. At this stage, all learners rejoin the main class within the Zoom platform. Each group is encouraged to share what they learned with the general class at this stage. Fethi (2015) developed an instrument known as SHAC (Share, Help, Ask, Comment). Learners are encouraged to share what they worked on or learned in their individual groups. Using SHAC, learners are also encouraged to ask questions, make comments and help their peers in areas where they still have misconceptions or difficulties.

Step six of the SOFLA framework is *Preview and Discovery*. At this stage, students are primed for their upcoming assigned work. Marshall and Kostka (2020) stated that "to accomplish this goal, the [instructor] can pre-teach terms and concepts, activate [learners'] prior knowledge, and build new schemata. Importantly, the [instructor's] task [at this stage] is to introduce but not teach the material because direct instruction occurs in the pre-work for the next [live session]" (p. 8). Previewing the material for the next session enables learners to see the gap in their knowledge and are thus motivated to want to fill the knowledge gap through the out - of - class work that the instructor will place in their synchronous space against the next life session.

Step seven, assignment instructions, involves the instructor assigning new work and explaining what learners "are expected to do for the next out - of - class work, [while also reminding] them where the [materials] they will need to access are located [online]" (Marshall & Kostka, 2020, p.9). To make it easy for learners to locate these materials, instructors should try to place the materials in multiple locations because learners often navigate online courses in different ways.

Step eight, R*eflection*, brings the synchronous class session to a close. At this stage, the instructor typically asks learners to reflect on what they found most interesting or important in the lesson by writing one or two sentences on the whiteboard where they can all see one another's responses. However, voiceThread or Flipgrid could be used in addition to the white board to get students' reflections on the lesson. This step is very important because students' reflections give the instructor some insight into what each learner found meaningful and this could inform modifications in future lesson design.

Conclusion

Effective online teaching and learning depends on many factors. Simply digitizing traditional face-to-face lectures and uploading them online does not bring about effective learning and learner engagement and satisfaction. Many English language instructors lack the training and skills needed for effective transition to online teaching. This perhaps accounts for why many of them have moved their traditional teaching strategies online by lecturing for hours without incorporating elements of interactivity to keep learners engaged and motivated. They need to be deliberately trained professionally in the design and implementation of online teaching and how to use Internet services and applications such as Zoom, Edpuzzle, Perusall, etc. This will make them better equipped to offer opportunities for learners' active participation and engagement, and ultimately, greater learning and satisfaction with online teaching and learning. The flipped classroom is a promising instructional approach and if well incorporated into the design of online English language teaching, it is capable of fostering higher learner engagement and deeper learning.

Recommendations

To successfully incorporate the flipped classroom approach into the design and implementation of online English language teaching, the following steps are recommended:

1. Online English language classes should be a mix of synchronous and asynchronous delivery of content. Teleconferencing applications such as Zoom and Microsoft Teams should be used to hold live classes over the Internet while Edpuzzle and Google Classroom should be used to deliver pre-class videos and other forms of content to learners.
2. Live class sessions in online English language teaching should not exceed 45 minutes. A majority of contemporary learners have low attention span; hence, any class that lasts for too long is almost likely going to cause them boredom without appreciable learning experience.
3. Pre-class video or content should focus on the lower cognitive levels of Bloom'ss taxonomy while the live class sessions should focus on guiding learners through application, analysis, evaluation and creation using the background knowledge already gained from watching pre-class videos or interacting with pre-class content.
4. The government and managers of educational institutions should make it a point of duty to train prospective and in-service English language instructors in the use of different Internet applications and on how to design and implement online learning.

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Views of 4-5-Year-Old Children with No Nursery or Kindergarten Experience about School*

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Abstract
To have a successful school life, a child must be able to make a healthy start to this period both socially and mentally. For this, children's views about school have a strong potential to affect their entire lives. The research aimed to examine the views of 4-5-year-old children who have not started any formal school yet. The study group consisted of 12 children aged between 4-5 years who have not started kindergarten from the province of Rize in Turkey. For the study; an open-ended, concentrated interview and drawing methods were applied with a small group. The data obtained from the group interviews with the children and the interpretation of the drawings were analyzed using the descriptive analysis technique. Based on the data, it was concluded that the family and the media are among the strong information sources of children about school and that positive features are frequently repeated. Negative features included crowding, rules, etc. The results also revealed that children who have no school experience and those who attend a pre-school education institution full-time have similar views about the school.

Keywords: School Readiness, Preschool Education, Phenomenology

1. Introduction

Although school is a place where formal teaching activities are carried out, it is also a social environment full of innovations for a child (Senemoglu, 1994). In this environment, many new rules and tasks to be accomplished are automatically included in the child's life. This is a significant and new change for children. The child must have completed the necessary development tasks in order not to be adversely affected by this change and to start school smoothly. Children should be able to express themselves, be aware of their responsibilities, not have to worry about leaving the family and home, communicate correctly with the teacher, establish friendships, maintain their

* The first version of this research was presented as an oral presentation at the congress named "14th Classroom Teacher Education Symposium with International Participation" held in Bartin, Turkey.

cleanliness, dress by themselves, wait in line, find themselves in between classes while starting a primary school (Oktay & Unutkan, 2005). They must be able to protect themselves and have the ability to sit in line and concentrate for long periods. This information indicates that among the skills that the child should have regarding the transition to school, their awareness of themselves and the school environment they will be involved in should be at a sufficient level.

For twenty years, as a result of the acceptance of the view that children are active learners, it has become very important to listen to children's thoughts about their learning, life, and experiences (Yildirim & Simsek, 2011). In addition, children's views about school have the potential to affect their entire lives. For this reason, since children's adaptation to school is problematic in some cases, it is considered as a crisis period that should be struggled by the families (National Ministry of Education [NME], 2018; Ryan, 1999). In this context, at the beginning of each new term, papers full of advice for families whose children have just started school are published in print and social media (for example see the page www.ieu.edu.tr/en/news/type/read/id/6618). Therefore, creating a positive perception towards the school also contributes greatly to the child's adaptation to school (Kocyigit, 2014).

Being a member of a new group sociologically is not easy, besides the anxiety of being psychologically distant from the family. However, in the normal course of life, when the time comes, it is an inevitable reality to leave the family and to go to school, even if it is compulsory. In this case, it is of great importance that children's school-related mental structures are formed positively from early childhood. In this process, visual media and printed resources, especially families, play important roles.

Although there are a limited number of studies focusing on the school experiences of primary school children in Turkey (see EIR, 2016), the absence of any study on the school-related views of children who have never had any formal school experience, including the pre-school period, gives this research significant originality. On the other hand, studies are examining the views and perceptions of children educated in independent kindergartens about school (Dockett & Perry, 2003, 2005; Einarsdottir, 2011, Geyik et al., 2018; Kocyigit, 2014).

For this purpose, a study conducted by Geyik et al. (2018), it was tried to reveal the changes in children's school perceptions according to their kindergarten and kindergarten attendance status and gender factors. Interviews were held with the children themselves, their families, and teachers, to reveal their school perceptions, the children were asked to draw their school and themselves at school one week apart, the pictures were examined as documents and the participation of the children in the activities in the classroom was observed by the researchers. As a result of the interviews, observations, and examination of the children's pictures in the research, it was seen that 12 out of 20 children had positive school perceptions and 8 children had negative school perceptions. The results of the research have concluded that the school perceptions of children do not differ according to their attendance to kindergarten and their gender.

The other study was conducted by Kocyigit (2014) whose data were collected using a mosaic approach, which includes different verbal and visual techniques in which children can express themselves comfortably. According to the research findings, preschool children defined primary school as large, crowded, complex, and remote. They also expressed family, teachers, and television as the main sources of information about primary school. Another finding of the study is that preschool children think that there are many rules in primary school and they cannot play games. Looking at the whole of the dialogues in the meetings, almost all of them had negative thoughts. The reason for this situation is the lack of correct information about primary school.

Although adults use the verbal expression as a way of expressing themselves, this skill is not sufficiently developed in children (Kocyigit, 2014). Therefore, drawing is undoubtedly one of the most original ways for the child to express feelings, thoughts, and dreams in many situations where they cannot express easily in terms of language skills (Yavuzer, 2016). Drawing is a fun and easy way for children to reflect on their feelings and thoughts (Skybo, Wenger, & Ying, 2007). For this reason, drawing is both a communication tool and an important element where children's perception, skills, and creativity emerge. They can reflect on their emotions and relax while drawing. The child expresses wishes, longings, shortcomings, fears, dreams, and perceptions through painting. These

expressions may not always be clear and understandable. The symbols, lines, and colors used are clues (Artut, 2017; Buyurgan & Demirel, 2013; Civek & Camlibel Cakmak, 2019; Digler, 2017; Yukay-Yuksel et al., 2015). For preschool children who cannot express themselves verbally, painting is an important tool in reflecting the child's inner world and providing detailed information about it (Halmatov, 2017)

In Turkey, the primary school starting age is 5 (60 months) as specified in the Primary Education and Education Law No. 222 and the National Education Basic Law No. 1739, which entered into force on March 30, 2012, and parents justify that their child's physical development is not sufficient to delay the child's starting primary school can make a written application. This situation makes the parents the only authority in the preparation process of the child and in the process of starting primary school.

Points to be considered in the interpretation of the pictures, it is seen that a picture is an important tool in reflecting the inner world of the child (Digler, 2012; Halmatov, 2017). For this reason, it is stated that the drawings, which reflect the feelings aroused by the school environment that the child meets after family, and point of view towards the school, are an important source of information for teachers and families is considered.

In the current research, the information and views of 4-5-year-old children about the transition to school were consulted in depth. When the relevant literature is examined, it is noteworthy that limited studies are examining school-related mental schemas of children with preschool and nursery experience, however, there is no information and views of 4-5-year-old children about school with no experience. In addition, all children are going through a transition process to a school that is shaped by their understanding and experience (Kocyigit, 2014). In this context, this research is considered important in terms of examining the transition to school from the perspective of children and aiming to bring educational suggestions in terms of children's thoughts about school with no direct school experience. In this respect, the research has the potential to reveal important information for innovators and decision-makers in terms of comparing the views of children with and without school experience in early childhood. Thus, the general purpose of this research is to reveal the views of 4-5-year-old children who did not attend kindergarten about school. In line with this general-purpose, answers to the following questions were also sought:

1. What are the knowledge and expectations of 4-5-year-old children about school?
2. What are the sources of information about the school for 4-5-year-old children?
3. What skills do 4-5-year-old children think are necessary for school?

2. Method

The phenomenology method, one of the qualitative research designs, was used in the study (Creswell, 2013). It is used because the images of children in the same age groups related to the concept of school were examined in the research and the most appropriate techniques for both the purpose and the characteristics of the study group. To investigate childrens' views about schools open-ended interviews with small groups and also drawings and explaining pictures methods were used. In the research, firstly, open-ended interviews were held with the children aged between 4 and 5, and then they were asked to explain their views about the school by drawing a picture. Then, they were asked to verbally describe the pictures. In this way, the validity of the analysis results to be made by the researchers based on the drawings of the students was confirmed.

The study group

The study group consisted of a total of twenty children, six boys, and six girls, in the 4-5 age group. In line with the purpose of this study, children were selected from those who had never enrolled in any kindergarten or kindergarten-type preschool education institution within the scope of a purposive sampling method. However, almost all children have a sibling or siblings who formally attend primary or secondary school. After informing

the parents of these children about the research in face-to-face communication, their permission was obtained for the research, which would last approximately 30 minutes.

Data Collection

The data obtained from the small group interviews with the children and the interpretation of the drawn pictures were analyzed using the descriptive analysis technique. In the scope of open-ended interviews, questions in the research were not prepared before the research but were developed during the interviews. Interviews were held in the children's own homes as they felt comfortable. The interviews lasted between 20-30 minutes and were recorded with a voice recorder. After the small group interviews, children were asked to draw pictures of what the school would be like/could be in connection with the interviews. Then, the children were asked questions about the pictures they drew and they were asked to explain in a friendly atmosphere.

Data Analysis

While presenting the research findings, the names of the children participating in the research were given by changing them. The results were presented systematically in line with the sub-purposes of the research. The first sub-goal of the research, "What are the knowledge and expectations of 4-5-year-old children about school?" attached to the theme of "*school image*," the second sub-goal "What are the sources of information about the school for 4-5-year-old children?" is attached to the theme of "*information source*," the third sub-goal, "Which skills do 4-5-year-old children think are necessary at school?" attached to the theme of "*readiness for school*." Expertise in the relevant field is extremely important for the validity of child picture analysis. In this context, two of the researchers of this study took the postgraduate child picture analysis course at the Recep Tayyip Erdogan University. For this reason, the information produced by these two researchers, who work first in independent environments and then together in data analysis, is reliable.

3. Results

The data obtained from the multiple data collection tools as open-ended interviews, school drawings, and verbal descriptions of them collected in line with the sub-purposes of the research were categorized under three sub-titles as school image, information source, and readiness for school as explained in the previous section.

Theme 1- School Image

The categories, frequencies, and percentages obtained from the small group interviews with the children about the place of the school are given in Table 1.

Table 1: Information on school definitions of 4-5-year-old children

Category	f	%
Big	7	17.5
Fun	9	22,5
Crowded	5	12,5
Beautiful	7	17,5
Regular	12	30
Total	40	100

Looking at the table; the school has been described as a place big, crowded, beautiful, fun but for regular. In the first posts about the school, it was seen that it was seen as a place where rules were dominant (30%), although it was remarkable that it was structured in the mind as a fun and beautiful place, in addition to the views in the form of large and crowded. The children who started the school as a place with rules put forward the following statements as a basis for this:
"I can't play with my baby there, the teacher gets mad at me"

"I can't be naughty, then the teacher gets mad at me"
"If I don't read a book, the teacher won't love me"

Now, from these statements, the school's regularity can be said that it is reflected not as a positive but a negative feature by the children. In other words, school is not attractive because it is a place where rules exist, on the contrary, it is foreign to children.

When asked "how do you know this?" almost all children answered as expected from the close environment, which has an important role in life, as, "my sister/brother or mother told me it." In this way, children begin to form their first images, sometimes positive and sometimes negative, about the school they have never encountered.

In addition to the statements used by the children and presented below, it was revealed that the school was physically seen as a "big place."

"It's beautiful there, even bigger than our house"
"Lots of places to play there"
"There are always lockers with playdough and toys in them"

From these statements, the fact that a school is a big place is reflected highly as a positive feature. On the other hand, there are also some negative thoughts somewhat fearful about school;

"My mother will come too, otherwise I will be lost there,"
"There are many stairs, I fall"

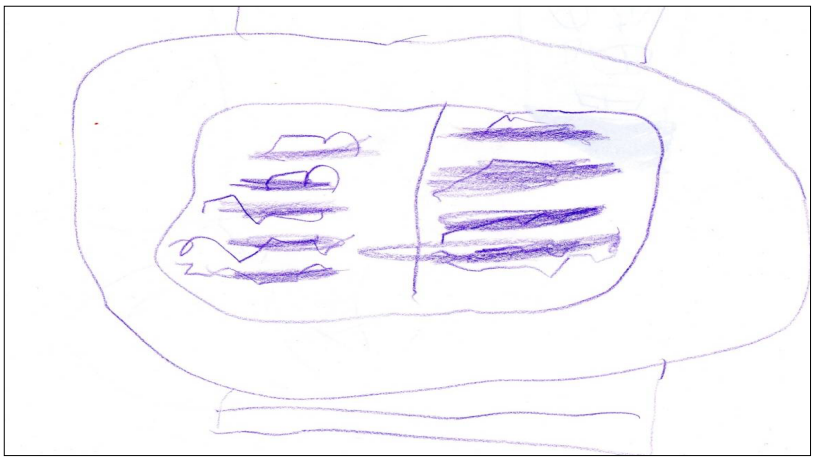
In ways that support children's definitions of the school shared up to this point, the drawings and interview notes of some students about the school are given below directly quoted.

Picture 1: Ayse (56 months old child school picture)

When the definitions of children about school were examined, it was noted that the most frequently mentioned definition was an environment where they would stay away from their parents and the school was a place full of rules. "*I can't play with my baby there, the teacher gets mad at me*" (Ayse, 56 months old child).

Picture 2: Fatma (51 months old child school picture)

In this school picture child expressed in their own words that a school is a place where there are balloons and where children dance. The child is also thought to have too many kids so would have too many friends.



Picture 3: Ugur (54 months old child school picture)

Picture 4: Atakan (56 months old child school picture)

From the sentences such as "We celebrate holidays, we play a lot" (Ufuk, 51 months old) and as similarly "There are children there, there are games" (Selma, 60 months old), it is learned that they think that a school is a fun place.

Theme 2- Information Source

Within the scope of the second sub-problem of the research, the question was asked “where and how you obtained information about the school?”. Here is the frequency of what is expressed in the dialogues as a family (f = 27), and television (f=11). Under the family category, it has been found that especially mothers, siblings, and fathers are sources of information and thoughts that children have about the school. 11 expressions were belonging to the category of television in the theme of informing 4-5-year-old children about school. The most important finding here is that cartoons are an important source of information for children about school.

Theme 3- Readiness for School

Within the scope of the third sub-problem of the research, the question was asked “whether you feel ready to go to school? and/or when do you plan to go to school?”. Almost all children stated that it is still early to this question and that they can leave when some of the listed situations occur. It is noteworthy that the sentences such as "I can go to school when I carry a bag" (Eylul, 56 months), "I will go to school when I get taller" (Alperen, 57 months) are frequently mentioned by other children as well. It is an important finding of the research that almost all of the children stated that the increase in the calendar age is one of the prerequisites for them to start primary school.

4. Discussion

As it is stated in the introduction of the research, it is important to examine the views of children about school, which started to form in their minds from early childhood, in many respects. In addition, in the studies in the literature related to the subject area, the views of children who are currently attending a kindergarten or pre-school education institution directly associated with the school have been examined (Dinc, 2013; Dockett & Perry, 2003, 2005; Einarsdottir, 2011, Erkan & Kirca, 2010; Geyik et al., 2019; Kocyigit, 2014. Besides the views that can be considered partially positive, mainly negative views also attract attention. In this, there is no doubt that the environment around the child's side is of great importance. On the other hand, the experiences of the school in question and the attitudes of the teachers, who are an important source in this, are at the forefront. Although there is some information that nursery or kindergarten experience facilitates adaptation to formal primary school and therefore school life, it is an important problem situation that how children who have never had a direct school experience differ in their views about the school. For these reasons, in the present study, the views of 4-5-year-old children in the early childhood period, who have no direct experience with school, were examined in detail. For this purpose, examining the views of children, albeit a limited group, with open-ended interviews, drawings, and multiple measurement tools based on the explanation of drawings confirms the validity of the information presented. In this context, the views of children who have never been enrolled in a kindergarten or any other pre-school education (which constitutes a significant proportion among the total children) about school were examined for the first time. As it is known, positive thoughts or mental structuring about a phenomenon or event affect the attitude towards the phenomenon and event, thus facilitating adaptation. On the other hand, the hypothesis in the literature that children with nursery or kindergarten experience in early childhood are better adapted to primary school needs to be tested (Yoleri & Tanis, 2014). Every experience that a child has about school affects school image (Guler, 2001; Guler, 2012). Many studies have shown that children's academic and social success depends on their adaptation to primary education (Entwisle, 1995; Entwisle & Alexander, 1998; Margetts, 2003; Seven, 2011). In this context, the results obtained in the current study reveals that children form both positive and negative ideas about school and that siblings who have direct school experience as much as parents in the home environment, which is considered as the close environment, are effective in the formation of these ideas.

In the second theme, it is revealed that television, mostly family, is also effective to some extent among the information sources of the child about school. Probably, in the process following the child's encounter with the concept of school, they act perceptually selective both when the relevant subject is brought up in the family and

when the relevant subject is exhibited in television programs. At this point, as a suggestion, to facilitate the adaptation of the child to the school, it is important to need to plan the process instead of waiting for random facts and events in the correct construction of the school image. That is, both parents and siblings need to be careful in the process of communicating with the child.

Similarly, special attention should be paid to help the child get to know the school and construct it in mind through appropriate programs through which they can gain a positive school image, followed by other possible undesirable school experiences that should be misrepresented. It is valuable information that children are aware that they are not ready for school yet, as examined in the third theme, and that this is a result of calendar age. Kocyigit and Kayili (2014) also found out that school readiness of preschool children differs in favor of children with reflective cognitive style. Probably, in this result, it is valuable to follow the sharing of the parents and the school enrollment periods of the siblings of the children, albeit implicitly, by the child. Similarly, in the first theme, family members in the close environment and programs on television are effective in the formation of school-related physical and social aspects as claimed in many similar studies (Kocyigit, 2014). In short, in this study, the views of children who had school experience in early childhood and those who did not were found to be quite similar. From this point of view, it has been revealed that the effect of nursery or pre-school education institution experience on the formation of positive views about the school is quite limited.

5. Conclusion

Especially when the research results are examined, it is seen that families and television are among the strong information sources of early childhood chidren about school. All stakeholders have important duties in informing children about school (Kocyigit, 2009). In this context, all stakeholders, especially parents, teachers, governments, and media, have responsibilities in preparing children for school. The preparation of projects such as cartoons, public service announcements, and special broadcast hours for children may be beneficial in supporting children in this regard (Erdogan & Simsek, 2014). Perhaps the most important thing is that the views of those who have never experienced a kindergarten and/or nursery are quite similar and that the home environment as an informal learning environment and the communication there are the main sources in the formation of views about the school. Based on the research, in the next process, the views of the children about the school when they officially start primary school are really wondered.

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The Effect of Contextual Teaching and Learning (CTL) Model With Outdoor Approach Towards the Students' Ability of Mathematical Representation

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Abstract
This study aimed to determine the effect of the implementation of the Contextual Teaching and Learning (CTL) model with the outdoor approach towards students' ability in mathematical representation. It was quasi-experimental research consisting of two experimental classes and one control group. It used a pretest-posttest control group design. The population of this study was the students of SUPM Tegal. Sampling was conducted using cluster random consisting of three classes. The first experimental group was carried out by implementing the learning model of CTL with the outdoor approach. The second experimental group was carried out by implementing a learning model of CTL, while the control group was conducted by implementing a conventional learning model. The research instrument was a 7-point mathematical representation test in the form of an essay. The results of the research were 1) the learning model of CTL with an outdoor approach affected the improvement and achievement of the students' ability in mathematical representation and was higher than CTL and a conventional learning; 2) the improvement of the students' ability of representation in the groups of CTL with outdoor approach, CTL, and conventional learning respectively was in high, medium, and low category.

Keywords: Contextual Teaching-Learning, Outdoor, Mathematical Representation

1. Introduction

There are five standards of mathematical abilities achieved by students in the implementation of mathematics in schools, including communication, problem-solving, reasoning, connection and representation (NCTM, 2000). Representation is used as a tool to support reflection and to communicate mathematical ideas in the form of symbols, pictures, words, sentences, and tables (Anastasiadou, 2008; Goldin, 2002). According to Yuniawatika (2011), the ability of mathematical representation is one of the process skills related to students' ability in submitting reports and ideas. In addition, representation plays an important role in solving mathematical problems, especially difficult or verbal tests. This is because problem-solvers often externalize verbal

expressions in situations using symbols or visuals (Ulusoy & Argun, 2017; Yee & Bostic, 2014). In addition, students access mathematics through representations. In this regard, representational thinking of serving as a central disciplinary practice as well as a learning practice supports further study of the discipline (Selling, 2016). Representation may be a particularly generative learning practice for students who were previously not successful in school.

Generally, in Indonesia, students' ability in mathematics is not fully optimized. This was confirmed in the research from the Program for International Student Assessment (PISA) (OECD, 2014) which showed Indonesia students ranked 64th out of 65 countries with a score of 397. In addition, the result of Trends in International Mathematical and Science Study (TIMSS) in 2015, recently published in December 2016, showed Indonesia ranked 46th out of 51 countries with a score of 397. This was supported with the data from the Mathematics test at the odd semester year 2017/2018 in this research population. For instance, in class X more than 70% of the students had the scores under Minimum Mastery Criteria (MMC). From the analysis, students performed poorly on algebraic equations, relations & functions, and geometry. The causative factors included: 1) challenge in interpreting the problem or information, 2) difficulty in presenting the data or information in tables, pictures, or charts, 3) difficulties in solving the mathematical problems due cramming of the steps examples given and exercises, and 4) difficulty in creating and answer questions using words or written texts. Evidently, there was a need for improvement. The main and fundamental difficulty experienced by students, especially elementary school students is to represent their mathematical ideas in the form of appropriate symbols (Yumiati & Haji, 2018). This shows that students' mathematical representation ability is a crucial problem and needs to be optimized. This is what motivates the author to improve the students' mathematical representation skills through the application of CTL learning which is carried out in an outdoor class.

According to Kartini (2009), students perform poorly because of cramming the steps given by their teachers and are deprived of the chance to show their own working. Besides, Trianto (2007) was of the opinion that classroom learning is teacher-centered and makes students passive. The students are not provided with relevant models which facilitate learning and thinking objectively about mathematical problems. According to the observations and interviews on teachers, the learning model was conventional. The process used teacher-centered and used monotonous steps, where the concept was explained, an example for illustration, and exercises are given. Meanwhile, students' representational abilities can develop if students are given broad opportunities to express their mathematical ideas through student-centered learning. This is a gap between the demands of student activities to be creative with learning that does not give students the freedom to be creative (teacher-centered). The contextual teaching and learning (CTL) model might be a better alternative for improving students' abilities (Hoogland, de Koning, Bakker, Pepin, & Gravemeijer, 2018; Rustam & Handayani, 2017; Rustam & Adili, 2016). Mathematical abilities, including representation, develop through learning from the context (Clarke & Roche, 2018; Mamolo, 2018).

Jaenudin (2008) stated that in the contextual approach, the students are given chances to construct the learned mathematical concept through an inquiry process. In this case, if they construct and find solutions, and representation ability increases. This could be on various aspects such as visual and words or written texts. During the inquiry process, students learn with the groups expected to have knowledge sharing. Besides, learners see the available model, whether it is given by the teacher or available in the environment. While in the learning community, there will be asking for activities. At that moment, the students who have better representation ability help others.

The purpose of this study, therefore, was to critically analyze the CTL combined outdoor approach to learning. Generally, outdoor learning is conducted outside the classroom with the aim of exposing students to the real world (Husamah, 2013). Moreover, it is an activity that improves children's physical and skill development based on their individual abilities; areas of observation, exploration, and adventure contributing to their cognitive development; and the things increasing their creative aptitude. In addition, outdoor learning facilitates areas supporting social developments and provides the opportunity for students to be with other people in the community. By so doing, learners might obtain relevant information on living things, life cycles and

environmental conditions (Acar, 2014; Spalie, Utaberta, Abdullah, Tahir, & Che, 2011; Sumpter & Hedefalk, 2015). This study examined the effect of the model learning strategy of Contextual Teaching and Learning (CTL) with the outdoor approach on students' ability in mathematical representations. The strategy emphasized on the implementation of mathematics learning linked to practical situations.

The scientific novelties of this research are: a) The CTL model is used with an outdoor learning approach, so that the meaning of context in CTL is more meaningful because the context is more concrete, in accordance with everyday life; b) The mathematical concept developed through the learning model is closely related to everyday life, namely a two-variable linear equation system.

1.1. The ability of mathematical representation

From the Great Dictionary of the Indonesian Language (KBBI, 2002), representation refers to the depiction of an object. According to Alhadad (2010), it is an expression of mathematical ideas presented by students as a model from a problem situation used to find the solution through mind interpretation. According to (Effendi (2012), mathematical representation ability is needed for students to find and create a tool for communicating the abstract and concrete mathematical ideas in order to be understood. The indicators of mathematical ability used in this research included: a visual representation (diagrams, tables or charts, and pictures), equation or mathematical expression, and words or written texts.

1.2. The theory of constructivism learning

Constructivism refers to a philosophy in educational psychology which emphasizes that knowledge is a formation/construction. According to Poedjiadi (2005), this theory starts with formation and knowledge reconstruction. It means changing someone's knowledge previously formed or constructed as a result of the interaction with the environment. From Suwarna (2016), constructivism is the foundation of thinking of contextual learning. This means learning is built step by step and the results are expanded through limited contexts and not a sudden process. It is the refinement of the traditional approach to learning, mostly based on behaviourism.

1.3. The learning model of contextual teaching and learning (CTL)

Contextual learning is a system based on the philosophy and means students have the ability to understand if they get the meaning of the academic materials and understand assignments given. Furthermore, it is important to associate the new information with knowledge and experiences learned before (Johnson, 2007). According to Trianto (2009), contextual learning is a concept which helps teachers to associate the subject contents with the situation in the real world and motivate students to make a connection between knowledge and implementation in their life. Based on the Department of National Education (Depdiknas, 2003), there are 7 main components of contextual learning, including 1) constructivism, 2) interdependent learning groups, 3) inquiry, 4) questioning, 5) modeling, 6) reflection, and 7) authentic assessment.

1.4. Outdoor study

According to Widiasworo (2017), the outdoor study includes an outside activity taking place in the field or away from the classroom. It is perceived as a subject area and a learning strategy. For this reason, it requires content, in the same way as other subject areas and should be enrolled and taught by experienced teachers. If perceived as a methodology or a context and approach to learning rather than a discipline, attention should be on the process, pedagogy, and approaches to outdoor learning used across a range of learning areas (Dyment et al., 2018). Rickinson, M., Dillon, J., Teamey, K., Morris, M., Choi, M. Y., Sanders, D., & Benefield (2004) described three types of outdoor learning, a) fieldwork and outdoor visits, b) outdoor adventure education, and 3) school ground/community projects. This article views outdoor learning as a strategy. The focus is most closely related

to fieldwork and outdoor visits, where learning activities are linked with a particular curriculum in outdoor settings.

Outdoor learning involves activities outside the classroom and it is especially effective in fostering key non-cognitive factors (Richmond et al., 2017). This study examined the effect of outdoor learning on cognitive factors. In general, outdoor learning is defined as purposeful and planned erudition experiences outside (Romar, Enqvist, Kulmala, Kallio, & Tammelin, 2018). According to Sumarmi (2012), it is one of the learning techniques which emphasize on the activities, skills developments, and students' knowledge through direct observation of the real objects. In addition, Stevens & Scott (Haji & Maizora, 2015) stated that children learning outside the school have more chances of understanding various mathematical objects related to the surrounding environment.

1.5. Model of contextual teaching and learning (CTL) with outdoor approach

The Contextual Teaching and Learning (CTL) with the outdoor approach is defined as the learning process conducted by associating mathematical learning materials with the implementation of the students' daily life and activities outside the classroom. The learning steps using this approach involves the teacher prepares the students, conveying the learning objectives, pass apperception, delivering the material topic learned and the procedures of the learning the model used, dividing the students into some groups, taking them outside the classroom to places related to mathematical material, learners observing and manipulating objects, teachers guiding discussions on various mathematical concepts in the objects outside the classroom, concluding learning, understanding reflection, and instructors giving assignments to students in order to strengthen their understanding of the concept learned and convey the material to be considered in the next class meeting.

2. Method

This was an experimental quasi study using "pretest-posttest control design." The design is described as follows (Table 1.).

Table 1: Research Design

Group	***Pre-test***	***Treatment***	***Post-test***
Experimental 1	Y_1	X_1	Y_2
Experimental 2	Y_1	X_2	Y_2
Control	Y_1	0	Y_2

Notes:
X1 : The learning model of CTL with outdoor approach
X2 : The learning of CTL
Y1 : Pre-test
Y2 : Post-test

The research population included students of class X from State High School of Fisheries Enterprise (SUPMN) Tegal equivalent to Vocational High School (VHS). This class consisted of four major sets including Nautical Marine Fisheries (NMF), Teknika Marine Fisheries (TMF), Aquaculture Technology (AT) and Fisheries Product Processing Technology (FPPT), each with two classrooms. The students were equally distributed without considering such things as superior or non-superior classes. Based on the test results of class X SUPMN Tegal at the odd semester, the average of Mathematics scores of eight classrooms was relatively the same, ranging from 55.4 to 58.7. The sample of three classrooms was chosen using cluster random sampling as shown in Table 2

Table 2: Research Sample

Group	Learning	Class	Number of Students
Experimental 1	CTL with outdoor approach	X *AT*-B	15
Experimental 2	CTL	X *AT-A*	15
Control	Conventional	X *TMF*-A	15

A test of mathematical representation ability consisting of seven items in form of an essay that was valid, reliable and with a good level of difficulty and discrimination power based on the results of the trial was used. The data were both quantitative and qualitative. Specifically, the qualitative data were descriptive, consisting of the results of the pre-test, post-test, and N-gain. The N-gain is a normalized gain calculated using the formula:

$$\text{N-Gain } (g) = \frac{\text{post-test score - pre-test score}}{\text{ideal maximum score - pre-test score}}$$

Then, the data of N-gain were grouped with interpretation criteria from Hake (1999) as follows (Table 3.).

Table 3: N-gain Criteria

N-gain Criteria	**N-gain Interval**
High	N-gain > 0,7
Medium	0,3 < N-gain ≤ 0,7
Low	N-gain ≤ 0,3

The quantitative data were analyzed using the following four steps 1) Normality test; 2) Homogeneity test; 3) Hypothesis test using F test or one way ANOVA; and 4) Advanced test to find out the learning model with significant improvement difference using the analysis of Post Hoc Test.

3. Result and discussion

A linear program was used in this study as learning material. The students were able to 1) determine the solution set of linear inequalities system of two variables by drawing graphs; 2) translate story items (verbal words) into sentences; 3) establish the solution set of mathematical sentences; 4) find the objective function of items; and 5) determine the optimal value based on the objective function using the corner point method. The indicators showed the linear program could be used as means of gaining and finding out the ability of mathematical representation, visual depictions (graphs or tables), mathematical equations and expressions, and words or written texts. The teacher should interpret students ideas in solving story items related to a linear program. Additionally, the material could be essential in the students' daily life. The students thought the material would be useful during their internship. For example, it was necessary to determine how much-processed fish is needed to get maximum sales results. Using the knowledge of linear programming, the problem could be solved effectively.

The objective of this research was to find out the effect of CTL with outdoor learning approach on students' representation ability. To measure the objective, a test of mathematical representation ability was given before and after the learning process. The data obtained was as shown in Figure 1.

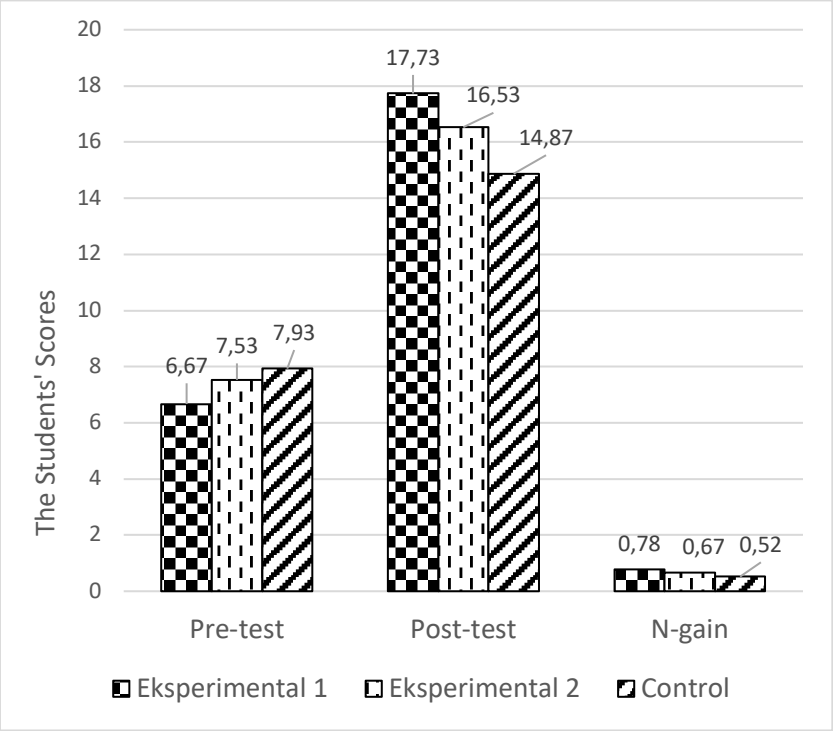

Figure 1: The scores of Pre-Test, Post-test, and N-Gain

Note: ideal score = 21

Based on Figure 1, the pre-test score of the students' mathematical representation ability at the control group was higher than the experimental class 1 and 2. Furthermore, the post-test score (achievement) at the experimental class 1 was higher than the class 2 and the control one. Besides, N-gain (improvement) of the students' ability of mathematical representation at the experimental class 1 was higher than in both 2 and control classes. Based on N-gain criteria of Hake (1999), the improvement of the students' mathematical representation ability at the experimental class 1 was at the high category while experimental class 2 and control group were at the medium category. In descriptive, the CTL learning with outdoor approach affected more the achievement and improvement of the students' ability than the CTL and conventional approaches.

To find out whether the effect was significant, statistical a test was carried out. Based on normality and homogeneity tests of the three groups of class, the data of the pre-test and the post-test scores, and N-gain of the mathematical representation ability were distributed in s normal and homogeneous way. The test result of one way ANOVA showed the students' pre-test scores of the three learning groups were not significantly different. This indicated the students' initial ability of representation in the three learning groups was relatively the same. If there was a difference at the end of learning, it was caused by the model used. The test result of one way ANOVA on the learning effect was as shown in Table 4.

Table 4: The Result of Significance Test of the Average Difference of Post-Test and N-Gain Scores

Data		**Sum of Squares**	**df**	**Mean Square**	**F**	**Sig.**
Post-test	Between Groups	62.178	2	31.089	10.845	.000
	Within Groups	120.400	42	2.867		
	Total	182.578	44			
N-gain	Between Groups	.512	2	.256	16.878	.000
	Within Groups	.637	42	.015		

Data		Sum of Squares	df	Mean Square	F	Sig.
Post-test	Between Groups	62.178	2	31.089	10.845	.000
	Within Groups	120.400	42	2.867		
	Total	1.149	44			

The result of statistical test count significance level (sig.) = 0.000 < significance level (α) = 0.05. This shows there was a difference between achievement (post-test) and improvement (N-gain) of the students' ability in using the CTL model with outdoor approach, CTL, and conventional learning. To find out the one with a more significant improvement, an advanced test was carried out. This was the Post Hoc Test analysis using Scheffe test. The result were as shown in the Table 5.

Table 5: Scheffe Test Results

Data	(I) Class	(J) Class	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Post-test	Experimental 1	Experimental 2	1.200	.618	.165	-.37	2.77
		Control	2.867*	.618	.000	1.30	4.44
	Experimental 2	Control	1.667*	.618	.035	.10	3.24
N-Gain	Experimental 1	Experimental 2	.26667*	.03510	.000	.1776	.3557
		Control	.66200*	.03510	.000	.5729	.7511
	Experimental 2	Control	.39533*	.03510	.000	.3063	.4844

The average difference of the achievement and improvement of the students' ability at each classroom shown in the column of Mean Difference (I-J) of output SPSS was positive. The highest greatest differences in the achievement and improvement of the mathematical representation ability between the CTL classroom with an outdoor approach and conventional classroom are at 2.867 and 0.66200 respectively. The second highest greatest difference in the average achievement and improvements were between the CTL and conventional classrooms consisting of 1.667 and 0.39533 respectively. Moreover, the average differences between the CTL classroom with an outdoor approach and CTL classroom were at 1.200 and 0.26667 respectively (See Table 5.). The conclusions of the result of Post Hoc Test were as follows 1) the achievement and improvement of the students' mathematical representation at the CTL classroom with the outdoor approach is higher than at the CTL and conventional classrooms, and 2) the achievement and improvement of the students' mathematical representation at the CTL classroom is higher than at the conventional classroom.

In this study, the CTL with outdoor approach affected the students' ability, showing better improvement than the CTL and conventional learning. The improvement of the mathematical representation ability of the learning model of CTL with outdoor approach was 0.78 (the high category). This was higher than the CTL (0.67, the medium category) and conventional learning (0.52, the medium category). See Fig. 1. Additionally, the CTL activities with outdoor approach could develop and improve the students' abilities. This could happen because the natural learning process was related to the real life and gave students chances to be active in learning, constructing, discussing, finding out, and solving the real problem outside the classroom. According to McCoy, Baker, & Little (1996), mathematics learning involving students in practicing and communicating through a variety of representations leads to a richer learning environment. This is in line with the concept of Bruner (Muchith, 2007) which stated that the learning process is influenced by the dynamics of reality development around students. The implication here is that the learning process might be effective and efficient if teachers give chances to students to find out concepts, theories, rules, or experiences through the examples encountered in life.

Besides, learning is not only conducted normatively or textually but also contextually. According to McCoy et al. (1996), mathematics learning activities involving students in practicing and communicating using a variety of representations enrich the learning environment.

Suwanjal (2016) supports the findings related to CTL learning with outdoor research. It showed the implementation of contextual approach could improve the critical thinking ability among students of Junior High School. According to Indahsari (2015), the performance of students of Junior High School with learning activities outside the classroom was higher than the results obtained in the classroom learning. Nevertheless, these results are not in line with Otte, Bølling, Elsborg, Nielsen, & Bentsen (2019). From their explorative study, teaching outside the classroom neither harmed nor improved pupils' mathematical skills.

4. Conclusion

This study examined the impact of CTL model with an outdoor approach on the mathematical representation ability. Three classes were used as research samples. The first Class 1 applied CTL with outdoor approach (exp eriment 1), the second class 2 the CTL (experiment 2), and 3 the conventional learning (control). The improvement of the students' mathematical representation ability using the learning model of CTL with outdoor approach was higher than the CTL and conventional learning. The improvement in the learning model of CTL with outdoor approach was also higher than the CTL and conventional learning.

The CTL learning with outdoor approach could develop and improve the students' mathematical representation ability significantly. Moreover, CTL learning with the outdoor approach is a natural process related to real life and keeps students active in constructing, discussing, finding out, and solving the real problem outside the classroom. Further research is needed to investigate the broader influence of CTL with the outdoor approach. For example, there is a need to recognize the influence of the difference between students with high, medium, and low mathematical abilities.

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Voices of Underrepresented Stakeholders: Parental Evaluation on 5th Grade ELT Curricula

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Abstract
The opinions of parents as a school-based stakeholders on ELT curricula have been neglected by not only authorities but also the related literature. Except from their consent or demands' being a prerequisite for the application of intensive curriculum for 5th graders, parents do not have a role for the development or application of English language curricula in Turkish education system. The present study is an attempt to hearken to their voices about the English language curricula implemented for 5th graders in Turkish middle schools. To this end, a cross-sectional survey study was designed and 116 parents of 5th graders were reached through 'Parental Questionnaire on ELT Curriculum.' The data were analyzed through Nvivo 12 and the results were supported with visual maps and direct quotations. The findings indicated that with high expectations from the curricula, the parents supported learning English based on the factors of providing long-term benefits and keeping up the new world order. Sharing their opinions on teaching material, content, class hours, assignments, and activities, participants gave suggestions on cognitive, affective, and practical aspects to improve the applications.

Keywords: Curriculum Evaluation, English Language Teaching, Parental Evaluation, Stakeholders

1. Introduction

Due to the realization of how crucial English is for their children's education and career, parents have been willing to spend their resources for more English exposure and supporting early language learning (Rich, 2014). Parents' ambition to provide every opportunity for their children to learn English put the governments under pressure and forced them to lower the age of learning English (Enever, Moon & Raman, 2009) or reshape their language policy as in the case of Netherlands (de Bot, 2014) or Indonesia (Zein, 2017). In addition to their attitudes towards learning English, this also shows us how effective parents' opinions can be on the process of decision-making and application. Parents participate in the process mainly by becoming a member of school boards, and there are many ways for parents to involve in decision-making with students and teachers, yet they are still underrepresented as a group (Marsh, 2004).

Parents are deemed to influence the learning of their children most and children start their formal education within their family (Ornstein and Hunkins, 2018). Looking from a pedagogical perspective, Fullan (2007) claims, "the closer the parent is to the education of the child, the greater the impact on child development and educational achievement" (p. 189). Moreover, Marsh (2004) lists parents as one of the curriculum workers along with teachers, principals or specialists. Although the significance of parental involvement for the child's learning is well-accepted, still there has been no set of criteria of standard among the schools in terms of involving parents into the teaching and learning process, especially the problem of what role parents have during the implementation still remains unresolved (Olibie, 2014). Parents can be seen as a partner of the teachers as they have unique knowledge about learning of the students, which makes them important stakeholders (Peterson, Wahlquist, Brown, & Mukhopadhyay, 2003). It is crucial to find ways to include parents and communities into the process for the development and implementation of the curriculum (Ornstein & Hunkins, 2018). Seeing schools as the only party responsible from the implementation of the curriculum can be an inadvisable attitude as the stakeholders like parents can provide support (Jansen & Middlewood, 2003). As well as support, they can also share their opinions or evaluations as being one of the parties affected from the curriculum. However, curriculum studies have a gap when it comes to investigating the opinions of the parents (Ersoy, 2007). In the Turkish context, the studies focusing on the opinions of the parents are quite rare compared to the ones evaluating ELT curricula from teachers' or students' perspectives (Dündar & Merç, 2017).

Although there are not many, related literature provides studies evaluating ELT curricula from the perspectives of parents in different contexts and their results provide insightful information on the issue. For instance, investigating elementary English programs in Klein, Krekeler (1993) found out that parents were aware of the improvement of their children and had positive attitudes towards ESL instruction, yet there was a lack of communication between parents and teachers. Moreover, the study of Hillberry (2008) indicated that attitudes of the teachers towards children, teaching quality, encouraging and friendly environment for students, values education, and providing extra support for English learning in U.S public elementary schools were mostly appreciated by the parents while factors such as class size, lack of cultural understanding, and lack of guidance for parents about the school procedures were mentioned as disappointments. In the Mexican context, Romero, Sayer, and Irigoyen (2014) interviewed with parents to evaluate the implementation of the national EFL program and suggested that parents should be informed about the curriculum as they were one of the key stakeholders.

There have been few attempts to investigate the opinions of parents about ELT curricula in Turkish context, too. Evaluating newly designed ELT curriculum for the preparatory class of Anatolian high schools, Kefeli (2008) revealed that the majority of the parents did not answer questions about the coursebook; their knowledge about the classroom practice was limited to what their children told them. Additionally, in order to evaluate ELT curricula from the perspectives of various stakeholders, TEPAV and British Council (2014) found out that level of income, education, and English proficiency were deemed to have an effect on the support parents provided to their children. In general, parents were content with ELT curricula and teaching materials, but the satisfaction level of parents was found to have a negative correlation with their proficiency level of English (TEPAV & British Council, 2014). Very recently, evaluating the 7th grade English curriculum, the study of Çetin and Gündoğdu (2020) indicated that parents gave importance to speaking skills and believed that lack of opportunities to use the language in daily life affected their children's learning, and increasing class hours could be helpful for more exposure to the language.

1.1. English Language Curricula for 5th Grade in Turkey

For the language policy of the countries within expanding circle, the status of English as a lingua franca and globalization has a significant impact (Kirkgöz, 2009). Foreign language courses have a long history within the Turkish education system (Demirpolat, 2015) and English has a pre-eminent place within the national curriculum (Kirkgöz, 2007). After World War I, English has global significance and for Turkey, teaching English has been on the agenda due to NATO membership and the start of negotiations for the European Union (Demirpolat, 2015). There have been tree major curriculum reforms occurred in 1997, 2005, and 2013, which have affected English language teaching in the Turkish context (Erarslan, 2018). Increasing the duration of primary education from five

to eight years, 1997 regulation lowered the age for the introduction of English to nine and English became a compulsory course for 4th graders (Gürsoy, Korkmaz, & Damar, 2013). Adopting behavioristic approach, 1997 Educational reform lasted eight years (Erarslan, 2018) and was replaced with 2005 curriculum, the purpose of which was to leave the behavioristic approach behind, follow a learner-centered teaching, and adopt process-oriented assessment (Haznedar, 2010). As it resulted in abandoning the implementation of preparatory class, the effect of 2005 reform on secondary level got nation-wide criticism (Kirkgöz, 2017). Lastly, 2013 curriculum reform decreased the level of teaching English in primary schools to 2nd grade (Demirtaş & Erdem, 2015). The new system also caused 5th graders, young learners at the age of 10, to be a part of middle school students.

Taking a firm action, the Ministry of National Education (MNE) piloted an Intensive English Langue Curriculum (IntELC) for 5th graders in 2017-2018 academic year. In 2018-2019 academic year, a regulation was announced and schools were given permission to give English courses up to 18 hours in a week for 5th graders with the approval of school administration and the demand of the parents (MNE, 2018a). The main curriculum prepared for 5th graders consists of 10 courses including Turkish language, math, science and technology, and visual arts. The class hours of these courses range from 1 to 6 hours. The schools following IntELC eliminate the courses such as physical education and sports or visual arts from their curriculum and use the extra class hours for English. As well as being an opportunity for the learners, the application of IntELC also created a duality within the system as schools were already following 2-8 English curriculum (ELC). Although both of the curricula are based on the principles of CEFR and their major philosophy, teaching approaches are the same, IntELC aims to reach the proficiency level specified as "beginning of B1" (MNE, 2018b) while ELC aims for A1 level with its 10-unit content and three weekly class hours (MNE, 2018c). While major philosophy, language teaching approach, and suggested techniques for assessment and evaluation remained the same, expected language level, weekly class hours, and learning outcomes were reorganized. In terms of unit themes, it can be stated that the first 12 units of IntELC are similar to the content of ELC. When it comes to the learning outcomes, both of the curricula only have learning outcomes specified for language skills, except writing skills for ELC, and speaking skills have the most learning outcomes in both of the curricula, which is natural as they are based on communicative principles.

Considering all of the reforms the Turkish education system has experienced, the role of every micro and macro level member within the system should be recognized in order to overcome the difficulties resulting from the disconnection between policy and practice (Kirkgöz, 2017). For decision making about national curricula, all parties including parents should be involved (Pinar, 2003). As one of the prerequisites for the application of IntELC is the demand of the parents, their opinions on IntELC and ELC can provide crucial feedback for both of the curricula. Thus, present study aims to evaluate ELC and IntELC from the perspectives of parents and hearken to their words. To this end, the study tries to find an answer to the following research question:

1. What are the opinions of parents about IntELC and ELC for 5th graders?

2. Methodology

2.1 Research Design

The present study adopted a cross-sectional survey design. In cross-sectional survey design, researchers conduct the study at one point in time to investigate "attitudes and practices, group comparisons, community needs, program evaluation, national assessment" (Creswell, 2012, p. 378).

2.2 Participants

116 parents of 5th graders living in a city center in the Central Anatolia Region of Turkey constructed the participant group of the study. The data were collected from five middle schools. Selected through random sampling, two of the schools were following IntELC. 26 % of the participants were male, only three of the participants had an advanced level of English and 38% of them had no knowledge of English. Among the participants, most of whom were housewives, there were teachers, laborers, academicians, and real estate advisors.

71 % of the participants were non-graduates, children of 23% of the participants were following ELC, and 95 % of the participants were supporting the application of IntELC. Lastly, 62% of the parents had not read the updated curriculum documents.

2.3. Data Collection and Procedure

In order to reveal the evaluations of parents about two ELT curricula, Parental Questionnaire on ELT Curriculum was prepared by the researchers based on the evaluations of four experts from the field of Curriculum Development and Evaluation and ELT. Within the first part of the form, demographic features such as education level or English proficiency level were elicited. The second part of the questionnaire was constructed with ten open-ended questions on the issues such as content, class hours, and coursebook. In order to reach more participants and eliminate the language barrier, the questionnaire was prepared in Turkish. After getting the permission from Ethics Committee and Directorate of National Education, the whole process of data collection took place between February and May in 2019. By means of a cooperation with administrators and English teachers of 5th graders, the questionnaires were sent to the parents by handing them over to the students and the ones sent back were collected. In some of the schools the data collection took place during parental meetings with the consent of the parents.

2.4. Data Analysis

Content analysis was conducted by using Nvivo 12 to analyze the data. The steps suggested by Creswell (2012) were adopted for the analysis. After transcribing the data, separate documents were prepared for each participant. Moreover, the files were enumerated and labelled as parents of ELC (P-ELC) or parents of IntELC (P-IntELC). Then, all of the data were went through several times by using a color coding system. In Vivo, Magnitude, and Descriptive Coding methods were adopted. In Vivo coding method requires using the words of the participants as a code instead of generating one and the Magnitude coding method enables to use symbols, descriptive statistics or abbreviations (Saldaña, 2013). Once the first coding segment was over, the defined codes were evaluated.

The second segment of coding was conducted to see whether any other codes could be generated from the data. At the end of the process, similar codes were organized to specify the themes. In order to calculate inter-coder reliability through the formula suggested by Miles and Huberman (1994), 25% of the data was also coded by another researcher from the field of Program Development and Evaluation and inter-coder reliability was found to be 98 %, which is an acceptable range (Miles & Huberman, 1994). The relations of the codes were visualized through maps and the reporting was supported through direct quotations. As the data were collected in the native language of the participants, the quotations were translated into English by the researchers for reporting.

3. Results

With the aim of revealing the opinions of parents about English language curricula for 5th graders, the responses of the participants were analyzed and presented under the following categories: opinions of parents about the necessity of learning English, expected outcomes, the efficacy of the curricula to reach the expected outcomes, coursebook as an instructional material, and points to be improved in ELC and IntELC.

3.1. Opinions of the Parents About the Necessity of Learning English

Before covering the opinions of the parents specifically about ELT curricula, their thoughts about their children's learning English were investigated. As presented in Figure 1, the responses of parents, who were positive about the need for learning English, were categorized under personal and social factors.

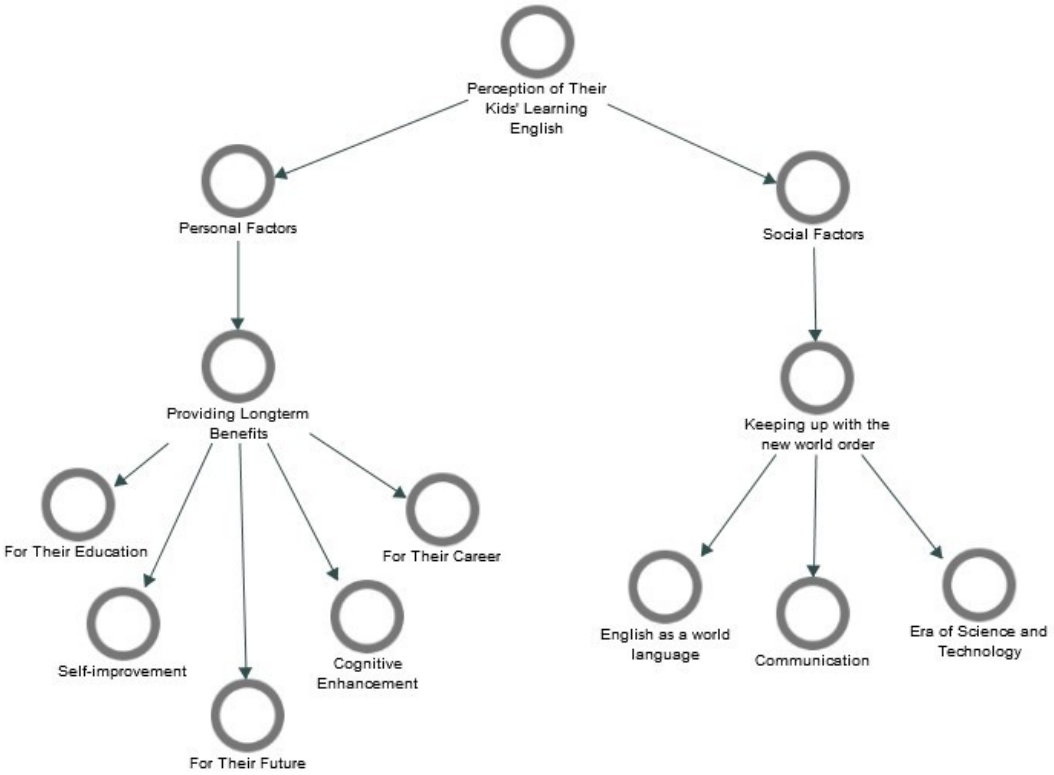

Figure 1: Opinions of the parents regarding their children's learning English

The sub-theme of personal factors was determined as providing long term benefits. The participants responded that learning English could be useful for the daily life, education, and career of their children. As stated by some of the parents:

> I believe it is necessary for education and career and it should be taken to an advanced level (P-ELC, 12).
>
> I believe learning English at this age and grade will have positive effects on my child's education and it is a sound decision (P-IntELC, 12).
>
> Yes, I think s/he needs to learn English, knowing and speaking English fluently will be beneficial for education life and career (P-IntELC, 58).

Some of the participants focused on personal and cognitive development. They expressed their opinions in these words:

> Of course s/he should learn English, it will contribute to his/her career, personality a lot (P-IntELC, 36).
>
> Language education makes a big contribution to his/her cognitive enhancement (P-IntELC, 55).
>
> One person, one language, gaining effective communication ability, contribution to cognitive enhancement (P-IntELC, 62).

For social factors, the sub-theme was specified as keeping up with the new world order, which embodies English as a world language, communication and era of science and technology. For English as a world language, some of the responses pointed out English as a global language. The following excerpts exemplify the opinions of some of the parents in this regard:

> In our era, English is valid as a foreign language regardless of the profession, the ones who know the language happen to be one step further. In an era in which communication has improved that much, I believe that one needs to know the common languages to be a man of the world (P-IntELC, 21).
>
> I definitely think that my child should know English, today not knowing English means living abstracted from the world (P-IntELC, 25).

Some of the responses indicated that it would be inevitable for the students to learn English in order to communicate. One of the parents responded:

> Yes, s/he needs to learn especially when we think that we are living in a technological era, the importance of language has been increasing day by day, the distance between the countries has disappeared through communication. As English is the mostly commonly used language, the golden rule for the communication is to learn English (P-IntELC, 13).

Lastly, parents supported learning English as it has become the language of technology and science. Two of the parents explained their opinions in these words:

> Yes, because I want my child to be able to manage any kind of software by having a high proficiency level of English, which has become the native language of the world in the era of science and technology (P-IntELC, 71).
>
> I think it is necessary to learn English as it is the communication language of the world, to reach the related literature in the professional or other fields, the need of it for commercial and scientific needs, even the societies whose native language is different, are using English for those reasons and more (P-IntELC, 80).

Only two of parents questioned the need for learning English. They either questioned its necessity or timing. The following excerpts elaborate the opinions of these two parents:

> I don't believe that it is necessary because it is not needed except education life, only it may change in line with the career choice and this can be made up with primary courses, it is not required by most of the school age children (P-ELC, 15).
>
> No, it is not essential, it may be in the years to come but right now it is such an early age (P-IntELC, 49).

3.2. Expectations of the Parents from English Language Curricula

Asked for their expectations from English lessons, the responses of P-ELCs focused mainly on reaching a certain proficiency level (see Figure 2).

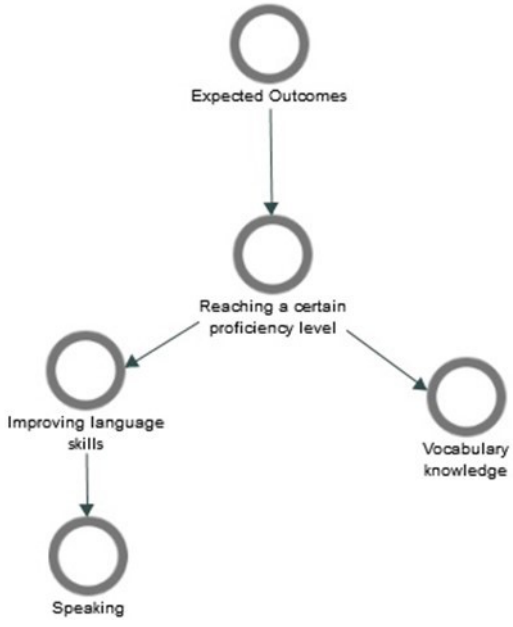

Figure 2: Expectations of the parents from ELC

Two of the parents expressed their expectations in these words:

> I think that my child needs to have high proficiency level of English when s/he starts the university as a result of the education s/he takes at the middle school and high school (P-ELC, 12).

> I expect that my child will be at intermediate level or maybe more and can use English in the future (P-ELC, 27).

P-ELCs expected the curriculum to improve vocabulary knowledge and language skills. Among language skills, speaking skills were mostly cited. The following excerpts exemplify the responses of parents regarding their expected outcomes:

> It will be really helpful if s/he starts learning and continues to improve. Learning English is not just about learning grammar. Paying attention to speaking besides grammar is what I expect. Because regardless of grammar knowledge, there should be activities to improve speaking and pronunciation (P-ELC, 1).
>
> I want that s/he can express herself/himself well when s/he finishes the middle school, for instance s/he can express her/his wishes, anger etc. and manage daily life communication (P-ELC, 3).

Expectations of P-IntELCs showed some similarities. Categorization of expected outcomes from IntELC is presented in Figure 3.

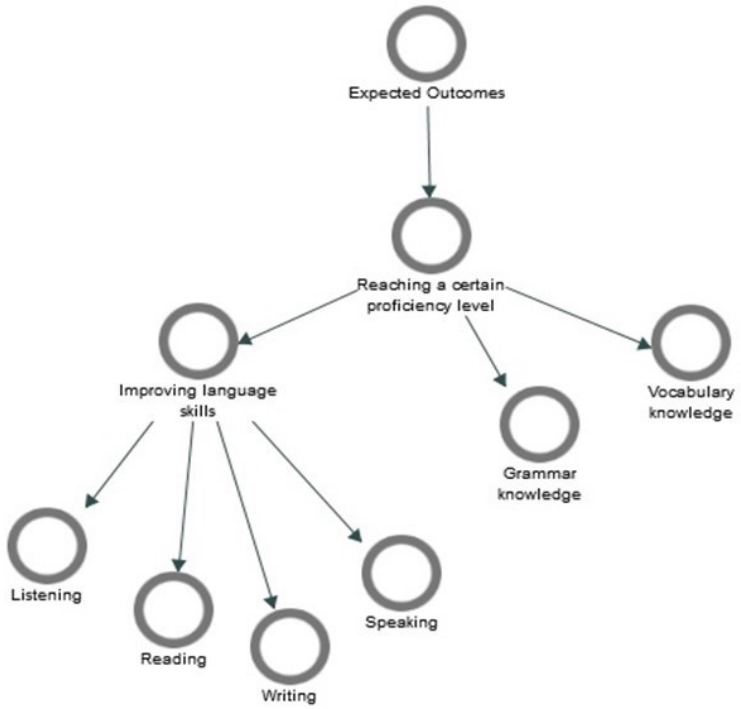

Figure 3: Expectations of the parents from IntELC

Just like P-ELCs, parents wanted IntELC to improve the proficiency level of the students. The responses of some of the parents implied great expectations. As one of the parents responded:

> I want him/her to learn at a level that s/he can express herself/himself, recognize abstract and concrete notions and s/he can speak like a native in time (P-IntELC, 10).

In relation to proficiency level, responses indicated that the parents expected IntELC to improve language skills of the students. Two of them stated their expectations in these words:

> I want my child to speak English like a native. We are expecting an education system which makes him/her speak and understand what s/he listens to and reads, and exchange mails (P-IntELC, 78).
>
> What we expect is to make my child really learn and reach the speaking and writings skills in daily life (P-IntELC, 80).

Although two of the parents emphasized the importance of language skills for themselves by comparing them with grammar knowledge, some of them still had expectations about grammar knowledge. As stated by two of them:

> It is necessary to focus on grammar and speaking in order to make children use it in daily life, have conversations, understand what is written (P-IntELC, 5).

> I want her/him to speak well and have a grammar knowledge at this age and not to have difficulties in the future, to have pen pals and summarize stories (P-IntELC, 54).

As the last component of proficiency, the parents highlighted the importance of vocabulary knowledge for them. One of them stated:

> What I expect is the ability to speak and have vocabulary knowledge rather than grammar structures, to understand the daily life vocabulary, reading comprehension and pronunciation and read a few books appropriate for the level in a year (P-IntELC, 21).

3.3. Opinions of the Parents Regarding the Efficacy of the Curricula to Reach the Expected Outcomes

As a follow-up to their expectations from ELT curricula, parents were asked to state how efficient they found ELC in terms of reaching the expected outcomes. The analysis of the responses is presented in Figure 4.

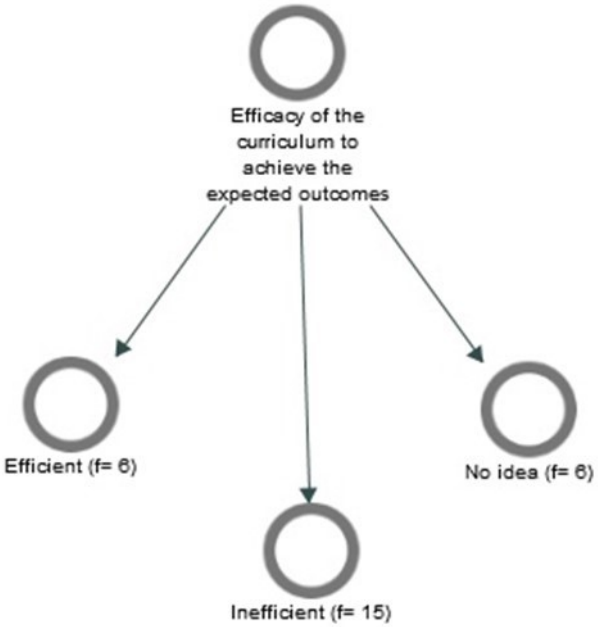

Figure 4: Opinions of the parents regarding the efficacy of ELC to achieve the expected outcomes

While some of the parents simply stated that they had no idea about the efficacy of ELC, six of the parents found ELC efficient. The rest of the parents believed that ELC was far from teaching English to their children. The responses indicated that their expectations were never met. One of them expressed his frustration in these words:

> Of course it is inefficient because the only things they remember are counting from 1 to 10, 10-15 words and 20-25 sentences, we have high expectations but it is inefficient. They are having those classes for years but none of them can gain anything with the education they took, the thought and intentions are good but it goes for nothing because of the poor practice (P-ELC, 15).

Figure 5 shows the responses of the parents regarding the efficacy of IntELC to achieve the expected outcomes.

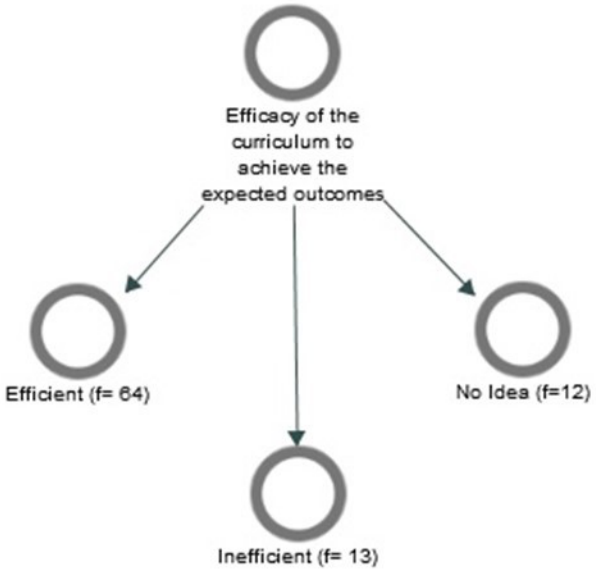

Figure 5: Opinions of the parents regarding the efficacy of IntELC to achieve the expected outcomes

As it can be understood from Figure 5, 12 out of 89 parents had no idea. 13 parents doubted the efficacy of IntELC to achieve the expected outcomes within the current conditions. While lack of reinforcement, class hours, need for extra support, and persistence of more class hours were mentioned as reasons for finding IntELC inefficient, majority of the participants praised IntELC and supported the application. The following excerpts are the examples of how they expressed their appreciation:

> Unlike previous curriculum, increased class hours, use of smart board, supportive materials and the support of concerned teachers are promising steps, we have positive opinions for now, we can evaluate it better at the end of the year (P-IntELC, 59).
>
> This year's curriculum is really good, I observe the improvements of my child, the pronunciation, forming sentences and expressions are really better (P-IntELC, 63).
>
> They are regularly reading stories for beginners, I think it is good, medium of instruction is English and dramas and visuals make the lessons entertaining, I think it is productive, children are happy (P-IntELC, 70).

Suggesting the extension of the application, parents compared IntELC with the old systems or the way they had learnt English. They believed that IntELC was a promising step for their children. The following excerpts elaborate the opinions of some of the parents in this regard:

> The lessons are enjoyable for our children, I think they are conducting enough activities compared to other schools, intensive curriculum is such a big chance and should be applied in all schools (P-IntELC, 28).
>
> For us, it is really good to see an English education which is more than "yes" and "no", seeing our children's really learning is a sign for the appreciation of the curriculum. I want it to continue and believe that it will be efficient. I want it to be extended to all schools (P-IntELC, 60).
>
> While the intensive curriculum was only being applied at high school level, it is really promising for future to have it at middle school level (P-IntELC, 62).

3.4. Opinions of the Parents Regarding the Coursebook as an Instructional Material

The participants also shared their evaluations regarding MNE-approved coursebook. Some of the parents could not evaluate the material because of their lack of English knowledge. The responses of the rest of the participants were divided into two main groups, categorization of which is presented in Figure 6.

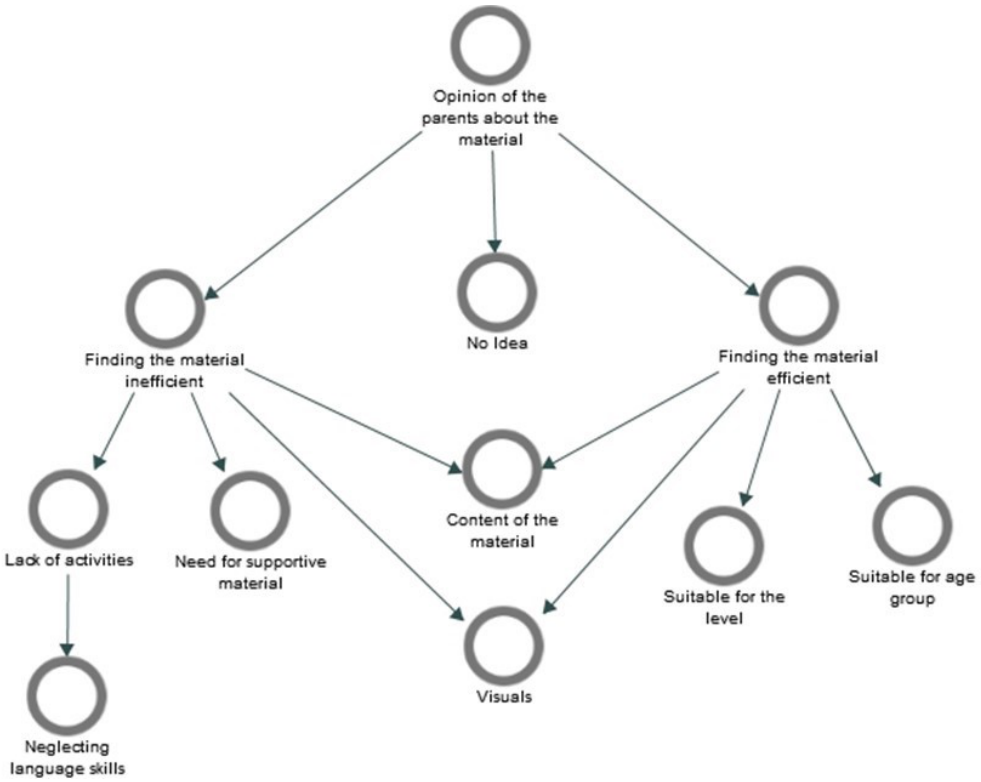

Figure 6: Opinions of the parents regarding ELC coursebook

Believing that the coursebook itself was not enough and there should be supportive materials, some of the parents pointed out the lack of the activities and one of them criticized the amount of speaking and listening activities. On the other hand, the coursebook was praised by half of the group for its efficiency and suitability to the level and age. Moreover, two aspects of the coursebook got both negative and positive opinions from the parents. One of these aspects was the content of the coursebook. Although it was praised for being clear, two of the participants criticized the scope of the content. The other aspect was the visuals in the coursebook. As well as being praised, high number of visuals in the coursebook were criticized. One of the parents mentioned:

> As far as I can see there are lots of visuals, activities and tests are insufficient, there isn't much place left for activities because of pictures, the visuality is important but it is unnecessary to include that much (P-ELC, 15).

The categorization of the opinions of the parents regarding MNE-approved coursebook for IntELC is presented in Figure 7. As there was not a MNE-approved coursebook prepared specifically for IntELC, the students used the same coursebook with the ones following ELC along with their supportive materials. Thus, all of the parents evaluated the same coursebook regardless of the curriculum their children followed.

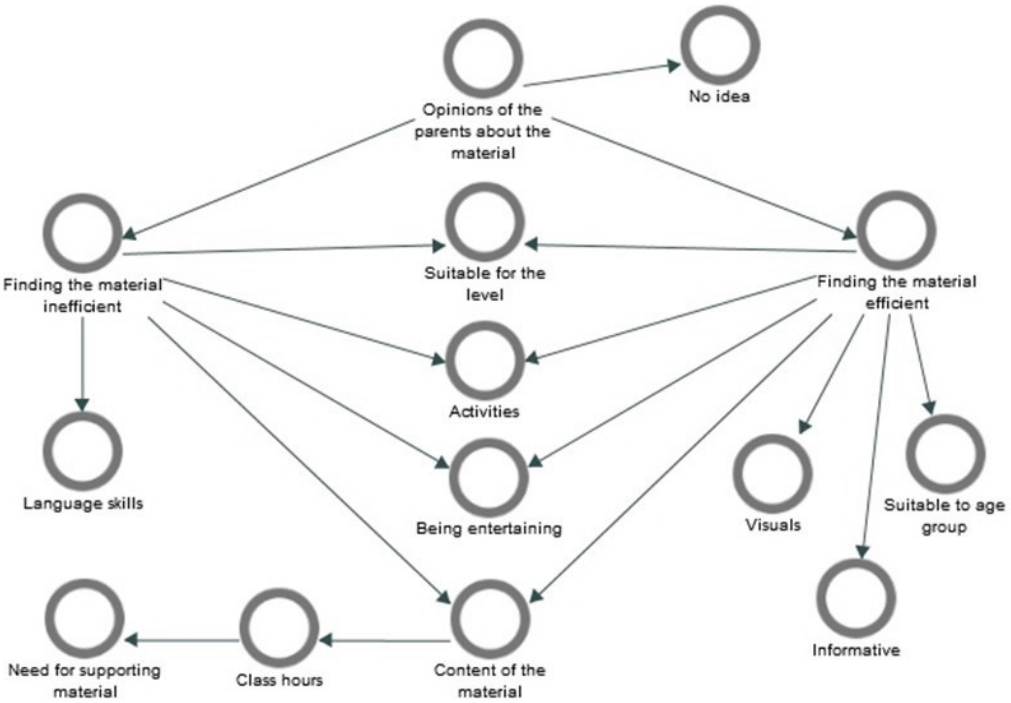

Figure 7: Opinions of the parents regarding IntELC coursebook

As English knowledge constituted an impediment for some of the parents, there was no point of investigating the coursebook for them. Just like the participants of ELC, the rest of the parents who stated an opinion were at odds over the coursebook. For some aspects there were both positive and negative comments. First of those aspects was coursebook's being entertaining. Although one of the parents stated that the coursebook was not productive and enjoyable, some of the parents stated contrary opinions. Another controversial aspect was the content of the coursebook. Contrary to the positive evaluations, there were some criticisms directed to the content of the coursebook for being superficial. Additionally, parents evaluated the content of the coursebook in terms of weekly class hours and believed that there was an inconsistency between the content and the class hours, which also created the need of supporting materials. There were both positive and negative evaluations about the activities in the coursebook. Some parents suggested enriching the activities by adding tasks and dialogs. The last issue that there was no consensus among the participants was the suitability of the level. Some of the participants praised the coursebook for being easy to understand and instructing while one of the participants shared a different opinion. He expressed himself in these words:

> Explanations or examples are quite bad. It is difficult sometimes even I have difficulties. I think they published a bad coursebook, the explanations are so short, the examples, too. It is quite hard for children. I think the first thing to do should be changing the coursebook, an easier coursebook with more examples would make it easy for children to learn (P-IntELC, 26).

3.5. Opinions of the Parents Regarding the Points to Be Improved in ELC and IntELC

Finally, the participants were asked to state their opinions regarding the points to be improved for a more efficient application. The categorization of the responses for ELC is presented in Figure 8.

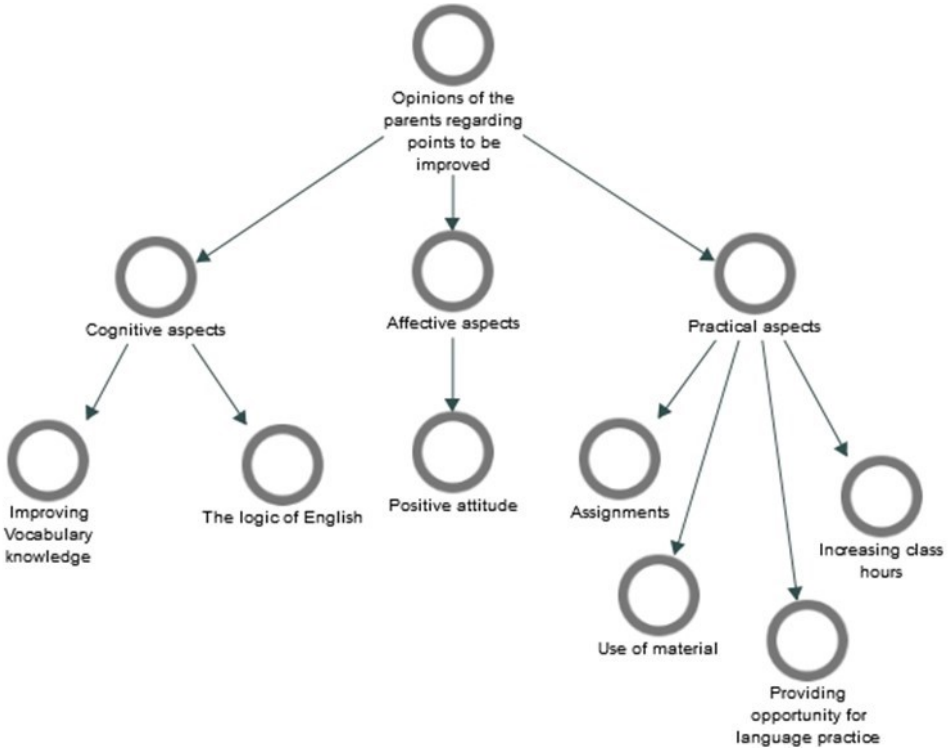

Figure 8: Opinions of the parents regarding the points to be improved in ELC

Two points mentioned within the cognitive aspects were referring to vocabulary knowledge and understanding the language itself. Participants believed that ELC should pay more attention on increasing vocabulary knowledge and what students needed was to understand the nature of English as a language. For the affective aspects, the parents focused on having positive attitude towards learning English, rather than seeing it as an obligation.

There were four main topics under practical aspect. As an improvement, parents expected ELC to create more opportunities for language practice. Two of the parents highlighted the need for using supportive materials while one of the participants suggested that the students' learning could be supported through assignments. Lastly, most of the participants were not content with the weekly class hours and increasing class hours was the suggestion cited most. However, one of the parents shared a different point of view and proposed narrowing down the scope instead of struggling with an extensive content. He explained himself in these words:

> The important thing is what is being done within those hours rather than the amount of the class hours. Taking the coursebook as a base, the class hours are insufficient, the curriculum has some deficiencies, there is a lack of practice and as the class hours are insufficient in terms of the scope of the curriculum, the subjects are covered superficially. The system and the curriculum should be reorganized. Instead of including more units without covering them, following less units can be more beneficial (P-ELC, 15).

The categorization of the opinions of the parents regarding the points to be improved in IntELC is presented in Figure 9.

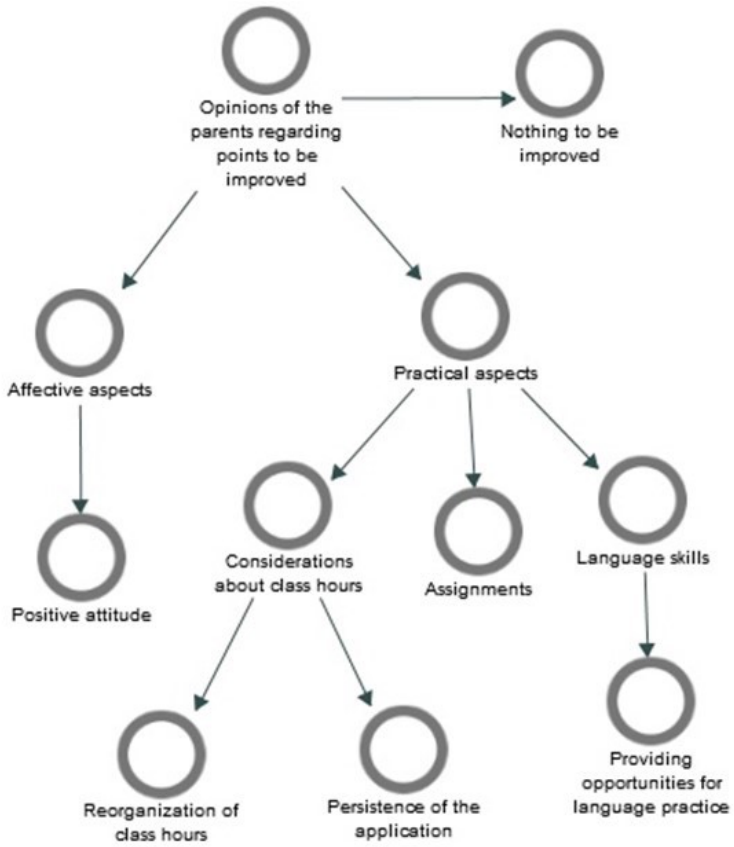

Figure 9: Opinions of the parents regarding the points to be improved in IntELC

Before covering the points mentioned by the participants, it is important to state that there was a group of participants responding that there was no shortcoming of IntELC for them. Two of them showed their appreciation in these words:

> I like everything about the curriculum, I don't have any complaints, I am pleased with it. I think the class hours are ideal for intensive curriculum, children get bored time to time but they will see its benefits when they pass the class (P-IntELC, 54).
>
> I don't see any deficiencies, every school should follow intensive curriculum, for this school it is efficient, I believe that they do everything for English (P-IntELC, 63).

Although most of the parents appreciated the application, some of them believed that there was still a room for improvement. The first category was about affective characteristics. Within this aspect the parents mainly focused on helping students to develop a positive attitude towards English and motivation for permanent learning. To achieve this, they suggested to explain the learners the reasons to learn English. Two of the parents explained themselves in these words:

> It is theory-based but speaking and listening is insufficient, children shouldn't be bored with theory and tests, they should make children like learning languages, especially English. Children should understand that the main thing is to understand the logic of English without boring them with the rules and they should be encouraged for speaking (P-IntELC, 77).
>
> Some seminars explaining the importance of English can be held, children can understand why they should learn English (P-IntELC, 10).

The second category covered practical aspects. The participants shared their suggestions in terms of class hours, assignments, and language skills. Some of the parents believed that students needed assignments for reinforcement. Moreover, participants expected IntELC to focus more on language skills and provide more opportunities for language skills. Some of them even suggested to reschedule the weekly class hours and setting separate hours for each skill or forming speaking clubs in order to focus more on language skills. Associatively, one of the parents

believed that they needed well-informed parents to provide students extra opportunities for language practice. She stated:

> It is necessary to construct a group of informed parents and provide opportunities to the students who want to improve themselves with activities like clubs, parents should be informed to form a unit at the school (P-IntELC, 24).

As well as rescheduling the weekly class hours, parents stated their opinions about the number of class hours and the persistence of application throughout the middle school. There was no consensus about whether the weekly class hours of IntELC sufficient or not. While some of the parents were content with the amount and even wanted more hours, some of the parents were concerned that their children might get bored. As IntELC does not include classes like music or art, parents suggested to integrate those classes in English to compensate the lack of them. While most of the participants expected the application of intensive curriculum to continue throughout the middle school instead of restricting it only to 5th grade to get better results, one of the parents criticized the number of the main courses students had to follow within IntELC.

4. Discussion and Conclusion

There were personal and social factors behind the support of the parents to their children's learning English. The personal factors were related to the future and personal development of the children. They saw speaking English as a prerequisite for their children to find a job and have a successful future mainly because English has become the leading language in the world of business. Moreover, some of the parents supported learning English as it could contribute to self-improvement and cognitive enhancement. Social factors were related to the language of the world, global communication, and science and technology, all of which are embodied by English. Being parallel to the study of Kefeli (2008), the results of the present study should be interpreted as parents' awareness of the role of English in today's world. Becoming a global language to communicate, English is used to construct political and financial relationships (Kachru & Smith, 2009). It is also seen as the language of knowledge, science, and technology (Crystal, 2003). Justifying the opinions of the parents within the present study, Ahmad (1993, p. 210) believes that in Turkish context "English had become the sine qua non for a successful career in virtually any field and parents struggled hard to have their children acquire a working knowledge of the language."

The effect of this perception on affective factors and success of the students should also be discussed. In the field of education, it is well-accepted that there is a parental influence on the attitudes or motivation of the students (Phillips & Filmer-Sankey, 1993; Szpotowicz, Djigunovic, & Enever, 2009). According to Young (1994, p. 48), "supportive, encouraging parents who value FLL communicate this to their children may initiate the motivational process by indicating a route leading to attainment of esteem via FLL". The studies have provided evidence for the role of parents in the language development of the children, and positive attitude and support of the parents will get favorable results for any field (Tavil, 2009). Moreover, pupils' perception of the language they are learning can be affected with the experiences or attitudes of family members towards language learning (Phillips & Filmer-Sankey, 1993). Thus, the reflections of positive parental attitudes could be detected within orientations of the learners (Bartram, 2006). The correlation between parental influence and academic success is well-accepted by the educational psychologists, in addition to its importance especially during developmental stages (Dörnyei & Ushioda, 2011). Considering the related literature, the opinions of the participants can be interpreted as a promising support for the language learning of the students.

While P-ELCs expressed their frustration in terms of reaching the expected outcomes, most of P-IntELCs were content with the curriculum. What parents expected from ELC and IntELC was to make their children reach a certain proficiency level mainly for speaking skills. Their expectations were found to be parallel to the reasons behind their support. The grade of their children may be effective in shaping their point of view because with the impact of secondary education placement examination, learning a foreign language has been kept in the background compared to exam strategies especially at 8th grade and what parents and school administrations care more is students' success at the exams (Çakır, 2017). However, the expectations of the participants were not exam-oriented and this can be a promising step for the implementation of ELC and IntELC.

Both P-ELCs and P-IntELCs shared divided opinions about MNE-approved coursebooks. Aspects such as content, activities or visuality of the coursebook were both praised and criticized. One of the biggest problems for P-IntELCs was the inconsistency between the class hours and coursebook content because they had to meet the deficit with extra coursebooks. The opinions of parents on coursebook are crucial because they use those materials in order to support the learning of their children (Şahin, 2020). The parties responsible for coursebook selection are "students, parents, teachers, coursebook writers, administrators, curriculum planners, and academics" (Arikan, 2009, p. 310). Although their opinions have not been paid attention in the related literature in Turkey yet, parents, as one of the school-based stakeholders and material users, also have the right to express their opinions about EFL coursebooks (Şimşek & Dündar, 2017). This lack of attention can be explained through free of charge coursebooks distributed by MNE or parents' leaving the role of selector to authorities and teachers (Şimşek & Dündar, 2017). According to Dias De Carvalho and Fadigas (2009), parents gave importance to coursebooks as they saw these materials as a reflection of what their children were doing at the school. In other words, coursebooks serve as a bridge between the school and parents. Thus, the opinions of the parents about the coursebooks their children use is more important than it seems as the coursebooks are basically the first reference parents use to evaluate educational activities conducted by the school and the teachers. Thus, their opinions should be taken into consideration while selecting and evaluating the materials.

Parents' mentioning that they had no idea about the content and the material or not giving any answers to some of the questions in the parental questionnaire can be interpreted as a sign of their lack of awareness or knowledge. Some of them saw no points in examining materials used by their children because of their lack of English knowledge. Supporting this finding, Arias and Morillo-Campbell (2008, p. 8) list down the barriers for ELL parental engagement as "(1) school-based barriers; (2) lack of English language proficiency; (3) parental educational level; (4) disjuncture between school culture and home culture; and (5) logistical issues". However, the existence of these barriers should not discourage the stakeholders. The study of Baeza (2012) indicated that parents did not let the factors such as low education level or cultural background prevent their engagement with their child's education both at school and at home. As pointed out by one of the parents, raising awareness among the parents and their involvement are crucial for the success of the children and consequently, the curriculum. Being the most important and difficult part of the process, the implementation needs parental involvement to be efficient (Olibie, 2014). Parental involvement should not be seen as a unilateral act. Parents need to be directed by the schools and the teachers during this process, especially when they have no idea how to participate (Poyraz, 2017). Specifically focusing on foreign language learning, Young (1994) suggests that families can contribute to the process of their child's learning a foreign language by talking about the importance of language learning, providing opportunities for them such as vacations, learning programs or materials to read, and assisting with their homework.

The present study is an attempt to reveal the opinions of the parents on ELT curricula for 5th graders in Turkey and its findings indicated that parents as a group of underrepresented stakeholders could contribute to the curriculum evaluation process when given a chance to share their opinions. It was also revealed that whilst they had quite a few things to state about ELT curricula, they also needed detailed information about them and their applications. Including parents into the curriculum evaluation process as much as teachers is not an easy path to follow but further research on different grades and local contexts can provide significant results and contribute to the issue.

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Experiences and Challenges of Distance Learning During Covid-19 Pandemic From Educators' Point of View: A Review

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Abstract
COVID-19 pandemic has affected many sectors of life including education. Many countries had implemented the policy on distance learning. Distance education denotes the physical separation of the learner from the instructor, both by time and space. Information and communication technologies (ICTs) including online media are used to bridge the educators and the learners. The distance learning system forced the teacher to shift the traditional teaching method of face-to-face teaching to no-physical contact teaching in all stages of educations such as primary and secondary education, higher and vocational education, and special education. We found that teachers have been applied different strategies based on the unique challenges they faced. According to the COVID-19 situation, teachers from all stages of education have gathered all the solutions that could be applied. So that, it could help students to adapt to distance learning by transforming the traditional learning system to mandate distance learning system like nowadays when COVID-19 positive case could be controlled by contactless only.

Keywords: Distance Learning, Covid-19, Educations

1. Introduction

1.1 COVID-19 affect learning system for all stages of educations

COVID-19 pandemic had affected many sectors of life including education. Many countries have implemented policies on distance learning. The concept of distance learning differs from *online learning* or *e-learning.*

Distance education denotes a physical separation of the learner from the instructor, both by time and space. Information and communication technologies (ICTs) including online media are used to bridge the educators and the learners. Meanwhile, online learning or e-learning is utilization of internet-based technologies by educators and learners which can be done when they are or are not occupying the same place (Guri-Rosenblit 2005). The condition forced teachers to shift the traditional teaching method of face-to-face teaching to no-physical contact teaching in all stages of educations.

Generally, stages of educations are classified into 4 categories: early childhood education, primary education, secondary education, and tertiary education as framed by International Standard Classification of Education (ISCED) 2011. The classification is based on children's age of development. The curriculum and outcome for every stage are different and lead to a more complex and specified content leading to professional qualifications (United Nations Educational, Scientific, and Cultural Organization 2011). Thereby, the challenges in every stage differ one another. Educators hold an important role in delivering effective and efficient learning processes. So it is important to know perspectives, challenges, and suggestions from educators' points of view in distance learning implementation during COVID-19 pandemic to improve the education system. This review gives a comprehensive educators' point of view from each stage of educations.

2. Theoretical Framework

This study is made by using the literature review method. The method works by selecting, gathering, and assembling specific information from various previously published studies according to the topic we want to discuss (Denney and Tewksbury, 2013). All research that was used as the source of information and references in this study is obtained from various online journals. The references are searched through Research Gate and Google Scholar sites. The keywords used to find the references material are e-learning, teaching, and distance learning during the Covid-19 pandemic. These keywords are then combined with various levels of education that you want to discuss. In this paper, the education levels discussed are primary and secondary education, higher and vocational education, and education for disabilities. In this study, we used teacher's point of view which is described in three topics namely, teaching experiences, challenges, and strategies for the implementation of distance learning for each level of education..

3. Review of Educators Point of View From Each Stages of Educations

3.1 PRE-SCHOOL AND EARLY EDUCATION

Age 0-6 years or preschool age is known as the golden age in children's development. Children in this age are egocentric, have high curiosity and imagination, fast-learning, and have short-term concentration. They are active learner thereby the learning process has to involve daily-life activities, observation, and playing. Playing is an effective media for children to apply their newly gained skills as well as to develop their social and emotional intelligence. In this period, motoric aspect of children is highly developed and has to be continuously trained (Suryana and Mahyudin 2013). Preschool education program aims to support every aspect of development including language, cognitive, socio emotional, gross and fine motoric, moral and behavior, art, and necessary life skills for children and preparation for participation in school and society. Every child has their own unique characteristics, so it is important for the educators to know them personally to deliver an effective education and training programs as well as to communicate and provide guiding for parents (Kuset et al 2021).

3.1.1 Teachers' Perspective and Experiences

Teachers were aware of their families' and pupil's health and safety, and thereby they can accept the decision of distance education. However, they were also worried about their professional life for long-term financial and employability issues. Many early childhood education centers are run privately. Their incomes are depended on tuition fees and do not receive any financial grants from the government. Teachers were worried that parents would stop paying tuition fees for the next semester (Alan, 2021; Dayal and Tiko 2020).

They also felt some negative effects regarding to distance learning including difficulties in teaching basic concepts (Dayal and Tiko 2020, Kruzewska et al. 2020, Yildirim 2021, Hartatik and Bi'ayuni 2020) and the need of extra effort (Kuset et al. 2021). Some still consider online-based media teaching as something luxurious and difficult to start (Syarah et al. 2020).

In study by Kuset et al. (2021), only 31% teachers thought that distance learning is efficient, however 63% stated that it was sufficient to prevent children from leaving school. Teachers also thought that distance learning resulted in negative emotional and mental development of pupils and/or insufficient social environment (Yildirim 2021, Kuset et al 2021), hinder their preparation for primary school and school adaptation (Yildirim 2021).

Despite of negative perceptions, teachers also reported a positive impact of distance learning. First, their pupils were interested with the new interactive online-based technology and learned to use ICT (Dayal and Tiko 2020, Kuset et al. 2021). Second, online learning led to time efficiency where they did not spend time commuting to the workplace, work at their own pace, and more time for their family. Third, they felt improvement in using ICT (Information and Communication Technologies) (Kruzewska et al. 2020). Moreover, some teachers felt an increase in parent-pupil interaction and parental engagement in their children's education (Yildrim 2021, Kuset et al. 2021). Some other positive opinions are related to children development where there was an increased sense of responsibility and self-assessment skills (Kuset et al. 2021).

3.1.2 Challenges

Several challenges have been reported and can be classified into technical problems, pedagogical problems, and participation problems. Teachers reported one of the most significant technical challenges faced during distance learning is internet connectivity issue (Yildirim 2021, Syarah et al. 2020). Some also reported a lack of adequate facilities such as laptops or Internet (Dayal and Tiko 2020, Kruzewska et al. 2020, Syarah et al. 2020). About 15% teachers reported limited access to teaching sources or platforms such as the required material was not fully accessible (Kruzewska et al. 2020, Yildirim 2021, Syarah et al. 2020).

In pedagogical aspect, the most significant challenge is lack of digital competencies, especially when teachers are unfamiliar with or using new online-based educational programs to prepare materials (Alan 2021, Yildirim 2021, Syarah et al. 2020), lack of experience in distance learning which resulted in overload with the preparation of teaching materials and difficulties in explaining new materials (Kruzewska et al. 2020, Yildirim 2021, Kuset et al. 2021, Syarah et al. 2020).

Teachers had to spend more time for personal counseling (Hartatik and Bia'yuni 2020). Moreover, teachers also realized the negative impact of lack of direct contact between pupils and teachers as well as pupils and their peers which is necessary for early age as their communication and socioemotional behavior is developing in this age (Kruzewska et al. 2020, Yildirim 2021). Lack of contact had been related to children's negative emotional

development (Yildirim 2021). Direct contact is also necessary for teachers to supervise children when performing tasks and parents counseling (Kruzewska et al 2020). Indirect teaching made it difficult for teachers to assess children's performance as at home, there might be parents' involvement when children performing their task (Kruzewska et al 2020, Yildirim 2021, Kuset et al. 2021, Syarah et al. 2020).

Participation problems mainly arose because parents didn't have Internet, computer, laptop, or gadget, printer, and inquired platforms or were unaware of how to use them (Dayal and Tiko 2020, Kruzewska et al. 2020, Yildirim 2021, Hartatik and Bia'yuni 2020, Kuset et al. 2021). Limitations also appeared from working parents where their children had to use their gadgets and this can be done once the parents were home (Hartatik and Bia'yuni 2020, Kuset et al. 2021). They also reported that some parents didn't have props to perform necessary at home activities (Yildirim 2021). Some teachers also reported lack of parents' help in child's learning, including directing children when performing activities and giving feedback to teachers in activities (Kruzewska et al. 2020, Yildirim 2021). Moreover, some parents didn't want to be contacted and were reluctant about distance learning (Yildirim 2021).

Another challenges come from student origin including pupil's difficulties with motivation to learn (Kruzewska et al. 2020, Yildirim 2021), lack of concentration (Yildirim 2021), and students speaking at the same time during lessons (Yildirim 2021). In a study by Syarah et al. (2020), 54% teachers were unable to motivate children through online media.

3.1.3 Teachers' Strategies

In terms of technical issues, teachers in Siga Lailai had interesting strategies. Despite having single laptop and Internet modem, teachers took turns to deliver lessons at different times (Dayal and Tiko 2020). In terms of pedagogical strategies, teachers' first and immediate strategy was online learning on literacy and numeracy using play-based learning at home. Teachers send a link of materials including worksheets/ songs/hands-on activities through e-mail (Dayal and Tiko 2020), chatting applications such as WhatsApp (Hartatik et al. 2020, Solekhah et al. 2020, Yildirim 2021), Viber (Dayal and Tiko, 2020), video conferences such as zoom (Dayal and Tiko 2020, or web-based platform such as Web 2.0 tools (Alan 2021). Teachers' strategies for evaluation were by asking photos of activities and parent's feedback (Yildirim 2021). In Siga Lailai, teachers delivered lessons from classroom to familiarize children with in-class learning environment. They were also aware of children's health regarding to long-term exposure to screens, so they asked children for a virtual house tour (Dayal and Tiko 2020).

To increase student's participation, teachers keeping in touch with their pupils through WhatsApp or online conferences and communicating with parents (Yildirim 2021). They also provided easy-to-download or easily accessible materials (Yildirim 2021). To resolve the limitation of gadget access in working parents, teachers made video calls with pupils when the parents were home in the evening (Hartatik and Bia'yuni 2020).

3.1.4 Teachers' Suggestions

For technical issues, some teachers suggest schools to make computer equipment available to children/pupils and to teachers who need it (Kruzewska et al. 2020). Teachers also suggest free internet access for parents and teachers who need it (Yildirim 2021).

For pedagogical issues, priority is to give teachers training related to skills and competencies on using ICT and management or techniques to deliver distance learning (Kruzewska et al. 2020, Yildirim 2021, Syarah et al.

2020). Secondly, teachers suggested to enrich educational resources for government-provided online teaching media. For example, expand and vary guide books and activity books or thematic animations, games, audio visual children's books (Alan 2021, Kruzewska et al. 2020, Syarah et al. 2020). They also suggested a more children-friendly platform which developed specifically for preschool teachers, students, and families (Alan 2021). Some teachers also suggested government to prepare programs for outbreaks and creating TV shows for preschool education (Yildirim 2021). In the future, they hoped that government will include 'distance learning teaching method' as part of faculty curricula to prepare teachers when facing pandemics (Yildirim 2021, Syarah et al. 2020). Less than 50% teachers had difficulties in evaluating the work of pupils in distance learning and they suggest development of criteria for evaluation and parents' active involvement to give honest feedback and videos on home activities (Kruzewska et al. 2020, Yildirim 2021).

For participation aspect, teachers viewed the need of parents' cooperation to guide their children during distance learning and the need to informing, involving, and increasing parent-student interaction (Alan 2021, Yildirim 2021). In that case, teachers suggested various resources such as leaflets, booklets, or public service announcements to raise the awareness of important role of parents in early education (Alan, 2021).

3.2 PRIMARY AND SECONDARY SCHOOL

Primary school is the first stage of basic education. It bridges between early childhood education to formal school education. The programs are typically designed to provide students with fundamental skills in literacy (reading and writing) and mathematics and to establish a solid foundation for learning. According to ISCED classification, primary education normally starts between the ages of 5-8 (1st to 3rd grade). However, in many countries, primary school starts from 5-12 age (1st to 6th grade). In ISCED classification, 4th to 6th grade are considered as lower secondary education where in this stage, students are though with a more subject-oriented curriculum (United Nations Educational, Scientific, and Cultural Organization 2011). The basic competencies to achieve in primary school are native language (spoken language, reading and writing, vocabulary development), English as secondary language, numeration and mathematics, basic science, social studies (geography, history), art and music, physical education, religious or ethical education which is almost the same in many countries (Kementerian Pendidikan dan Kebudayaan 2012, UK Department of Education 2013, Organization for Economic Co-Operation and Development 2016).

Secondary education prepares students for tertiary or higher education and/or providing skills relevant to employment. Usually with an increased subject options and streams (United Nations Educational, Scientific, and Cultural Organization 2011). In this stage, the competencies achieved in primary school are developed in more detail. In addition to mandatory subjects, students choose 'electives' (optional subjects) which supplement their future education and career plans in some countries, one of them is USA (Corsi-Bunker). In Indonesia, students are directed to choose natural science and technology, social science, or language specialization in high school (Kementerian Pendidikan dan Kebudayaan 2012). Foreign languages (other than English) are also added as part of curriculum in some high schools (Corsi-Bunker, Kementerian Pendidikan dan Kebudayaan 2012).

3.2.1 Teacher's Perspective

In study by Fauzi and Khusuma (2020), 82.5% teachers agreed that online learning helped to teach processes during pandemics. However, 73.9% considered that online learning was not very effective to be applied in the learning process. Half of them felt that it was hard to access by students. Majority of the teachers (80%) felt dissatisfied with online learning. In another study by Mailazi et al. (2020), about 50% teachers were not confident in using e-learning, inconvenient in using this method, and thought that this modality of teaching is not useful. The perception towards distance learning is probably affected by challenges posed by teachers which are

also affected by their backgrounds. In contrary to the abovementioned studies, which were conducted in Indonesia, 70% teachers in Finland thought that distance teaching went excellent, but they still felt that many valuable elements that normal school life could provide lacked in distance learning (Niemi and Kousa 2020). Another negative perception is that distance learning will make it difficult to guarantee the full participation of students due to heavy reliance on technology. Meanwhile, teachers felt the positive impact of distance learning was quality resources for teaching and learning, more objective records can be retrieved, and more forms of interactions. Students were more active because they didn't need to show themselves as in traditional classroom (Gao and Zhang 2020).

Level of stress arose as teachers were pressured to ensure students succeeded in their examination in combination with sudden changes in learning method. Teacher's anxiety about new and unfamiliar form of teaching highly affected their perception on distance learning. Nevertheless, some teachers saw an opportunity to create something new like using simulations in online learning or introducing concepts using daily activities (Niemi and Kousan 2020, Aldon et al. 2021, Gao and Zhang 2020).

Students-teachers' communication became more intense. Some teachers perceived this as a positive impact, while other teachers felt disturbed where they had trouble relaxing (Aldon et al. 2021).

3.2.2 Challenges

In technical aspect, the major problems are still the same with preschool teachers, related to internet connectivity, quota availability and extra expenses for quota, and gadget ownership (Pramana et al. 2021, Rasmitadila 2020, Fauzi and Khusuma 2020, Devilla and Manalo 2020, Mailazi et al. 2020, Gao and Zhang 2020). However, in study by Niemi and Kousa (2020), teachers didn't felt connection as significant hurdle.

In pedagogical aspect, low ICT ability and unfamiliar with online teaching method is still become the major hurdle (Pramana et al. 2021, Rasmitadila 2020, Fauzi and Khusuma 2020, De Villa and Manalo 2020, Mailazi et al. 2020, Gao and Zhang 2020). Next most reported problem is class management. Teachers must be able to use limited time to deliver instructional objectives and learning assessments. Mainly, limited time was reported due to application time limitations. Moreover, teachers had to master different applications in order to deliver effective and interesting learning conditions (Rasmitadila et al. 2020, De Villa and Manalo 2020). They had to invest more time to prepare teaching materials and delivery methods. This increase teachers' workload and stress level (Rasmitadila et al. 2020, Fauzi et al. 2020, De Villa and Manalo 2020, Mailazi et al. 2020, Gao and Zhang 2020).

Different from preschool class where people had to work with a small groups of children, in primary and secondary school, teachers had to deliver teaching materials to big classes This makes differentiation to make individualized lessons difficult. It was even harder to cope with struggling children which needed further support and assistance (De Villa and Manalo 2020, Gao and Zhang 2020).

Physical interaction was still felt important. Even though some teaches thought that participation fluency, and communication increased, almost half of the teachers said that they had difficulties in creating real interactive relationships with all students. They were worried that students were not really participating because the camera was turned off. They worried if students didn't understand anything and could not alarm students who were in danger to falling behind in their course work (Niemi and Kousa 2020). Physical contact was felt important to observe students and give timely feedback through non-verbal means such as eye contact (Aldin et al. 2021, Gao and Zhang 2020). The lack of physical interaction had led to declining in the enthusiasm to teach (Rasmitadila et al. 2020).

Traditional learning method using in-class textbook reading cannot be done with e-learning method (Mailizar et al. 2020). Therefore, teacher had to think of another method to deliver subjects. Some teachers also thought that several subjects are difficult to be taught using e-learning method, one of them is mathematics (Mailizar et al. 2020, Aldon et al. 2021). For mathematics, it is easier for teacher to teach face to face as they can provide math solutions instantly on board. Also it was very hard to perform assistance for students in difficulty (Aldon et al. 2021).

In case to teach foreign language, semantic and socio-language barriers became a huge problem. Communication barriers that often occur are delays in processing the instructions intended by the teacher (Hiayudi and Art-In 2020). Moreover, in case to achieve language fluency, students need a continuous and intensive training, mainly through interaction especially for speaking ability (Hiayudi and Art-In 2020, Gao and Zhang 2020). Teachers also marked decrease in learning foreign languages as students didn't need it for their daily activities (Hiayudi and Art-In 2020).

In case of physical education, links between students and teachers is highly important to ensure the learning takes place. Face-to-face scenario will help to prevent the negative social, physical and mental health consequences of inactivity due to quarantine. However, strict health protocols have to be applied to limit transmission of COVID-19. Teachers and students should have access to water and soap and disposable paper towels, wash their hands before and after activity. In case of doing the activity in school's gym, it is an obligatory for students to wear mask while performing physical activity which may lead to other health problems due to shortness of breath. If full distance learning is applied, the challenge is to ensure that students did movements correctly, students motivations, and student's house space limitation (Filiz and Konukman 2020).

Another challenge raise in the method of assessment. Firstly, the intervention of parents especially in the primary education causes bias in measuring students' understanding of the materials (Rasmitadila et al. 2020, Fauzi and Khusuma 2020, De Villa and Manallo 2020). The take home test cannot be reliable to assess student's performane because they can get help from friends or textbook aid which are prohibited during on-site examination (Niemi and Kousa 2020, Aldon et al.. 2021). Another challenge also arose to give summative scoring with previous scores before distance learning (Aldon et al. 2021). However, this challenge was last seen in psychomotor aspect such as singing or practicing specific movement because these abilities are self-done without parents' intervention. Secondly, the discipline of turning-in assignments on time and not delaying the completion of the task at hand is significantly affected by students' internet connectivity and gadget availability. Thirdly, the affective component cannot be easily evaluated due to different behavior shown by students at home and at school (Rasmitadila et al. 2020).

In participation aspect, gadget ownership, internet connectivity, and inability to buy extra quotas are the major problem which mainly faced by economically disadvantaged families (Pramana et al. 2021, Rasmitadila et al. 2020, Fauzi and Khusuma 2020, De Villa and Manallo 2020, Mailizar et al. 2020, Gao and Zhang 2020). Disturbances during classes also arise from students' home environment for example when their younger siblings ask them to play. Other disturbances came from other students where they talked to other students with topics that were unrelated to the subject being studied which made the class crowded and unconducive (Rasmitadila et al. 2020). The internal challenge that came from students was their decline in enthusiasm and motivation to learn (Rasmitadila et al. 2020). On contrary with the need of physical interaction, in study by Niemi and Kousa (2020), teachers felt that students were more responsible, hard-working and motivated. Aldon et al. (2021) stated that new relationship was built where the participation of students who were usually withdraw increase and they were brave to communicate.

Challenge related to Teachers' Background

No correlation between teachers' gender and education background (undergraduate, post-graduate, certificated, non-certificated) towards pedagogical aspect challenges (Mailazi et al. 2020). Different time spent to plan distance teaching is affected by distance teaching experience, where 80% of newly experienced teachers need extra time while only 40% of experienced teachers did (Niemi and Kousa 2020).

3.2.3 Teachers' Strategies

To overcome with technical problems, some schools already provided facilities including e-learning media (Pramana et al. 2021, Hiayudi and Art-In 2020) and data packages for teachers (Pramana et al. 2021).

Teaching were mainly delivered through WhatsApp (Pramana et al. 2021, Rasmitadila et al. 2020, Fauzi and Khusuma 2020, Aldin et al. 2021) or other chatting applications (Gao and Zhang 2020), zoom meetings (Pramana et al. 2021, Fauzi and Khusuma 2020), and YouTube videos (Pramana et al. 2021, Rasmitadila et al. 2020, fauzi and Khusuma 2020, Haiyudi and Art-In 2020), Google Forms and Worksheet (Rasmitadila et al. 2020, Fauzi and Khusuma 2020), Microsoft Teams (Niemi and Kousan 2020, Aldin et al. 2021), or other web-based/phone applications specialized for education (Fauzi and Khusuma 2020, Aldin et al. 2021, Gao and Zhang 2020). Teachers explored different teaching online media to better suit the needs and capacity of students (De Villa and Manallo 2020, Gao and Zhang 2020).

To teach mathematics, teachers shot videos on whiteboards of the lessons, methods, and corrections for student's exercise. Assessments were sent in pdf formats. The main objectives of assessment were to monitor students understanding and giving feedback. Teachers also applied classroom discussions and applied group discussion for scaffolding function (exchange of information and mutualize skills). Another strategy was to group students according to their level of understanding and sent different kinds of video clips. Special website, Calcul@TICE, was used to brought the lesson. Teachers also applied games and open questions to trigger students' problem solving and reasoning abilities (Aldon et al. 2021).

In foreign language class, teachers adapted a strategy of pre-recorded videos (Gao and Zhang 2020, Haiyudi and Art-In 2020) and asked students to fill in worksheet and open discussion after students watching the uploaded videos (Gao and Zhang 2020) or asked students to record video producing similar vocabularies or short conversations as teachers did in the uploaded videos (Haiyudi and Art-In 2020).

In case of physical education, for face-to-face scenarios, number limitation, shortening the duration of lesson and rotation will be one solution. Teachers may also consider exercising in open public spaces if possible. They also have to keep social distancing during the activity, so team games and sports that require clos contact cannot be applied. In distance education, documents can be provided for students to follow and applied as individual programs and students have to update also apply them regularly (Filiz and Konukman 2020).

Some schools already provided an online-teaching course for teachers to increase digital literacy (Pramana et al 2021). Moreover, some teachers also watched online tutorials in order to use online platforms (De Villa and Manallo 2020, Gao and Zhang 2020).

To increase students' participation and performance, teachers spent more time for questions and answer as well as giving feedback through chatting platforms (Aldin et al. 2021, Gao and Zhang 2020). Teachers also did

personal research on student's conditions before starting online classes and take form of accessible platforms for students. With clear understanding of students' learning needs, teachers made a neat choice of teaching materials and methods (Gao and Zhang 2020).

Above all, teachers' positive thinking highly boosting their self-confidence, improves academic performance and promotes social and emotional progress among students. Teachers attitude toward shifting teaching method to distance learning and their time management plays important role to their enthusiasm of teaching (De Villa and Manalo 2020). Support from peers and headmasters also played important role and can be one solution. Support from peers includes psychological encouragement, technical assistance, and coordination of classroom materials (Rasmitadila et al. 2020, De Villa and Manalo 2020, Aldin et al. 2021, Gao and Zhang 2020). Support from headmasters can be in the form of motivations, increasing teacher readiness through workshops, and procurement of learning facilities and infrastructures (Rasmitadila et al. 2020). The gap in limited resources can be resolved by continuous support through community engagement and partnership with stakeholders (De Villa and Manalo 2020).

3.3 HIGHER EDUCATION AND VOCATIONAL EDUCATION

Vocational education can be considered as post-secondary non-tertiary education. The aim of the program is to provide learning experiences that build on secondary education and prepare for labor market entry and/or tertiary education. The content is broader than secondary but not as complex as tertiary education. Higher education is considered as tertiary education, provides academic and/or professional knowledge, skills and competencies with more advanced research programs and professions with higher skills requirements (United Nations Educational, Scientific, and Cultural Organization 2011). The key differences in higher education and vocational education compared to primary and secondary education is skills-oriented and preparation to face professional world which demanded practical work as part of the curriculum.

3.3.1 Teachers' Perspective and Experiences

Technical Issues and Virtual Classroom

Different from teachers from preschool, primary and secondary education, educators in higher education tend to have sufficient ICT skills and knowledge and have more confidence and readiness to deliver distance teaching (Almazova et al. 2020). Internet connection issues were reported varies between countries [31% in Saudi Arabia pharmaceutical departments (Alqurshi 2020), 82% in Algeria, Egypt, Palestine, and Iraq (Lassoued et al. 2020)].

Nevertheless, some educators still need to adapt with online teaching as they had limited previous experience in use. They still felt preparation of electronic education is time consuming and also they still faced troubles designing learning materials for the electronic environment (Almazova et al. 2020, Alqurshi 2020, Garcia-Alberti et al. 2021, Huang 2020 Lassoued et al. 2020). However, this hurdle and their personal motivation to master online technologies had motivated educators to participate in online education (Almazova et al. 2020).

In the pedagogical process, one of the advantages felt by educators was the opportunity to use different online platforms to upload study material, multimedia resources, set deadlines, conduct different kinds of activities, and communicate with students 24/7 (Almazova et al. 2020, Garcia-Alberti et al. 2021). Online teaching also reducedthe time for delivering lectures (i.e. 50 minutes in traditional face-to-face system to 35 minutes) due to pre-recorded videos, and hence this method was felt more time-efficient (Garcia Alberti et al. 2021, Huang 2020).

However, face-to-face communication was still felt more effective in some cases as in humanitarian and foreign language subject (Almazova et al 2020) or teaching scientific concepts (Alqurshi 2020, Garcia-Alberti et al. 2021, Huang 2020) particularly when using scientific symbols (Gregori and Martinez 2021) or delivering explanations on chemical reactions (Huang 2020, Danjou 2020). Face-to-face interaction also benefited educators as they could see students' feedback by looking at their facial expressions (Huang 2020).

Majority of the respondents were satisfied with the online teaching (Alqurshi 2020, Garcia-Alberti et al. 2021, Huang 2020). However more than 70% still prefer teaching in a classroom (Alqurshi 2020, Huang 2020, Lassoued et al. 2020).

Course Learning Outcomes

Surprisingly, more than 60% educators agree that course learning outcomes could be covered through online education (Alqurshi 2020, Huang 2020). Nevertheless, they felt that psychomotor and skills learning outcomes could not be achieved through online courses (Alqurshi 2020, Garcia-Alberti et al. 2021, Huang 2020, Elhaty et al. 2020). More than 75% of educators from science and social departments both suggested using pre-recorded experimental videos and simulation software as temporary solutions for practical works during distance learning. They also preferred to give practical work after this pandemic once the campus could already be accessed (Elhaty et al. 2020).

Assessment

More than 50% of educators felt that online exams were quite practical (Alqurshi 2020, Lassoued et al. 2020) but conventional grading systems and multiple-choice questions were less accurate to reflect students' performance and skills in online examinations as felt by more than 80% educators (Alqurshi 2020, Garcia-Alberti et al. 2021). Another major challenge was to ensure honesty, probity, confidentiality, authorship and equal opportunities for exam takers (Garcia-Alberti et al. 2021, Huang 2020).

3.2.3. Challenges

Regardless of the sufficient knowledge and IT skills the students had, educators reported that most of the students still fail to meet deadlines and lack motivation to study online (Almazova et al. 2020, Garcia-Alberti et al. 2021). As for lab works and students' research, distance learning could lead to potential loss of interest due to the lack of practical engagement (Qiang et al. 2020). Technical issues were varied between countries. Only few students faced internet connectivity issues, limitation of quotas, and facilities insufficiencies in Saudi Arabia (Almazova et al. 2020), Spain (Garcia-Alberti et al. 2021), China (Huang 2020). In contrast in Egypt, Palestine, and Iraq internet connectivity issue was still has become the major hurdle for students' participation (Lassoued et al. 2020).

3.3.3 Teachers' Strategies

Teaching Methods

The online education process was mainly conducted through Microsoft Teams (Almazova et al. 2020, Alqurshi 2020, Garcia-Alberti et al. 2021), BlackBoard (Alqurshi 2020, Garcia-Alberti et al. 2021) or Zoom (Garcia-Alberti et al. 2021). In delivering engineering or courses involving mathematical expressions, educators recorded

videos of solved handwritten problems which were later scanned and inserted into slide presentation or uploaded videos (Garcia-Alberti et al. 2021, Gregori and Martinez 2021, Huang 2020, Danjou 2020). Another approach was by live-video while teachers were explaining and writing mathematical expressions on paper, blackboards, or tablets. However, several challenges arrived through this method including lighting, video camera angles, or delay due to internet connection (Gregori and Martinez 2021).

Alternative Assessment

Weekly evaluations were conducted through weekly exercises, short quizzes (Garcia-Alberti et al. 2021). To increase students' satisfaction, universities encouraged lecturers to implement ongoing assessment methods to reduce the weight of final exam. Assessments were redirected to 80% coursework related activities including reports, essays and student presentations, while 20% was allocated to final assessments including oral examinations, open book examinations, and online multiple-choice questions (Alqurshi 2020, Garcia-Alberti et al. 2021). More than 70% educators believed that this mode of assessment could enhance students' overall skills, concepts understanding, and problem solving (Alqurshi 2020).

To Avoid cheating during examination, students were required to turn on video during examination (Garcia-Alberti et al. 2021). The examination time was very tight to ensure that responses were resulted from reasoning, relating concepts, and demonstrating, arguing, or deriving arguments and expressions also this attempt was purposed to avoid cheating (Garcia-Alberti et al. 2021).

Practical Works and Students' Research

The main goal of higher education is to achieve not only conceptual and theoretical knowledge, but also practical skills. During distance learning, several approach had been made to overcome this problem. First was by watching some specific lab or work sites documentaries and to analyze the involved processes and workflows (Garcia-Alberti et al. 2021, Huang 2020, Qiang et al. 2020). Second, by developing virtual labs where students could conduct experiments through online simulations (Garcia-Alberti et al. 2021, Huang 2020, Qiang et al. 2020). Third, some educators also creatively provided ideas of simple experiments that can be done at home. Later students were asked to develop a step-by-step procedure for this experiments, record the experiment, and report their observations (Qiang et al. 2020).

Increasing Students' Participations

Educators were active and eager to motivate students' participation in studying by transforming traditional curriculum. They hoped that students didn't attain class just as formality but productively gaining knowledge (Almazova et al. 2020). Some educators used this unideal condition to teach life philosophy as rapid change can sometimes happen during their professional career so they have to be able to adapt accordingly and quickly (Qiang et al. 2020).

University students also encouraged to do scientific research as perquisite for their graduation. To motivate students from dropping out for this core course, educators' strategies were firstly to engage students in research group meetings and scientific webinars. They also challenged students by giving research questions instead of topics and students were asked to review literatures to get research ideas (Qiang et al. 2020).

University Supports

Ministry of education and university managerial teams had important role in giving online education system guidance as most universities' study programs didn't have contingency plan for sudden distance learning teaching method (Alqurshi 2020).

Universities are more ready to give technical support compared to schools and educators felt satisfied with the IT support. Educators also felt that platforms chosen by the university are easy to use (Almazova et al. 2020, Huang 2020). Universities had provided free internet data and other necessities to help students during distance learning (Huang 2020).

3.4 SPECIAL EDUCATION

The distance learning that were enforced during the Covid-19 pandemic in order to control the incidence of positive cases, in fact have an impact on students, especially students with disabilities. For students with disabilities, distance learning has an impact on learning loss, because the learning materials sometimes cannot be accessed independently by students with disabilities especially if they didn't have any study assistants at home. For example if the materials was made in the form of video it didn't equipped with written transcripts which will make it difficult for students with hearing disabilities. And learning materials that are not equipped with audio will make it difficult for students with visual disabilities. With the diversity of disabilities that exist and access to education that hasn't facilitated, the limitations that students with disabilities have, they feel that they will be left behind compared to their peers without disabilities (Catalano, 2014).

3.4.1 Teachers' Perspective and Experiences

During Covid-19 situation distance learning system had been used for students with disabilities. The Teachers conducts teaching with curriculum standards, learning materials, and assessments that have been set by the school curriculum. During distance learning system, teachers find it difficult to modify learning materials. This is important to do because in distance learning for students with disabilities there are limitations, namely assistance that is often needed by students, but when changes in the learning system occur, students cannot have it again. The learning content provided by the school curriculum often does not facilitate children with special needs. Such as the lack of media, or media that cannot be reached independently by students due to their disability conditions. This will also get worse with the supervision and assistance of parents who for one reason or another are lacking. Teachers with disabilities hope that if distance learning is carried out for their students, teachers have the right to collaborate with the curriculum section to present educational content that can be accessed by anyone, including with disabilities, even in conditions without assistance. This is to increase student learning motivation and reduce the anxiety level of students with disabilities who feel they will be left behind by the distance learning system (Crouse et al., 2018).

3.4.2 Challenges

The challenge of teaching remotely from a teacher's point of view for students with disabilities in a covid-19 pandemic situation. One of the biggest challenges faced by teaching students with disabilities in implementing a distance learning system is the lack of limitations in learning models that can support the education of students with disabilities in remote area situations (Barbour, 2016). In addition, teachers also have limited experience in conducting distance teaching for students with disabilities (Barbour, 2016). This has led to a situation where the Covid-29 pandemic requires emergency change, some teachers who have students with disabilities admit to

having difficulties when delivering teaching materials due to the different interfaces that teachers have learned with the special Covid-19 situation. This is because teachers with a specialization in education with disabilities have additional learning points, namely student behavior management, basic training in social skills with students, and special teaching to train students in direct direction processing which will be difficult to do if the learning system is carried out remotely.

3.4.3 Teachers' Strategies

The teaching strategies recommended not only for students with disabilities but also for students without disabilities who are in a distance learning condition are Universal Design for Learning (UDL) (Frumos, 2020). UDL is a concept of a teaching method that is suitable for long-distance conditions because UDL has a framework that are flexible and easily accessible to all students. This is because in UDL there are three aspects of education and teaching methods that are applicable but can accommodate the differences that students have, one of which is a special condition with disabilities. This is indicated by the structure of the UDL which 1) provides multiple means of engagement; 2) providing multiple means of representation; 3) Providing various actions and expressions in teaching and learning activities (Providing multiple means of actions) (Rogers-Shaw et al., 2017). UDL is suitable to be used as an emergency strategy in the conditions of the Covid-19 pandemic, which forces the adaptation of new habits to change the face-to-face education system into a distance education system. This condition is possible because UDL focuses on providing essential choices for students with various choices of teaching media that can be used and accessed by students with disabilities and non-disabled alike. The provision of these options is realized with clear learning goals, media that accommodates various needs such as providing audio along with text material, providing written text in learning videos, providing teaching materials in the form of graphics, tables, symbols, images encoded with audio graphic explanations, tables, symbols, pictures etc. Also teaching materials and assignments that can be printed independently or zoomed in/out (Hitchcock, et al., 2002). The components contained in UDL facilitate the needs of students with disabilities because the choice of media can be accessed by students independently from anywhere, especially when the assistance that is usually obtained in face-to-face schools cannot be obtained in a distance learning system.

Teacher suggestion regarding distance learning in a COVID-19 pandemic situation

Teachers with disabilities hope that the curriculum will include opinions or input from teachers regarding the distance learning curriculum that is being carried out. Given this situation, the educational curriculum is made with the standard of educators who have plenty of room to get teaching input for students with disabilities. This is in line with Kennedy & Archambault (2014), who said that teachers hope to have the opportunity to collaborate with educators regarding the addition, reduction and modification of teaching materials to suit and accommodate the needs of students with disabilities.

TEACHERS' PSYCHOLOGY AND WELL BEINGS

Several studies had shown educators' perception and negative feeling because of the pandemic related to their profession including long-term career, financial, ambivalence, being ignored related to their professions (Alan 2021, Dayal and Tiko 2020).

Emotional atmosphere was also reported by preschool teachers when their pupils genuinely asked about school re-opening (Dayal and Tiko 2020, as preschool teachers had deeper relationships with their pupils compared to teacher from higher education level.

Health-related problems including back and spine pains, eye pains had also been reported by preschool teachers (Kruzewska et al. 2020) especially by older teachers.

They viewed a need of psychological support to ensure psychological well-beings (Alan 2021, Kruzewskal et al. 2020). Some teachers also suggest a conditions for exchange of information and experience between schools and peer supports (Kruzewskal et al. 2020)

4. Conclusion

COVID-19 pandemic had affected all stages of education. By shifting the traditional based learning system to distance learning, it could prevent from spreading of the virus. This change has made a tremendous change in the learning system for both teachers and students. To give students their needs on education, teachers have gathered all strategy that could be applied to provide students needs on learning during Covid-19 pandemic situation.

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Examination of Semantic Structures Used by Teacher Candidates to Transform Algebraic Expressions into Verbal Problems

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Abstract
The aim of this study is to examine the semantic structures used by mathematics teacher candidates to transform algebraic expressions into verbal problems. The research is a descriptive study in the survey model, which is one of the quantitative research types. The study group of the research consists of 165 teacher candidates studying in the primary school mathematics teaching department of a state university in the south of Turkey in the 2019-2020 academic years. 73.2% of the teacher candidates in the study group are female and 26.8% are male. Criterion sampling method, one of the purposeful sampling methods, was used in the selection of teacher candidates in the study group. While the Algebraic Expression Questionnaire Form was used as the data collection tool, the evaluation rubric of verbal problems was used in the analysis of the data. As a result of the research, it has been revealed that pre-service teachers are more successful in transforming algebraic expressions into verbal problems, but they have problems in creating problems with algebraic expressions that make up systems of equations. Again in the study, it was concluded that pre-service teachers used addition and subtraction problems more than multiplication and division problems. On the other hand, when the problems in the type of addition and subtraction are examined in the study, in the type of combining and separating; It has been concluded that the category of equal groups is mostly used in the problems of multiplication and division.

Keywords: Semantic Structures, Algebraic Expressions, Verbal Problems, Problem Structure, Teacher Candidates

1. Introduction

Algebra, one of the most important areas of mathematics, covers a wide range from numbers to unknowns, from variables to functions. According to many researchers, algebra; it is defined as the generalized form of arithmetic (Katz, 2007; Van Amerom, 2003; Vance, 1998) and interpreted as the symbolic side of arithmetic (Tabach & Friedlander, 2017). From this perspective, according to Kieran (1992), algebra; it is one of the most important

mathematical learning areas that can show the relationships between numbers with symbols and use mathematical structures. Because of this feature, the algebra learning field emerges as a process that requires more reasoning than other mathematical learning fields such as arithmetic and geometry. Again, the algebra learning area; it serves as the backbone of mathematical learning in the analysis of quantitative relations, solving problems, modeling, providing the necessary instrumental language for representations and specifying generalizations (NCTM, 2000; Stacey & Macgregor, 2000). According to Williams (1997), it is a basic need for students to learn algebra, which makes itself felt in all areas of life.

On the other hand, algebra is one of the most used learning areas in solving mathematical modeling problems in many fields such as physics, chemistry, engineering and economics, as well as mathematics as a form of mathematical expression or a language (Kieran, 2007; Usiskin, 1997). In this context, transforming the language of algebraic expression into verbal problems emerges as an important element in terms of understanding the problem and creating semantic structures in learners (Villages, Castro, & Gutierrez, 2009). These structures are generally gathered under two main headings in the literature as conceptual structures covering both addition and subtraction and conceptual structures covering multiplication and division (Carpenter & Moser 1982; Powell & Fuchs, 2018; Riley et al., 1983; Riley & Greeno 1988; Van de Walle, Karp, & Bay-Williams, 2015). According to this, conceptual structures covering addition and subtraction consist of four categories: joining, separating, part whole and comparison. Again, problem diagrams involving multiplication and division are handled in four categories as equal groups, comparison, area (array) and combination (Riley et al., 1983; Van de Walle, et al., 2016). When the studies in the literature (Cañadas, Molina, & Río, 2018; Fernandez-Millan & Molina, 2017) examining the semantic structures used by learners to transform algebraic expressions into verbal problems are examined, it is seen that these studies are generally conducted with secondary school students and primary school teacher candidates; as a result of these studies, it was found that teachers and teacher candidates had difficulties in problem schemes involving multiplication and division; it is clearly seen that they can perform operations more easily in problem diagrams involving addition and subtraction. In this context, for example, Fernandez-Millan and Molina (2017) analyzed the semantic structures of the problems posed by high school students regarding algebraic expressions. As a result of the research, it was concluded that students' conceptual knowledge was sufficient in algebraic expressions with one unknown and that students were more successful in addition and subtraction problems. Again, in their study, Cañadas et al. (2018) concluded that pre-service classroom teachers were more successful in problems they posed about algebraic expressions than in addition problems, but they had difficulties in other types. Despina and Loukidou (2014), in their study examining the verbal problem structures in Greek textbooks, revealed that not all problem structures are included in the textbooks and some of them are given a limited number of places, and therefore students have difficulty in understanding the structures of verbal problems. Similarly, many studies examining mathematics textbooks in different countries indicate similar results (Olkun & Toluk, 2002; Parmjit & Teoh, 2010; Sarıbaş & Aktaş Arnas, 2017; Singh, 2006; Tarim, 2017). On the other hand, Canbazoglu and Tarim (2019) revealed that as a result of their studies in which they examined the verbal problem structures applied in the classroom, teachers generally included the developmental characteristics of the students and the type of problems included in the mathematics curriculum, therefore they did not use all the problem structures in the classroom.

As can be seen from the studies mentioned above, it is seen in the literature that studies examining the semantic structures used by learners to transform algebraic expressions into verbal problems are generally conducted with secondary school students and primary school teacher candidates. However, in the context of the accessible literature, no study has been found that examines the semantic structures used by mathematics teacher candidates to transform algebraic expressions into verbal problems. Based on this phenomenon, this study aims to examine the semantic structures used by mathematics teacher candidates to transform algebraic expressions into verbal problems and to contribute to the literature in the field. For this purpose, an answer will be sought for the research question mentioned below:

1. How is the situation of mathematics teacher candidates in transforming algebraic expressions into verbal problems?
2. What are the semantic structures that mathematics teacher candidates use in transforming algebraic expressions into verbal problems?

2. Method

2.1 Research Model

This study is a descriptive study in the survey model, which is one of the types of quantitative research conducted with the aim of examining the semantic structures used by mathematics teacher candidates in transforming algebraic expressions into verbal problems. Survey research; these are the studies carried out with the aim of obtaining information about the existing situation in terms of the individuals in the sample (Fraenkel, Wallen, & Hyun, 2012). In this study, it was tried to determine what kind of semantic structures the mathematics teacher candidates used in the process of transforming algebraic expressions into verbal problems.

2.2 Study Group

The study group consists of teacher candidates studying in the primary school mathematics teaching department of a state university in the south of Turkey in the 2019-2020 academic years. Criterion sampling method, one of the purposeful sampling methods, was used in the selection of teacher candidates in the study group. Criterion sampling method; the aim is to investigate the situations that meet the predetermined and important criteria (Patton, 2014). The criterion that is considered important in the selection of the sample for this study is that the teacher candidates successfully complete the basics of mathematics course and are willing to participate in the study. Within the basics of mathematics course, basic concepts in the field of learning numbers and algebra and related problem solving and problem posing issues are included in practice. For this reason, the students in the study group already have sufficient knowledge about algebraic expressions to show the meaning and properties of variables, constants, letters in the concept of algebraic expression within the scope of the basics of mathematics course. 73.2% of the teacher candidates in the study group are female and 26.8% are male. When the mathematics achievement grades are examined, it is seen that 25% of the teacher candidates participating in the research have very good, 42% good and 33% moderate success grades. The age range of the study group is 21.

2.3 Data Collection Tool

The "Algebraic Expression Questionnaire Form" developed by Canadas et al. (2018) was used as a data collection tool in the research. Table 1 shows the characteristics of the items in the algebraic expression questionnaire.

Table 1: Algebraic Expression Questionnaire Form

Item number	Symbolic expression	Number of variables	Type of expression	Transaction structure
1	x + 6 = 8	1	First order equation with one unknown	Addition/subtraction
2	x2 = 16	1	Quadratic equation with one unknown	Multiplication/Division
3	x + y = 7	2	First order equation with two unknowns	Addition/subtraction
4	2×-1 = 5	1	First order equation with one unknown	Addition/subtraction
5	x + y = 7 x.y = 10	2	First order system of equations with two unknowns	Addition/subtraction Multiplication/Division
6	x-3y = 3 x-2y = 1	2	First order system of equations with two unknowns	Addition/subtraction Multiplication/Division
7	3×=20	1	First order equation with one unknown	Multiplication/Division
8	x(x + 1) = 18	1	Quadratic equation with one unknown	Addition/subtraction Multiplication/Division

When Table 1 is examined, when the types of algebraic expressions in the form are examined; some of the items in the form (1st, 4th, 7th) have a first-degree unknown, some (3rd, 5th, 6th) have two first-degree unknowns, some (2nd, 8th) are equations with second-degree unknowns, and two item (5th, 6th) is in the form of a system of equations. In the form, there are algebraic expressions consisting of five items with one unknown and three items with two unknowns, a total of eight items. In addition, when analyzed in terms of problem structures, three items are in addition and subtraction, two are in multiplication and division, and the others are in both addition and subtraction and multiplication and division.

2.4 Data Collection and Analysis

In the collection of data, the Algebraic Expression Questionnaire, which was applied to mathematics teacher candidates in the 2019-2020 academic years, was applied without a time limit. The questionnaire in question consists of personal information (gender, basics of mathematics pass mark and age) and algebraic expressions. In the data analysis process, an evaluation rubric of verbal problems was prepared by using the literature (Canadas et al., 2018; Van de Walle et al., 2016; Riley et al., 1983) to transform the items in the algebraic expression questionnaire into verbal problems. As seen in Table 2, the prepared rubric was coded according to its conformity with the semantic structure in transforming algebraic expressions into verbal problems.

Table 2: Verbal Problem Structure Assessment Rubric

Verbal problem structure	Category	Description	Symbolic representation	Example
Addition and subtraction problem structure	Joining	It is the addition of a quantity to another quantity.	120+80=?	Ece has a total of 120 liras in her pocket. If her mother gave 80 liras to Ece, how much money would Ece have in total?
	Separation	It is the subtraction of another quantity from one quantity.	200 -80=?	Ece has a total of 200 liras in her pocket. When Ece gives 80 liras of her money to her mother, how many liras will Ece have left?
	Part part whole	A problem consisting of two parts that can be combined into a single whole.	18+12=?	There are 18 apple and 12 plum trees in the garden. How many fruit trees are there in total in the garden?
	Comparison	Comparing the number of elements of two sets with respect to each other.	79-55=?	Nilgun solved 79 questions and İrem solved 55 questions in the exam. According to this, how many questions did Nilgun solve more than İrem?
Multiplication and division problem structure	Equal groups	The successive subtraction or addition of a certain number of objects from a set to find the number of groups.	2x3=?	Ali has 2 boxes of pencils. If there are 6 pencils in each box, how many pencils does Ali have in total?
	Comparison	The number of elements of one set from two different sets consists of a certain multiple of the number of elements of the other set.	2x3=6	Ali has 2 pencils. Fatman's pen is 3 times more than Ali's pen. How many pencils does Fatma have in total?.
	Area (Array)	It is the multiplication made by placing objects in equal rows and columns in an orderly manner.	30x20=?	If the long side of the frame of a table is 30 cm and the short side is 20 cm, what is the total area of the table?
	Combination (Cartesian)	Constructing ordered pairs with objects from two or more sets.	2x3=6	Ali bought 2 pants and 3 shirts in different colors. In how many different ways can Ali wear a pair of pants and a shirt?

When Table 2 is examined, there are problem structures under two themes as addition and subtraction type and multiplication and division type. Problems under the theme of addition and subtraction are in four categories as joining, separating, part-whole and comparison. Similarly, problem structures in the theme of multiplication and division type consist of problems in four categories: equal groups, comparison groups, area (array) and combination (cartesian) categories. On the other hand, within the scope of data analysis reliability, a mathematics educator, who is an expert in the problem, served as the second coder together with the researcher. Forty randomly selected questionnaires were coded independently by the coders and the reliability value between the coders was calculated as .92. The fact that this value is higher than .80 is an indicator of the reliability of data analysis (Miles & Hubermann, 1994).

3. Results

Within the scope of the first sub-aim of the research, the situation of transforming algebraic expressions into verbal problems of mathematics teacher candidates in the study group was examined. The results obtained are given in Table 3.

Table 3: Distribution of Teacher Candidates' Transformation of Algebraic Expressions into Verbal Problems

	Same structure		Equivalent structure		Different structure		Meaningless		Total	
Algebraic expression	f	%	f	%	f	%	f	%	f	%
1) x + 6 = 8	114	69	40	24.2	-	-	11	6.8	165	100
2) x2 = 16	108	65.5	-	-	26	15.8	31	18.7	165	100
3) x + y = 7	85	51.5	-	-	47	28.4	33	20.1	165	100
4) 2×-1 = 5	122	73.9	-	-	15	9.1	28	17	165	100
5) x + y = 7 x*y = 10	100	60.6	-	-	-	-	65	39.4	165	100
6) x-3y = 3 x-2y = 1	78	47.3	-	-	24	14.5	63	38.2	165	100
7) 3×=20	138	83.6	0	0	0		27	16.4	165	100
8) x(x + 1) = 18	94	56.9	-	-	14	8.6	57	34.5	165	100

If interventions were studied, detail all important adverse events (events with serious consequences) and/or side effects in each intervention group. When Table 3 is examined, it is seen that the teacher candidates are mostly successful in the first question (f=114+40=154) and the seventh question (f=138) with one unknown. For example, in the first question, while the majority of the students created the problem structure of the algebraic expression with the same feature, some students created it to be equivalent to this expression, such as 6+x=8, 8=6+x, 8-6=x. In this context, for example, the student with the code T101 said, *"There are 6 pencils in Ali's pencil case. His mother leaves some of the pens on the table to Ali's pen holder. Since there are 8 pencils in Ali's pencil holder, how many pencils did his mother leave in Ali's pencil holder?".* He used an equivalent problem structure in the form of 6+x=8 to the question. Again, the other question in which the students were most successful is the seventh question. In this context, for example, the student with the code T9 said, *"A grasshopper is jumping on a long-distance path. However, whether it is a bumpy or straight road, it can travel the same distance each time. If he can cover a distance of 20 meters in 3 jumps, what is the approximate value of the distance he takes in each jump?"* He used the same problem structure in the form of 3x=20 to the question.

On the other hand, the fifth question (f=100) and the sixth question (f=78+24=102) that make up the system of equations are the types of questions in which teacher candidates show the lowest success. In these questions, it is clearly seen that the teacher candidates made mistakes because of the situations where problems were not created by evaluating the two equations that make up the equation systems together. In this context, for example, the teacher candidate with the code T43, *"If the product of Fatih's blue and red shirts is 10, how many blue shirts does Fatih have?".* He tried to pose a problem with a different structure by accepting the question given as a

system of equations in the form of a single equation without considering other values. Again, regarding the sixth statement, the teacher candidate with the code T45 said, *"Kenan sells the goods he bought for y liras for x liras. There is a relation X-3Y= 3 between the goods bought and sold. Accordingly, for how many liras can Kenan sell a property that he bought for 25 liras?".* Without considering all the values of the variables in the algebraic expression given in the form given in the algebraic expression, he created a word problem with a different structure over a single equation. Similarly, in the third question, in which only the sum of the variables was given, the teacher candidate with the code T21 set up a new problem with a different structure by giving value to one of the variables, although it was not mentioned in the root of the question: *"David and Murat have 7 pens. If David has 2 pencils, how many pencils does Murat have?"*

Another finding obtained from the research is related to the meaningless structures used by the teacher candidates in the fifth, sixth and eighth questions. In this context, for example, in relation to the sixth statement, *"Find the coordinates of the point where the lines X-3Y= 3 , X-2Y= 1 intersect."* formed a question (T32). Similarly, in the eighth question, the student coded T5 created an exercise-type question in the form of *"Divide into the roots of the equation x(x+1)=18".* Regarding the same question, the example of the unrelated problem of the teacher candidate with the code T23 was *"Since there are 820 handshakes when each person shakes hands with all their friends in a meeting attended by x+1 people, x=?"* In the form of the question, values that are not related to the algebraic expression were also added.

In the second sub-question of the study, the distribution of the semantic structures of the problems posed by the teacher candidates about algebraic symbols are given in Table 4.

Table 4: Distribution of the Semantic Structures of the Problems Posed by the Teacher Candidates about Algebraic Symbols

Algebraic expression	Addition and Subtraction Type Problem Structure		Multiplication and Division Type Problem Structure		Both		Total	
	f	%	f	%	f	%	f	%
1) x + 6 = 8	154	100	-	-	-	-	154	100
2) x2 = 16	26	19.5	108	80.5	-	-	134	100
3) x + y = 7	132	100	-	-	-	-	132	100
4) 2×-1 = 5	137	100	73	54.4	81	60.4	137	100
5) x + y = 7 x*y = 10	100	100	73	73	88	88	100	100
6) x-3y = 3 x-2y = 1	102	100	63	61.7	75	73.5	102	100
7) 3×=20	-	-	138	100	-	-	138	100
8) x(x + 1) = 18	92	85.2	108	100	95	87.9	108	100

When Table 4 is examined, it can be seen that teacher candidates use only addition and subtraction type problem structure in some statements (1., 3.), multiplication and division type problem structure in some statements (7.) are seen to use both problem structures together (4., 5., 6., 8.). In this context, examples of the problem structures solved by the participants in the second question are as follows: *"A plant grows every day by the square of its height. If the height of the plant has reached 16 square centimeters on the second day, what is the height of the plant on the first day?"* (T26). In this context, while the teacher candidate coded T26 uses the multiplication and division type problem structure, the teacher candidate coded T42 for the same problem says, *"Ece and Muge have an equal number of pencils. Since the total number of pencils for the two of them is 16, how many pencils does Muge have?".* He used the problem structure in the form of addition and subtraction. On the other hand, in the fifth question, both addition and subtraction and multiplication division should be used in the same question. On this subject, the teacher candidate with the code T56 asked, *"If the sum of the short and long sides of a rectangle is 7, the product is 10, what is the length of the short side?"* posed a problem that requires the use of two structures together.

In addition, the distribution according to the categories used by the mathematics teacher candidates in the study group of the research in transforming algebraic expressions into verbal problems is given in Table 5.

Table 5: Categories used by teacher candidates in transforming algebraic expressions into verbal problems

	Addition and Subtraction Type Problem Structure								Multiplication and Division Type Problem Structure									
	Joining		Separation		Part part whole		Comparison		Equal groups		Comparison		Area		Combination		Total	
	f	%	f	%	f	%	f	%	f	%	f	%	f	%	f	%	f	%
1. x+6=8	102	66.2	52	33.8													154	100
2. x^2=16			26	19.4					74	55.7			24	17.4	10	7.5	134	100
3. x+y=7	32	24.2			85	64.3	15	11.5									132	100
4. 2×-1=5	15	10.9	92	69.7			30	21.9									137	100
5. x+y=7 x*y=10	38				62				18						82		100	100
6. x-3y=3 x-2y=1	24		78						43		20						102	100
7. 3×=20									117		21						138	100
8. x(x+1)=8	60				14		20		14				94				108	100

When Table 5 is examined, it is seen that teacher candidates use addition and subtraction problems more than multiplication and division problems. Among the problems in the addition and subtraction type, the problems in the joining and separating type were mostly used; it is clearly seen from Table 5 that fewer problems were created in the part part whole and comparison type. Accordingly, it is seen that the joining type problems are mostly used in the first, fifth and eighth questions. In this regard, for example, for the first question of the teacher candidate with the code T65, *"Gaye had some money. When her uncle gave 6 more liras, Gamze had 8 liras. Accordingly, how many liras did Gamze have in the beginning?"* It created a problem in the form of merging. Similarly, the problem structure created by the teacher candidate with the code T64 for the fifth question is as follows: *"Nazli and Evin have some buckles. When you join Nazlı and Evin's buckles, there are seven. Multiplying the numbers of these buckles gives 10. Accordingly, how many buckles do Nazlı and Evin have?"*. However, in the eighth question, teacher candidate with the code T44, *"Selin's study table is a certain length. Aybuke's desk is 1 meter longer than Selin's desk. If the product of Selin's and Aybuke's desks is 18 square meters, how long can Selin's desk be?"* posed a problem in the form of merging.

When the separation type problems are examined, it is seen that the problems in the 4th and 6th question types are mostly created by the teacher candidates. In this regard, for example, the teacher candidate with the code T102 said, "*Miray has two boxes of candy. Miray ate one of the candies in these boxes. Miray has 5 candies left. Accordingly, how many candies are there in total in a box?"* It created a problem in the form of separation. Similarly, the teacher candidate coded as T53, on the other hand, has the following verbal problem related to the 6th question: "*Omer owes Ali and Ali owes Omer. When we subtract Omer's debt from 3 times Ali's debt, we get 3 liras. When we subtract Omer's debt from twice Ali's debt, we get 1 lira. According to this, how many liras does Omer owe Ali?"*

In the third, fifth and eighth questions regarding the part whole category, it is seen that the teacher candidates created questions in the type of verbal problem. Regarding the third question on this subject, for example, the verbal problem posed by the teacher candidate with the code T39 is as follows: *"Emre has 7 reading books in his bag. Some of these books are novels and some are poetry books. If Emre has at least two poetry books, how many novels does he have at most?"*. Again, in the fifth question, the teacher candidate with the code T81 said, *"Ali has two piggy banks, one blue and one red. The sum of the coins in the two piggy banks is 7 and their product is 10 liras. How many liras can Ali have in his blue piggy bank? In the form of pieces, it has created a problem in the whole category."*

Regarding the comparison category, it is clearly seen that the teacher candidates pose verbal problems in the third, fourth and eighth questions. For example, the problem posed by the teacher candidate with the code T22 regarding the fourth question is as follows: *"Ali's chocolate is one less than twice the amount of Ayse's chocolate. If Ayse has 5 chocolates, how many chocolates does Ali have?"*. Similarly, regarding the eighth

question, for example, the teacher candidate with the code T91 said, *"The number of girls in a class is one more than the number of boys. If the product of the number of male and female students in the class is 18, how many female students are there in the class?"* posed a problem in the category of encounter. Within the scope of the multiplication and division problem structure, it is seen that the teacher candidates mostly use the equal groups category. Then, it can be said that problems such as area, comparison and cartesian are used.

Accordingly, the problems in the type of equal groups were mostly used in the second and seventh questions. In this context, for example, regarding Question 7, the teacher candidate with the code T1 said*, "Cenk wants to distribute the 20 kilos of apples they picked from the garden equally among three chests. Accordingly, how many kilos of apples can Cenk place in each chest?"* It created a problem with equal groups. Similarly, the type of problem posed by the teacher candidate with the code T5 regarding the second question is as follows*: "His fathers received an equal number of pens as gifts for Polen and Can. Since the product of the two pens is 16, how many pens do Polen and Can have?*

Within the scope of the problems in the area type, it is clearly seen from the table that the teacher candidates mostly use this problem type in the eighth and second questions. Regarding this question example, the teacher candidate with the code T22 said, *"Uncle Ali wants to fence all the edges of his rectangular garden, which he has just bought, with the long side 1 km longer than the short side. Since the area of this garden is 18 km2, how many kilometers of wire should Uncle Ali have to surround the edge of his garden?*" formed an area-type question about calculating the side lengths of the shape whose area is given in the form of. Similarly, in the second question, the problem of the teacher candidate with the code T67 is as follows: *"If the area of a square field is 16 square meters, how many meters is one side of this field?"*

In the context of combination type problems, it is clearly seen from Table 5 that teacher candidates mostly use this type of problem in the second and fifth questions. Regarding this question example, the problem of the teacher candidate with the code T79 regarding the second question is as follows*: "Zeynep makes 16 different combinations with shorts and t-shirts in different colors. Accordingly, how many shorts can Zeynep have so that the number of shorts and T-shirts is equal?"*. Similarly, regarding the fifth question, the teacher candidate with the code T10 said, "The sum of Ali's trousers and t-shirts is seven. The product of trousers and t-shirts is equal to 10. Accordingly, how many trousers does Ali have?"

Finally, in Table 5, the least used question type by the teacher candidates are the fourth, sixth and seventh question types in the comparison category. In this context, the problem posed by the teacher candidate coded T12 regarding the sixth question type is as follows: *"Selin will travel from Ankara to Istanbul. Therefore, wondering about the temperature in Istanbul, he called his friend Hilal and asked for information on this subject. Hilal replied to Selin as follows: The air temperature in Istanbul is 3 times higher than the air temperature in Ankara or 1 more than 2 times. Accordingly, how many degrees could Selin have calculated the air temperature of Istanbul?"*.Similarly, regarding the seventh question, the teacher candidate with the code T91 said, *"Fatma's age is 3 times that of Aylin. If Fatma is 20 years old, how old can Aylin be?"* posed a problem.

4. Discussion

This study was conducted to examine the semantic structures used by mathematics teacher candidates to transform algebraic expressions into verbal problems. As a result of the study, it was concluded that teacher candidates were more successful in transforming algebraic expressions in verbal problems into first-order algebraic expressions with one unknown than in second-order algebraic expressions with two unknowns. This situation is similar to the relevant literature (Canadas et al., 2018; Dede, 2005; Duru & Köklu, 2011; Fernandez-Millan & Molina, 2017; Isık & Kar, 2012; Swastika et al., 2018). In this context, for example, Canadas et al. (2018) concluded that teacher candidates were more successful in equations with one unknown, as a result of their study, in which they examined the problems related to algebraic expressions. Similarly, Isık and Kar (2012) examined the problems posed by mathematics teacher candidates regarding algebraic expressions, and concluded that teacher candidates had difficulty in posing problems with words due to the inability to understand

operations, symbols and signs in algebraic expressions. Duru and Köklu (2011) also concluded in their study that secondary school students are weak in transferring and transforming algebraic problems into verbal structures because they do not fully grasp the meaning of algebraic expressions and signs.

According to the second sub-objective of the study, it was concluded that teacher candidates used addition and subtraction problems more than multiplication and division problems. Studies on this subject in the literature point to similar results (Cañadas, et al., 2018; Christou & Philippou, 1998; Fernandez-Millan & Molina, 2017; Haylock & Cockburn, 2008; Pilten, 2010; Kılıc, 2013; Olkun & Toluk, 2002; Sitrava & Isık, 2018; Tarim, 2017; Tertemiz, 2017). In this context, for example; In the study of Tertemiz (2017), primary school students set up problems that require operations such as addition and subtraction; revealed that they are more successful than the problems that require multiplication and division operations.

On the other hand, when the problems of addition and subtraction were examined in the study, it was found that the teacher candidates mostly used the problems in the joining type and separation type; It was concluded that they preferred part whole and comparison problems less. Studies in the literature on this subject point to similar results (Canbazoglu & Tarim, 2019; Marshall, 1995; Kılıc, 2013; Kar, Ocal, Ocal & Demirci, 2021; Kılıc, 2013; Sitrava & Isık, 2018; Tertemiz et al., 2015; Tertemiz, 2017).In this context, for example; In their study, Canbazoglu and Tarim (2019) also concluded that primary school teachers apply joining and separating problems in the classroom more than other problem types (part-part-whole and comparison). Similarly, Kılıc (2013) finds that the fourth and fifth grade students are mostly joining; In the subtraction type problems, it was concluded that they preferred the problem type in the separation type the most.

In the study, in terms of multiplication and division problem structure, the teacher candidates mostly used the equal groups category; It was concluded that they used less area, comparison and cartesian problems. Studies on this subject in the literature show similar results (Kar, Ocal, Ocal, & Demirci, 2021; Kılıc, 2013; Yeap & Kaur, 2001; Tertemiz et al., 2015; Tertemiz, 2017). In this context, for example; Yeap and Kaur (2001) concluded in their study that third grade students were more successful in peer group problems they set up about diameter and division than in comparison type problems.

As can be clearly seen from the findings mentioned above, as a result of the research, it has been revealed that the teacher candidates are more successful in transforming algebraic expressions in verbal problems, but they have problems in evaluating the two equations that make up the equation systems together and creating a meaningful relationship between the variable. For this reason, it may be recommended to provide detailed information about the transformation of algebraic expressions into verbal problems and to organize practical activities in this direction in the training given to teacher candidates on algebraic expressions.

Again in the study, it was concluded that teacher candidates used addition and subtraction problems more than multiplication and division problems. With regard to this result, studies can be conducted to enable learners to use all problem structures in order to be successful.

On the other hand, when the problems in the type of addition and subtraction are examined, in the type of joining and separating; in the problems of multiplication and division, it was concluded that the category of equal groups was mostly used. In order to determine the reasons for this situation, it may be recommended to examine the studies conducted in the classroom. This study was carried out with teacher candidates in the department of mathematics teaching. It is also recommended to conduct similar studies and make comparisons with participants in different sample groups.

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Senior High School Teacher Readiness in the Implementation of Learning From Home in Covid-19 Adaptation Period

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Abstract
This research is intended to determine senior high school teacher readiness in the implementation of Learning from Home in Covid-19 adaptation period. This was a policy evaluation research which used a mixed method approach in analyzing the data. Primary data was obtained from interviews via telephone and Focus Group Discussion (FGD) through Zoom. Sample's data were taken using purposive sampling technique in Banten and Gorontalo. The data analysis technique of this research was Miles and Huberman model. The results show that during the pandemic, all schools carried out learning from home. The average of lesson duration in a week is 1 to 3 hours. Learning carried out by some teachers is still pursuing the completeness of the curriculum for all subject matter. Assessment in learning used qualitative assessment. The conditions and facilities owned by the school are that most of the teachers face problems on the weak Internet connection disturbing the implementation of the teaching and learning process.

Keywords: Learning From Home, Covid-19 Adaptation Period

1. Introduction

Education is a process of transferring knowledge systematically from one person to another in accordance with the standards set by experts, so it can change attitudes, behavior, maturity to think and person's personality through formal, informal, or non-formal way (Moses, 2012: 18).

Education is a conscious and planned effort to create learning atmosphere and the learning process to make the students can actively develop their potential through religious spiritual strength, self-control, personality, intelligence, noble character and skills needed by themselves, the community, the nation and the state. (Law of the Republic of Indonesia Number 20 of 2003 concerning the National Education System Article 1 Paragraph 1). Therefore, it can be concluded that education is a conscious and planned effort in the form of knowledge transfer

from one person to another to realize active learning and ultimately be able to develop individual potential through formal, informal and non-formal ways.

The process of knowledge transfer in education involves teachers and students. Teachers are professional educators to educate, teach, guide, direct, train, assess and evaluate students in early childhood education through formal, basic and secondary education (Law of the Republic of Indonesia Number 14 of 2005 concerning Teachers and Lecturers Article 1 Paragraph 1).

Teacher has roles as demonstrator, mentor, class manager, mediator, facilitator and evaluator (Usman, 2011: 5). Besides, the teacher has important role in determining the students' success through effective learning, because basically, a teacher is someone who directly manages the Teaching and Learning Process (PBM). This is realized able to improve teacher performance. Teacher performance is a behavior or response giving a result and referring to what teachers do when facing certain tasks (Yamin & Maisah, 2010: 87).

In line with the development of teacher performance, this study was adjusted to the situation and conditions due to Covid-19 outbreak. This pandemic is a phenomenon spread of the Coronavirus disease 2019 (Covid-19) caused by the coronavirus (Wikipedia, 2019). This virus quickly spreads almost all countries, including Indonesia. This serious problem makes the governments around the world have to implement policies to prevent the spread chain of the virus. Unlike other countries that have adopted lockdown policy, Indonesia adopts PSBB or Large-Scale Social Restriction policy.

Large-Scale Social Restriction or PSBB is a limitation on certain activities of residents in the suspected area infected by Covid-19 to prevent the spread of this virus (Regulation of the Minister of Health of the Republic of Indonesia Number 9 of 2020 concerning Guidelines for Scaled Social Restrictions Large in the Context of Accelerated Handling of Coronavirus disease 2019 (Covid-19) Article 1 Paragraph 1). The Large-Scale Social Restriction Policy (PSBB) was made by considering the impact and influence of Covid-19 so it would not be as big as lockdown. Other policies undertaken by the government are Social Distancing and Physical Distancing. This policy was created to limit social interactions with other people, reduce activities outside and stay at home. This has forced the majority of schools, madrasahs and higher institutions in Indonesia to close the PBM (Teaching and Learning Process) system, which is conducted through online learning system.

In online learning implementation is supported by the Minister of Education and Culture Circular Letter Number 4 of 2020 concerning Implementation of Education Policies in an Emergency for the Spread of Covid-19 in point 2, namely the learning from home process which is carried out with the following conditions (1) Learning from home or distance learning is implemented to provide meaningful learning experiences for students, without being burdened with demands to complete all curriculum achievements for grade promotion and graduation; (2) Learning from home can focus on life skills education, including the pandemic issues; (3) Learning from home activities and assignments may vary between students, according to the interests and conditions of each student, including considering gaps in access or learning facilities at home; and (4) evidence or products of Learning from home activities are given qualitative and useful feedback from the teacher, without being required to give score or quantitative value.

One of the education levels affected by the Learning from Home (BDR) policy is Senior High School level. Senior High School (SMA) is a formal education unit providing general education at the senior education level as the following education steps of SMP, MTs or other forms of equivalent or advanced learning outcomes that are recognized as equal or equivalent to SMP or MTs (Government Regulation Republic of Indonesia Number 66 of 2010 concerning Amendments to Government Regulation Number 17 of 2010 concerning Management and Implementation of Education Article 1 Paragraph 13).

Online learning in the context of Learning from Home (BDR) aims to increase awareness and as a process to stop the spread of the virus through direct interaction among people. The transition from offline to online forces various parties to be able to follow the process and flow to make the learning system runs well.

Therefore, a study is needed on the readiness of high school teachers in learning from home. This is very important to do to find out the performance of teachers during the Covid-19 period in implementing the free learning policy. This is due to the figure of a teacher is the main key in implementing independent learning. It is very important to conduct a study related to teacher performance in the implementation of independent learning during the pandemic.

The problem in this research is how is the readiness of high school (SMA) teachers in disadvantaged, frontier and outermost areas (3T) in implementing Learning from Home during the Covid-19 adaptation period? The purpose of this study focuses on five aspects, including during the Covid-19 transmission carrying out learning from home, the duration of learning (direct interaction with students) through communication media in a week, the learning carried out is still pursuing completion of the curriculum for all subject matter, assessment (feedback) during or after the learning process from home, as well as the conditions and facilities owned by the school (Internet connection).

2. Literature Review

2.1. Teacher Performance

Performance is something describing the big responsibility of a person's job to exceed the standards that have been set (Uno & Lamatenggo, 2014: 60). Teacher performance, namely the behavior and response of a teacher which refers to things that are done when facing a task and involves all activities or behavior experienced by the teacher to provide results and goals for students (Yamin & Maisah, 2010: 31).

Factors that influence teacher performance include environment, individual characteristics, organizational characteristics, job characteristics, management behavior, job design, teacher performance appraisal, feedback, and organizational financial administration (Supardi, 2014: 50). Teachers must have various professional abilities in the implementation of Teaching and Learning Activities (KBM), namely mastering learning materials and strategies, mastering the methods to be used, mastering guidance and counseling, and mastering learning evaluation (Ahmad, 2017: 137).

2.2. Learning From Home (BDR)

Learning from Home or BDR is a solution in implementing social distancing to prevent the spread of the Covid-19 outbreak, because this learning system is carried out online remotely, it is also called learning carried out by students wherever and whenever (Handarini & Wulandari, 2020: 502). Learning from Home (BDR) is a government step or policy to prevent students from gathering in the form of a crowd, so it can hinder the opportunities for the spread of Covid-19 (Rasyid & Aswadi, 2020: 2).

A teacher is required to be able to design Learning from Home (BDR) activities that are lighter and more effective, but still creative by using the right media according to the material to be delivered (Kurniasari, 2020: 7). The types of assignments given by the teacher must be designed so the students remain enthusiastic in learning even though they are online and do not become a psychological burden for students. Learning from Home (BDR) provides wider opportunities for teachers to explore the material to be taught, but teachers must also be able to choose and limit the extent to which the appropriate application material covers the materials and learning methods used.

The four objectives of implementing Learning from Home (BDR) during the Covid-19 emergency period include (1) ensuring the fulfillment of students' rights to receive educational services during the Covid-19 emergency; (2) protecting education unit residents from the adverse effects of Covid-19; (3) preventing the spread and transmission of Covid-19 in educational units; and (4) ensuring the fulfillment of psychosocial support for educators, students, and parents or guardians (Minister of Education and Culture Circular Letter

Number 15 of 2020 concerning Guidelines for Organizing Learning from Home in an Emergency for the Spread of Coronavirus disease (Covid-19)).

The principles of implementing Learning from Home (BDR) during the Covid-19 emergency, are (1) the safety and mental health of students, educators, heads of education units, and all members of the education unit are the main; (2) Learning from Home (BDR) activities are carried out to provide meaningful learning experiences for students, without being burdened with demands to complete all curriculum achievements; (3) Learning from Home (BDR) can focus on life skills education ; (4) learning materials are inclusive in accordance with the age and level of education, cultural context, character, and the type of specificity of students; (5) activities and assignments during Learning from Home (BDR) may vary between regions, educational units, and students according to their respective interests and conditions and taking into account gaps in access to Home Learning facilities (BDR); (6) the learning outcomes of students during Learning from Home (BDR) are given qualitative and useful feedback from the teacher without being required to give a score or quantitative value; and (7) prioritizing positive patterns of interaction and communication between teachers and parents or guardians (Minister of Education and Culture Circular Letter Number 15 of 2020 concerning Guidelines for Organizing Learning from Home in an Emergency for the Spread of Coronavirus disease).

2.3. The Covid-19 Outbreak

Covid-19 was declared by the World Health Organization or WHO as a pandemic on March 12, 2020 (Fitriani, 2020: 194). A pandemic is an epidemic that occurs simultaneously everywhere, covering a large geographical area or an epidemic spreading to almost all countries or continents and it affects many people (Resti, 2020: 1). The example of pandemic is Coronavirus disease 2019 (Covid-19). This disease should be given more attention because it can be transmitted quickly having mortality rate that cannot be ignored and there is no definitive therapy (Susilo, 2020: 63).

3. Research Methods

This research is part of the continuation of the Puslitjak Rapid Survey in April 2020 and the study of Teacher Performance in the Implementation of Freedom of Learning during the Covid-19 Pandemic which was conducted in June 2020. The research method in this study uses a mixed method approach. Mixed method is a research method that combines two research methods at once, namely qualitative and quantitative methods, so that more comprehensive, reliable, valid, and objective data are obtained (Sugiyono, 2011: 18). The study was carried out.

Primary data on the implementation of Learning from Home (BDR) was obtained from interviews through telephone and Focus Group Discussions (FGD) conducted through Zoom during the pandemic. Then, the data was processed to obtain information about the readiness of senior high school teachers in implementing Learning from Home during the Covid-19 adaptation period. Sampling in this study was purposive sampling technique. Purposive sampling technique is a technique in determining the sample in an area with certain category in accordance with the objectives to be achieved. Purposive sampling technique is also defined as a sampling technique using certain considerations (Sugiyono, 2018: 300).

The sample used in this research was high school teachers in Banten and Gorontalo. The sample of senior high school teachers selected for Banten was Lebak Regency, while Gorontalo was North Gorontalo District. These two districts were chosen because they were included in the category of disadvantaged, frontier and outermost (3T) areas in Indonesia.

The data analysis technique used in this research was Miles and Huberman model and is carried out interactively and continuously, so the data obtained is valid. Activities in the data analysis of Miles and Huberman model include data collection, data reduction, data presentation and drawing conclusion and verification (Miles & Huberman, 2014: 16).

4. Results and Discussion

4.1. Result

During the Covid-19 Pandemic Schools Carrying Out Learning from Home, based on a rapid analysis survey from Puslitjak which was carried out in April 2020 nationally, it was found that the reasons for schools that had not carried out learning from home were as follows.

Table 1: Reasons for Schools Not Conducting (BDR)

No.	Reason	Percentage
1.	There is no internet / supporting equipment	30,8%
2.	Located in a special area / hinterland	23,1%
3.	areas not affected by Covid-19	11,5%
4.	No local government policy	11,5%
5.	School closed	7,7%
6.	Others	3,8%

Source: Puslitjak Survey, 2020

The reason why most schools in 3T areas do not learn from home is because they do not have Internet or supporting devices. In the other hand, in the study locus of teachers' readiness in learning from home in Lebak Regency, Banten and North Gorontalo District, Gorontalo as a school has carried out learning from home, despite having lack of internet support.

4.1.1. The Learning Duration through Communication Media in a Week

Based on the readiness of senior high school teachers in implementing Learning from Home during the Covid-19 adaptation period, the duration of learning (direct interaction with students) through communication media in a week is grouped into four, including 1-3 hours, 4-6 hours, 7 -9 hours and 10 hours or more.

Based on a quick analysis survey from Puslitjak which was conducted nationally in April 2020 found that the average learning duration hours per week is 9.1 hours. When deepening is carried out to teachers in the implementation of Learning from Home (BDR) during the adaptation period Covid-19, then the length of time for implementing learning or direct interaction with students through communication media according to interviews in the respondent's area at one of the SMA Negeri Lebak Regency is recorded in the following note.

"The learning time is adjusted to the learning schedule in the subject matter, but the teacher's interaction with students through screen-to-screen varies. There are 30 minutes until one hour to explain through a power point presentation. Then continued with assignment, but most of the teachers give 24 hours free to contact the teacher if they have difficulties. "

This is the case when conducting an interview in one senior high school in North Gorontalo District that the learning duration was carried out as usual, but the teacher provided the opportunity to ask questions whenever the students want. This is due to the limited availability of Internet package for students and teachers, so screen time is limited. In addition, according to information from the teacher, if it takes too long to stare at the screen, it will make the students boring. This results in not being able to achieve mastery in learning.

4.1.2. Conducted Learning is still Pursuing Completeness of Curriculum

Based on the readiness of senior high school teachers in implementing Learning from Home during the Covid-19 adaptation period, the learning is still pursuing the completeness of the curriculum for all subject matter which is grouped into yes and no.

Questions from the 2020 Puslitjak Survey, whether teachers are still pursuing completeness of the curriculum from 1,041 respondents, 51.6% (537 respondents) yes and 48.4% (504 respondents) no. Based on in-depth interviews in senior high school of Lebak Regency, the curriculum used was K-13 which was adapted to the conditions of distance learning. The teacher was more conveying the main material (KI or KD). This was because of the situations and conditions of learning carried out online.

The teachers hope that the adapted curriculum to online learning can be easily implemented. The obstacle faced in preparation for learning is unstable Internet connection. Some teachers do not pursue completeness of the curriculum, because the learning conditions experience difficulty communicating through weak Internet connection. Some teachers are pursuing completeness of the curriculum, but teachers still face the limited learning duration and conditions for supporting facilities in learning, such as the availability of Internet networks.

4.1.3. Assessment at or After the Home Learning Process

Based on the readiness of high school teachers in implementing Learning from Home during the Covid-19 adaptation period, the assessment (feedback) during or after the learning process from home is grouped into four, including quantitative, qualitative, quantitative and qualitative assessments and did not give an assessment.

Based on the Puslitjak Survey, most teachers in providing assessment used qualitative and quantitative assessment amounted 46.1%. This can be seen from interview result with a teacher at Senior High School in Lebak Regency that the feedback in the online learning process is well packaged and attractive gives positive response to students. Students are interested in learning given through simple media. The teacher always appreciates the work or assignments given by students as positive feedback, for example in the form of positive praise or giving good grades. Another example is the task of making videos related to Covid-19 uploaded on social media that gets the most likes will get prizes and get the best comments directly from the teacher. This feedback is very important as motivation and also as student work reflection.

The teacher employed qualitative and score. The teacher did not force the target achieved; the important thing was the learning process was running well. If there was a missing assignment, the teacher helped in explaining the problems faced by students. The teacher reviewed the assignment submitted by students. In teacher's perspective, the teacher is not satisfied with the results of the assessment or feedback from students, because the assessment target is not achieved. This means that during the academic period, the teacher was unable to provide maximum teaching material compared to the face-to-face learning. The form of teacher feedback assessment is detailly described as follows.

Table 2: Forms of Teacher Feedback Assessment

No.	Assesment	Percentage
1.	Provide a qualitative & quantitative assessment	46,1%
2.	Provide quantitative assessment (score, numbers, points, & alphabet)	28,1%
3.	Provide a qualitative assessment (comments, notes, & appreciation)	21,3%
4.	Did not give assessment	4,5%

Source: Puslitjak Survey, 2020

4.1.4. Conditions and Facilities Owned by the School

Based on the readiness of high school teachers in implementing Learning from Home during the Covid-19 adaptation period, it was found that the conditions and facilities owned by schools (internet) were still experiencing problems.

Lack of teacher facilities in carrying out interactions with students is an obstacle in the learning process use this learning system. Most teachers face obstacles in Internet acces. Based on the Puslitjak Survey data, teachers face network constraints reaches 68.6%. In detail, the data can be seen in the following table.

Table 3: Teacher Obstacles in BDR

No.	Obstacle	Percentage
1.	Inadequate network / Internet package	68,6%
2.	Difficult to observe student development	68,2%
3.	Many students have difficulty learning from home	58,2%
4.	Difficult to coordinate with parents of students	31,3%
5.	Not yet able to optimize digital media	28,2%

Source: Puslitjak Survey, 2020

Based on the readiness of teachers in the implementation of Learning from Home (BDR) during the Covid-19 adaptation period through interviews at one of the Lebak Regency High Schools, learning from home in various forms, both online or online that utilizes information and communication technology as well as offline or offline has been running six months since the Covid-19 pandemic.

In its implementation, Learning from Home (BDR) has also encountered many obstacles, for example from a geographical aspect it has created a bias between cities and 3T areas. The availability of electricity and Internet connection are the most crucial problems that usually occur in 3T areas. Internet connection availability and frequent blackouts often hinder the learning process from home and not all student homes have internet access. The children's struggle to obtain Internet connection is pursued in various ways, starting from riding in neighboring villages with strong signals, climbing into trees, studying in the hills and not infrequently students looking for signals at night to get smoother Internet connection.

Figure 1: Students Searching for Internet Connection by Climbing to Trees in Mumunggang Cigemblong Village, Lebak Regency

Other obstacle faced is students who do not have mobile phone as a means of supporting learning activities from home. This is because most of the residents are in the middle to lower category economic. Another case, students who have cellphones, but they cannot buy Internet package. The solidarity and mutual here is still evident.

Students who have cellphones do not hesitate to share with others, for example, sometimes students have to join forces to buy Internet package. The role of Facebook is also quite helpful with its free mode, but this of course has drawbacks, because it cannot open images or videos.

5. Discussion

Based on the results of the data analysis above, it can be argued that the reason most schools in 3T areas cannot carry out Learning from Home (BDR) activities is due to the lack of support for adequate Internet network facilities. This case causes teachers face the limitations in providing adequate learning or study duration for students.

Teachers in the 3T area do not impose the achievement of learning targets on students. For teachers, the most important thing is that the learning activity process can run well, that is, the teacher is able to provide feedback or help to explain the problems faced by students. The obstacles experienced by students during the Learning from Home (BDR) process are inadequate internet and electricity networks and students who did not have mobile phone and could not even buy Internet package.

Based on this discussion, the teacher as a teaching staff must be able to prepare solutions occuring in the process of Learning from Home (BDR) activities. The readiness of the teacher in preparing the learning process is the key in the successful learning. Therefore, in the conditions of the Covid-19 adaptation period, it requires teachers to innovate and be creative in learning adapted to existing conditions. This is in accordance with the opinion of Untari (2020: 53) which states that "teacher creativity in facing learning during the Pandemic is very much needed, so there is a need for more intense coaching as an effort to improve the abilities of each teacher." What is important for teachers is also the support from management, in this case the principal, to provide motivation and facilities in the implementation of learning from home.

6. Conclusion And Suggestion

6.1. *Conclusion*

The results show that during the Covid-19 outbreak, all schools carried out learning from home. The duration of learning (direct interaction with students) through communication media in a week on average is 1 to 3 hours. The learning that is being carried out is still pursuing the completeness of the curriculum for all subject matter. Assessment (feedback) during or after the home learning process uses a combination of qualitative and quantitative assessments. The condition and facilities owned by the school (Internet) is the limited Internet connection in the 3T area.

6.2. Suggestion

Therefore, several suggestions can be formulated, including the need for training for teachers who are less skilled in using social media. For example, increasing the teachers' ability to prepare teaching materials through interactive power point. Besides, it is necessary to arrange modules or a summary of the main subjects to be conveyed in learning from home. Subject-related learning taught by the teacher must be encouraged to connect with potential to environment. The government needs to measure or assess basic competencies that cannot be achieved in learning due to the limited interaction between teachers and students. Therefore, it needs to be an emphasis on the main basic competencies that students have to master. Besides, the government needs to provide adequate facilities to support the implementation of the Learning from Home (BDR) policy during the Covid-19 adaptation period.

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The Study of Policy Implementation on Teaching Observation in Darasamutr School Sriracha, Chon Buri, Thailand

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Abstract
This research aims to determine the level of policy implementation on teaching observation in Darasamutr School, Thailand. It likewise explored the factors affecting such level of implementation. Three population samples were considered for the study, namely elementary teachers, high school teachers and administrators. Perceptions among these sample groups on the level of policy implementation were statistically compared. Data collected from a total of 234 respondents revealed a consistent observation on the high level of policy implementation on teaching observation on the said campus. Significant differences however were noted along ethical protocols specifically between elementary teachers and administrators. The top three factors identified to be potently affecting the level of policy implementation were Teacher factor, Evaluation tool factor and Miscellaneous factor. Furthermore, some administrative challenges were identified by the administrator respondents. The study's conclusion points to some key areas along the implementation process needing review and revision. Relevant recommendations were then endorsed in order to facilitate optimal effectiveness and relevance of teacher evaluation. Finally, a concept map was drawn to highlight the proposed process flowchart for the campus implementation on teaching evaluation and observation.

Keywords: Teacher Evaluation, Classroom observation, Policy Implementation, Darasamutr School, Chon Buri, Thailand

1. Introduction

1.1. Global mandate for quality education

High quality education is essential for optimal learning and human development. Equitable and quality education in particular, is one of the United Nations' 17 Global Goals embedded in the 2030 Agenda for Sustainable Development (SGD4). This SDG4 lists Seven (7) outcome targets and Three (3) means of

implementation. Means #1 calls for effective learning environments while means # 3 calls for a substantial increase in the supply of qualified teachers especially in least developed countries by year 2030 (UNESCO).

Among developing nations however, poor quality education is one of the myriad socioeconomic problems. UNESCO's claim of a *global learning crisis* was brought about by poor quality education. In its 11th Education for All Global Monitoring Report, it was estimated that 175 millions of young people in poor countries are suffering from illiteracy. In Asia, around 74 Million children have no primary education according to UNICEF Furthermore, this *learning crisis* is said to be costing governments a hefty sum of $129 Billion a year (Pauline Rose, 2014).

The gaps along evidence-based methods such as performance evaluations vis a vis quality education has been huge and polarizing. Take for example the premise that teachers quality has been positively linked to student learning (Robinson,2018)[4] but questions such as "What makes a good teacher?" or "What makes a good education system?" put the value of performance evaluations in a grey zone. The concept of "educational accountability" being put upon teachers expands the argument into personnel and systems management (e.g., who's responsible for the teachers?). Further debates loom as to the ideal parameters and settings for teacher's performance evaluations. Henceforth, teacher's evaluation reform becomes a much more relevant issue. This study thus aims to contribute to the pool of knowledge on the importance of teacher evaluations and education reform especially in one of Asia's rapidly developing country like Thailand.

As reported by Forwerck, of The Borgen Project (2017), Thailand has 97.6% literacy rate as enhanced by the national free education access under the 1999 Education Act. Global academic ratings show that Thai students scored *below* the global average on PISA tests in 2014, ranking 35th out of 40 countries. Likewise, reports from the Trends in International Mathematics and Science Study (TIMSS) also indicate that the country has fallen behind relative to its Asian neighbors. Yet, government spending on education was shown the highest among ASEAN countries at 22.3% of government expenditure (Michael, R. 2018) This figure even reflects an increase from 19.35% in the year 2015 (Sagarik, D. 2014). Statistica cited a hefty budget in 2015 with 559.43Billion Baht. The Bangkok Post (2020) reported the highest in 2018 with 816.46 billion baht or 5% of its GDP. This has catapulted Thailand as the world's top spender and yet one of the worst performers in education. Thailand's educational system is ranked 35th among 40 countries included in 2014 (Lao, R. 2017).

1.2. Framing teacher evaluation in education reform agenda

According to the former director-general of WTO, Supachai Panitchpakdi, Thailand's education system is a "total failure" despite the massive spending (Asia news it, 2016). One cause cited was the huge gap between Bangkok and the rural areas which fall short far below national standards. His tone had set the alarm for the nation's education emergency . The implication points to the urgency for local education reform agenda .

In another APEC report, the MOE showcased Thailand's education reform roadmap (Figure 1) identifying its short-term as well as long-term plans.

Educational reforms have been a trend in the improvement of the educational system. Policies are constantly being formulated to support these reforms. Thus, there is a need to evaluate the level of policy implementation since policy creation is not the end of a reform but just a start. The level of implementation would determine if the goal for reform is being met (Viennet & Pont, 2017).

Local studies on teacher observation in Thailand have been scant. Relevant researches were done by Narathakoon et al., (2020), Harrowell (2019) and Pillay (2002). The research gap on teacher evaluations is huge. As such this study is an attempt to contribute to the body of knowledge on the topic of teacher observation.

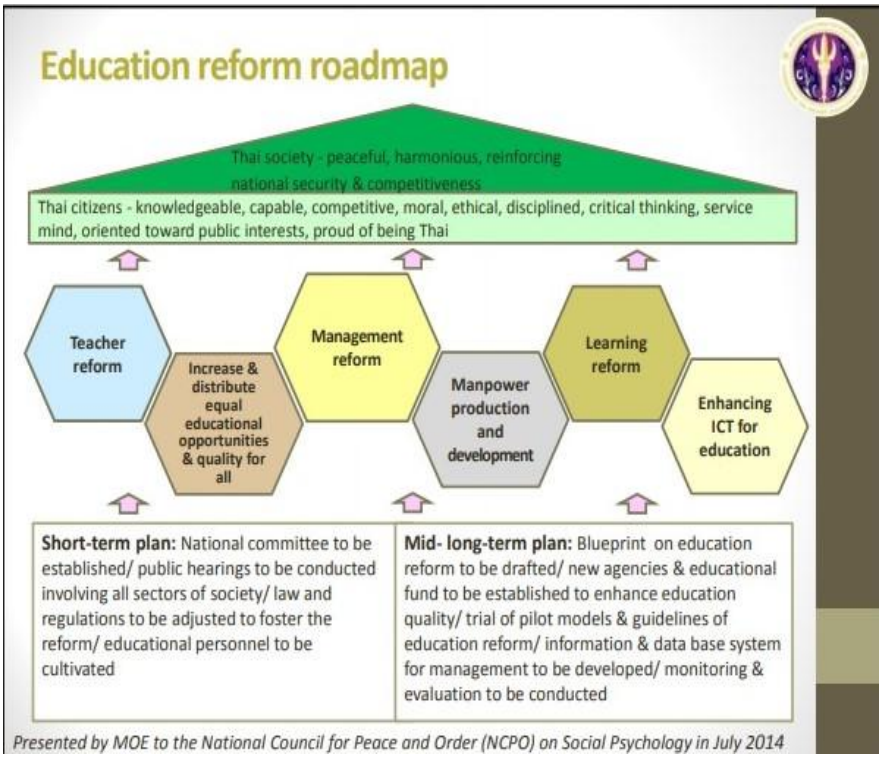

Figure 1: Thailand's Education Reform
Source: Roadmap (MOE 2014)

1.3. Statement of the Problem

Generally, this study aimed to develop a concept map for optimal Policy Implementation on Teaching Observation in Darasamutr School Sriracha, Chon Buri, Thailand.

Specifically, the study aims to satisfy the following problems;

1. What is the level of policy implementation on teaching observation in Darasamutr School Sriracha, Chon Buri as perceived by the following:
    a) School administrators
    b) Primary teachers
    c) Secondary teachers
2. Is there a significant difference between the perceived level of policy implementation on teaching observation among School administrators; Primary Teachers and Secondary Teachers
3. What are the factors affecting the level of policy implementation on teaching observation in Darasamutr School Sriracha?
4. Is there a significant difference between the factors identified in affecting the level of policy implementation on teaching observation?
5. What administrative setup (concept map) can be proposed to enhance the level of the policy implementation on teaching observation in Darasamutr School Sriracha ?

1.4. Hypothesis of the study

This study assumes the following hypotheses.

1. There is no significant difference between the perceived level of policy implementation on teaching observation among school administrators, primary and secondary teachers.
2. There is no significant difference between the factors identified in affecting the level of policy implementation on teaching observation.

1.5. Scope and Limitation

Given the limitations of time and resources and the pandemic travel and transaction protocols, this study is expected to be limited in terms of the scope of respondents. It, therefore, aims to go about data gathering in a more limited number than projected but in a more intensive rather than extensive manner, without compromise to the quality of data. Furthermore, this study merely aims to determine the level of policy implementation and the factors affecting the level and manner of such implementation in one school.

1.6. Definition of Terms

Administrators: A person whose job is to manage a company, school, or other organizations (Mirriam-Webster Dictionary).

Performance Evaluation: Performance evaluation per se is defined as a formal and productive procedure to measure an employee's work and results based on their job responsibilities (Questionpro, 2021). To be more specific, teacher's evaluation is defined as the standardized process or rating and assessing the teaching effectiveness of educators (Safety culture, 2021).

Classroom Observation: Classroom observation on the other hand is defined as an assessment technique (CAT) used in gauging student interaction and how or what they are learning. It is geared towards satisfying a given set of indicators aligned towards performance targets (McMillan, 2015). In addition, this process is also known as *learning walk*s or *walkthroughs* is typically conducted by administrators or instruction specialists as an extension of job performance evaluations. The duration may last from a few minutes to a full class period or rarely, a school day. Furthermore, educators may use a variety of classroom observation methods and templates from nationally utilized models to homegrown, institutional ones (glossary of education reform, 2013).

Education reform: Refers to any planned changes in the way a school or school system functions, from teaching methodologies to administrative processes (RAND, 2020).

Policy Implementation: Refers to the stage in the whole process of translating the goals and objectives of a policy into action. This also entails reference to a pre-approved set of terms of laws (community dictionary, 2021).

Policy: A definite course of action planned or adopted for the sake of expediency, facility and others. (dictionary.com).

Policy Makers: Someone who creates ideas and plans, especially those carried out by a business or government. A mayor, a school board, a corporation's board of directors, and the President are all policy makers (Vocabulary.com)

1.7. *Conceptual framework*

Policy implementation is a complex process. More so, when it is linked to bigger outcomes such as education reform. The concept of implementation per se connotes the existence of a standard to be followed and to be placed in action. These standards are ideals agreed upon by consensus of so called policy makers. Implementation analysis likewise implies some evaluation of the process and players involved.

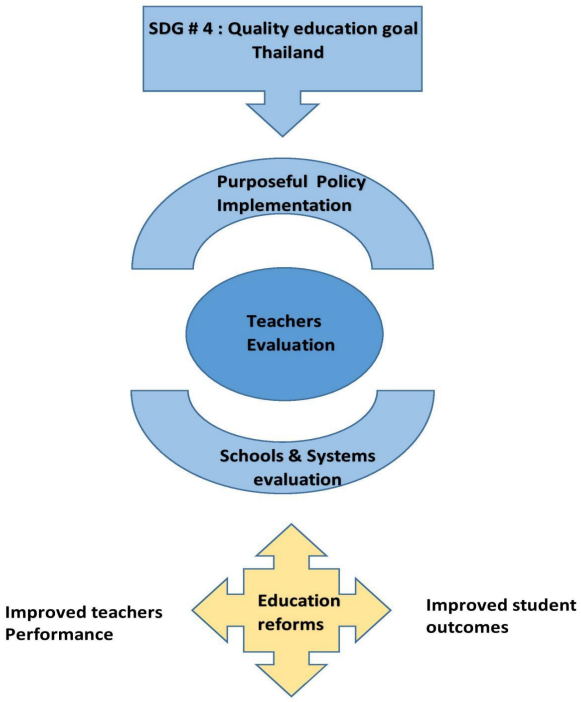

Figure 2 presents this study's conceptual framework considering the OECD national framework.. The need for an efficient and effective teachers evaluation and performance assessment is just another phase in the whole process of educational transformation. Tracing up the ladder is the global mandate for quality education as stipulated by the UN-UNICEF SDG global goal # 4. Thailand as one of the less performing countries along this global goal has a lot of reform work to do. Reform on the level of school management as well as well as national education system. Modest upgrades in the systems of policy implementation along teachers performance is already a huge success when undertaken with sustained momentum. Ultimately, the goal is quality education for all and it can begin with a balanced view of improving teachers' performance along with the students' outcomes or performance both locally and internationally.

2. Methods and Materials

This study was designed as descriptive research that determined the level of policy implementation on teaching observation in Darasamutr School, Thailand. A total of 234 respondents composed of primary teachers (87), secondary teachers (108), and administrators (39) were surveyed and interviewed with consent/ The self-made questionnaire was translated in Thai and pretested with a reliability test result of .719 (Cronbach's Alpha). A 4-point Likert scale was used to measure the level of policy implementation . After data gathering, cleaning and coding, statistical tools used ranged from weighted means to ranking, F- test, Kruskal-Wallis and Marascullio. Other data collection paraphernalia included a voice recorder, a field notebook and a laptop. For purposes of face validity, two educators were asked to evaluate the questionnaires before it was administered to the students

3. Results and Discussion

3.1 The level of policy implementation on teaching observation

The level of policy implementation on teaching observation in Darasamutr School Sriracha, Chon Buri as perceived by the School administrators ,Primary teachers and Secondary teachers is generally, *Fully Implemented.* This was interpreted as per the tool rubrics as *Excellent or Perfectly executed.* This outcome sets a very good impression on the school's administration as well as policy implementation standards along with areas of Scope, Duration & Timeliness, Ethical Protocol, Feedback and Education Standards. It likewise revealed a consistent and comprehensive policy implementation on campus.

POLICY & PRACTICE	Elementary Teachers (n = 87)			Secondary Teachers (n = 108)			Administrators (n = 39)			Overall (N = 234)		
	M	SD	VI	M	SD	VI	M	SD	VI	M	SD	VI
A. SCOPE												
1. All teachers from every school level are regularly evaluated /observed.	4.56	0.68	F	4.65	0.62	F	4.79	0.52	F	4.64	0.63	F
2. All Thais teaches and Foreign teachers are observed with the same evaluation criteria or rubrics.	4.54	0.63	F	4.56	0.60	F	4.64	0.63	F	4.56	0.61	F
3. All Thai teachers and Foreign teachers are observed with the same evaluation committee.	4.48	0.78	F	4.49	0.74	F	4.72	0.51	F	4.53	0.72	F
4. All members (3) of the evaluation committee are present consistently/every time.	4.46	0.63	F	4.47	0.70	F	4.74	0.59	F	4.51	0.66	F
Sub-Area Mean	4.51	0.57	F	4.54	0.57	F	4.72	0.49	F	4.56	0.56	F
B. DURATION and TIMELINESS												
5. Classroom Observation is done once regularly per semester.	4.70	0.49	F	4.77	0.56	F	4.77	0.48	F	4.74	0.52	F
6. Classroom observation period is conducted as prescribed and the same for all teachers regardless of status, background, school level taught.	4.61	0.64	F	4.57	0.53	F	4.74	0.50	F	4.62	0.57	F
7. Classroom observation period is conducted at an optimal and convenient time for both students and teachers.	4.56	0.66	F	4.64	0.54	F	4.82	0.39	F	4.64	0.57	F
Sub-Area Mean	4.62	0.52	F	4.66	0.43	F	4.78	0.39	F	4.67	0.46	F
C. ETHICAL PROTOCOL												
8. The observation timeline is generally announced through memos or during meetings.	4.48	0.63	F	4.46	0.74	F	4.56	0.68	F	4.49	0.69	F
9. The teacher concerned is cordially informed of the date and time slot of observation.	4.62	0.58	F	4.59	0.66	F	4.67	0.66	F	4.62	0.63	F
10. The teachers were oriented and provided with a copy of the evaluation tool to be used.	4.26	0.75	F	4.48	0.73	F	4.62	0.59	F	4.42	0.73	F
11. The observation process is conducted in a highly professional and objective manner.	4.39	0.69	F	4.58	0.60	F	4.67	0.66	F	4.53	0.65	F
Sub-Area Mean	4.44	0.52	F	4.53	0.54	F	4.63	0.55	F	4.51	0.53	F
D. FEEDBACK												
12. A post conference is regularly conducted by administrators or evaluation committee.	4.20	0.74	H	4.30	0.81	F	4.41	0.59	F	4.28	0.76	F
13. Performance Evaluation results are objectively used for merit system (promotion /retention) as well as identifying personnel development areas.	4.24	0.78	F	4.32	0.78	F	4.49	0.79	F	4.32	0.78	F
14. Concerns or issues forwarded regarding observation or evaluation is openly discussed among teachers and fairly resolved by administrators concerned.	4.08	0.89	H	4.28	0.77	F	4.28	0.83	F	4.21	0.83	H

	Sub-Area Mean	4.17	0.69	H	4.30	0.69	F	4.39	0.61	F	4.27	0.68	F
E.	EVALUATION STANDARD												
15.	The observation tool is aligned or at par with Thai national education standards	4.41	0.67	F	4.49	0.63	F	4.69	0.47	F	4.50	0.63	F
16.	The observation tool used is comprehensive, suitable and useful in assessing the teachers' classroom performance.	4.46	0.73	F	4.52	0.60	F	4.69	0.47	F	4.53	0.64	F
17.	The evaluation tool is revised for upgrading to keep abreast with any changes relevant to the performance criteria (e.g., new curriculum/policy).	4.45	0.74	F	4.43	0.66	F	4.62	0.49	F	4.47	0.67	F
	Sub-Area Mean	4.44	0.67	F	4.48	0.58	F	4.67	0.40	F	4.50	0.59	F
	Overall Mean	4.44	0.53	F	4.51	0.47	F	4.64	0.40	F	4.51	0.48	F

Legend: F: Fully Implemented; M: mean SD: Standard Deviation ; VI: Verbal Interpretation

3.2 Significant difference between the perceived level of policy implementation on teaching observation among School administrators, Primary Teachers, Secondary Teachers

There is no statistically significant difference ($p > 0.05$) in the perception of how the policies and practices related to policy implementation are implemented in terms of the rank status of the respondents. The same is true along with scope, duration, timeliness, ethical protocol, feedback and evaluation standard among the respondents ($p > 0.05$). However, along with ethical protocol, there is a statistically significant difference ($p < 0.05$) between the elementary teachers and administrators in terms of their perception of how "the teachers were oriented and provided with a copy of the evaluation tool to be used" and "the observation process is conducted in a highly professional and objective manner."

3.3 Factors and Challenges affecting the level of policy implementation on teacher observation

The Factors affecting the level of policy implementation on teaching observation in Darasamutr School Sriracha ranged from categories of internal to external and miscellaneous factors (table 1). Rankings revealed that the *Teacher factor (1st)* and the *Evaluation tool* (2nd) *factor* were the top most important factors identified by the respondents. Miscellaneous came in the middle (3rd) while student and administrative factors were ranked as the least important or dependent factors affecting the evaluation outcomes. Top Sub factor identified for the Teacher factor category was an item on *Teacher's awareness of the policies or matters regarding teaching observation/* evaluation. Meanwhile for the Evaluation tool factor category, it was the item *on Appropriateness of the tool to the teacher concerned (e.g. correct evaluation form was used or if the teacher concerned needs to be evaluated).* Under the Miscellaneous factor category, it was the *Physical set up or ambiance* that was ranked as most important. Meanwhile, the administrative Challenges identified affecting the level of policy implementation on teaching observation in Darasamutr School Sriracha ranged from themes of time management/constraints to lack of feedback and classroom management concerns especially from the elementary teachers. Elements pertaining to physical set up like Technical malfunctions during observations were also mentioned. Evaluation rubric transparency issues as well as concerns on the lack of evaluation tool validity were listed.

Table 1: Summary of Factors affecting Policy Implementation on Teaching Observation

Factor categories	Elementary Teachers (n = 87)		Secondary Teachers (n = 108)		Administrators (n = 39)		Overall (N = 234)		Rank
I. INTERNAL FACTORS	f	%	f	%	f	%	f	%	
A. TEACHER FACTOR									
a. Teacher's awareness on the policies or matters regarding teaching observation/ evaluation.	83	95.40	108	100.00	39	100.00	230	98.29	1
b. Teacher's personal background like age, years of teaching experience, gender, etc.	68	78.16	82	75.93	32	82.05	182	77.78	
c. Teacher's employment status (e.g. full time/part-time/regular/contractual)	70	80.46	84	77.78	31	79.49	185	79.06	
d. Teacher's availability of visual aids and materials for classroom observation	83	95.40	106	98.15	38	97.44	227	97.01	3
e. Teacher's physical and mental health state during evaluation period	81	93.10	96	88.89	37	94.87	214	91.45	
f. Teacher's stress level and anxiety during classroom evaluations	62	71.26	91	84.26	30	76.92	183	78.21	
g. Teacher's attitude towards teaching performance evaluations/observations	79	90.80	100	92.59	36	92.31	215	91.88	
h. Teacher's mastery of the subject matter/course taught	84	96.55	106	98.15	38	97.44	228	97.44	2
i. Teacher's support system (e.g. family/friends /colleagues)	78	89.66	95	87.96	35	89.74	208	88.89	
B. STUDENT FACTOR									
a. Student's awareness of the teacher's classroom observation schedule (e.g. teacher informed them beforehand of visitor's arrival)	76	87.36	97	89.81	38	97.44	211	90.17	3
b. Student's level of exposure on classroom observations	82	94.25	96	88.89	37	94.87	215	91.88	2
c. Student's class profile (e.g. year level/grade/section)	81	93.10	90	83.33	32	82.05	203	86.75	
d. Student's level of comprehension or understanding as to the purpose of classroom observations	84	96.55	101	93.52	36	92.31	221	94.44	1
e. Student's personal attitude towards the teacher or the subject matter	83	95.40	93	86.11	34	87.18	210	89.74	
C. ADMINISTRATIVE FACTORS									
a. Administrator's level of moral support towards teachers with regards to teaching evaluations	80	91.95	96	88.89	37	94.87	213	91.03	2
b. Administrator's level of information dissemination as to the policies and guidelines relevant to classroom observation	78	89.66	95	87.96	39	100.00	212	90.60	3
c. Administrator's ability to conduct post conference with their respective subordinates	82	94.25	95	87.96	39	100.00	216	92.31	1
d. Administrator's ability to resolve any issues /complaints regarding	82	94.25	97	89.81	37	94.87	216	92.31	1

	performance evaluations								
II.	EXTERNAL /MISCELLANEOUS FACTORS								
A.	Physical set up / ambiance of classrooms	84	96.55	102	94.44	38	97.44	224	95.73	1
B.	Time slots /timing of classroom observation	84	96.55	99	91.67	36	92.31	219	93.59	2
C.	Demeanor /Personality of the observer (evaluation committee)	82	94.25	95	87.96	31	79.49	208	88.89	
D.	Technological /visual aids malfunction	77	88.51	97	89.81	36	92.31	210	89.74	3
III.	EVALUATION TOOL FACTOR									
A.	Transparency of rubrics used in the evaluation tool	85	97.70	103	95.37	38	97.44	226	96.58	2
B.	Comprehensiveness of the criteria used in the evaluation tool	80	91.95	101	93.52	39	100.00	220	94.02	3
C.	Appropriateness of the tool to the teacher concerned (e.g. correct evaluation form was used)	85	97.70	104	96.30	38	97.44	227	97.01	1

Figure 2 presents a thematic Venn diagram of the challenges based on the administrator interviews. These challenges ranged from time constraints to the sheer number of students per class.

The consequences of such challenges thus ranged from minor lapses or inefficiencies in the evaluation to transparency issues. Although some administrative solutions were suggested with regards to addressing these challenges and mitigating the unintended consequences, some issues still lack definite solutions. From an administrator's perspective however, it is apparent that evaluation standards are indirectly compromised by the level and efficiency of process implementation. Evaluation Policy implementation is indeed a complicated administrative endeavor. As one respondent stated, *"no perfect system exists."*

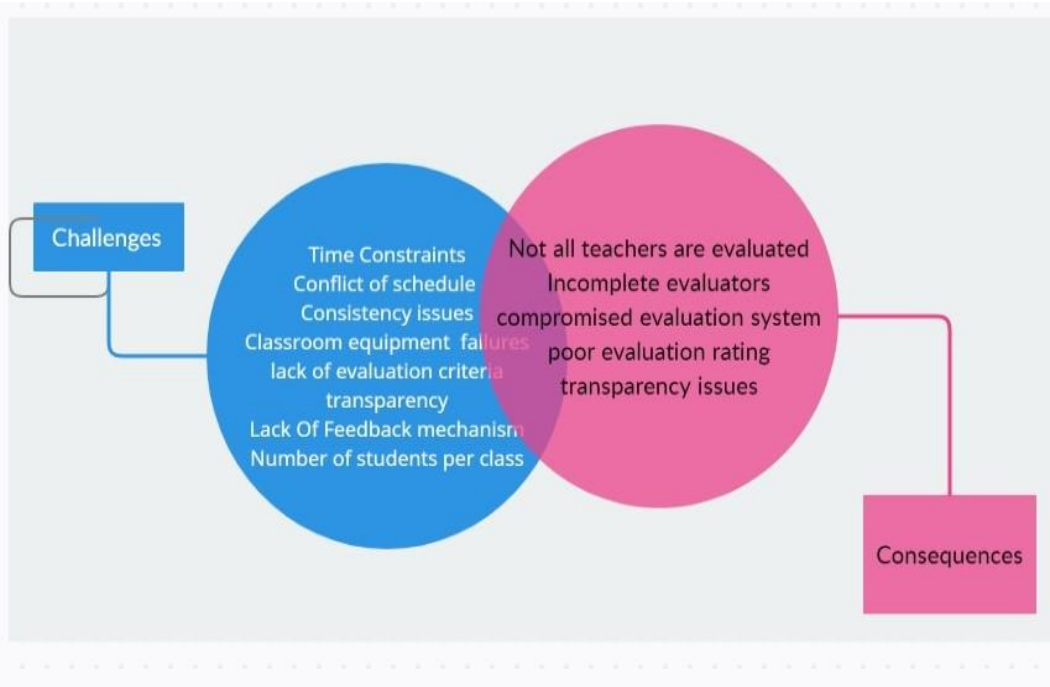

Figure 2: Thematic diagram of the administrative challenges affecting the level of policy implementation on teacher observation

Despite facing these challenges, the administrators voiced encouragement for cooperation and work dedication from the teachers. Accepting willingness for internal reform has been signified by the responses but as one administrator comments "no perfect system" exists. James (2021) corroborates as to the difficulty of evaluations, saying that it is in fact "*an imperfect task."*

3.4 Significant difference between the factors identified in affecting the level of policy implementation on teaching observation

There are statistically significant differences ($p < 0.05$) between elementary teachers and administrators in terms of identifying the factors that affect the policy implementation on teaching observation. Such is on the "student's awareness of the teacher's classroom observation schedule (e.g. teacher informed them beforehand of visitor's arrival)" along with student factors, "administrator's level of information dissemination as to the policies and guidelines relevant to classroom observation" along with administrative factors, "demeanor /personality of the observer (evaluation committee)" along with external/miscellaneous factors and "comprehensiveness of the criteria used in the evaluation tool" along with evaluation tool factors. There are also statistically significant differences ($p < 0.05$) between secondary teachers and administrators in terms of identifying the factors that affect the policy implementation on teaching observation. Such is on the "administrator's level of information dissemination as to the policies and guidelines relevant to classroom observation" and "administrator's ability to conduct post conference with their respective subordinates" under administrative factors and "comprehensiveness of the criteria used in the evaluation tool" under evaluation tool factors.

4. Conclusion

Based on the general findings of the study, the following conclusions are drawn:

The *fully implemented* level of policy implementation on teaching observation in Darasamutr School Sriracha, Chon Buri sets a very good impression on the school's administration as well as policy implementation standards. It likewise revealed a consistent and comprehensive policy implementation in the campus.

As indicated by the statistically significant difference among elementary teachers and administrators, it can be further concluded that these teachers are quite sensitive and needful of orientation on the evaluation tool to be used. In addition, there is a need among the said respondents to be mindful of the professional and objective conduct of the evaluations. This further indicates the teachers' sensitivity towards fairness and non-biased performance assessment.

The Factors affecting the level of policy implementation on teaching observation in Darasamutr School Sriracha gravitated more towards *teacher factor* and *Evaluation tool factor* . This reflects the general notion that evaluation outcomes are more dependent on the teacher and the evaluation tool. While miscellaneous and administrative factors are similarly recognized, their rankings indicated a less active role in the evaluation outcomes as perceived by the respondents.

The administrative challenges in the evaluation policies implementation point to the need for time management especially among the evaluation committee. The need for a feedback mechanism was likewise voiced out among teachers.

Finally, Elementary teachers tend to show some special needs given the nature of their students. The students need to be oriented as to the purpose and mechanics of classroom observation is apparent. Rubrics therefore might suggest an age-based approach.

5. Recommendations

Based on the findings and conclusions, the following recommendations are presented:

The level of policy implementation in Darasamutr School Sriracha, Chon Buri must be maintained to the highest level .As such, implementation policies and practices maybe ripe for benchmarking to other campuses or schools of similar or even different pedagogy. Information dissemination thru meetings ,memos and non-formal means , on evaluation policies and procedures must be ramped up at all school levels. Likewise, measures to ensure and assure the teachers of the professorial conduct of the evaluations must be on the top agenda. A timely review of the evaluation tool used can boost the validity of the instrument . Likewise, a mechanism for preparing teachers, be it coaching, simulation or peer mentoring can help minimize performance anxiety and boost confidence especially among young and non-tenured teachers.

The administrators and evaluation committee needs to devise alternate methodologies of assessing teacher performance as a buffer for the time constraints ,conflict of schedules and other time management issues. There is also a need for regular post conference as well as other feedback mechanisms so as to aid the teacher in identifying performance lags and gaps. Professorial development plan for teachers is commended to be drawn at a short term and long term time frames.

Given the elementary teachers' special needs, age-based evaluation tools and policies can be alternately used so as not to disrupt the teaching process especially for classes with younger students Finally, for its output objective, this study proposes a concept map (figure 3) outlining the overall campus evaluation process. This flowchart factored in the major points raised by the respondents as well as the researcher's analysis of data. The idea takes on a holistic approach as well as solutions-oriented process leading to a balanced development of teaching standards which includes teacher's career growth as well as that of students learning. The map outlines the three phases (pre- visit, observation time , post visit) involved in the whole evaluation process. In each of these phases , the ideal necessary elements were outlined as needed to be executed by both parties (teachers and administrators) . Note that a policy review has been highlighted as a crucial element of the whole process.

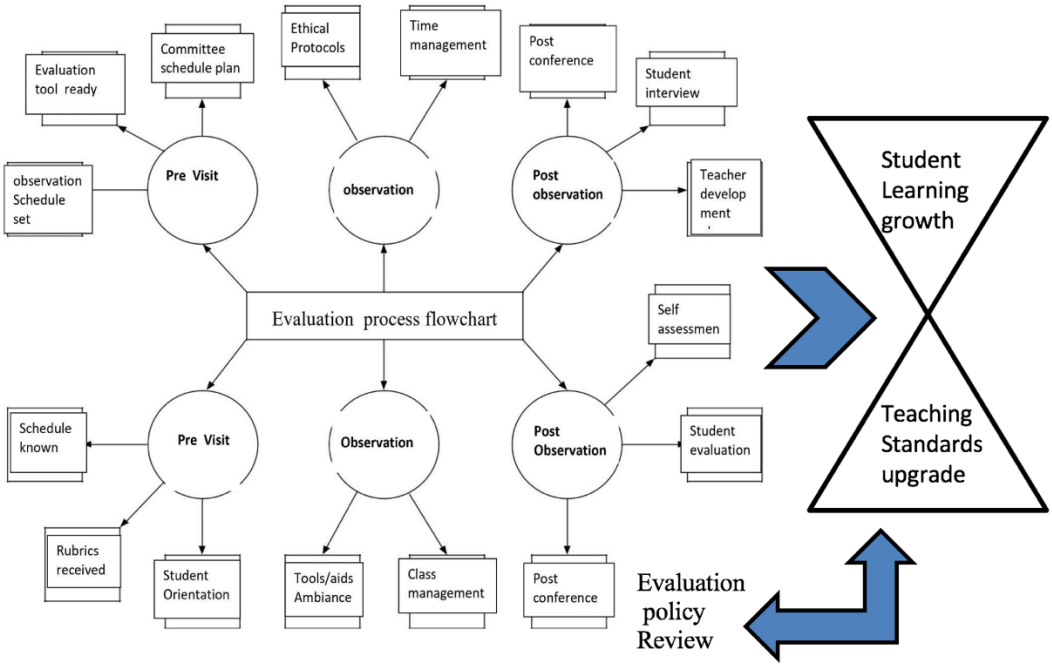

Figure 3: Proposed Teachers Evaluation Process Flowchart for Darasamutr School

Source: Reyes, J. 2021

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Students' Length Measuring Estimation Skills Related to The Daily Life Objects*

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Abstract
This research aims to explore the secondary school sixth and seventh graders' length measuring estimation skills developing activities related to the daily life objects. The study is in a qualitative multiple case study model. The universe of the research consisted of the sixth and seventh graders. The sample of the research consisted of 85 students, who were studying at a secondary school in sixth and seventh classes in 2 (two) state schools determined with the purposive sampling method in the 2018-2019 educational year. The maximum variety was ensured for the class level, gender, and mathematics achievement scores; voluntariness for the easily accessible situation. The data were obtained with the scales and semi-structured interview forms prepared during the research process and analyzed descriptively. The research results suggest that the length measuring estimation skills of the secondary school sixth and seventh graders relevant to the daily life objects can be developed with the activities that will develop the students' prior knowledge and skills.

Keywords: Measuring Estimation, Estimation, Estimation Skill, Length

1. Introduction

Although mathematics comes into existence in line with the needs of society with simple counting and measuring operations, it has a significant place among the other sciences consisting of primary technology today (Işık et al.,2010).

Those, who can use or understand mathematics, have more possibility to shape their future in the world that is in rapid change. Today's mathematics is not only about arithmetic and geometry. The current mathematics is

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relevant to the data, measurement, reaching results with scientific researches, finding evidence, and proving. Using mathematics is, rather than calculating, looking for a relationship, testing and estimating the results (Sulak, 2008).

As the rapid development in technology and increasing social needs are considered, it has become an obligation to teach the student to reach the information instead of transferring the information to the student since the information that needs to be transferred to students for the future cannot be predicted (Özcan, 2015). For this reason, it will be one of the basic strategies of mathematics teaching to educate students with flexible thinking, reasoning, problem-solving, and estimation skills in order for them to cope with situations they have not encountered before (Umay, 2003). It is claimed that the skill of estimation, which is one of the mentioned skills, makes our life easy (Çetin & Köse, 2015), useful in problem-solving (Sevgi & Çağlıköse, 2020; Aktaş, Bulut & Aktaş, 2018), and brings conceptual understanding fore in some issues (Erdem, Özçelik & Gürbüz, 2018). In addition, estimation skill is in reflective thinking and critical thinking (Eğmir & Ocak, 2018) and is related to the number sense (Karabey & et al., 2019). Although the estimation skill took place in the basic purposes of mathematics in the mathematics curriculum before 2005, it could not be applied in the practices (Çilingir & Türnüklü, 2009). In the 2018 secondary school mathematics curriculum, the estimation skill was referred and the gains relevant to this skill were included in this curriculum. While the gains relevant to the measuring estimation skill were included in the curriculum at the level of primary school, at the secondary school level, the gains relevant to the conceptual estimation skill were mentioned (MEB, 2018).

1.1. Significance of the study

The measuring estimation skills are the significant skills that students will apply in solving real-life problems and developing several different activities that students will use in acquiring these skills (Bulut & Şener, 2017). As it is considered that there is significant progress in the estimation skill with the in-class activities (Civelek & Akamca, 2018), it is useful for teachers to include real-life situations in their lessons (Yakar & Yılmaz, 2017). As it is taken into account that the pre-service teachers prefer applying the activities aiming to measure the estimation skill-less (Öztürk & Işık, 2018), do not feel adequately equipped about the types of activities that can be applied and do not believe these sorts of activities are efficient (Boz-Yaman & Bulut, 2017), that there is a limited number of studies on the topic of estimation in Turkey (Boyraz & Aygün, 2016), it is worth exploring the necessary prior knowledge and skills for the length measuring estimation skills relevant to the daily life objects of the sixth and seventh graders and the activities that will gain these skills.

The problem of the research consists of "what are the prior knowledge and skills that are necessary for the length measuring estimation skill relevant to the daily life objects of secondary school sixth and seventh graders and what can be the activities to be used in gaining this knowledge and skills and how these activities affect the length estimation skill relevant to the daily life objects." This problem is divided into the sub-problems below.

1. Which prior knowledge and skills are necessary for the length measuring estimation skills related to the daily life objects of the secondary school sixth and seventh graders?
2. What can be activities that will gain the prior knowledge and skills which are necessary for the length measuring estimation skills related to the daily life objects of the secondary school sixth and seventh graders?
3. How does applying the activities that will gain the prior knowledge and skills which are necessary for the length measuring estimation skills related to the daily life objects of the secondary school sixth and seventh graders affect the length measuring estimation skills relevant to the daily life objects?

In the research, it is aimed to determine what are the prior knowledge and skills that are necessary for the length measuring estimation skills related to the daily life objects of the secondary school sixth and seventh graders, how the activities that are thought to gain this knowledge and skills affect the participants' length estimation skills of daily life objects (relationships between the estimations before and after the activity). The findings

reached at the end of the study are thought to guide teachers and curriculum developers in teaching length estimation skills of daily life objects.

2. Method

This study aims to explore the comparing the length measuring estimation skills related to the daily life objects deeply according to the students' current length measuring estimation skills related to the daily life objects and given training. As it can be understood from the purpose of the study, this study is a qualitative (recommended for the estimation skill (Boyraz & Aygün, 2016)), multiple case study model. Mc Millan (2000) defines case studies as "a method which enables to explore one or more events, environments, programs, social groups, or other interconnected systems in depth" (cited by Büyüköztürk et al., 2015). Eisenhardt (1989) defined case studies as research that synthesizes and expands research and adds depth to existing theory opinions. Therefore, the research that enables to explore of an event or a situation in depth is evaluated within the scope of the case study. Eisenhardt (1989) suggests the multiple case study in the research in which the differences between individuals are investigated.

2.1 Research Universe and Sample

The universe of the research consisted of the secondary school sixth and seventh graders in Turkey. The sample of the research consisted of 85 sixth and seventh graders, who were selected with the purposive sampling method from 2 (two) secondary schools' sixth and seventh class levels from the secondary schools of the Ministry of National Education in Sorgun district of Yozgat province in the 2018-2019 educational year. For the easy accessibility in the sample, voluntariness was taken as the base (Yıldırım & Şimşek, 2013).

2.2 Data Collection Tools

The research data were obtained with the "1st length measuring estimation scale" and "2nd length scale measuring estimation scale" and semi-structured interviews.

2.2.1 1st Length Measuring Estimation Scale

The objects to determine the prior knowledge and skills that may affect the participants' length measuring estimation scales related to the daily life objects were determined as short (shorter than 25cm), medium (longer than 25 cm, shorter than 2 m), long (longer than 2m) and objects that do not create a sense of space-volume, have space, have volume.

The objects stated in the scale questions are the objects that the participants use or encounter continually in daily life. The lengths in the scale and the characteristics of these objects relevant to these lengths are presented in Table 1.

Table 1. 1st length measuring estimation scale questions and the characteristics of these objects relevant to these lengths

Lengths	**Characteristics of the Lengths**
Length 1	Short, with no sense of space-volume
Length 2	Medium, with no sense of space-volume
Length 3	Long, with no sense of space-volume
Length 4	Short, with space
Length 5	Orta, with space
Length 6	Long, with space
Length 7	Short, with volume
Length 8	Medium, with volume
Length 9	Long, with volume

As it is seen in Table 1, 9 (nine) questions were asked to the participants to estimate the lengths of 9 (nine) objects. They consisted of the objects which were short (shorter than 25cm), with no sense of space and volume and with space; medium (longer than 25 cm, shorter than 2 m), with no sense of space and volume, and with volume; long (longer than 2m), with no sense of space-volume and with volume. There is an "explanation" part in the scale to enable the participants to write the reasons for their estimations.

2.2.2 2nd Length Measuring Estimation Scale

After applying the 1st length measuring estimation scale, from the data in the “explanation” part, the prior knowledge and skills that may affect the length estimation skills related to the daily life objects were determined. The activities that were thought to be gained this prior knowledge and skills were performed. To determine how these activities affect the participants' length estimation skills related to daily life objects, the 2nd scale was developed by using different objects that had the same characteristics as the objects in the 1st scale.

2.2.3 Interviews

To determine how did the students, who did not have any explanations in the 1st length measuring estimation scale or whose explanations were not understood, made length measuring estimation related to the daily life objects, the semi-structured interviews were performed. An example of the interviews is given in the result section.

2.3 Data Collection Process

The data were collected with the written documents and interviews in the research. The research was started after the approval of the ethics committee and the necessary permissions from the Directorate of National Education. The students and parents who were in the study groups were informed and included with their permission and voluntariness. The written documents and interview processes are described below.

2.3.1 Written Documents

The written documents were used in two stages and for two measurements.

1st Measurement: After the sixth and seventh students, in the two secondary schools in which the measurements would be done, had been informed about the measurements, the 1st measurement was applied totally to the 85 students, 49 of them were seventh-graders, 36 were sixth-graders, participated voluntarily. During the measurement, the students were asked to write on the scale whose one copy was given to them in order not to affect each other by expressing their estimations vocally and they were asked to explain the reasons for their estimations. The measurement continued about a course time.

2nd Measurement: One week after the 1st measurement, the non-standard length measurements (fathom, span, step, foot, finger) were explained to the students. These non-standard length measurements were determined by measuring the equivalent in standard length measurements. On the same day, length measurement estimation strategies such as using fixed point or reference point, unit repetition strategy, using previous knowledge, mental metering, comparison, fragmentation-stacking, compression, random estimation (Kılıç & Olkun, 2013)) is explained practically during the two lessons. One week after the explanations, the 2nd measurement was done. During this measurement, the students were asked to write on the scale whose one copy was given to them in order not to affect each other by expressing their estimations vocally and they were asked to explain the reasons for their estimations. The measurement continued for about one-course duration.

2.3.2 Interviews

At the end of the 1st scale applied to the students, 8 (10%) of the students, who did not give any explanations or whose explanations were not understood, were interviewed. After the 2nd scale was applied, a second interview was held with the same students to determine how the activities that were thought to improve prior knowledge and skills had an effect. The interview durations are given in Table 2.

Table 2: The interviewed students and duration of the interviews

Code Name	1st Interview Duration (min./sec.)	2nd Interview Duration (min./sec.)
S1	04.46	04.49
S2	05.01	04.37
S3	04.13	04.44
S4	03.06	02.27
S5	02.46	02.39
S6	02.45	03.09
S7	03.22	03.19
S8	03.00	02.55

As it is seen in Table 2, the arithmetic means of the interviews with the 8 students is about 3.5 minutes. The interviews were held in a silent environment and all the interview periods were spent with data collection. To prevent data loss, the interviews were audio-recorded. The audio recording process was carried out with the knowledge of the students.

2.4 Data Analysis

The study started to with the application of the first scale to the students. In this stage, in the first measurement held to investigate the existing length estimations of students, the answers for the lengths of the objects given under the headings of short, medium, and long and the arithmetic means of the differences between the real lengths of these objects were found. The frequencies and rates were calculated and described under the themes and sub-themes to examine the explanations of the estimations in depth. In this scale applied to the students, a semi-structured interview was held with eight students who did not explain their estimations or make an understandable explanation, the interviews were recorded and analyzed with the content analysis to reach the concepts and relationships that would explain the data (Yıldırım & Şimşek, 2013).

In the second section of the study, the second scale was applied to the students at the end of the activities that were thought to develop the students' length measuring estimation skills. In this scale, the lengths of the objects were found with the arithmetic means of the answers given by the students and the differences between real lengths of the objects. To investigate the explanations of the estimations in-depth, the frequencies and rates were calculated and described under the themes and sub-themes. 8 (eight) students, who were interviewed in the first interview, were interviewed again and the interviews were recorded.

3. Results

3.1. Findings

In this section, the findings of the research are given under two headings as the written documents and findings obtained from the interviews.

3.1.1 Findings obtained from the written documents

3.1.1.2 Findings related to the first sub-problem.

As the class levels of the sixth and seventh graders are taken into account, the students are expected to gain the function stated in the 2018 MEB 5th class curriculum as "M.5.2.3.1. Recognizes length measurement units, converts meters-kilometers, meters-decimeters-centimeters-millimeters to each other and solves related problems"

As it is seen in Table 4, that the number of students who made "no explanation" or "blindness" explanation was higher than the number of students who made other explanations, except for the "long" theme, "one edge length of an object with volume" sub-theme created the impression among the researchers that the standard and non-standard units of measurement were not fully understood and there was a difficulty in converting these units of measurement to each other. In this section, an interview was held with the students who did not make any explanation. The interviews have the feature to confirm the impression. This situation demonstrated for the length measurement estimation skill of contemporary life objects that it was necessary to know "standard and non-standard measurement units" and "convert them to each other" fully. In addition, there are no acquisitions for length measuring estimation skill strategies in the MEB primary and secondary curriculum (MEB, 2018). The researchers thought that students' knowledge of length measuring estimation skills would positively affect their length estimation skills of daily life objects, and these strategies were explained in the activity.

3.1.1.3 Findings related to the second sub-problem.

According to the findings obtained from the 1st sub-problem of the research, it was determined by the researchers that the activities, which would positively affect the length measuring estimation skills of sixth and seventh class students, were the "recognizing standard and non-standard length measuring units, converting them to each other" and "describing length measuring estimation strategies" activities.

3.1.1.4 Findings related to the third sub-problem.

The arithmetic means demonstrating the difference between the estimations of the sixth and seventh class students related to the lengths of the objects in the first and second measurements and the real lengths of the objects are presented in Table 3 below.

Table 3: The arithmetic means demonstrating the difference between the estimations of the sixth and seventh class students related to the lengths of the objects in the first and second measurements and the real lengths of the objects

Lengths	**First Measurement Arithmetic Mean**	**Second Measurement Arithmetic Mean**
Length 1	3,78 cm	2,21 cm
Length 2	15,17 cm	6,6 cm
Length 3	8,31 m	0,79 m
Length 4	5,67 cm	3,39 cm
Length 5	49,72 cm	22,32cm
Length 6	1,31 m	0,44 m
Length 7	4,44 cm	1,2 cm
Length 8	30,1 cm	14,72 cm
Length 9	0,38 m	0,7 m

As it is seen in Table 3, the 2nd measurement means in the "length 9" is higher than the arithmetic means in the 1st measurement. In other lengths, the 2nd measurement arithmetic means are lower than the 1st measurement arithmetic means.

The explanations expressed by the sixth and seventh class students for the length estimations for the objects given with the "short," "medium" and "long" themes in the first and second measurements are presented in tables below.

Table 4: The sixth and seventh class students' explanations for the length estimations for the objects given with the "short" theme in the first and second measurements

Themes	Sub-themes	Common Responses	1st measurement (f)	1st measurement (%)	2nd measurement (f)	2nd measurement (%)
SHORT	Lengths with no sense of space or volume	I measured with my hand span	25	29	58	68
		No explanation	17	20	10	12
		Eye estimation	21	25	7	8
		I measured with my finger	–	–	7	8
		I compared it with the pencil lead box	8	9	3	4
		Total			85	100
	The length of one side of the object with the area	I measured with my hand span	14	17	61	72
		I measured with my finger	3	4	11	13
		No explanation	25	29	7	8
		As it is short	7	8	3	4
		Eye estimation	20	24	2	3
		With the compression method	–	–	1	1
		Total			85	100
	The length of one edge of an object with volume	I measured with my finger	2	3	62	73
		I measured with my hand span	10	12	8	9
		Eye estimation	18	21	6	7
		No explanation	32	39	6	7
		As it is short	9	11	2	3
		I compared it with the pencil lead box	–	–	1	1
		Total			85	100

As it is seen in Table 4, there were 25 (%29) students who made the explanation "I measured with my hand span" as an explanation in the first measurement and 58 (%68) students in the second measurement for short lengths that do not create a sense of area-volume. In the first measurement, there were 21 (%55) students who made an explanation of "eye estimation" and there were 7 (%8) students in the second measurement. There were 17 (%20) students who did not "explain" in the first measurement, and 10 (%12) students in the second measurement.

For the side lengths of a short, area-filled object, there were 14 (%17) students who made the explanation "I measured with my hand span" as an explanation in the first measurement and 61 (%72) students in the second measurement. In the first measurement, there were 20 (%24) students, who estimated with eye estimation, and 2

(%3) students in the second measurement. There were 25 (%29) students, who did not make an explanation in the first measurement, and 7 (%8) students in the second measurement.

There were 10 (%12) students who explained "I measured with my hand span" as an explanation for the edge length of a short, object with the volume in the first measurement, and 8 (%9) students in the second measurement. There were 2 (%3) students who explained: "I measured with my finger" in the first measurement and 62 (%73) students in the second measurement. In the first measurement, 18 (%21) students estimated it with eye estimation, while in the second measurement, there were 6 (%7) students. There were 32 (%39) students who did not make an explanation in the first measurement, and 6 (%7) students in the second measurement.

Table 5: Explanations by the sixth and seventh class students for their length estimations for the objects given with the "medium" theme in the first and second measurements

Themes	Sub-themes	Common Responses	1st measurement (f)	1st measurement (%)	2nd measurement (f)	2nd measurement (%)
MEDIUM	Lengths with no sense of space or volume	I measured with my hand span.	1	1	61	71
		No explanation	29	34	12	14
		Eye estimation	19	22	4	5
		I measured with my finger	–	–	4	5
		I measured with my arm span	6	7	2	3
		I measured with my height	3	4	2	3
		Total			85	100
	The length of one side of the body with the area	I compared with my height	7	8	42	49
		I measured with my arm span	13	15	20	24
		No explanation	27	32	14	16
		Eye estimation	18	21	4	5
		I measured with my hand span	4	5	4	5
		As it is long	–	–	1	1
		Total			85	100
	The length of one edge of an object with volume	I compared with my height	18	21	58	68
		I measured with my arm span	–	–	11	13
		No explanation	33	38	7	8
		I measured with my hand span	–	–	5	6
		Eye estimation	20	23	4	5
		Total			85	100

As it is seen in Table 5, there was 1 (%1) student who explained "I measured it with my hand span" as an explanation for the length, which does not create a medium, area-volume feel, in the first measurement, and 61 (%71) students in the second measurement. In the first measurement, there were 19 (%22) students who estimated "eye estimation," and 7 (%8) students in the second measurement. In the first measurement, there were

no students who used I measured with my finger as an explanation, while there were 4 (%5) students in the second measurement and the second measurement. While there were 29 (%34) students who did not make any explanation in the first measurement, there were 12 (%14) students in the second measurement.

There were 7 (%8) students who explained that the length of one side of the object with the area and medium and used 'I compared with my height' as an explanation in the first measurement, and there were 42 (%49) students in the second measurement. In the first measurement, there were 18 (%21) students who estimated with "eye estimation," and 4 (%5) students in the second measurement. In the first measurement, while there were 13 (%15) students who made the explanation that I measured with my arm span, there were 20 (%24) students in the second measurement. There were 27 (%32) students who did not make an explanation in the first measurement, and 14 (%16) students in the second measurement.

There were 18 (%21) students who explained "I compared it with my height" as an explanation for the edge length of an object which was medium, with volume in the first measurement, and 58 (%68) students in the second measurement. In the first measurement, while there were no students who made an explanation of "I measured with my arm span," there were 11 (%13) students in the second measurement. In the first measurement, while there were 20 (%23) students who estimated "eye estimation," there were 4 (%5) students in the second measurement. There were 33 (%38) students who did not make an explanation in the first measurement, and 7 (%8) students in the second measurement.

Table 6: Explanations by sixth and seventh class students for the length estimations for the objects given with the "long" theme in the first and second measurements

Themes	Sub-themes	Common Responses	1st measurement (f)	1st measurement (%)	2nd measurement (f)	2nd measurement (%)
LONG	Lengths with no sense of space or volume	I compared with my height	20	23	61	71
		No explanation	22	26	11	13
		I measured it with my arm span	–	–	8	9
		Eye estimation	16	19	4	5
		It is too long	23	27	1	1
		Total			85	100
	The length of one side of the body with the area	I measured with my arm span	5	6	37	44
		I measured with my hand span	–	–	21	25
		I compared with my height	14	16	14	16
		No explanation	28	33	9	11
		Eye estimation	19	22	4	5
		Total			85	100
	The length of one edge of an object with volume	I compared with my height	45	53	48	56
		Eye estimation	15	18	21	25
		No explanation	18	21	7	8
		I measured with my arm span	–	–	5	6
		As it is long	7	8	3	4
		Total			85	100

As it is seen in Table 6, there were 20 (%23) students who explained "I compared with my height" for the long, with no sense of space-volume in the first measurement, and 61 (%71) students in the second measurement. In the first measurement, there were 19 (%22) students who estimated with "eye estimation," and 4 (%5) students in the second measurement. There were 22 (%26) students who did not make an explanation in the first measurement, and 11 (%13) students in the second measurement.

There were 14 (%16) students who explained "I compared it with my height" as an explanation to the side length of a long object with area in the first measurement and 14 (%16) students in the second measurement. In the first measurement, there were 19 (%22) students who estimated with "eye estimation," and 4 (%5) students in the second measurement. In the first measurement, while there were 5 (%6) students who made the explanation "I measured with my arm span," there were 37 (%44) students in the second measurement. In the first measurement, while there were no students who made an explanation of "I measured it with my hand span," there were 21 (%25) students in the second measurement. There were 28 (%33) students who did not make an explanation in the first measurement, and 9 (%11) students in the second measurement.

There were 45 (%53) students who explained "I compared it with my height" as an explanation for the edge length of a long, object with volume in the first measurement, and 48 (%56) students in the second measurement. In the first measurement, while there were no students who made an explanation of "I measured with my arm span," there were 5 (%6) students in the second measurement. In the first measurement, while 15 (%18) students estimated it with “eye estimation,” there were 21 (%25) students in the second measurement. There were 18 (%21) students who did not make an explanation in the first measurement, 7 (%8) students in the second measurement.

3.1.2 Findings obtained from the interviews

A semi-structured interview was held with the students who did not make any explanation in the first length measuring estimation scale or whose explanations were not understood, to determine how did the activities that would provide prior knowledge and skills that are necessary for the secondary school sixth and seventh class students’ length measuring estimation skills related to the daily life objects affect the daily life objects length measuring estimation skills. The data obtained after the first and second interviews were gathered under the categories of “estimation with non-standard units of measure,” “random estimation” and “estimation with metric estimation strategies” and are presented in Table 6 and Table 7. In addition, an example (the interview with the S6) of the interviews is given below for the readers.

Table 6: Distribution of the data obtained from the first interview according to the categories “estimation with non-standard units of measure,” “random estimation” and “estimation with metric estimation strategies”

	Estimation with non-standard units of measure	**Random estimation**	**Estimation with metric estimation strategies**
Lenght 1	S1,S2,S4,S5,S6,S8	S3	S7
Lenght 2	S2,S6,S8	S5	S1,S3,S4,S7
Lenght 3		S2,S5,S6,S7	S1,S3,S4,S8
Lenght 4	S3,S5,S6,S8	S2,S4	S1,S7
Lenght 5	S2,S3,S5,S6,S7,S8		S1,S4
Lenght 6	S1,S2,S5,S8	S3,S6	S4,S7
Lenght 7	S2,S6,S8	S7	S1,S3,S4,S5
Lenght 8	S2,S6,S8	S3,S5	S1,S4,S7
Lenght 9	S2,S4,S8		S1,S3,S5,S6,S7

As it is seen in Table 6, except for the "length 3", the students were grouped under the categories of "estimation using non-standard units of measurement" and "estimation using measurement estimation strategies". There are

no students in “length 5” and “length 9” in the “random estimation” category. In addition, most students in the "random estimation" category are in the "length 3."

Table 7: The distribution of the data obtained from the second interview according to the categories of “using non-standard measurement units”, “random estimation” and “estimation with metric estimation strategies”

	Estimation with non-standard units of measure	**Random Estimation**	**Estimation with metric estimation strategy**
Length 1	S1,S2,S3,S4,S5,S6,S8		S7
Length 2	All		
Lenght 3	S3,S7,		S1,S2,S4,S5,S6,S8
Lenght 4	All		
Length 5	All		
Lenght 6	S1,S2,S3,S5,S6,S7,S8	S4	
Lenght 7	All		
Lenght 8	S1,S3,S5,S6,S7,S8	S4	S2
Lenght 9	S3,S6		S1,S2,S4,S5,S7,S8

As it is seen in Table 7, except for "length 3" and "length 9", the students were mostly gathered under the category of "estimation with non-standard measurement units". Under the "random estimation" category, there are only S4 coded students, one of which is "length 6" and the other is "length 8."

While there are mostly "length 3" and "length 9" students under the "metric estimation strategy" category, there are no students in "length 4", "length 5", "length 6" and "length 7."

The first interviews for the length measuring estimation skills of the daily life objects and the second interviews after the activities that are thought to improve the length measuring estimation skills of the daily life objects are given below.

The first interview with S6:

A: What is the pen’s length approximately? Can you write and explain the result you estimated? I said. And you found 15cm. Can you explain why do you think so?
S6: I measured with my finger.
A: “How long is the rod approximately? Can you write and explain your estimation?” I said. You found 100cm. Can you explain why do you think so?
S6: I measured it with my arm span first, as it is too long, I used my hand span.
A: What is the approximate length of the flagpole? Can you write and explain the result by writing? I said. You found 4m. Can you explain why do you think so?
S6: I measured with my eye estimation as I think of my arm span.
A: How long is the long side of the phone approximately? Can you write and explain your estimation? I said. You found 20cm. Can you explain why do you think so?
S6: I measured it with my fingers one by one because it's short.
A: How long is the long side of the student desk approximately? Can you write and explain the result that you estimated? I said. And you found 50cm. Can you explain why do you think so?
S6: I measured with my hand span.
A: How long is the long side of the smart board approximately? Can you write and explain the result you estimated? I said. You found 1m. Can you explain why do you think so?
S6: I miscalculated as I don't know my arm span sizes.
A: How tall is the height of the box? Can you write and explain the result you estimated? I said. And you found 47cm. Can you explain why do you think so?
S6: I measured with my fingers.

A: How tall is the height of the teacher's desk approximately? Can you write and explain the result you estimated? I said. You found 60cm. Can you explain why do you think so?
S6: I measured with my hand span.
A: How tall is the height of the bookshelves approximately? Can you write and explain the result you estimated? I said. And you found 1,50cm. Can you explain why do you think so?
S6: I estimated it as I thought of my height.

The second interview with S6:

A: How long is the pen approximately? Can you write and explain the result you estimated? I said. And you found 18cm. Can you explain why do you think so?
S6: As the length of a finger is 1.5 cm, I measured it with my fingers.
A: How long is the rope approximately? Can you write and explain the result your estimated? I said. And you found 34cm. Can you explain why do you think so?
S6: I estimated it so as it was shorter than my arm span.
A: How height is the basketball hoop approximately? Can you write and explain the result you estimated? I said. And you found 3,30m. Can you explain why do you think so?
S6: I estimated with eye estimation thinking of my arm span.
A: How long is the short side of the A4 paper approximately? Can you write and explain the result you estimated? I said. And you found 24cm. Can you explain why do you think so?
S6: I measured it with my finger.
A: How long is the long side of the classroom board approximately? Can you write and explain the result you estimated? I said. And you found 370cm. Can you explain why do you think so?
S6: I measured with my arm span. I thought a little wrong.
A: How long is the long side of the table tennis approximately? Can you write and explain the result you estimated? I said. And you found 271cm. Can you explain why do you think so?
S6: I measured it with my arm span as it was longer than my hand span.
A: What is the height of the intelligence cube approximately? Can you write and explain the result you estimated? I said. And you found 14cm. Can you explain why do you think so?
S6: I did it according to my finger sizes.
A: What is the height of the car approximately? Can you write and explain the result you estimated? I said. And you found 143cm. Can you explain why do you think so?
S6: My arm span is 1.5m. As it is shorter than my arm span...
A: What is the height of the classroom approximately? Can you write and explain the result you estimated? I said. And you found 3m. Can you explain why do you think so?
S6: I tried to measure with my hand span. When I could not, I measured with my arm span.

4. Discussion

4.1. Discussion and recommendations handled from the interviews.

It is understood from the contents of the first interview and the findings given in Table 6 constituted as a result of this interview that some of the students had difficulties in converting non-standard measurement units such as hand span and arm span to standard units of measurement. For instance, after the first and second interviews, while the S1 coded student explained as below in the first interview:
"A: How long is the pen approximately? Can you write and explain your estimation? I said. And you found 6cm. Can you explain why did you think so?"
The answer to this question;
"S1: As my three fingers are 4,5cm, I think that the pen is about 6 cm."
In the second interview after the activities:
"A: How long is the pen approximately? Can you write and explain the result you estimated? I said. And you found 18cm. Can you explain why do you think so?

The answer to the question is as;
"S1: My measurement was bad in the first estimation. I measured the pen by the span after you taught me the hand span and arm span..."

The reason for this result maybe because of the deficiencies in the prior knowledge of the students. This result demonstrates similarity with the result as 'the 2nd graders found few acceptable estimations in non-standard units' that was reached in the study by Boyraz (2017).

In addition, the second measurement and second interview held after the activities carried out to correct the learning deficiencies after the first measurement supports the result reached by Köse (2007) suggesting that "Educating to complete learning deficiencies was found to be significantly effective in the unit of measurements in the mathematics lesson."

In his study by Boyraz (2017), it is observed that the acceptable estimations of all the 2nd class students participating in the study are more in the items in which the units related to "foot" are used, and less in the items in which the unit related to "finger" is used. These findings demonstrate similarity with the results of our study.
It is recommended that teachers should do activities related to converting non-standard measurement units to standard measurement units before starting the subject of length measurement.

4.2. Discussion and recommendations related to the first sub-problem.

From the findings with the same headings, that the 6th and 7th class students' knowing non-standard units of measurement and measurement estimation strategies, which they gained about standard length measurement units for length measurement estimation skills of daily life objects are determined as the prior knowledge and skills that they should know.

4.3. Discussion and recommendations related to the second sub-problem.

From the findings with the same headings, it is understood that it is necessary for the sixth and seventh class students to know the length measurement units for the length measuring estimation skills related to daily life objects.

It was determined that explaining this gain by the course teacher for the students who could not achieve it at the previous levels, converting these length measurement units to non-standard length measurement units, and making measurements together with the students using estimation strategies after knowing the units of length measurement will develop the missing prior knowledge and skills among the students.

In short, the activities of "recognizing standard and non-standard units of length measurement, converting them to each other" and "describing length measurement estimation strategies" activities are determined as practical activities. In the study by Boyraz (2017), it was claimed that the estimation skill, like other skills, is the skill that can be developed through education, and it is significant to carry out various studies to improve this skill in basic education.

Artut & Aslan (2014) suggested that they encountered difficulties in the activities applied to gain the estimation skill. Teachers, who had difficulties during the application of the activities aiming to gain the estimation skill to students, attributed this to "lack of time, socio-economic differences, the individual differences between students, the inconsistency of the activities with the level of the student, the problems of students in expressing themselves about how they did the activities at the end of the activities, and the crowded classrooms."

4.4. Discussion and recommendations related to the third sub-problem.

After the first measurement was held to determine the length estimation skills related to the daily life objects in students, the activities that would gain the prior knowledge and skills to the students were carried out. To observe how these activities affect the length measurement estimation skill of contemporary life objects a second measurement was held. These results were reached after the second measurement:

In the second measurement, as the arithmetic averages of the differences between the estimations for the lengths of the objects and the actual lengths of the objects were explored, except for the “length 9”, at all lengths, the arithmetic means were significantly lower than the arithmetic means in the first measurement (for example, 49.72cm to 22.32cm for “length 5”). There is an increase in the first and second measurement arithmetic means (from 0.38m to 0.7m) for the “length 9”. This shows that the activities, that were carried out, do not have a positive effect on estimating the length of an edge of objects with volume under the "long" theme.

As the explanations of the estimations were analyzed, while the majority of the students did not make any explanations or made an “eye estimation” explanation, a few of them made explanations with “non-standard units of measurement” and “estimation strategies” in the first measurement. In the second measurement, the number of students, who made explanations with "non-standard units of measure" and "forecasting strategies", increased (for instance, the number of students expressing “I measured with my hand span” increased from 25 to 58).

Similarly, the number of students who made “no explanation” or “eye estimation” decreased (for instance, the number of students who gave “no explanation” decreased from 17 to 10.) Consequently, carrying out the activities, that would gain prior knowledge and skills, had a positive effect on the length measuring estimation skill of daily life objects.

As the literature was reviewed, no study similar to the present study was encountered. However, in the study by Boyraz (2017) named "The Investigation of the Primary School 1st and 2nd Class Students' Estimation Skills" conducted for the 1st and 2nd classes with little or no prior knowledge, it was suggested that the 1st and 2nd class students' estimation skills of were quite low.

Köse (2007) claimed in his study that the method of completing the learning deficiency has more positive effects on the academic achievement of the students than the method without completing the learning deficiency. He stated that the mathematics course is cumulative and that when a subject is deficient, the other subject, which accepts that subject as a prerequisite, achievement cannot be reached completely, achievement will increase if the task is performed to eliminate the deficiencies. The results of this study and the results reached within the scope of our study demonstrate similarity.

As well as many skills, the estimation skill can be developed through training. Therefore, conducting various studies will enable the development of existing length estimation skills to develop this skill in basic education which is compulsory.

Similar to this study that was conducted for the length measurement estimation skill of daily life objects, other studies can be conducted for the measuring estimation skills such as area, volume, weight, liquid, etc.

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A Case Study Review on Social-Emotional Problems Affecting Gifted and Talented Students

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Abstract
In recent times, studies focusing on the issue of gifted and talented students in Turkey have gained much traction. However, so far, these appear to have been limited in terms of the intervention strategies they offer. The question of how to respond to the social and emotional issues of gifted and talented students remains an issue, which is a source of debate, based on the experiences on the field and the directions offered by the latest studies. While giftedness is associated with positive thoughts and beliefs, these come a number of challenges that require closer examination. Consequently, the aim of this case study is to discuss the social-emotional issues experienced gifted and talented children, with regards to effective intervention programs which are often overlooked and not thoroughly examined. Determining the type of acceleration practice could be a very subjective decision and possible risk and resources should be analyzed in order to determine what is best for the child's needs. As outlined by this case study, the proper identification of intervention strategies should respond to the problems experienced by students in the social and emotional realm. The review concludes with recommendations that could help school counselors, families and educators in assisting gifted and talented students, based on existing relevant literature.

Keywords: Gifted and Talented Students, Social and Emotional Issues, Case Study, School Counseling

1. Introduction

1.1. Student's profile

In this case study, the student in focus is a 12- year-old female. The school counselor attached to the student the name "Sarah," in order to protect her actual identity. Sarah is in 6th grade at an Iowa City Community School District's elementary school. Both of Sarah's parents are French and she is a French American. Sarah speaks fluent French at home and has a younger brother who is in 2nd grade with whom she reported to have occasional fights. Sarah comes from a very supportive family where she feels supported and loved but seems to struggle with getting along with her younger brother.

1.2. Ethical consideration and informed consent

According to the ACA/APA Code of Ethics, the school counselor stated that she is ethically responsible to respect the confidentially of the information and act for the best interest of her welfare. Sarah is a minor (12 years old); thus, informed consent was documented through communication with her mom, who agreed to help when the counselor requested for an interview with her daughter. When the school counselor met with Sarah, she explained the reason about interviewing her (i.e., about a case study for a class project). The school counselor stated that she did not plan to publish or report my case study conceptualization and stated that she was committed to keeping the confidentiality of the interview unless it revealed itself to be harmful for Sarah or to another individual. Sarah nodded and stated that she understood. When the school counselor interviewed her, her mom was at work, but knew that Sarah and the school counselor were meeting at their house on a scheduled time. The school counselor thanked both Sarah and her mom for their contribution, for their willingness to help and cooperate and for their time in this assignment.

1.3. Academic concerns and intervention

Through talking to her mother and Sarah, it appeared that language arts are an area where Sarah feels strong. Upon request, Sarah's mother graciously shared some of her daughter's educational documents (e.g., Parent/Teacher Conference) to help the school counselor get an idea of her school performance and social and emotional growth, in order to assist with this case study. Her teacher documented that when she read, she used strategies flexibly. Her writing was well organized, thorough and supported by evidence and rationale. She enjoyed book discussions in small group settings where she tended to take charge and would ask questions during instructions. She used reading strategies such as summation, questioning, evaluating and inferring. When writing, she was skilled in summarizing ideas and articulating the main theme of the book. She strove to think critically and used her critical reasoning skills when making predictions. Sarah read all genres of literature, with a particular gravitation toward fantasy. Sarah did very well academically and found schoolwork easy as she enjoyed a challenge. However, it appeared to the school counselor that Sarah did not have much opportunity to work on this area in her Extended Learning Programs (ELP) time.

Sarah did well in math and sciences during in-class discussions and in small-groups – as well as independently. She contributed to the classroom conversation, making connections and applying outside information to that presented in-class. Similarly, she carried information learned in class outside school to incorporate it into her life. Sarah showed a deep level of understanding of the information presented and would come up with novel ways of applying it. Sarah was engaged in projects using various computer software programs (e.g., animation). When she is engaged in using software related to computer animation etc., she was able to absorb and use the information and instruction presented to her. In the event a particular result wasn't pleasing, she was able to rethink her process and seek new ways of solving issues to reach at a most visually pleasing solution.

2. Literature Review

2.1. Social and emotional concerns

Looking at her educational documents that were provided by her mom (e.g., Parent/Teacher Conference), the school counselor learned that Sarah's teacher viewed her to be a very friendly girl who gets along well with most of the students in school. In solving partner and group problems, Sarah worked on being fair and cooperative, and being respectful with people in her group. According to her teacher, Sarah demonstrated a strong work habit which came across when she listened to directions and got right to work to complete tasks.

The school counselor observations during the interview interaction with Sarah revealed that she was very positive, and the school counselor found her to be very friendly and cooperative. The school counselor assumed that Sarah was comfortable with the school counselor, since the latter knew her since first grade. Over the years,

what struck the school counselor about Sarah was how much she had heard about sensitivity from fellow students. The school counselor remembered hearing that Sarah cried a lot. In response, the school counselor met with her at various times. The school counselor was conscious that she should not let this bias interfere with the quality of my interaction with Sarah. While she saw Sarah grown and matured, perhaps her sensitivity had changed in the ways how she expresses herself as she evolved developmentally as a young lady.

The school counselor realized that she had learned a few things about Sarah that she had not noticed before, such as how she had matured and grown. For example, to facilitate the conversation informally, the school counselor asked Sarah about her thoughts going to Junior High. She immediately responded: *"I am very nervous."* Sarah's eyes were very alert when she made that statement, as if aware of a threat, which the school counselor could tell from her face. The counselor asked her what she was doing to help relieve her unease. It appeared not much. The school counselor asked: *"Have you been talking about these feelings related to going to junior high with your parents?"* To which, she said that she hadn't. The school counselor then asked: *"What is it that you are nervous about? Are you worried about school work?"* She stated, "No" and added: *"I am not worried about school work and I am worried about losing my friends."* Then, we chatted about what she could do to stay connected with her friends. Sarah thought a lot about how to stay connected and the bigger school size in junior high was concerning to her since she thought that it would have a negative influence on her current friendships and make them grow apart in a way beyond her control.

2.2. Acceleration: Extended learning programs (ELP)

This descriptive case study guided by exploratory questions (Yin, 1993) on issues related to ELP program and acceleration practices. Interview questions focused on issues perceived by the student regarding her experiences. Before talking about Sarah's ELP experience, the school counselor sought to provide some information about ELP. According to the Iowa City Community School District, ELP identifies students for programming who demonstrate outstanding ability or potential in academic and/or intellectual areas. ELP is a program which provides appropriate differentiated instruction and educational services corresponding to their abilities and needs beyond those provided by the regular classroom. To be placed in the program, students need a Core Total score or Composite score on the Iowa Tests of Basic Skills at or above the 97th percentile, using Iowa norms, or a Standard Age composite core at or above the 97th percentile on the Cognitive Abilities Test (ICCSD, 2008).

The school counselor wanted to learn what Sarah's ELP experience had been like and asked her when she joined the program. The school counselor found out the following: Sarah has been in the ELP since 5th Grade and was recommended to the program by her teacher once she had met the basic requirements. Sarah stated that she enjoyed her time, the projects she works on, and the friend she had at the ELP. Sarah stated that she was called to leave her regular classroom three times a week for an hour each time to work with a TAG instructor and other ELP students. The school counselor learned that there were three types of grouping practiced in the school and that Sarah was 1) working with other 5th and 6th grade ELP students on various projects for an hour (i.e., computer animation); 2) conducted her language arts work at the ELP with other 6 grader ELP students; 3) and had an hour to work alone on a project of her choice. When the counselor asked about her feeling regarding ELP, Sarah stated that she loved the time there. When the counselor asked about which projects, she enjoyed, Sarah said she was making a movie, had been involved in skit in which she and other members in her group argued about an issue related to a lawsuit involving a broken arm, had been involved in drawing and a project called "Topics of Future: Pets of the Future." She stated that she envisioned the pets/animals being in three types and added there may be more. Sarah stated those three types were: a) genetically engineered pets – such as a dog she designed with pink head (which was "so cute"); b) clones and c) robots – such as a robot fish. Sarah seemed excited talking about her project. The school counselor asked what she liked particularly about ELP, to which she stated she got the chance to talk about things without being worried about distracting other students. She loved the projects, whether group or individual, and loved the other kids. Sarah also had concerns about how difficult it would become to spend time with her friends who were male.

3. Discussion

3.1. Social and emotional problems: An uncharted territory in accelerated students' life

Interviewing Sarah made the school counselor realize how much acceleration practices overlooked the social-emotional aspects of gifted and talented students' experience. Since the publication of *The Social and Emotional Curriculum with Gifted and Talented Students* (2009), the domain had gained in importance and may be representing a new paradigm shift in gifted and talented education. We do not seem to recognize the fact that gifted and talented individuals are social and emotional beings, contrary to misconceptions. This is true in the sense that though transition is hard for many, it will be hard for Sarah. Any acceleration practice (i.e., ELP) should embrace the self-growth and social-emotional development for gifted and talented students, which is necessary for nurturing potentials, as one's social-emotional development stage defines much of the course of their life, beliefs, feelings and behavior. A sense of security in personal relationships, growth in skills, knowledge and confidence generate happiness. Such statements are especially accurate when the personal development process challenges the individual to make special efforts above and beyond their functioning in learning/academics and in rising above personal struggles in life (Carver, 1998). In terms of how this relates to Sarah's anxieties, acceleration practice should integrate such concerns to help her process and work through her issues. To echo Sayler (2007), talent development goes beyond advancing one's talent performance; and is just about supporting the gifted and talented in achieving an integrated personality and life that is self-satisfying.

It can be very difficult when a young child does not have skills in terms of dealing with their emotions. Acceleration practices should recognize the relationship between the cognitive, personal, emotional, social, and moral development. This notion is well captured by the concept of asynchrony (or known as uneven development) and is defined in the *Encyclopedia Britannica as* "variability of development," which it describes as a key characteristic observed in gifted and talented children at various paces. In the late 20th century, the term asynchrony was used to describe the developmental characteristics of gifted and talented children; that is, their mental, physical, emotional, and social abilities may all develop at different paces" (2009). Gifted and talented children typically do not follow the developmental spectrum sequentially and viewing identity from an integrated and constructive perspective can help educators as they consider the relevant students' affective aspects. Sarah, for instance, may have the ability to function academically two-three grades above her age level, but this does not mean she is equally skilled in managing her emotions.

Sensitivity among gifted and talented children takes place in many shapes. For example, gifted and talented children feel easily hurt, show compassion toward others and empathize with how others might feel, are protective, cry easily, act strongly in response to criticism, and react strongly to information received through the senses (pollution, noise, and some food items) (Silverman, 1994). Sarah admitted that she cried a lot. This may be one of the areas that might have made her feel apart from the other children. Silverman (1994) commented that gifted and talented children display cognitive complexity and their unique personality traits can thus create exclusive experiences and awareness that isolates them from others.

The complexity of identity development is recognized throughout the literature. An acceleration practice integrated into the curriculum, which focuses on identity development earlier than other students, could be beneficial for gifted and talented students. VanTassel-Baska (2009) states: "*Students need to start addressing the large questions of: "How do I define meaning for myself?"* and *"What are my life themes?"* (p. 117). Consequently, the questions, *"What am I good at? What do I want to accomplish in my life? How can I achieve the goals that I've set for myself? focus on personal problem finding and solving"* (Moon, 2009, p. 24) and are at the core of social, emotional, moral, academic and career development. They allow understanding where the students are on the developmental spectrums and what their unique developmental needs and features. This is especially helpful knowing that gifted and talented students are ready for work on career development much earlier; thus, educators can provide them support (Moon, 2009). If such social-emotional development related questions had been integrated into her ELP curriculum, Sarah would have the opportunity to benefit from

exploring such issues as why a particular archaeology project she mentioned upset her because she responded to the bones with fear. She could furthermore perhaps explore how this could relate to future career decisions.

Assisting a gifted and talented student in making good life decisions, developing a philosophy of life and optimizing their full potential are lifelong agenda items. Thus, the complexity of the gifted and talented development is recognized undeniably. Adult life-span developmental models could be integrated into the acceleration practices to serve as developmental intervention to be sensitive to the social and emotional development of the gifted and talented. Echoing the complexity of identity development in the gifted and talented, based on her clinical observations and theoretical proposition, Silverman (1994) commented that gifted and talented children display cognitive complexity and their unique personality traits create exclusive experiences and awareness that makes them apart from others. As an essential element to the welfare of the entire society, moral sensitivity is a central trait in the gifted and talented experience (Silverman). Sensitivity among gifted and talented children takes place in many shapes. For example, gifted and talented children feel easily hurt, show compassion toward others and empathize with how others might feel, are protective, cry easily, act strongly in response to criticism and react strongly to information received through the senses (pollution, noise, and some food items).

Perhaps due to this sensitivity, Sarah could not study bones in an archeology project so had to switch groups. Perhaps an ELP curriculum that was more sensitive to Sarah's affective development could offer strategies on how to handle such overwhelmingly intense emotions so that the child is not distressed. Sarah admitted that she cried a lot, worried about losing her friends and worried about her transition to junior high. The school counselor found it interesting that she stated that she would even miss some of the more unpopular children at the school. This comment made the school counselor leave with a thought that how sincere and forgiving this child was about her feelings. Furthermore, the school counselor found it also interesting that she was not so ready for a gender-segregated junior high. Sarah stated that she would enjoy remaining close with her male friends from the elementary school but sensed the boundaries merging that come with puberty. Thus, it was perhaps puberty that was leading her to have difficulty accepting that she could no longer stay as close as she used to be in the elementary school. However, Sarah proudly shared a personal story where she was the only girl who was invited to a male friends' birthday party. Sadly, she stated: "You cannot have your male friends for a sleepover" and sighed. While many teens do not question such segregation, perhaps this indicates an exclusive awareness – one that reflects that noted by Silverman.

Perfectionist tendencies and emotional intensity also emerge regularly in parents' descriptions of their children – as well as children's own descriptions of themselves (Silverman, 1993). This is specifically applicable to Sarah, regarding the fact that she thinks she is a terrible speller, she is a procrastinator, she has high standards for herself, and she has problems with public speaking. Sarah stated she did well in school, but not too well. Obviously, Sarah wanted to do much better than how she performed and did not seem that impressed with her abilities. The school counselor asked: "Do you have high standards for yourself?" Sarah replied: "Yeah, kind of." Sarah may benefit from learning that no one is perfect, and no work can be perfected, but that we all can strive for excellence. Such realization may be a liberating experience in the perfectionist domain for children like Sarah. However, Sarah was not worried about academic challenges and thought she could handle those fine – her concerns mainly concerned adjustment. Sarah's school counselor and ELP teacher could collaborate in order to help ensure she develops an ability to handle her emotions to prevent them from becoming barriers to her accomplishments. Perhaps an affective developmental focus offers strategies on how to handle such overwhelming emotions. As an essential element to the welfare of the entire society, moral sensitivity is a central trait in the gifted and talented experience.

Webb (2002) states that gifted and talented children are at psychological risk due to their unique internal and situational factors and are more likely to be at risk of existential depression. The researcher (2002) asks: "Why should such existential concerns occur disproportionately among gifted and talented persons?" (p. 1). Persons of higher intellectual ability are more prone to experience existential depression, but rather than simply paying attention to the simple aspects of daily life, they give considerable thought to confront fundamental existential

issues (i.e., death, freedom). They tend to be idealist. They are able to think about other possibilities, which may lead them to experience emotions intensely and to become disappointed with the way things are. Having the ability to be multi-potential yet at the same time realizing their existential limitations can be frustrating. Helping gifted and talented children recognize, confront and cope with basic existential issues in an accepting way may allow them to manage their existential concerns. Thus, gifted and talented children can realize that they are not alone in their experiences. The ability to reflect on existential matters can be an instrumental skill as gifted and talented children to bury themselves so deeply in the social, political, or academic causes (Webb, 2002). Helping gifted and talented children build meaningful frameworks for life is essential as they strive to construct a personal philosophy of life, which reflects their cognitive complexity and is framed by their beliefs and values. Thus, an affective developmental focus in ELP curriculum could be instrumental in helping a gifted and talented child navigate such existential inquiries that could otherwise be overwhelming.

Self-concept is a very complex construct. While recognizing this intricacy especially for gifted and talented students, Moon (2008) examined the theoretical frameworks on the social-emotional development of these children. Noting the role of identity development theories in providing a conceptual framework on the process of identity development, she suggests that the theories require adjustment in order to capture the affective development of the gifted and talented. These adjustments should view the identity development from an integrative perspective, which incorporates child, adolescent and adult identity and life-span developments that sensitive to the differences with the development of other children, who are not identified as gifted and talented.

When choosing the acceleration programs in the education of gifted and talented children, they should also be evaluated in terms of their potential to meet the social and emotional needs of students. Each form of acceleration has very different academic, social and psychological consequences. Therefore, when accelerating a gifted and talented student, individual decisions should be made to match an acceleration type and program in line with the child's learning style, social and psychological characteristics and needs. In general, educators are against acceleration because they believe that students' social and emotional needs precede academic ones (Vialle, Ashton, Carlon, & Rankin, 2001). However, studies on acceleration have shown that its practices consistently bring about positive academic gains (Benbow, 1992; Gross, 1992; Kulik & Kulik, 1991, 1992; Swiatek, 1993). Psychological studies that support the social and emotional well-being of gifted and talented individuals should focus on strength as well as weaknesses; thus, they should not overlook the importance of building and supporting the good and positive, as well as rehabilitating the effects of negative situations in life (Seligman & Csikszentmihalyi, 2000). For Sarah's social and emotional needs are met within the framework of the ELP program, the issue of how to eliminate the gap that may occur outside of ELP programs is an important one. Determining the type of acceleration implementations can be a very subjective decision; Potential risks and resources should be analyzed to make judgement on what is best for meeting the child's needs. The work of school counselors, whose job it is to help families and educators, is crucial on the selection of intervention strategies and responding to the social and emotional issues of gifted students. For this reason, determining the type of acceleration practice could be a very subjective decision.

The Iowa Acceleration Scale includes subscales that allow considering factors related to a) Academic Ability and Achievement, b) Developmental Factors, c) School and Academic Factors, d) Interpersonal Skills and e) Attitude and Support. Acceleration takes many forms such as: 1) Early Admission to Kindergarten, 2) Early Admission to First Grade, 3) Grade-Skipping, 4) Continuous Progress, 5) Self-Paced Instruction, 6) Subject-Matter Acceleration/Partial Acceleration, 7) Combined Classes, 8) Curriculum Compacting, 9) Telescoping Curriculum, 10) Mentoring, 11) Extracurricular Programs, 12) Correspondence Courses, 13) Early Graduation, 14) Concurrent/Dual Enrollment, 15) Advanced Placement, 16) Credit by Examination, 17) Acceleration in College, 18) Early Entrance into Middle School, High School, or College (Southern & Jones, 2004, p. 6).

The Iowa Acceleration Scale Research shows that typically parents advocate for acceleration for their children and schools respond on a continuum that ranges from full cooperation to outright refusal, with most falling somewhere in the middle. The Iowa Acceleration Scale (Assouline, Colangelo, Lupkowski-Shoplik, Lipscomb & Forstadt, 2003) provides an opportunity to build consensus around the acceleration decision and to reduce the

emotionality by using objective statement and a standard rubric. This tool is used by a team comprised of the sending and receiving teachers, the gifted and program coordinator, the principal and may include a guidance counselor, parent and the student. The group evaluates 20 statements and is required to come to consensus on each item. Acceleration decision-making instruments (e.g., The Iowa Acceleration Scale) should be used to provide structure to generate the best decision, which is not just concerned with academic issues. This case study made the school counselor realize the importance of evaluating a child's needs holistically. If Sarah's school were to adapt a program ELP, they would benefit from a tested framework with which to conceptualize gifted and talented students' educational needs in light of more than academic considerations (e.g., developmental).

4. Conclusion

Gifted and talented students come from diverse intellectual and cultural backgrounds with a range of needs and abilities. More empirical and case studies would shed lights on gifted and talented students with special needs. Providing students with accommodations to address the challenges presented by their unique needs is key to the application of effective acceleration practices. For example, twice-exceptional students present characteristics that encompass traits of giftedness while at the same time disability, challenging their identification and intervention. Although some progress has been made in the last two decades on twice-exceptional students' academic acceleration, more research on case studies is required to bridge the gap between research and practice since implementation of acceleration practices changes based on the disability (e.g., gifted students with a diagnosis of autism spectrum disorder) (Foley-Nicpon & Cederberg, 2015).

In the literature some fundamental justifications outlined for not accelerating gifted and talented students. Specifically, students who are gifted and talented in STEM subjects encounter four main excuses for not being accelerated. Ihrig and Degner (2015) highlight these excuses such as beliefs that acceleration may cause academic harm due to beliefs that current standards offers adequate challenges for gifted students. However, research findings disclose that acceleration leads to increased levels of achievement in STEM i.e., while accelerated students are still in school and later their careers (Ihrig & Degner, 2015). Even though the Common Core State Standards for Mathematics and the Next Generation Science Standards present more diligence into the curriculum, they are not adequately challenging enough for academically gifted pupils. Main principle of best practice with giftedness and talented students must be anchored around the "accessibility, equity, and openness" policy (Lupkowski-Scholik, Behrens & Assouline, 2018).

The school counselor has professional role and responsibilities related to gifted and talented students geared towards identification, intervention and educational programs. When school counselors deliver their program to meet students' academic, career and social/emotional needs, they are aware to meet unique developmental needs of gifted and talented students, especially when they present with special abilities. They work diligently when implementing their school counseling program aligned with the ASCA Position Statement on Gifted and Talented Student Programs (Adopted 1988; revised 1993, 1999, 2001, 2007, 2013, 2019). Specifically planned educational experiences support to sustain development of gifted and talented students (Sohailat, Soua'd & Mouhamed, 2013). In summary, the social-emotional issues experienced by gifted and talented children, with regards to effective intervention programs mandate thorough examination with respect to different traits.

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Content Analysis of Stories for Preschoolers About Honesty*

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Abstract
The purpose of this study is to examine how selected stories, which are written in Turkish by local or foreign authors for preschoolers, deal with honesty. In this basic interpretive qualitative study, data were collected through document analysis and analyzed through content analysis. Analyzed documents are twenty-one picture books, which written in Turkish for preschoolers published between 2004 and 2015, nine stories about honesty published online by four Turkish Provincial Directorates of National Education and one story about honesty published online by the Center for Values Education. The software NVivo 11 was used to conduct computer-assisted data analysis. The results of this study demonstrate that most of the analyzed texts use "dishonesty and its negative consequences" more than "honesty and its positive outcomes" to promote honesty.

Keywords: Honesty, Preschool, Picture Book, Online Story, Content Analysis

1. Introduction

Classic fairy tales are listened to with pleasure by preschool children and transmitted from one generation to the next. Picture books with unique stories are important in terms of the contributions they can make to the development of children. The stories to be read to children can have many purposes such a supporting the linguistic and cognitive development of children, presenting them with information about life, developing their imagination, supporting their creativity, entertaining them, and making it possible for them to acquire a love of reading (Karatay, 2007). Additionally, parents and teachers can contribute to children's learning by extending the stories to the situations children are experiencing, using the stories as a jumping board for important discussions (Stribling, 2008). Another potential benefit of stories is the acquisition of values. Stories have long been one of the tools used to teach children certain values.

* This article was produced from the master thesis titled "Content Analysis of Stories on Honesty Prepared for Preschool Children". A part of this study was presented as a summary at ICOESS 2017 congress.

1.1 Teaching Values with Stories

The use of stories is frequently encountered in values education activities included in the values education guides for pre-school education prepared by some provincial directorates of national education (DNE) such as Antalya, Batman, Gaziantep, Malatya in Turkey (Antalya Provincial Directorate of National Education [AntalyaDNE], 2013; Batman Provincial Directorate of National Education [BatmanDNE], 2015; Gaziantep Provincial Directorate of National Education [GaziantepDNE], 2014; Malatya Provincial Directorate of National Education [MalatyaDNE], 2012). In addition, it is common to find preschool-level books written for value education. The specific values reinforced in value education guides for preschool children, as well as picture book sets on values, vary, but honesty is one value that is reinforced.

1.2 Messages of Stories

It is not hard to guess that stories written for small children which deal directly with the main theme of honesty carry a message such as, "being honest is a right and desired behavior." However, stories naturally carry many messages which can be influenced by the point of view of the writer and the characteristics of the listener. These messages which are clearly emphasized in the story and transmitted with a clear message may not always be directed at the desired goals of education. To give an example from one of the known classic stories, there is the message that there is nothing wrong with the victim (giant) in the fairy-tale called Jack and the Beanpole being robbed and killed. It can be stated that there is the message in the fairy-tale called Cinderella that being beautiful is sufficient to make a vertical jump in social status (Jacobs, 2014). Additionally, some hidden messages can also be found in these stories. For example, in the way that characters are depicted or the choice of words used in dialogue, such as praise for kingship, women being shown as weak or the source of evil, and the sudden solution of the problems through magic without spending any effort. Through the analysis of the components used by the writer dealing with the theme of honesty while constructing the story, an understanding can be developed as to what messages are transmitted to the children while supporting the value of honesty, the narration style of why children need to behave honestly, whether negative examples are presented to the children and, how the theme of honesty is dealt with. In this respect, the problem of the study consists of how stories about honesty, written for preschool children in Turkish, deal with the subject of honesty.

1.3 Research Question

The major research question of this study is as follows:
"How do Turkish language stories about honesty, written for preschool children, deal with the subject of honesty?"

Upon conducting a review of the literature, no studies on how the value of honesty is dealt with in Turkish young children's literature were found. The most important study which inspired this study which dealt with the theme of honesty in picture books was Lee, Talwar, McCarthy, Ross, Evans and Arruda (2014) which examined the effects of classic stories about honesty on children. The study included participants aged three to seven. Lee et al. (2014) concluded that the children gave more honest answers when a story emphasizing the positive consequences of honesty was read before asking questions compared to a story emphasizing the negative consequences of lying. Taking this as the starting point, this study aims to present how the value of honesty is dealt with in Turkish stories with the theme of honesty written for preschool children.

1.4 Objective of the Study

The following subquestions support the overall research question, how do Turkish language stories about honesty, written for preschool children, deal with the subject of honesty:

1. What is the frequency of examples of honest behavior?
2. What is shown as the reason for behaving honestly?
3. What is the outcome of behaving honestly?

4. What is the frequency of examples of dishonest behavior?
5. Why do characters behave dishonestly?
6. What are the consequences of not behaving honestly?

2. Method

This study was carried out using the basic qualitative research design (Merriam, 2013). In this study, the researchers tried to understand and interpret how the value of honesty was dealt with in Turkish stories on honesty written for preschool children.

2.1 Study Group

The study group was determined through the criterion sampling method which is one of the purposeful sampling methods. Within this scope, the stories to be used as sources of data were determined in line with these criteria: (i) Being written for preschool children, (ii) being in the Turkish language and (iii) being clear that they deal with the theme of honesty. As a result of material compilation carried out with these criteria, the study group consisted of 21 children's picture books published between the years 2004-2015 which dealt with the theme of honesty, written for preschool children, published in Turkish and written by Turkish or foreign writers; 9 stories published online within the scope of value education by some provincial directorate for national education (Antalya DNE, 2013; Batman DNE, 2015; Gaziantep DNE, 2014; Malatya DNE, 2012) and one story published on the website of Center for Values Education (CVE).

2.2 Collection and Analysis of Data

In this study, the data were obtained through the document analysis technique. For the analysis of data, qualitative content analysis technique (Elo, Kääriäinen, Kanste, Pölkki, Utriainen, and Kyngäs, 2014; Schreier, 2014) was used. Qualitative content analysis requires the whole content to be read carefully (Forman and Damschroder, 2008). According to Schreier (2014, p. 174), the qualitative content analysis consists of these stages: deciding on the study question, selecting material, creating a codes framework, trial codes, evaluation of the code framework and its organization, analysis of the data, presentation and interpretation of the findings.

Taking all these processes related to qualitative content analysis, this study aimed to create a vision about the data which can be categorized and the codes to be done after the identification of picture books and online stories which can answer the study question and all the stories were read by one of the researchers. A coding framework was created based on the analyzed stories. Within this scope, the same researcher prepared the "Honesty Value Analysis Table" created based on the stories and the MS Excel 2013 program. Expert opinions were asked to evaluate and organize this code framework and the code framework was rearranged by the other researcher. This first stage was done by hand the stories were analyzed with the "Honesty Value Analysis Table" and the trial codes were carried out in this manner. In the next stage of the study, the trial codes were analyzed using the QSR NVivo 11 program. In this stage, the codes in the "Honesty Value Analysis Table" were reviewed, the number of sun-titles for code was increased, codes were given their final shape upon the agreement of the researchers and the stories were reviewed once again.

As a result of the analysis, two main categories emerged as "honesty centered" and "behaving dishonestly centered." Each component of these two main categories was accepted as sub-categories. In the presentation of the findings, the picture books and online stories were dealt with under separate titles. In the presentation of each category and the codes, direct quotations were given place from the picture books and online stories. Since the books were published in Turkish, the researchers included direct quotations in the study by translating them into English. In the presentation of the quotations, "the picture books" were coded as PS and "the online stories" were coded as OS and all stories were numbered.

2.3 Reliability of the Study

In the study, the researchers gave the care to describe in detail the application carried out for reliability at every stage of the research. To decrease the subjective state of the researchers on the findings related to time, the data were analyzed at two different times by the researchers. For the verification of the data obtained from the study, the list of the analyzed books in the study was presented, quotations from the stories were given in the findings section and expert opinions were asked about the findings. In the creation of the categories and codes, firstly a trial code was done with 8 books (about 25% of the study group). As the number of the analyzed stories increased, the code framework changed and this necessitated the reanalysis of the stories which were analyzed before. The Honesty Value Analysis Table was formed and the views of two faculty members who work in the areas of preschool education and value education, a faculty member who works in the areas of primary school education and value education and a preschool teacher were received. Then, all the stories were reanalyzed with the table in question. After the expert opinions were asked again, all the stories were reanalyzed again with the QSR NVivo 11 program to minimize the findings which might have been missed and the codes were given their final shape with software support. After the completion of the study, 3 randomly selected books were analyzed by an area expert within the framework of the categories determined by the researchers and the approval of the area expert was received.

3. Findings

3.1 Findings on Honest Behavior Examples

The frequency of honest behavior examples in the stories in the study group, which is the first of the sub-problems of the research, is examined under this sub-category. The number of honest behavior examples given a place in the analyzed picture books and online stories is given in Table 1.

Table 1: Number of positive behavior examples in terms of honesty in the analyzed stories

Behavior Classification	**Number in all stories**	**Number in picture books**	**Number in online stories**
Honest Behavior Examples	48	41	7

As it can be seen in Table 1, a total of 48 honest behavior examples were determined, 41 being in picture books and seven in the online stories. Some of the honest behavior examples in the analyzed stories are given below with direct quotations:

> "One of the best sides of honesty is never to take something that does not belong to you." (PS 6)
>
> "-I'm sorry, sir! My friends and I were playing. I hit the ball in the wrong way. It hit your window. I'm sorry," he said." (PS 7)
>
> "Erdal honestly managed the match from the beginning until the end and the team of the other school won the match by playing wonderful football." (PS 9)

In some of the books, the reasons for the character's honest behavior are included. The determined reasons are given under the next subtitle.

3.2 Findings Related to the Reasons for Honest Behaviors

The second sub-problem of the study is "What was shown as the reason for behaving honestly?" Findings related to the question are presented in this sub-category. While dealing with the reasons for honest behaviors, the situations in which it is necessary to behave honestly are stated clearly and the reasons for the changing of the characters who were not honest before but then behaved honestly are given in separate tables. The findings related to the reasons for behaving honestly are given in Table 2.

Table 2: Reasons for behaving honestly in the stories

Reason for honesty	Number in picture books	Number in online stories
To end a rude behavior someone is subjected to	1	0
A mother being able to see everything	1	0
The trust of the elderly	1	0
Not telling the truth making one feel bad	1	0
To have good friends	1	0
To take responsibility	1	0
Lying not being right	1	0
Older people getting angrier when lies are told	1	0
TOTAL	8	0

As it can be seen in Table 2, to end a rude behavior someone else is subjected to, a mother being able to see everything, the trust of the elderly, lying making one feel bad, making good friends, to take responsibility, lying not being right and older people getting angrier when lies are told were the reasons for honesty determined in the analyzed picture books which were clearly stated. The researchers found that no reason was given for the honest behavior of the characters in the online stories which are in the study group of the research. An example of a direct quotation related to the coding of the presented reasons for behaving honestly is given below:

Sample quotation about lying making one feel bad:

> "- If I don't tell the truth, I would feel bad. Grandma Tumos don't have to be mad at me. I went to her and told her the truth, she said." (PS 16)

Some of the characters in the stories of the study group displayed only honest behavior throughout the story and some displayed dishonest behaviors, whereas some others first displayed dishonest and then honest behaviors. Table 3 shows the reasons why the characters who initially did not behave honestly in the analyzed stories later behaved honestly and the findings regarding the frequency of these reasons.

Table 3: Reasons for the characters to behave dishonestly at first and to behave honestly later

The reasons why characters who do not behave honestly at first behaved honestly later	Number seen in all stories	Number in picture books	Number in online stories
Exposition of a lie	4	3	1
Advice, suggestion	3	3	0
The threat of being punished	1	1	0
Realizing that telling the truth is the best thing	1	1	0
Getting unjustly accused	1	1	0
Regret	1	1	0
Realizing that the lies being told were stupid	1	1	0
Remorse	1	0	1
Not believing in a lie	1	0	1
Realizing the consequences of a lie	1	1	0
Getting harmed	1	1	0
TOTAL	16	13	3

Table 3 shows the most frequent reason the characters who did not behave honestly at first behaved honestly later: the exposition of a lie. This reason was found four times. In the changing of the dishonest characters, only one or both factors stated in Table 3 were effective at times. Characters in a story were threatened with being punished after a lie was exposed; a character in another story realized that telling the truth is the best thing to do after he was accused unjustly and a character in yet another story realized that he had told a stupid lie and his mother gave him advice. The following are some examples from the stories which point out the reason why the dishonest characters changed to behave honestly:

Example quotation about a threat to be punished:

"You either admit your fault or your punishment will be doubled, he said." (PB 3)

The researchers found that the analyzed stories included the consequences of honesty, as well as providing reasons for honest behavior in some cases.

3.3 Findings Related to The Consequences of Behaving Honestly

In the third sub-problem of the study, researchers examined the consequences of behaving honestly in stories. In the analyzed stories, behaving honestly was given place to as the character's benefitting himself/herself and others, whereas the positive emotions caused by behaving honestly felt by the character or others were given place to in some of the stories. The findings on the benefits caused by the honest behavior of the character in the analyzed stories are given in Table 4.

Table 4: Benefits of behaving honestly for the honest character

Benefit	**Number in all stories**	**Number in picture books**	**Number in online stories**
Being rewarded	6	4	2
Making one realize the mistake through positive wording	4	1	3
Being appreciated	3	3	0
Being forgiven	2	2	0
Reputation	2	2	0
Being congratulated	2	2	0
Being loved	2	2	0
Experiencing fewer problems	1	1	0
Being a person people like to be with	1	1	0
Assuming a duty that makes one happy	1	1	0
Protecting oneself against dangers	1	1	0
Getting a lost item back	1	1	0
TOTAL	26	21	5

In Table 4, the most seen benefit of behaving honestly for the honest characters was being rewarded in the whole study group (n=6). Example of direct quotations about the codes of the benefits of behaving honestly for the characters is given below:

Example quotation about being rewarded:

"-You can choose any fish you want as a reward for your honesty, said Mr. Claw." (PB 14)

In the analyzed stories, examples were seen about behaving honestly causing both material and moral benefits for the honest character were seen. Among the stories in the study group, it was seen that there were instances

where besides the benefits of behaving honestly for the character, the benefits for the others were also given place. The benefits of behaving honestly for other people are given in Table 5.

Table 5: Benefits of behaving honestly for other people

Benefit	**Number in all stories**	**Number in picture books**	**Number in online stories**
Learning about the truth	2	2	0
The World is a more beautiful and just place	1	1	0
Preventing innocent people from being accused and punished	1	1	0
Preventing misunderstandings	1	1	0
TOTAL	5	5	0

As it can be seen in Table 5, the benefits of behaving honestly for others were seen 5 times in the picture books. The benefits of behaving honestly for others were not seen in the online stories. Among the stories in the study group, the identified example about the benefits of behaving honestly for others is given below:
Example quotation about learning about the truth:

"Thus, others will learn about your real emotions and thoughts." (PB 6)

The positive consequences of behaving honestly were sometimes shown through positive emotions. In the stories in the study group, the findings of the emotions the honest character feels are given in Table 6.

Table 6: Emotions created by behaving honestly in the honest character

Emotion seen in the character	**Number in all stories**	**Number in picture books**	**Number in online stories**
Happiness/Joy	8	7	1
Relaxing	4	3	1
Feeling brave	1	1	0
Feeling good	1	1	0
Having self-assurance	1	1	0
TOTAL	15	13	2

It can be seen in Table 6 that, the most seen emotion as a result of honesty in the analyzed stories is happiness which was given place to 8 times. An example about the codes of the emotions behaving honestly creates in the characters is given below with quotations from the stories:
Example quotation about happiness/joy:

"Being truthful has made me happier." (PB 20)

The honest behavior of a character led to positive consequences such as creating positive emotions in others as well. In the stories in the study group, the findings of the emotions created in other characters by the honest behavior of characters are given in Table 7.

Table 7: Emotions created in other characters as a result of behaving honestly

Emotion seen in other characters	Number in all stories	Number in picture books	Number in online stories
Happiness/Joy	5	4	1
Admiration	1	1	0
Enjoyment	1	1	0
Overcoming anger	1	1	0
TOTAL	8	7	1

When Table 7 is analyzed, the most seen emotion created in others by the honest behavior of a character was happiness/joy (n=5). It was seen in the eight examples that behaving honestly contributed to developing positive emotions in others. Example of direct quotations about the codes of emotions behaving honestly causes in other people is given below:

Example quotation about overcoming anger:

> "-How nice it is that you told the truth, she said. I don't feel like being angry at you. How can you be angry at someone who tells the truth?" (PB 16)

In the stories in the study group, besides the examples of honest behavior, there are examples of dishonest behavior as well.

3.4 Findings About Examples of Dishonest Behavior

In the fourth sub-problem of the study, the researchers examined the findings on the frequency of dishonest behavior in the stories. The number of dishonest behavior examples given a place in the analyzed picture books and online stories is given in Table 8.

Table 8: Number of negative behaviors in terms of honesty in the analyzed stories

Behavior Classification	Number in all stories	Number in picture books	Number in online stories
Examples of Dishonest Behavior	73	62	11

As it can be seen in Table 8, a total of 73 examples of dishonest behavior were found, 62 being in the picture books and 11 in the online stories. Some quotations which involve examples of being dishonest in the analyzed stories are given below:

> "They hid their axes and pretended to be crying. They shouted and asked for help for the Phoenix." (PB 1)"
>
> "Should we hide the broken pieces of the vase in the garden shed?" (PB 10)

The distribution of the characters' state of being honest in the analyzed stories are shown in Figure 1:

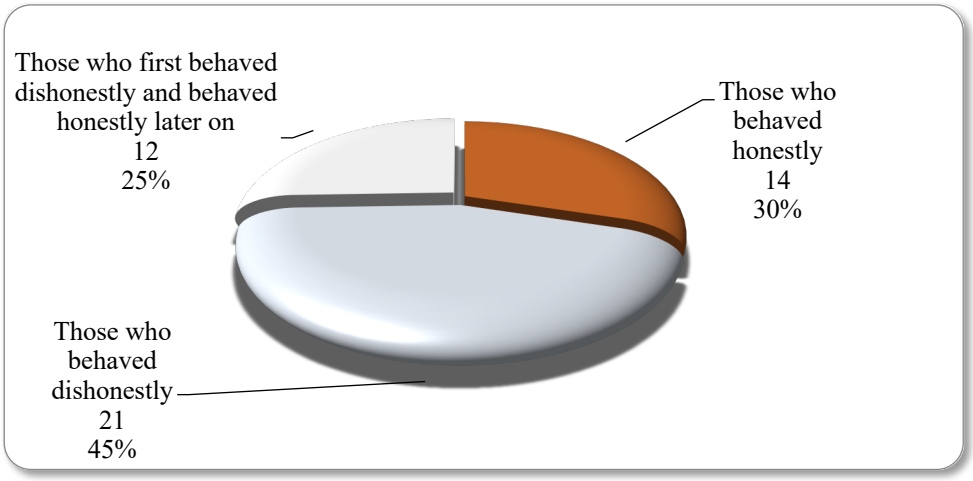

Figure 1: Distribution of all the characters according to their state of being honest

As it can be seen in Figure 1, the rate of characters who behaved honestly throughout the story is 30%, the rate of characters who behaved dishonestly is 45% and the rate of characters who behaved dishonestly at first but then behaved honestly is 25%. In some stories, characters displayed honest or dishonest behavior more than once. Some of the dishonest behaviors seen in the analyzed stories in the study were justified.

3.5 Findings About the Reasons for Dishonest Behavior

In the fifth sub-problem of the study, it was examined what reasons were given for dishonest behavior. The reasons shown for dishonest behaviors determined in picture books and online stories and the frequency of seeing these reasons are given in Table 9.

Table 9: Reasons given for dishonest behaviors in the stories

Reason for behaving dishonestly	**Number in all stories**	**Number in picture books**	**Number in online stories**
The wish to enjoy oneself	6	6	0
The wish to influence others	3	2	1
The wish for unearned income	3	2	1
Fear	3	2	1
The wish to drive a wedge between friends	2	2	0
The wish to avoid being scolded	2	2	0
The wish to take something away from someone's hands	2	1	1
Avoiding problems	1	1	0
Avoiding duties	1	1	0
The wish to preserve reputation	1	1	0
Jealousy	1	1	0
Embarrassment	1	1	0
Lying being easier	1	1	0
TOTAL	27	23	4

In Table 9, it can be seen that reasons for dishonest behavior were seen in 27 situations. In the analyzed stories, the most seen reason for behaving dishonestly for the dishonest characters is displaying dishonest behavior to enjoy themselves found 6 times. The example of quotations shown as clear reasons for the identified dishonest behaviors is given below:

Example quotation for the wish to influence others:

"Cheetah wished to appear like a famous person…" (PB 21)

The results of negative behaviors in terms of honesty in the stories in the study group are given in the next section.

3.6 Findings About Examples of Dishonest Behavior

Characters who were dishonest in the stories analyzed in the study sometimes received damage due to these behaviors. The identified damages are shown in Table 10.

Table 10: Damages characters received as a result of behaving dishonestly

The damage the character receives for not being honest	**Number in all stories**	**Number in picture books**	**Number in online stories**
Loss of trust	4	4	0
Being punished	3	3	0
Losing material things	3	2	1
Losing friends	2	2	0
Physical damage	2	2	0
Changing place of residence	2	2	0
Loss of reputation	1	1	0
TOTAL	17	16	1

As can be seen in Table 10, characters who displayed dishonest behaviors received damage in a total of 17 instances. The most seen damage the dishonest characters received was losing people's trust found 4 times in the stories. The examples of quotations from the stories coded under the sub-category of the damage the character receives for not being honest are given below:

Example quotation about losing trust:

"The other animals lost the trust of the others and received the heaviest punishment." (PB 3)

Example quotation about changing place of residence:

"As our liar shepherd set out on his way to work in another village, he swore that he would never lie again." (PB 11)

In picture books and online stories analyzed in the study, sometimes a character's dishonest behavior caused other characters to receive damage. The findings about the damages others received are given in Table 11.

Table 11: Damages received by others as a result of dishonest behavior

Damage received by others as a result of dishonest behavior	Number in all stories	Number in picture books	Number in online stories
Changing place of residence	5	5	0
Being punished	3	3	0
Receiving physical damage	3	3	0
Friends being at odds with each other	2	2	0
Financial damage	2	1	1
TOTAL	15	14	1

As it can be seen in Table 11, the most seen damage given by dishonest characters to the others is changing the place of residence which was found 5 times. An example of quotations from the stories coded under the sub-category of damages given to others by behaving dishonestly is given below:

Example quotation about being punished:

"Since Zeynep denied pinching Kaan, the teacher punished Tolga instead of her." (PB 13)

Dishonest behaviors caused both the dishonest characters and the others to receive damage in various situations. In addition, emotions created with the effect of behaving dishonestly were also given a place in the stories. The emotions felt directly or indirectly by the dishonest character in picture books and online stories analyzed in the study and the frequency of seeing these emotions in the stories are given in Table 12.

Table 12: Emotions felt by the character as a result of behaving dishonestly

Emotions are created in the character as a result of behaving dishonestly	Number in all stories	Number of being seen in picture books	Number in online stories
Embarrassment	6	5	1
Feeling bad	5	3	2
Enjoyment	4	4	0
Regret	4	4	0
Happiness	3	3	0
Sadness	3	1	2
Feeling anxious	1	1	0
Feeling uneasy	1	1	0
Being surprised	1	1	0
Remorse	1	0	1
Feeling lonely	1	1	0
TOTAL	30	24	6

It can be seen in Table 12 that, 30 situations were found in which the character creates certain emotions as a result of behaving dishonestly. The most frequently seen emotions as a result of dishonest behaviors of the character are embarrassment which was seen 6 times and feeling bad which was seen 5 times. The examples of quotations from the stories coded about the sub-category of the emotions created by the character himself as a result of behaving dishonestly:

Example quotation about feeling bad:

"I felt very bad for blaming my brother." (PB 16)

Example quotation on enjoyment:

"The snake laughed at the situation it was watching in secret. He enjoyed his words to be so easily believed in." (PB 2)

The emotions created directly or indirectly in others as a result of the dishonest behavior of a character in the analyzed picture books and online stories and the frequency with which these emotions were underlined in the stories are given in Table 13.

Table 13: Emotions created in others as a result of behaving dishonestly

Emotions are created in others due to not behaving honestly	**Number in all stories**	**Number in picture books**	**Number in online stories**
Sadness	14	12	2
Anger / Rage	10	10	0
Surprise	6	6	0
Dislike	2	2	0
Frustration	1	1	0
Hopelessness	1	1	0
Uneasiness	1	1	0
TOTAL	35	33	2

As it can be seen in Table 13, the most frequently emphasized emotions created in others directly or indirectly by a character in a story were sadness found 14 times and anger/rage found 10 times. The examples of quotations from stories coded under the titles of emotions created in other characters due to not behaving honestly:

Example quotation about sadness:

"It made me sad that you lied not to do your homework…" (PB 19)

4. Conclusion and Discussion

This study was carried out with the purpose of how the subject of honesty is dealt with in Turkish stories with the theme of honesty written for preschool children. As a result of analyses to determine how much place was given to examples of honest behavior which is the first sub-problem of the study, 41 behaviors were found which can be positive examples related to the value of honesty in picture books (see, Table 1). It was seen that the number of examples of honest behavior is close to the number obtained in Dirican and Dağlıoğlu's (2014) study. 38 expressions related to the value of honesty were found in In Dirican and Dağlıoğlu's study (2014) carried out to identify what the basic humane values are in picture books written by Turkish writers intended for the acquisition of value by children in the 3-6 age group and the rate of these being given place to in the 135 books which were analyzed and it was stated that the value of honesty is one of the least mentioned value in the analyzed picture books.

The second sub-problem of the study is related to the identification of reasons for honest behavior. For honesty which is expected to be displayed without appealing to any dishonest behaviors in the case of a moral dilemma, 8 reasons were seen in 31 stories (see, Table 2). When these reasons were analyzed, it was seen that the reasons shown for honesty in the stories in the study group carry in terms of their sources since there are both individual inner reasons and exterior reasons. Among the reasons which cause a change in characters who first acted dishonestly and then honestly, regret and remorse which took place on their own were seen once each. The sources of the change in the characters are mostly exterior in the stories in the study group (see, Table 3). In Fu, Evans, Xu and Lee's (2012) study with children aged 3, 4 and 5, it was concluded that preschool children can

understand bluffs and tell strategic lies. With this finding that even small children can tell strategic lies, it can be considered that they can interpret the character's reason for behaving honestly as strategic. However, no studies were found which analyzed the effects of reasons for honesty shown in the stories in the literature on the honesty of children.

The third sub-problem of the study is related to the identification of the consequences of honest behaviors. According to the results of the analyses done with this purpose (see, Tables 4, 5, 6 and 7), it was seen that behaving honestly has positive effects on both the character and the others. It was seen that morally rewarding and positive reinforcers directed at the character by the others such as being rewarded, being appreciated, being congratulated, being loved are high in number (see, Table 4). According to Erikson's Psychosocial Development Stages, it is in particular very important to get the approval of the parents for children who are in a period of guilt in terms of taking initiative (Butcher, Mineka and Hooley, 2014). When taken from this point of view, it can be considered to stories in which feedback such as being rewarded, being appreciated, being congratulated and being loved which show that the approval of the parents is received which the child views as important or is influential in the development of the child can be effective on the child. While a behavior is evaluated as moral by children who are considered to be at a pre-tradition level in terms of Kohlberg's Moral Development Stages, the consequences of that particular behavior carry great importance (Kohlberg, 1975). For that reason, it can be stated that giving place to the positive results of the values and behaviors which are desired to be acquired by the children through the stories in the stories would be beneficial.

As a result of the analyses done to determine the frequency of examples of honest behavior in the stories in the study group which is the fourth sub-problem of the study, it was seen that the stories contained numerous and different examples of dishonest behavior (see, Table 8). In Lee, Cameron, Doucette and Talwar's study (2002) carried out with children aged 3-4, it was determined that the children tend to believe the irrational lies told by the characters in the stories. When especially the life experiences, cognitive and moral development characteristics of 3–4-year-old children are taken into consideration, children may not develop the desired attitude towards the lies presented in the stories.

It was seen that almost all of the dishonest behaviors were justified with egocentric thought as a result of the analyses on determining the reasons for dishonest behavior in the stories in the study group which is the fifth sub-problem of the study (see, Table 9). As it is possible to come across study findings which show that preschool children lie for selfish reasons (Bucciol and Piovesan, 2011; Fu et al., 2012), there are studies which show that preschool children lie out of politeness, not to hurt others or for the well-being of others as well. Williams, Kirmayer, Simon and Talwar (2013) determined in their study with children aged 6-7 that children both lie out of selfishness and out of politeness and that their rate of telling lies to adult strangers is higher compared to telling lies to their parents. In the studies, while it was seen that preschool children can tell prosocial lies, it is noteworthy that there aren't lies in the stories in the study group which can be defined as white lies which are told not to hurt others or for the well-being of others.

The sixth sub-problem of the study carried the aim of determining the consequences of dishonest behaviors in the stories in the study group. As a result of the analyses done for that purpose, it was seen that dishonest behaviors both harm the character and others (see, Tables 10 and 11). When the emotions created by dishonest behaviors were analyzed, it was seen that the character creates both positive and negative emotions, whereas creates only negative emotions in others (see, Tables 12 and 13). Dishonest characters having fun-laughing were seen 4 times and statements about them being happy were seen 3 times. Although these characters face negative consequences at the end of the stories, it can be stated that it is possible to transmit the message that a person can be happy through dishonest behaviors due to the children's line of thought, "I can avoid the mistake this character did, I can hide my lie," or if the narration is cut short at a point for any reason where the character is having fun. However, when the results are evaluated as a whole, it can be seen that dishonest behaviors are mostly negative.

Another finding of the study is that dishonest characters were given more place in the stories in the study group compared to honest characters (see, Graphic 1). Smith and Guerney (1977) determined in their study carried out with 3rd and 6th-grade students that, the number of children who identified themselves with the honest adult characters in the film they watched is much higher compared to children who identified themselves with dishonest characters. Although a study analyzes the relationship with the identification children form with the characters in the fictional stories they watch or listen to and honesty, it is possible to find studies on the relationship between the trust felt for the character and honesty. In Li, Heyman, Xu and Lee's study (2014) with children aged 3-5, it was determined that it was possible to observe the relationship of honesty-trust in the form of trusting honest characters in children aged 5 whereas this was not observed clearly in children aged 3 and 4. This finding can be interpreted as the need to carefully choose the traits of the characters in the stories to be read in particular to children in the younger age groups.

It was concluded through the comparison of the findings of the first, third, fourth and sixth sub-problems of the study that examples about dishonest behaviors were given place to more compared to examples of honest behavior (see, Tables 1 and 8); benefits of honesty and harms of dishonesty were given in very close numbers (see, Tables 4, 5, 10 and 11) and that negative emotions caused by dishonesty were given more place to compared to emotions caused by honesty (see, Tables 6, 7, 12 and 13). When the findings were evaluated in general, it was concluded that the framework formed with the sum of the findings obtained with the stories in the study group underlined "dishonesty and its negative consequences," more than "honesty and its positive consequences." According to the findings of the study carried out by Lee et al. (2014), the story titled George Washington and the Cherry Tree which emphasizes the positive consequences of honest behaviors increased the honest behaviors of preschool children, whereas the stories titled Pinocchio and The Liar Shepherd were not effective in reducing dishonest behaviors in children. As a result, it can be stated that it should be taken into consideration that the evaluations related to these examples may not be in the desired form when negative examples are given in terms of honesty when preschool children's life experiences, cognitive and moral developments are taken into account. In this respect, rather than expecting children to make inferences about behaving honestly by considering the negative consequences of examples of dishonest behavior given a place in the stories prepared for this age group, it may be more beneficial to deal with the value of honesty through the examples of honest behavior. On the other hand, teachers and parents need to evaluate the positive and negative behaviors when choosing stories dealing with honesty. While dealing with the issue of honesty through stories, teachers and parents can be suggested to guide children to think about the stories and do evaluations about the stories.

This study in which stories written for preschool children dealing with honesty has certain limitations. The results of the study are limited to picture books and online stories dealing with honesty and written for preschool children and qualitative and quantitative content analyses carried out using the qualitative research approach.

Some suggestions can be made about the application and future studies in light of the results and the limitations of the study. While preparing picture books for children dealing with honesty, the opinions of experts in the area of child development and children's literature should be taken. Instead of the negative consequences of being honest in stories with the theme of honesty, the positive consequences of honesty should be underlined. Characters with which the children can identify themselves should be selected when creating stories with the theme of honesty. In stories on other values used in preschool education, the researchers are suggested to analyze how these values are dealt with in these stories. An experimental study can be carried out on the effects of the environment being realistic or unrealistic in stories read in terms of the honest behaviors of children. An experimental study can be carried out on the effects of the person being affected by the positive or negative consequences of behaviors depicted in stories with the theme of honesty read to the children being the character himself or another character on the behaviors of children.

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Comparison of "Learning," "Teaching," and "Teacher" Metaphors of Pre-Service and In-Service Science Teachers

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Abstract
The study aims to examine science teachers' and pre-service science teachers' metaphors about learning, teaching, and teacher concepts and compare their metaphors. The study is designed according to phenomenology research design. The study participants consisted of 62 in-service science teachers working in government schools and 45 pre-service science teachers attending a government university's science teaching department. The data was collected during the 2017-2018 academic year. The participants were requested to fill in the blanks of three statements: "Learning is like…..; because …….", "Teaching is like…..; because…….", "Teacher is like….; because……". The results displayed that teachers and pre-service teachers generally have different meaning categories. While teachers expressed the concept of "teacher," they took their own experiences and professional lives into consideration since they are actively working as teachers. On the other hand, pre-service teachers expressed their own teachers and their behaviors while defining the concept of "teacher." Similarly, when we take a look at the results related to the concept of "student," while teachers started off with the children they taught, pre-service teachers talked about their own experiences since they are students.

Keywords: Metaphor, Learning, Teaching, Teacher, Pre-Service Science Teacher, In-Service Science Teacher

1. Introduction

People interact with the world and create image schemas, and construct knowledge through their experiences (Amin, Jeppsson, &Haglund, 2015). Lakoff and Johnson (1980, 1999) developed conceptual metaphor theory to explain this construction. According to this theory, we create our conceptual system through our experiences with our environment. According to some researchers (Lakoff and Johnson, 1980; Martinez, Sauleda, &Guenter 2001), these schemas and knowledge constructs are structured through metaphorical relationships. With these schemas, people understand abstract concepts. With metaphorical relations, people can explain daily realities and experiences (Lancor, 2014). According to Wertsch (1985) and Lakoff and Johnson (1980), metaphors influence our understanding and relation with our environment. Metaphors can be considered mental constructs, and

everyone lives by their metaphors in daily life and reflect people's perceptions, thoughts, and actions (Saban, 2006). When we facea new situation, we try to understand this with the knowledge we have already acquired and try to conceptualize it by dividing it into pieces and selecting the important ones (Lancor, 2014). Shortly, metaphors underline certain aspects of abstract concepts and put them forward. According to Zhao, Coombs, and Zhou (2010), metaphors draw a frame around our experiences. With metaphors, abstract concepts became more familiar, understandable, and straightforward. It can be stated that metaphor is psychological modeling of the experience and helps us develop new conceptual knowledge forms (Zhao, Coombs, and Zhou, 2010). Metaphors reveal the underlying conceptions about our experiences. They are abstract ideas stated in concrete terms (Lancor, 2014).

When the literature is analyzed/reviewed, it is seen that various researchers describe metaphor in different ways. According to Gallagher (2004), metaphor is a phrase used for making a mental comparison between a well-known thing and a less well-known one. It is a linguistic representation of a real-life experience. Ibanez and Hernandez (2011) stated that a metaphor is a mapping system in which people connect the concepts they want to understand. Singh (2010) suggested that metaphors help to understand an abstract concept by concretizing it. A metaphor has the power to describe experiences that are novel, abstract, and difficult to explain (Fenech, Harrison, Press, & Sumsion, 2020). According to Thomas and McRobbie (2001), a metaphor helps conceptualize complex events with familiar concepts related to prior experiences and knowledge. Botha (2009) defines metaphor concerning education as explaining some unfamiliar educational concept, event, or action with a familiar term. She gives examples as "teachers are guides, learning is an uphill battle."

Metaphors have various roles both in daily life and in scientific research. In the field of education, the functions of metaphors have been expressed by multiple researchers. According to Botha (2009), some of the roles of metaphors are constructing the teaching process (e.g., teaching as orchestrating, conditioning, guiding, or training), functioning didactically to teaching, qualifying the teaching actions of the teacher (e.g., pottery, gardening, artistry, a sculptor, Gardener), reflecting the learning process (e.g., sponge, filter and strainer). Saban (2006) listed some of the functions of metaphors as "Metaphor as a blueprint of professional thinking," "Metaphor as an archetype of professional identity," "Metaphor as a medium of reflection."

According to Martinez, Sauleda, and Guenter (2001), the metaphors formulated for teaching concepts can be used to understand teachers' professional thinking. Similarly, Carter (1990) stated that metaphors help to know how the teachers perceive their work. Connelly, Clandinin, and He (1997) and Zhao (2009) see metaphors as sources that explain teachers' feelings and thoughts about their teaching. With the help of metaphors, teachers' opinions about their professional development can also be learned. For example, Tait-McCutcheon and Drake (2016) studiedteachers' relationship with professional learning and development through a jacket's metaphor. They stated that the use of the metaphor reflects teachers' general perceptions of PLD. The findings of the research reveal a disadvantageous relationship between teachers and their professional learning and development. Similarly, Pinnegar, Mangelson, Reed, and Groves (2011) studied how pre-service teachers position themselves in their future business life, theexpectations they hold for students, and the implications these have for teacher education.

Studies show a lot of information about students' demographic data in education faculties, but not many details on how pre-service teachers position themselves about their teaching profession (Lay, Pinnegar, Reed, Wheeler, & Wilkes, 2005). According to Holt-Reynolds (1992), obtaininginformation about how pre-service teachers position themselves while receiving teacher training can help predict their teaching behavior when entering their profession in the future. Pre-service teachers' personal stories and understanding of Learning and Teaching can influence their participation and pedagogical practice decisions during teacher education. Knowing these issues will help education faculties prepare courses for pre-service teachers in teacher training programs (Pinnegar, Mangelson, Reed, & Groves, 2011). Studies show that knowing how pre-service teachers position themselves in their professional careers as they enter a teacher training program will train them to be better teachers (Bullough& Stokes, 1994). According to Olsen (2008), determining pre-service teachers' metaphors about teaching, their beliefs about learning and the teacher, and their beliefs about their identity will help with the

subject. Marshall (1990) stated that determining and investigating metaphors can help us understand teachers' professional thinking. Through metaphors, teachers display their teaching approaches, understanding of learning, articulate their professional identity, roles in the classroom, and their relations with the students (Zhao 2009; Zhao and Huang 2008; Martinez, Sauleda, & Guenter 2001).

Additionally, Bullough and Stokes (1994) stated a strong connection between metaphors related to teaching and teachers' behaviors. The richer and conceptually complex teachers' metaphors about teaching, the more diverse learning environments they can prepare for their students (Pinnegar, Mangelson, Reed, & Groves, 2011). Tobin (1990) and Tobin and La Master (1995) stated that when the metaphors of newteachers are uncovered, it can lead to a radical change in teaching practices. By examining teachers' metaphors, what they think about their work can be learned, and their professional development can be analyzed.

When considered in this context, it is important to analyzeboth the metaphors of teachers and pre-service teachers about various learning concepts. Within the scope of the study, the metaphors of science teachers and pre-service science teachers about learning, teaching, and teacher concepts were examined. The metaphors of teachers about mentioned concepts werecompared with the metaphors of pre-service teachers. Teachers' metaphors about the concept of learning will reveal their thoughts on how learning takes place. Simultaneously, their metaphors about teaching will reflect their learning approaches and give information about the teaching methods they use. Their metaphors about the concept of teachers will reveal their perceptions about their professional identity.

On the other hand, before starting their professional life, pre-service teachers' metaphors about the mentioned concepts will reveal how they perceive themselves as teachers and their approaches to the learning process. Comparing the metaphors of teachers and pre-service teachers is essential in reaching the metaphors created due to experience with the ones made during the teacher education process and interpreting the differences. As a result of the comparison of the metaphors, the situation can be evaluated, and suggestions can be made to create teacher perception in teacher education.

2. The Aim of the Study

The study examines science teachers' and pre-service science teachers' metaphors about learning, teaching, and teacher concepts. It aims to understand how science teachers and pre-service science teachers perceive learning, teaching, and teacher concepts and compare the metaphors of in-service teachers and pre-service teachers. The study aims to contribute to existing research by analyzing and comparing pre-service and in-service teachers' metaphors about some essential concepts in education. The study is designed by considering the "Cognitive theory of metaphor" developed by Lakoff and Johnson (1980). The research questions are given below guided the research:

1. What metaphors do pre-service science teachers use to describe the concept of "learning"?
2. What metaphors do pre-service science teachers use to describe the concept of "teaching"?
3. What metaphors do pre-service science teachers use to describe the concept of "teacher"?
4. What metaphors do in-service science teachers use to describe the concept of "learning"?
5. What metaphors do in-service science teachers use to describe the concept of "teaching"?
6. What metaphors do in-service science teachers use to describe the concept of "teacher"?
7. What conceptual themes can be constructed through these metaphorical images?
8. What are the differences between the metaphorical themes of pre-service and in-service teachers.

3. Method

3.1. Design of the Study

A qualitative research approach is employed in this study. The study is designed according to phenomenology research design. Phenomenology investigates how people's minds work, understand and perceive the events, and

transfer their experiences to explore how people understand, sense, and transfer their experiences (Patton, 2014; Ekici, 2016). Through metaphors, we can understand the mental structure of individuals about abstract concepts. Therefore, in terms of exploring participants' metaphors about the concepts of learning, teaching and teacher, phenomenology research design suits the study's aim.

3.2. The Participants

The study participants consisted of62 in-service science teachers working in government schools and 45 pre-service science teachers attending a government university's science teaching department in Turkey.

Table 1: Distribution of the participants

	N	**f %**
In-service science teachers	62	57.94
Pre-service science teachers (senior year)	45	42.06
Total	**107**	**100**

Table 1 displays that in-service science teachers constituted 57.94 % of the sample group,whereas pre-service science teachers attending senioryear in science education constituted 42.06%. The data was collected during the 2017-2018 academic year using the data collection tool given below.

3.3. Data Collection Tool

The participants were provided with a form consisting of three statements. The first statement is "Learning is like…..; because …….", the second statement is "Teaching is like…..; because…….", the third statement is "Teacher is like….; because……". The participants were requested to fill in the blanks. The researchers prepared the statements through literature research and expert views.

3.4. Data Analysis

The forms administered to the participants are numbered, clearing invalid and inappropriate concepts. The data is analyzed with content analysis which consists of five stages.The analysis is conducted according to the stages followed in Saban, Koçbeker, and Saban's (2006) study. The steps of the data analysis are given below:

Stage 1: Naming/Labeling.
In the first stage, the names of the metaphors are coded, such as "gardener,""light,""water," etc. In-service science teachers formulated 176 metaphors, and pre-service science teachers developed 129 metaphors, making a total of 35 metaphors in the study.

Stage 2: Sorting (clarification and elimination) stage.
In the second stage, the raw data is examined. The metaphors are grouped according to their similarities and differences. At this stage, some of the statements producedby the participants are eliminated since they are poorly structured. The eliminated statements contain no metaphors or contain a metaphor but don't have any rationale. They contain nonsense metaphors or metaphors irrelevant to the selected concepts.

Stage 3: Categorization.
The metaphors formulated by the participants and their explanations to these metaphors are examined and categorized. The categories are determined according to the dominant features stated in these explanations (Güveli et al. l, 2011; Çağlar Karapınar, 2017). As a result of the inductive analysis, themes areidentified. The metaphors aregrouped under the themes in which they are best presented.

Stage 4: Establishing the inter-rater reliability rate.
The consistency of the coding system was assessed by inter-rater reliability. In this regard, the researchers, an outside expert, worked and grouped the metaphors into the themes. Miles and Huberman's (1994) formula (i.e., Reliability = Agreement / Agreement + Disagreement) was used to estimate the inter-rater reliability rate (Baltacı, 2017). The Miles-Huberman rate calculated is as 0.93. According to Miles and Huberman (1994), the final inter-coder agreement rate in qualitative data analysis should approach or exceed 90%. The places of the metaphors changed according to the final decisions.

Stage 5: Analyzing the data quantitatively.
The frequencies (*f*) and percentages (%) of the metaphors and the categories are calculated and displayed in the tables.

4. Findings

In this section, the metaphors of the participants related to the learning, reaching, and teacher concepts are displayed. The metaphors developed by the participants were categorized under the themes, and they are given as tables. The metaphors of the in-service science teachers and pre-service science teachers are shown separately.

4.1. The Findings Obtained From In-Service Science Teachers

Table 2: In-service science teachers' metaphor categories related to the "learning" concept

Category	Metaphors	N	f%
Learning as a beneficial action	Enlightenment (2), Water (1), Spring (1), Lungs clear the blood (1), Benefit (1), Computer (1), Nurture (1), Rain (1), Sun (1), Shaping (1), A treasure that broadens the horizon (1), Light (1)	13	2.03
Learning as a cumulative progress	Tree (2), Path (1), Construction (1), Earth (1), Extensive library (1), Treasure (1), Life (1), Snowslide (1), Fire (1)	10	6.95
Learning as a need	Eating (4), Wanting (1), Oxygen (1), Vital requirement (1), Thirst (1), Water (1)	9	5.25
Learning as a labor-intensive action	Science (1), Newly discovered invention (1), Reaction (1), Pickling(1), Equation (1), Surgery (1), Field (1), Factory (1)	8	3.56
Learning as a continuous action	Eternity (2), Life (2), Ocean (2), Socks (1), Rain (1)	8	3.56
Other	Game (2), A broken glass full of Water (1), Shopping (1), Fire (1), Sparkle (1), Sieve (1), Appetite (1)	8	3.56
Learning as a feeling	Serenity (1), Passion (1), Love (1)	3	5.09
Total		**59**	**100**

Table 2 displays the metaphors formulated by in-service science teachers about the "learning" concept. According to the meanings attributed by in-service science teachers, the formulated metaphors following the

analyses are grouped under seven categories according to the meanings attributed by in-service science teachers. The categories display that in-service science teachers developed positive metaphors about the "learning" concept. When Table 2 is reviewed, it is seen that some metaphors (such as water, rain, life, fire) are grouped under separate categories. For example,the "water" metaphor is both located under the "Learning as a beneficial action" and "Learning as a need" categories; the rain metaphor is both located under the "Learning as a beneficial action" and "Learning as a continuous action" categories. This is because while formulating, in-service science teachers attributed different meanings to the same metaphor.According to Table 2, the most mentioned category is "learning as a beneficial action";the least formulate done is the "learning as a feeling" category.Below are the explanations of teachers for the metaphors for each category are given.

1. *Learning as a beneficial action*

Some of the metaphors in this category are enlightenment, water, spring, nurture, and rain. Some of the metaphors and teachers' explanations are as follows: Enlightenment: "*It eliminates illiteracy and underdevelopment* (S_2)."Water: "*The first power that will crack the seed and reveal its potential comes from water* (S_3)."Spring: "*Spring is renewal (*S_7).Sun: "*A person with knowledge shines a light around him like the sun* (S_{44})."Shaping: "*As you learn, you change* (S_{51})."Light: " *The more you learn, the more you become enlightened* (S_{61})."

2. *Learning as a cumulative progress*

Some of the metaphors in this category arepath, Earth, treasure, and life. Some of the metaphors and teachers' explanations are as follows:Earth: "*You learn how to get the best yield by cultivating the earth over time (*T_8*)*."Extensive library: "*There are many different ways, and everyone learns on their own (*T_{10}*)*."Snowslide: " *Curiosity and willingness to learn increase as you learn (*T_{27}*)*."Tree: " *the number of the branches increases, it becomes more complex (*T_{53}*)* (S_{53})."Fire: "*The more information you give, gets bigger* (S_{55})."

3. *Learning as a need*

The most formulated metaphor in this category is "eating."Besides, some of the less mentioned metaphors are wanting, oxygen, thirst, and water. Some of the metaphors and teachers' explanations are as follows: Eating: "*Even if we are full up, it is still a requirement* (S_{17})." Oxygen: "*Even if we are full up, it is still a requirement* (S_{28})."Thirst: "*You want to drink water whenever you need; you want to learn whenever you need it* (S_{42})."

4. *Learning as a labor-intensive action*

Some of the metaphors in this category are science, reaction, pickling, equation, and surgery. Some of the metaphors and teachers' explanations are as follows: Science: "*Everything starts with curiosity* (S_9)"."Pickling: "*It requires a process* (S_{35})."Equation: "*If an item is missing, the result may be wrong* (S_{38})."Surgery: "*If you are not sensitive, it may harm the child* (S_{46})."Field: " *You get what you plant* (S_{48})."

5. *Learning as a continuous action*

The metaphors most mentioned in this category are eternity, life, and ocean. Besides, the less mentioned metaphors are socks and rain. Some of the metaphors and teachers' explanations are as follows: Eternity: "*It has neither beginning nor end* (S_1)."Rain: "*It never ends* (S_{37})."Life: "*It continues lifelong* (S_{40})."Ocean: "*We learn a new knowledge every day* (S_{50})."Sucks: "*The more you rip it out, the more it will come* (S_{56}).

6. *Other*

Some of the metaphors in this category are game, shopping, fire, sparkle, and filter. Some of the metaphors and teachers' explanations are as follows: Fire: "*One sparkle is enough for the student to learn* (S_{29})."Game: "*It is not*

important what you teach but how you teach (S_{41})."Sparkle: "*If the love of learning ignites, it will grow bigger and bigger* (S_{52})."

***7.** Learning as a feeling*

The metaphors in this category are peace, passion, and love. The metaphors and teachers' explanations areas follows: Serenity: "*The more you learn, the more peace fills you* (S_{25})."Passion: "*As the things learned increase, the desire to learn increases* (S_{33})."Love: "*It becomes easier and enjoyable when you love* (S_{34})."
The metaphors and teachers' explanations are as follows: Serenity: "*The more you learn, the more peace fills you* (T_{25})." Passion: "*As the things learned increase, the desire to learn increases* (T_{33})." Love: "It becomes easier and enjoyable when you love to learn (T_{34})."

Table 3: In-service science teachers' metaphor categories related to the "teaching" concept

Category		**Met.N**	**f%**
Teaching as a teacher's work of art	Shaping (2), Art (2), Computer environment (1), Smelling flower (1), Gardener (1), Dig a well with a needle (1), A secret weapon (1), Attention (1), Architecture (1), Earth (1), Film (1), Arboriculture (1), Theater (2), Writing a book (1), Imagine (1), Wave (1), Mother (1), Cake (1), Eggplant kebab (1), Agriculture (1), Patience (2), Flying of a bird (1), Sculpting (1), Tree (1)	28	47.46
Teaching as a beneficial action	Art (2), Seed (2), Watering the seeds (2), Virtue (1), Fruit (1), Capillaries (1), Love (1), Thunderbolt (1), Share (1), Technology (1), Public beach (1), Harvest(1), Happiness (1)	16	27.12
Teaching as a guiding action	Light (7), Guiding (2), Liberating the individual (1), Driving (1)	11	18.4
Other	Something that cannot be forced (1), Love (1), Game (1), Enthusiasm (1)	4	6.78
Total		**59**	**100**

Table 3 shows the categorical form of the metaphors formulated by in-service science teachers. The metaphors are collected under four categories. The categories display that in-service science teachers formulated positive metaphors about teaching. When Table 3 is examined, it is seen that the art metaphor falls under both the "Teaching as a teacher's work of art" category and the "Teaching as a beneficial action" category. This is because in-service science teachers attributed different meanings to the same metaphor. According to Table 3, most of the metaphors related to the "teaching" concept take part in the "Teaching as a teacher's work of art" category.Theexplanations of teachers for the metaphors for each category are given below.

1. *Teaching as a teacher's work of art*

The most frequently mentioned metaphors in this category are "shaping" and "art." Besides, some of the less mentioned metaphors are "attention," "architecture," "earth," and film. Some of the metaphors and teachers' explanations are as follows:"Tree": "*It is necessary to wait patiently for it to bear fruit* (S_{13})."Patience: "*There is nothing difficult like teaching* (S_{15})."Gardener: " *You will get outputs according to how you take care of the students and how you shape them* (S_{21})."Dig a well with a needle: "*the more you dig, the harder you get, but the deeper you go, the more you reach the goal* (S_{22})."Attention: " *If we are not careful, we can transfer misguided ideas and information* (S_{24})."Architecture: "*The more aesthetic is the act of teaching, the more conscious generation grows* (S_{28})."Sculpting: "*Putting the students in a nice shape is done by teaching* (S_{30})." Film: "*If it is done well in teaching like making a movie, a beautiful work will come out*(S_{32})."Arboriculture: "*It will be like how you cultivate it (S_{34})."*Art*: "Every art requires craft*(S_{37})." Theater: "*You applaud the achievements of the*

people you have raised (S_{40})."Writing a book: "*You reflect your life to the lives of your characters*(S_{41})."Imagine: "*We can teach as differently as we can imagine* (S_{42})."Wave: "*It provides earnings in every dimension like the waves produced by a stone thrown into the sea* (S_{43})."Mother: "*It requires sacrifice and volunteering against all kinds of difficulties* (S_{44})."

2. *Teaching as a beneficial action*

The most frequently mentioned metaphors in this category are art, seed, and watering the seeds. Besides, some of the less mentioned metaphors are virtue, fruit, capillaries, and love.Some of the metaphors and teachers' explanations are as follows: Art: "*The teacher should constantly improve himself/herself about his profession* (S_2)."Love: "*The more you raise, the more you become happy* (S_{16})."Seed: "*It shows its benefits when the time comes* (S_{27})."Thunderbolt: "*Where it falls matters. If it falls to a suitable place, it may work* (S_{36})."Sharing: "*It increases with sharing* (S_{39})." Technology: "*It always renews* (S_{45})."Public beach: "*Everyone should be able to benefit from it* (S_{49})."Watering the seeds."C*ompletely different flowers grow from seeds that we irrigate with the same water"* (S_{52}).

3. *Teaching as a guiding action*

The most mentioned metaphor in this category is "light." In addition, the less mentioned metaphors are "guiding,""liberating the individual," and "driving." Some of the metaphors and teachers' explanations are as follows: Light: "Life is unthinkable without light (T_3).", "It is like enlightenment, it dissipates the darkness (T_{10})." Guiding: "It is necessary to guide students who are willing to learn (T_{19})." Driving: "It is necessary to reach the destination in a healthy way (T_{35})."

4. *Other*

The metaphors in this category are "Something that cannot be forced"(1), "Love,""Game," and "Enthusiasm."Some of the metaphors and teachers' explanations are as follows: Game: "*It is repeated as it gets pleasure* (S_{56})."Enthusiasm: "*enthusiasm increases as you provide feedback*(S_{62})."

Table 4: In-service science teachers' metaphor categories related to the "teacher" concept

Category		Met.N.	f%
The teacher as a mentor	Candle (7), Lighthouse (6), Sun (2), Guide (2), Map (1), Shepherd (2), Mother (2), Unmarried parent (1), Miniaturist (1), Book (1), Love (2), Pole star (1), Signs on the road (1)	28	48.28
The teacher as a helpful person	Tree (3), Mother (2), Gardener (2), Meaning (1), Bee (1), Lifeless mannequin(1), Showman (1), Sand (1), Heart (1), Morality (1), Flag (1), Wind (1), Protector (1), Food (1), Mountain (1), Farmer (1), Mirror (1), Sculpture (1), Air (1), Well (1), Earth (1)	25	43.10
Other	Patience (1), Slave (1), Toy (1), Everything (1), Pierced bottle (1)	5	8.62
Total		**58**	**100**

Table 4 shows the categorical form of the metaphors produced by in-service science teachers. The metaphors are collected under three categories. When the categories are examined, it is seen that in-service science teachers developed positive metaphors about the "teacher" concept. When Table 4 is reviewed, it is seen that the metaphor of mother is under both the categories of "The teacher as a mentor" and "The teacher as a helpful person." This is due to the fact that science teachers attributed different meanings to the same metaphor while

formulating it. In addition, according to the table, the most mentioned category is "the teacher as a guide."The explanations of in-service science teachers for the metaphors for each category are given below.

1. *The teacher as a mentor*

The most frequently mentioned metaphors in this category are "candle" and "lighthouse" metaphors. Besides, some of the less mentioned metaphors are "guide", "map", "book", and "love". Some of the metaphors and teachers' explanations are as follows: Candle: "*He risks finishing himself for the sake of creating a brighter future* (S_{12})."Lighthouse: "*In the endless darkness, it guides the way* (S_{39})."Guide: "*It doesn't just show what to do, it guides* (S_{10})."Sun: "*It enlightens with its energy, gives life* (S_3)."Unmarried parent: "*From the moment you graduate, you have many children* (S_8)."Miniaturist"*shapes and works for his students* (S_{25})."Book: "*As books expand the horizons, the teacher widens the horizons* (S_{32})."Love: "*He continues to work even if he is not reciprocated* (S_{44})."

2.*The teacher as a helpful person*

The most frequently mentioned metaphors in this category are tree, mother, and gardener metaphors. Besides that, some of the less mentioned metaphors are bee, lifeless mannequin, showman, and sand. The metaphors and teachers' explanations are as follows: Tree: "*As a tree grows a fruit, a teacher grows a student* (S_{33})."Mother: "*She is endlessly compassionate and full of compassion like a mother* (S_9)."Gardener: "*he harvests what he plants* (S_{58})."Flag: "*As long as it lives, the generations grow well, the state will remain* (S_{27})."Air: "*It is needed in all areas of life* (S_{55})."Well: "*The bottom of the knowledge is invisible* (S_{57})."Earth: "*nourishes people throughout life* (S_{61})."

3. *Other*

The metaphors of this category are patience, slave, toy,everything,and pierced bottle. The metaphors and teachers' explanations are as follows: Patience: "*We must always be patient and sympathetic* (S_{14})."Slave: "*Everyone (parents, students, administrators) blames him* (S_{16})."Toy: "*He becomes a toy to everybody to have fun every day* (S_{17})."

4.2. The Findings Obtained From Pre-Service Science Teachers

Table 5: Pre-service science teachers' metaphor categories related to the "learning" concept

Category		N	f%
Learning as an endless action	Life (7), River (2), Ocean (2), Habit (1), Eternity (2), A new world (1), Universe (1), Technology (1)	17	39.53
Learning as a beneficial action	Accumulation (2), Medicine (1), Fruit tree (1), Conscious person (1), Exclusivity (1), Seed (1), Happiness (1), Shaping (1)	9	20.93
Learning as a labor-intensive action	Raising a child (1), Food (1), Load(1), Construction (1), Lego toys (1), Seed (1), Climbing the mountain (1), Flower (1)	8	18.60
Other	Furniture (1), Subconscious (1), Writing (1), Computer memory (1), Toy (1)	5	11.63
Learning as a basic need	Eating (3), Water (1)	4	9.30
Total		**43**	**100**

Table 5 shows the categorical form of the metaphors produced by pre-service science teachers. The metaphors are collected under five categories. When the categories are examined, it is seen that pre-service science teachers formulated positive metaphors about learning. When Table 5 is reviewed, it is seen that the seed metaphor is both under the "Learning as a beneficial action" and "Learning as a labor-intensive action" categories. This situation arises from the fact that pre-service science teachers attributed different meanings to the same metaphor while formulating it. In addition, the most mentioned category is "Learning as an endless action," and the least mentioned category is the "learning as a basic need" category. The explanations of pre-service science teachers for the metaphors for each category are given below.

1.*Learning as an endless action*

The most mentioned metaphor in this category is the metaphor of life.Besides that, some of the less mentioned metaphors are river, ocean, habit, and universe. The metaphors and teachers' explanations are as follows: River: "*As water flows, it flows, and its continuity never ends* (S_{340})." Ocean: "*It has an endless power* (S_{343})."Habit: "*People want to learn as they learn* (S_{345})."Eternity: "*learning continues lifelong* (S_{346})."Life: "*It is a process that continues throughout our life* (S_{351})."A new world: *"You want to discover, find and know new information as you learn* (S_{357})."Universe: "*it is an infinite loop* (S_{359})." Technology: "It constantly improves (S_{365})."

2. *Learning as a beneficial action*

The most mentioned metaphor in this category is the "accumulation" metaphor. Besides that, some of the less mentioned metaphors aremedicine, seed, happiness, and shaping. The metaphors and teachers' explanations are as follows: Medicine: "*People become happy as they learn true information* (S_{341})."Fruit tree: "*There is also a product in the fruit tree* (S_{348})."Accumulation: "*He accumulates what he learns in himself and applies it in situations encountered* (S_{349})."Conscious person: "The more learning there is, the more a person is knowledgeable (S_{370})." Exclusivity: "*When you learn something, you make a difference to other people* (S_{371})."Seed: "*It adds something new to students and people*(S_{373})."Happiness: "*The more you learn, the happier you are* (S_{374})."Shaping: "*We are shaped through what we learn* (S_{378})."

3. *Learning as a labor-intensive action*

Some of the metaphors of this category are food, load, construction, and seed.The metaphors and teachers' explanations are as follows: Raising a child: "*It takes patience, curiosity, and attention* (S_{336})."Food: "*It doesn't come easily. It takes time to happen, and there is a process of digestion after eating* (S_{338})."Load: "You need to carry knowledge with you at all times? (S_{350})." Construction: "*It is built on the existing knowledge* (S_{352})." Lego toys: "*You add something on top of the existing ones and create different things* (S_{361})."Seed: "*Learning sprouts when it is fully realized* (S_{364})."Climbing the mountain: "*each step is a little more difficult* (S_{369})." Flower: "*Everything will be better as you take to water like knowledge* (S_{375})."

4. *Other*

The metaphors of this category are furniture, subconscious, writing, computer memory, and toy.The metaphors and teachers' explanations are as follows: Furniture: "*If not used, it will not be useful* (S_{339})."Subconscious: "*unforgettable, it always comes out somewhere* (S_{356})."Writing: "*The writing is permanent and not forgotten. Learning is also permanent* (S_{366})."Computer memory: *Learning combines new information and old information. As a result, a brand new concept, knowledge, emerges* (S_{368})."Toy: "*You play whenever you want. Whenever you want, you are open to Learning* (S_{372})."

5. *Learning as a basic need*

The metaphors of this category are eating and water. The metaphors and teachers' explanations are as follows: Eating: "*Eating is a need in every moment of our lives* (S_{335})."Water: "*If we are not careful, it may drain away* (S_{342})."

Table 6: Pre-service science teachers' metaphor categories related to the "teaching" concept

Category		Met.N.	f%
Teaching as a labor-intensive action	A high-quality life (2), Bricks (1), Lace knitting (1), Music (1), Patience (1), Puzzle (1), Cooking a complicated meal (1), Baby care (1), Growing saplings (1), Being Dynamo (1)	11	25.58
Teaching as a teacher's work of Art	Tree (1), Oxygen (1), A shining piece of iron (1), Responsibility (1), A design (1), Navigation (1), Vehicle (1), Captain (1)	8	18.60
Teaching as a pleasurable action	Peace (2), Water (2), Watering Plants (1), Fan fair (1), Eating (1)	7	16.28
Teaching as a beneficial action	Guidance (1), Stack of knowledge (1), Vaccine (1), Documentary (1), Plant (1), Bee (1)	6	13.95
Teaching as an endless action	Life (2), Water (2), Eternity (1),Factory(1)	6	13.95
Other	Foreigner (2), Lego (2), Speaking to someone far away (1)	5	11.63
Total		**43**	**100**

Table 6 shows the categorical form of the metaphors produced by pre-service science teachers. The metaphors are collected under six categories. When the categories are examined, it is seen that pre-service science teachers have formulated positive metaphors about teaching. When Table 6 is reviewed, it is seen that the water metaphor is both under the "Teaching as a pleasurable action " and " Teaching as an endless action " categories. This situation arises from the fact that pre-service science teachers attributed different meanings to the same metaphor while formulating it. In addition, the most mentioned category is "Teaching as a labor-intensive action," and the least mentioned category is the "other" category. The explanations of pre-service science teachers for the metaphors for each category are given below.

1.*Teaching as a labor-intensive action*

The most mentioned metaphor in this category is the "ahigh-quality life" metaphor. Besides that, some of the less mentioned metaphors arebricks, music, patience, and puzzle. The metaphors and teachers' explanations are as follows: A high-quality life: "It is easy to desire this type of life, but it is as difficult to apply(S_{335})."Bricks: "A building is constructed by bringing them together (S_{338})."Lace knitting: "by knitting small pieces and you get a whole (S_{339})." Music: "We teach according to the notes (S_{340})."Patience: "Nothing happens without patience (S_{343})."Puzzle: "Mind, logic, and patience are needed to assemble each piece (S_{356})."Cooking a complicated meal: "Teaching takes patience and effort (S_{357})."Baby care: "It is done with care, compassion, and discipline (S_{359})."Growing saplings: "It takes patience, labor, and effort (S_{360})."Being a Dynamo: "You have to be self-powered and always make an effort for others to learn (S_{378})."

2.*Teaching as a teacher's work of Art*

Some of the metaphors of this category are tree, oxygen, responsibility, and vehicle. The metaphors and teachers' explanations are as follows:Tree: "How you cultivate it will go in that direction(S_{341})."Oxygen: "The teacher gives it to his students(S_{342})."A shining piece of iron: "It is teaching that shines iron(S_{344})."Responsibility: "It is

necessary to be comfortable in conscience while teaching to the student (S_{345})."A design: "It is the process of teaching the unknown from the very beginning (S_{347})." Navigation: "redirects (S_{352})."Vehicle: "You adjust the throttle and steering wheel(S_{363})."Captain: "You teach whatever you want to teach, how you want to teach (S_{367})."

3. *Teaching as a pleasurable action*

The most mentioned metaphor in this categoryispeace and water. Besides that, some of the less mentioned metaphors arewatering plants, fan fair, and eating.The metaphors and teachers' explanations are as follows: Watering Plants: "*Like watering plants, it gives people pleasure and happiness* (S_{353})." Peace: "*There is nothing better than teaching* (S_{358})." Water: "The student Drinks as you give it (S_{371})." Fan fair: "Children learn by having fun (S_{372})." Eating: "You get pleasure as you taste it (S_{379})."

4. *Teaching as a beneficial action*

The metaphors of this category areguidance, stack of knowledge, vaccine, documentary, plant, and bee. The metaphors and teachers' explanations are as follows: Guidance: "The more they learn, the more they move on the right path (S_{349})." Stack of knowledge: "He always seeks to give something to the student (T_{351})." Vaccine: "It is like teaching and vaccinating knowledge to someone (S_{354})." Documentary: "In them, people gain something in different ways (S_{370})." Plant: "Something is gained by teaching (S_{373})." Bee: "As a bee takes pollen from a flower, students get knowledge with teaching (T_{375})."

5. *Teaching as an endless action*

The metaphors of this category are life, water, eternity, and factory. The metaphors and teachers' explanations are as follows: Eternity: "One should always teach something (S_{337})." Life: "It lasts for a lifetime (S_{346})." Water: "It flows where it finds empty (S_{350})." Factory: Teaching is a process. It is a process in operations in the factory (S_{366}). "

6. *Other*

The metaphors and teachers' explanations are as follows: Foreigners: "In teaching, it is like telling a newborn baby about life and environment (S_{368})." Speaking to someone far away: "You never know whether it is fully understood (S_{369})." Legos: "One piece is nothing without the other one (S_{376})."

Table 7: In-service science teachers' metaphor categories related to the "teacher" concept

Category		Met.N.	f%
The teacher as a helpful person	Parents (3), Planetree (2), Water (1), Soul (1), Life (1), Master (1), Book (1), the Football team (1), Flower (1), Grape (1), Cinevision (1), house with 385 rooms (1)	15	34.88
The teacher as a mentor	Light (4), Leader (3), Guide (3), Parents (1), Wise man (1)	12	27.91
The teacher as a student molder	Gardener (2), Artifact Finder (1), Bee (1), Miner (1), Sculptor (1), Luck (1)	7	16.28
The teacher as an innovator	Actor (2), Factory (1), World (1), Technology (1), Computer (1)	6	13.95
Other	Equipped computer (2), World (1)	3	6.98
Total		**43**	**100**

Table 7 shows the categorical form of the metaphors produced by pre-service science teachers. The metaphors are collected under five categories. When the categories are examined, it is seen that pre-service science teachers have formulated positive metaphors about a teacher. When Table 7 is examined, it is seen that the parent metaphor is both under the "The teacher as a helpful person " and " The teacher as a mentor " categories. This situation arises from the fact that pre-service science teachers attributed different meanings to the same metaphor while formulating it. In addition, the most mentioned category is "The teacher as a helpful person," and the least mentioned category is the "other" category. The explanations of pre-service science teachers for the metaphors for each category are given below.

1.*The teacher as a helpful person*

The most mentioned metaphors in this category are parents and planetree. Besides that, some of the less mentioned metaphors arewater, soul, life, and master.The metaphors and teachers' explanations are as follows: Water: "Life is unthinkable without water (S_{336})."Soul: "If he teaches, children will come alive (S_{342})."Parents: "takes care of everything of the student (S_{343})."Life: "There is a teacher not only in the school but in every field (S_{347})."Master: "The master also teaches something (S_{348})."Book: "It brings something (S_{352})."Football team: "It contains sacrifice and loyalty. It is a set of values (S_{356})."Planetree: "Even Its' shadow is enough (S_{360})."Flower: "Students benefit from teachers as bees benefit flowers (S_{361})."Grape: "It gives knowledge to students in each of its' fruit (S_{362})."Cinevision: "shows everything that is meant to be told (S_{363})."House with 385 rooms: "All of these rooms have different beauties (S_{377})."

2. *The teacher as a mentor*

The most mentioned metaphor in this category is light. Besides that, some of the less mentioned metaphors are leader, guide, parents, and wise man. The metaphors and teachers' explanations are as follows: Leader: "It should always be respected and seen as superior (S_{337})."Parents: "Strives for the student to be a good individual towards himself and his social environment (S_{341})."Wise man: "The future of a country takes shape in his hands *(*S_{346})."Guide: "guides, teaches knowledge (S_{354})."Light: "it enlightens its surroundings (S_{379})."

3. *The teacher as a student molder*

The metaphors of this category aregardener, artifact finder, bee, miner, sculptor, luck. The metaphors and teachers' explanations are as follows: Artifact Finder: "Instead of infusing students with his ideas, he finds and reveals their abilities and self-confidence (S_{353})."Bee: "It processes students as a bee processes flowers (S_{358})."Gardener: "If he works hard, he will have a garden full of beautiful, colorful flowers (S_{364})." Miner: "He constantly works to find different abilities of the students (S_{367})."Sculptor: "By processing the student to the finest detail, he creates a magnificent sculpture and visual feast from him (S_{368})."Luck: "If you meet a good teacher, your future will be good; if you meet a bad teacher, your future will be bad (S_{376})."

4. *The teacher as an innovator*

The metaphors of this category areactor, factory, world, technology,and computer. The metaphors and teachers' explanations are as follows: Actor: "It plays his role differently according to each student, teaches differently (S_{340})." Factory: "Produces continuous innovation (S_{344})."World: "As there are many unexplored places in the world, there are many unexplored aspects of the teacher (S_{357})." Technology: "he is a human being who constantly innovates (S_{359})."Computer: "It renews itself, updates and transfers new information (S_{375})."

5. *Other*

The metaphors of this category are equipped computer and world.The metaphors and teachers' explanations are as follows: Equipped computer: "must know everything (S_{350})." World: "He can embrace all his students (S_{365})."

5. Results and Discussion

When Table 2 and Table 5 are reviewed, it can be seen that 22.3% of science teachers and 20.93% of pre-service science teachers define learning as a beneficial action for students. Another metaphor category related to the teacher's concept of learning which was mentioned highly in the rate of 16.95% that learning is a cumulative process. When pre-service teachers' categories are reviewed, it is seen that there is no other category similar to this. Since teachers observe how learning takes place in time through their occupational experience and how students progress in terms of learning year by year, they might be evaluating the learning process in this manner. However, since pre-service teachers' teaching experience is limited only with their internship, it is possible that they do not evaluate the learning process in this manner. When the other categories are reviewed, it is seen that teachers see learning as a need, a labor-intensive and continuous action. When pre-service teacher's metaphor categories related to the concept are reviewed, it is seen that they also see learning as a need, but the number of pre-service teachers who think in this direction is low (9.30%). In addition, pre-service teachers see learning as a labor-intensive process as well (18.60%). However, while 13.56% of teachers see learning as continuous action, 39.53% of pre-service teachers see learning as a life-long action. This may be a result of the fact that pre-service teachers evaluate the learning process through their own experiences since they still continue their education. While a small percentage of teachers define learning as a feeling, such a category was not formed by pre-service teachers. The reason for this can be that teachers might be approaching the process in an emotional manner contrary to pre-service teachers due to their occupational experience and responsibilities in the learning process.

When Table 3 and Table 6 are reviewed, science teachers and pre-service teachers formed similar metaphor categories about learning. When the metaphor categories are reviewed, it is seen that while teachers focused on two categories, pre-service teachers formed a higher number of categories. Since pre-service teachers' experience on teaching is much more limited, it can be stated that their ideas about the teaching process is more scattered. Experienced teachers were able to express the teaching process in a much clearer manner. While a majority of science teachers (47.46%) see teaching as a teacher's work of Art, this percentage is lower in pre-service teachers (18.60%). About half of the metaphors formulated by teachers fall under "Teaching as a teacher's work of art" category. Teachers' categories are about shaping and care such as moulding, gardener, agriculture. Metaphors such as gardener and moulding are metaphors which have been widely used historically (Mintz, 2018). Similarly, Visser-Wijnween, Van Driel, Van der Rijst, Verloop and Visser (2009) presented metaphors formulated for the concept of "teaching" as transport, demonstration, gardener etc. It can be stated that science teachers' teaching activities which they have been applying for a long time allows them to understand the role of teachers in teaching and express teaching as a product of teachers for that reason. It can be seen that both teachers and pre-service teachers evaluate the process of teaching as a beneficial action. However, it is seen that a higher number of teachers formulated metaphors in this category. While 28.68% of teachers define teaching as a guiding action, no metaphors were formulated by pre-service teachers in this category. Teachers might have evaluated the process in this manner since they know how they influence their students and experienced their roles in the teaching process. However, it is likely that pre-service teachers were not able to formulate any metaphors in this category since it is not possible for them to influence students through their short experiences. The findings show that pre-service teachers formulated metaphors in more categories about the teaching process. Although senior year science pre-service teachers have a limited period of application lessons, it is seen that these applications are sufficient in terms of formulating certain categories in their minds about the concept of teaching. In the light of these findings, it can be stated that the difference between the perceptions of teachers and pre-service teachers is related to the experience they have.

When Table 4 and Table 7 are reviewed, it is seen that the metaphors formulated by science teachers and senior year pre-service science teachers about the concept of teacher mostly fall under the same two categories. 48% of teachers and 27.91% of pre-service teachers evaluate teacher as a mentor. Similarly, Guerrero and Villamil (2002) asked a group of teachers to provide the metaphors related to the concept of teacher and grouped their metaphors. In their study, they formulated similar metaphors like this study such as "coach," "moon," "gardener,""Potter" which have similar associations.

In addition, 43% of teachers and 35% of pre-service teachers define teachers as a helpful person. The metaphors formulated by pre-service teachers on the concept of teacher are similar to the findings of in Koçbeker and Saban's studies (2006). Saban et al. (2006) grouped pre-service teachers' metaphors about the concept of teacher under 10 categories. Similar to the findings of the present study, pre-service teachers formulated similar metaphors on the concept of teachers under the "teacher as knowledge provider," "teacher as molder", "teacher as facilitator" categories. In Farrell's (2006) study, the pre-service teachers formulated to describe the concept of teacher as mother, mentor, facilitator etc. Additionally Wan, Low and Miao (2011) searched for the metaphors formulated for the concept of teacher and the metaphors formulated as provider, nurturer etc. In Duru's (2015) study, metaphors such as light, parent, gardener, tree, farmer were formulated by pre-service teachers on the concept of teacher. Starting from this point of view, it can be concluded that the concepts in the minds of science teachers and senior year pre-service science teachers on the concept of teachers do not display any differences. The reason why the perception of teachers and pre-service teachers on the concept of teacher points out that teachers are helpful and guiding individuals is the meaning attributed to teachers in society. When societies are evaluated in general, it is understood that teachers are respected in society and are valuable for individuals. Although there are some negative perceptions about teachers, it is seen that in general the positive perceptions are more in the foreground compared to negative perceptions. Additionally, despite the devaluation of teachers and the erroneous policies implemented against teachers in the recent times, teachers and pre-service teachers still have positive perceptions. It is seen that this situation does not negatively affect the perceptions of teachers and pre-service teachers in general. About 14% of pre-service teachers define teachers as innovative people. This metaphor category was not formulated by teachers. This shows how pre-service teachers evaluate themselves in the light of updated information and their perceptions about their responsibilities. It can be stated that pre-service teachers are aware of the fact that they constantly need to renew themselves.

When the results of the study are evaluated as a whole, it is seen that both teachers and pre-service teachers have more specific perceptions related to the concept of "teacher," whereas their perceptions related to the concepts of "learning" and "teaching" are more scattered. This is due to the concept of "teacher" being concrete and the concepts of "learning" and "teaching" being abstract. Teacher and pre-service teachers regard the concept of "teacher" as a concrete concept in their lives and interact with them. This allows the formation of more permanent and definite perceptions in their minds. Although teachers and pre-service teachers use the concepts of "learning" and "teaching" in their lives, the perceptions they have about these concepts are more scattered and various since they do not physically come across them and communicate. Teachers' perceptions about the concept of "teaching" is more specific and concrete since they have occupational experience about teaching. This is due to the fact that this perception is formed as a result of experiences.

When the perceptions of teacher and pre-service teachers are reviewed, it can be expressed that teachers' approach to concepts is more occupational, whereas as pre-service teachers' approach rather reflects student psychology since they are still students. Teachers view themselves as the person who teaches and students as individuals who learn. On the other hand, pre-service teachers view themselves as students who realize learning and teachers as individuals who implement the activity of teaching. While teachers evaluate concepts through their occupational experiences, per-service teachers form perceptions through the mental models which they develop both as students and as a result of their applied education on teaching.

In addition, it is seen that teachers and pre-service teachers have the same perceptions on certain concepts. Senior year pre-service teachers who are about to complete their educational life and have taken applied teaching courses have similar perceptions with teachers. In this respect, it can be stated that the applied teaching courses teachers have taken are influential on certain concepts. From this standpoint, the perceptions of teachers and pre-service teachers give information about the education pre-service teachers receive as well. Teaching activities experienced by pre-service teachers who develop positive perceptions are both beneficial in terms of students and the education needed by society. Pre-service teachers who develop positive perceptions will show that the education they received meets the needs of society. This shows the importance of identifying the perceptions of pre-service teachers. When the literature is reviewed, it is seen that there are studies which indicate that the

identification of pre-service teachers' perceptions is important. Saban (2004) has emphasized the importance of the identification of the perceptions of pre-service teachers in his study.

6. Conclusion and Suggestions

When the study is reviewed in general, it is seen that teachers and pre-service teachers generally have different meaning categories. For instance, while teachers expressed the concept of "teacher," they took their own experiences and professional lives into consideration since they are actively working as teachers. On the other hand, pre-service teachers expressed their own teachers and their behaviors while defining the concept of "teacher." Similarly, when we take a look at the results related to the concept of "student," while teachers started off with the children they taught, pre-service teachers talked about their own experiences since they are students. This shows that although pre-service teachers take applied courses, they are unable to see themselves as teachers prior to starting their professional lives. The pre-service teachers in this study are senior students are will be graduating in a few months. However, their metaphors indicate that they do not perceive themselves as "teachers." This creates doubt as to whether they are ready for their professional life or not. Similarly, Leavy, McSorley and Bote (2007) stated in their study that pre-service teachers have few opportunities to reflect on their course content and their teaching experiences in a meaningful way. In this context, metaphors related to these concept give us information about how pre service teachers understand themselves and their professional identity (Leavy, McSorley, &Bote´, 2007).

It is considered that giving more space to applied courses in the educational process of pre-service teachers will compensate for these deficiencies. Science pre-service teachers take a course titled school experience in the fall semester and a course titled teaching practice in the spring semester of their senior year. In the school experience course, pre-service teachers visit schools, attend courses with the teachers in charge and observe the process. In the teaching practice course, they carry out certain teaching activities and teach courses besides doing observation. However, teaching courses is limited to a few times during the semester. When all these aspects are taken into consideration, it is seen that pre-service teachers' experience related to teaching is limited prior to graduation. It is suggested to distribute the applied courses throughout the educational process to make it possible for pre-service teachers to develop similar perceptions with teachers. Leavy, McSorley and Bote (2007) stated that teacher training programs should offer more than basic training of practical skills.

Pre-service teachers' limited interaction with students causes the metaphors they formulated to be limited as well. In this respect, it is considered that more frequent interaction between pre-service teachers and their students before pre-service teachers start their professional lives may allow their perceptions to be more diversified. Activities such as visiting schools, interacting of students with pre-service teachers who are university students can be expressed as practices that can increase this diversity. The analysis of the metaphors of pre-service teachers in terms of identifying their perceptions about teaching will be helpful in the design process of programs. In addition, pre-service teachers already have some perceptions about teaching when they start teaching education programs. Farrell (2006) stated that pre-service teachers come to teacher training programs with prior experiences, knowledge and beliefs about learning and teaching. For this reason, analyzing how these perceptions change over time will be helpful in observing the effect of teaching education programs in forming teacher identity.

Additionally, it is seen from the results of the study that pre-service teachers are more innovative and open to development. The courses they take during their education process are beneficial to them in this light. The continuation of such courses by increasing their number will be helpful to pre-service teachers both in their education and professional life. It is considered that teachers who are actively teaching need be encouraged to be open to innovative ideas and be willing to develop themselves. It would be helpful to present teachers with various rewards or incentives in this area. The rearrangement of in-service trainings given within the framework of these needs is one of the suggestions that can be made as a result of the study. Teachers' continuing training throughout their professional life will make it possible for them to both adopt life-long learning and train their

own students in the same manner. The suggestions that can be made based on the results of the study can be listed as follows:

- The number of applied courses given to pre-service teachers can be increased,
- The content of applied courses given to pre-service teachers can be rearranged to allow them to interact more with students,
- Activities can be organized to make it possible for pre-service teachers interact with students more,
- Activities can be organized to make it possible for pre-service teachers interact with actively working teachers more,
- Incentives can be presented to actively working teachers to develop themselves,
- Activities can be organized to allow actively working teachers be open to innovative ideas,
- The content of in-service training programs provided to teachers to develop themselves can be rearranged as to make teachers willing in this area.

Notes

This study is adapted from Muhammed Pekbalcı's master thesis.

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Validating a Scale for Measuring Students' Perspectives toward Global Citizenship: A Case at a Private University in Vietnam

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Abstract
Globalization is one of the most significant phenomena of the 21st century, affecting many aspects of human society. In the wave of this influence, higher education institutions in many countries have adjusted themselves in order to prepare their students to be global citizens. However, research shows a need to evaluate whether the integration of global citizenship education is effective among different institutions and contexts. Many scholars are in favor of measuring students' perspectives as a solution. Additionally, although many organizations, such as UNESCO, and other researchers have investigated this issue, the measurement model is mainly designed for large-scale research. Therefore, this study aimed to validate a scale for measuring student perspectives toward global citizenship in a particular context of a university. Notably, the adopted scale measures global citizenship perspectives via three components: social responsibility, global competence, and global civic activism. In the study, each component was measured separately via three smaller measurement models. All the models were validated by using the PLS-SEM approach. The data for validating were collected from 171 students at a private university in Vietnam through an online survey. The result of data analysis suggested that the original scale (which was designed for the context of developed countries) could be employed in the context of developing countries. Nevertheless, some adjustments should be made in term of social responsibility and global competence.

Keywords: Global Citizenship, Students' Perspectives, PSL-SEM, Private University

1. Introduction

1.1 Globalization and global citizenship in higher education curricula

In the context of international cooperation and the advance of technology, globalization has become one of the most massive phenomena globally (Altbach et al., 2004; Yang, 2003). Currently, globalization has considerable

impacts on many aspects of society, especially in the educational field. Many researchers confirm the mutual relationship between globalization and the development of higher education. Firstly, it is apparent that globalization creates a force for higher education development. Notably, Altbach (2013) claims that globalization covers various elements such as society, economy, and technology, which sharpened higher education in the 21st century. Besides, Massey and Burrow (2009) consider globalization as the main factor which fosters higher education development. Secondly, within the context of globalization, it is essential that students need to be well-prepared for more excellent job opportunities or the global competence required (Association of American Colleges & Universities, 2007; Mohajeri Norris & Gillespie, 2009). Hence, plenty of higher education institutions propose to equip their students with skills and knowledge to be global citizens (Clifford & Montgomery, 2017). However, it is challenging for these institutions to conclude an adequate definition of global citizenship or what is needed to be a global citizen (Harrison, 2015; Leask & Bridge, 2013; Oxley & Morris, 2013).

As the requirement of the current situation, global citizenship education has bloomed among higher educational institutions. Resnik (2009), Brown (2003), Dill (2013) and Yemini and Furstenburg (2018) assume global citizenship education as the preparation for students to be more competitive in the global working market as well as other international demands. They also mention that a significant part of applying global citizenship education is integrating global citizen skills into curricula to transform student perspectives towards global issues.

In some countries in Southeast Asia, the need to educate global citizens is much more urgent. Altbach et al. (2004) propose that every nation, particularly the developing one, invests more in the higher education sector to achieve economic development. Torres and Schugurensky (2002) confirm that globalization influences higher education in developing countries and helps these countries embed with the standards to meet the international demands. Taking Vietnam as an example, Vietnamese higher education has experienced great innovation in light of this perspective. Particularly, many universities in Vietnam have increased thanks to globalization (Ministry of Education and Training, 2016). In addition, Nguyen (2011) indicates that the expansion of private universities and the cooperation with overseas higher education institutions create a great force for Vietnam and other developing countries in Asia to integrate global citizenship in their curriculum. Due to this, it is expected that the workforce has been improved in quality. Nevertheless, Nguyen and Tran (2018) and Marginson et al. (2011) indicate that there should be an evaluation of outcomes in order to ensure the global citizenship outcomes among different institutions.

To tackle this issue, many studies have been conducted with attempts to evaluate the success of educating global citizens. The idea of applying transformative learning theory appeared to receive much attention (Green, 2012; Lilley et al., 2015). In general, according to Mezirow (1991), transformative learning refers to the change in human perception and action through the development stages of life. Within learning, human interacts with the world and becomes more respectful to his or her values, purposes and meanings. Basing on this theory, Perry et al. (2013) and Lilley et al. (2015) present the changes in student perspectives as a tool to measure the outcomes of educating global citizens. Regarding large-scale studies, UNESCO and World Survey have distributed some questionnaires with a large number of items in term of measuring participants' perspectives towards global citizenship. However, these scales are difficult for particular institutions or a single researcher to conduct research. For a smaller-scale study, With the efforts of validating appropriate scales for measurement student perspectives as global citizens, Morais and Ogden (2011) and Roberts and Wilson (2016) design a questionnaire that focuses on the components of global citizenship, including Social responsibility, Global competence, and Global civic engagement.

1.2 Significance of the problem

As stated above, scholars have confirmed the effects of globalization on higher education development and the essential need of integrating global citizenship into higher education curriculum (Association of American Colleges & Universities, 2007; Dill, 2013; Mohajeri Norris & Gillespie, 2009; Yemini & Furstenburg, 2018). In developing countries such as Vietnam, the integration of global citizenship is significant due to the positive

impacts on increasing productivity, wealth-being, and intellectual competence (Lilley et al., 2017). The World Bank (2020) concludes that Vietnamese higher education has successfully provided global citizenship skills to students. However, there is a gap among different institutions. Hence, validating a measurement model for the outcomes of global citizenship skills in Vietnamese higher education institutions is of importance.

1.3 Global citizenship components

Oxfam Development Education Programme (1997), Caruana (2014) and Atlantic Council for International Cooperation (2014) have concluded that global citizens are a citizen who: (1) have a relatively large amount of knowledge covered broad areas; (2) are open-minded to the whole world as well as aware of the social phenomenon; and (3) have the ability to decide what is right and have the responsibility to make changes for the better world.

In light of this proper definition, a series of studies by Urry (2012), Parekh (2003), Noddings (2005), and (Langran et al., 2009), Morais and Ogden (2011) have presented three components of global citizenship, including:

- Social responsibility referring to the feeling of being responsible for problems and issues happing across the countries and culture, which could create a push for realistic actions for human being sakes;
- Global competence referring to open-mindedness when attempting to learn about other cultures to be effective in communicating and working in an outside environment;
- Global civic engagement referring to the action/ reaction upon any issues at various levels such as local, national, or international one. From these components, the conceptual framework of global citizenship is presented as below:

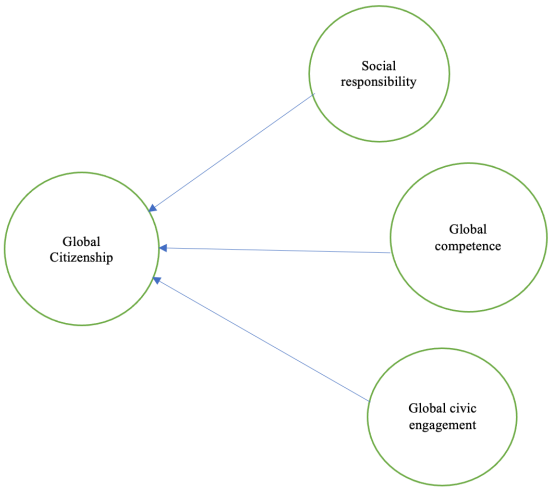

Figure 1: The components of global citizenship

The authors, then, indicate the measurement model for each component. Firstly, for social responsibility, there are three smaller constructs within, including (1) *Global justice and disparities* (the ability to give an evaluation on issues in society and can realize the examples of global injustice and disparity); (2) *Altruism and empathy* (the ability to manifest some awareness of global issues and respects to the various perspectives towards them); and (3) *Global interconnectedness and personal responsibility* (the ability to deeply understand the correlation between the local action and its global impacts). Secondly, for global competence, three sub-constructs are (1) *Self-awareness* (the ability to realize his or her own limit and make an effort to work successfully in an intercultural environment); (2) I*ntercultural communication* (the ability to possess effective communicative strategies to work successfully in the intercultural environment); (3) *Global knowledge* (the ability to keep learning the global issues and phenomena). Lastly, for global civic engagement, three smaller constructs are (1) *Involvement in civic organization* (the ability to volunteer and support international civil agency); (2) *Political*

voice (the ability to establish his/her political point of view basing on the global knowledge he/she has gained); (3) *Global civic activism* (the ability to direct any local action towards the global issues).

1.4 Purpose of the research

This research aimed at validating a scale to measure students' perspectives toward global citizenship at a specific context – a private university in Vietnam. Particularly, the measurement model suggested by Perry et al. (2013), Lilley et al. (2015), Morais and Ogden (2011) and Roberts and Wilson (2016) was employed for the validation process.

2. Method

2.1 Setting

This study was conducted at a private university in Vietnam – Van Lang University (VLU). This private university was founded in 1995 to train multiple majors such as engineering, science, economics, and linguistics. Currently, this university provides a huge percentage of new employees for society. Additionally, the university's educational philosophy presents a strong emphasis on the global citizenship outcomes, such as "encouraging our students to live good lives and to be global citizens, making our world a better place" or "making a positive contribution to the local and international community" (Van Lang University, 2020). Hence, this influences the design of all curricula covered by VLU, especially the program outcomes. In order to exam the student perspectives toward global citizenship, a particular curriculum of Bachelor of Arts in English was taken into account. In the program outcomes, the evidence of integrating global citizenship education is identified, i.e., "being able to adjust oneself within the context of globalization" or "contributing to solving the local and global issues" (Faculty of Foreign Languages, 2020, p. 1).

2.2 Sampling Method and Participants

Convenience sampling was employed in the study. Edgar et al. (2017) state that convenience sampling is the common type among non-probabilistic sampling methods. This method is suitable for the researcher who contacts participants within his or her network or through the Internet. What is more, Creswell (2014) and Edgar et al. (2017) indicate that convenience sampling is designed to explore the attitudes of various participants. In the study, 171 students from the Bachelor of Arts in English program were involved.

2.3 Research design

To validate the model for measuring students' perspectives towards global citizenship, the survey study was used as the main research design. Check and Schutt (2011) and Creswell (2014) propose that in the survey study, the attitudes and opinions of the participants are explored via the responses to a set of questions. They also assume that this is the most popular usage of survey study. Therefore, survey study was the suitable design for this research purpose.

2.4 Research instrument

In this study, the main instrument was the questionnaire. According to Creswell (2014) and Ponto (2015), questionnaires are commonly used to explore attitudes, opinions, etc. Additionally, this instrument is of convivence because it could assist the researcher to collect plenty of data in a short time limit and via both online and offline form.

The questionnaire employed in this research was adapted from the validated questionnaire from Morais and Ogden (2011) and Roberts and Wilson (2016). Remarkably, the questionnaire consisted of 32 items with some

modifications to the original one such as name of the country or some political policies. All of the items were divided into the following components:

Table 1: Constructs and codes included in the questionnaires

No.	Constructs	Sub-constructs	Number of items	Codes
1	Demographic features	(No)	1	Gen
2	Social responsibility	Global justice and disparities	6	GJD1 → GJD6
		Altruism and empathy	3	AE1 → AE3
		Global interconnectedness and personal responsibility	5	GIPR1 → GIPR5; SR
3	Global competence	Self-awareness	4	SA1 → SA4
		Intercultural communication	6	IC1 → IC6
		Global knowledge	4	GK1 → GK4; GC
4	Global civic engagement	Involvement in civic organizations	5	ICO1 → ICO5
		Political voice	4	PV1 → PV4
		Glocal civic activism	4	GCA1 → GCA3; GCE

Except for the first question on the gender of the participants, all of the other items were responded via a 5-point Likert scale, from 1 (totally disagree) to 5 (totally agree) (See Appendix A).

2.5 Data collection & analysis

The online questionnaire was distributed to the participants via MS Teams (Microsoft Teams) and the LMS (Learning Management System) of the university. After finishing collecting the responses from the participants, PLS-SEM approach was employed for data analysis. Hair et al. (2013) and Sarstedt et al. (2017) suggest that PLS-SEM is suitable for examining the relationship between exogenous and endogenous variables as well as providing an accurate tool for analyzing quantitative data. Precisely, there were two stages in the data analysis procedure: (1) establishing the measurement model (see Figure 3) and (2) assessing the measurement models.

2.6 Reliability and Validity

To validate the measurement model, some statistical indexes were used, including Outer Factor Loading, Construct Reliability, Convergent Validity (AVE), and Discriminant Validity. Also, the questionnaire was piloted before distributing for data collection to make some adjustments as mentioned in the above section.

3. Results

3.1. Descriptive Statistic

In the study, there were 171 participants, consisting of 38 males and 133 females. However, in the study, the gender difference was not the focus.

Table 2: Demographic features of the participants

	Number	Percent
Male	38	22.2
Female	133	77.8

3.2 The Assessment of Measurement Models

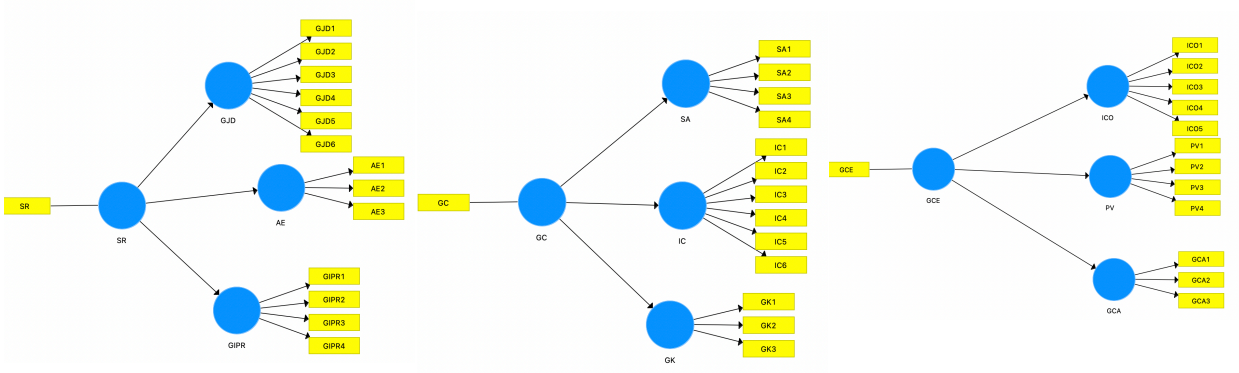

Figure 2: The measurement models of global citizenship components (Social Responsibility; Global Competence; and Global Civic Activism)

There were three measurement models in this research. Each sub-model was assessed in order to validate the complete measurement model for students' perspectives towards global citizenship. The data of each were analyzed following the procedures of PLS-SEM, including assessing Outer Factor Loading, Construct Reliability (CR), Convergent Validity, and Discriminant Validity.

3.2.1 Social Responsibilities

In term of Outer Factor Loadings, Hair et al. (2013) suggest that all the figures should be 0.7 and above. As a result, the following items were removed in the measurement model for Social Responsibility: GJD3, GJD4, GJD5, GJD6; AE2; GIPR1 GIPR3, GIPR4. Then, GIPR became the latent variable with a single indicator.

Turning to Construct Validity and Convergent Validity figures, after removing the low Out Factor Loading indicators, the results were presented in the following table:

Table 3: The CR and AVE of the measurement model for Social Responsibility

	Composite Reliability (CR)	**Average Variance Extracted (AVE)**
GJD	1.0	1.0
AE	0.756	0.608
GIPR	1.0	1.0

Hair et al. (2013) suggest that the indexes of Composite Reliability (CR) and Average Variance Extracted (AVE) be assessed. Also, they state that CR should be above 0.7 and AVE should be above 0.5. In the table, it was apparent that the figures met the requirements.

Then, to examine Discriminant Validity, Cross Loadings and HTMT Matrix were used. The table below illustrated the Cross Loading analysis.

Table 4: Cross Loadings of the measurement model for Social Responsibility

	AE	**GIPR**	**GJD**
GJD2	0.096	0.263	**0.788**
GJD1	0.156	0.162	**0.669**
GIPR4	0.276	**1**	0.296
AE3	**0.829**	0.298	0.194
AE1	**0.728**	0.116	0.055

The cross loadings' square root of any constructs should be higher than any correlation with any different constructs in the model. After examining this, all the figures reached the requirements.

Table 5: The HTMT matrix of the measurement model for Social Responsibility

	AE	**GIPR**	**GJD**
GIPR	0.441		
GJD	0.763	0.81	
SR	0.492	0.492	0.783

Regarding the HTMT matrix, all the figures were below 0.85, suggesting that all the indicators had the power of Construct Validity (Henseler et al., 2015).

3.2.2 Global competence

The exact process was done for assessing the measurement model for Global Competence component. Firstly, from the result of Outer Factor Loadings, only two indicators with the factor loading smaller than 0.7 were removed, including IC1 and IC2. Next, the CR and AVE indexes were examined.

Table 6: The CR and AVE of the measurement model for Global Competence

	Composite Reliability (CR)	**Average Variance Extracted (AVE)**
SA	0.840	0.568
IC	0.824	0.547
GK	0.813	0.592

All the figures presented in the table reach the requirements of CR > 0.7 and AVE > 0.5. Therefore, the process continued with the assessment of Discriminant Validity.

Table 7: Cross Loadings of the measurement model for Global Competence

	GK	**IC**	**SA**
GK1	**0.713**	0.277	0.358
GK2	**0.806**	0.321	0.472
GK3	**0.787**	0.359	0.607
IC3	0.388	**0.826**	0.473
IC4	0.209	**0.679**	0.165
IC5	0.277	**0.545**	0.197
IC6	0.349	**0.865**	0.425
SA1	0.419	0.438	**0.707**
SA2	0.485	0.276	**0.794**
SA3	0.441	0.305	**0.737**
SA4	0.54	0.364	**0.772**

Table 8: The HTMT matrix of the measurement model for Global Competence

	GC	**GK**	**IC**
GK	0.711		
IC	0.572	0.6	
SA	0.672	0.84	0.58

Table 7 showed that the square roots of cross loadings of each construct were higher than the correlation with other constructs. Also, the HTMT matrix figures in Table 8 were smaller than 0.85. Hence, the Discriminant Validity of all the indicators was established.

3.2.3 Global Civic Activism

Lastly, for the measurement model of Global Civic Activism, after examining Outer Factor Loading, all the indicators met the standard; therefore, there was no need to remove any indicators.

Table 9: The CR and AVE of the measurement model for Global Civic Activism

	Composite Reliability (CR)	**Average Variance Extracted (AVE)**
ICO	0.902	0.651
PV	0.879	0.646
GCA	0.811	0.590

It was readable from the table that the CR and AVE of this measurement model satisfied the standard numbers. Concerning the Cross Loadings, as shown in Table 10, the square roots of cross loadings of each construct were the biggest in the same row.

Table 10: Cross Loadings of the measurement model for Global Civic Activism

	GCA	**ICO**	**PV**
GCA1	**0.83**	0.368	0.282
GCA2	**0.747**	0.276	0.173
GCA3	**0.724**	0.233	0.245
ICO1	0.252	**0.744**	0.547
ICO2	0.285	**0.85**	0.588
ICO3	0.321	**0.881**	0.609
ICO4	0.284	**0.86**	0.707
ICO5	0.416	**0.679**	0.425
PV1	0.171	0.609	**0.707**
PV2	0.153	0.599	**0.808**
PV3	0.357	0.637	**0.85**
PV4	0.241	0.526	**0.842**

Finally, when accessing HTMT Matrix, the results showed that all the figures were under 0.85. Therefore, the measurement model for Global Civic Activism was valid.

Table 11: The HTMT matrix of the measurement model for Global Civic Activism

	GCA	**GCE**	**ICO**
GCE	0.487		
ICO	0.504	0.555	
PV	0.374	0.53	0.83

4. Discussion, Conclusion, and Suggestions

4.1 Discussion

Intending to validate a scale for measurement student perspectives towards global citizenship via the validating of measurement models for each component of global citizenship, the result of the study provided some evidence to address this purpose. In term of Outer Factor Loading, the indicators remained in each of three measurement models were illustrated in the following figures:

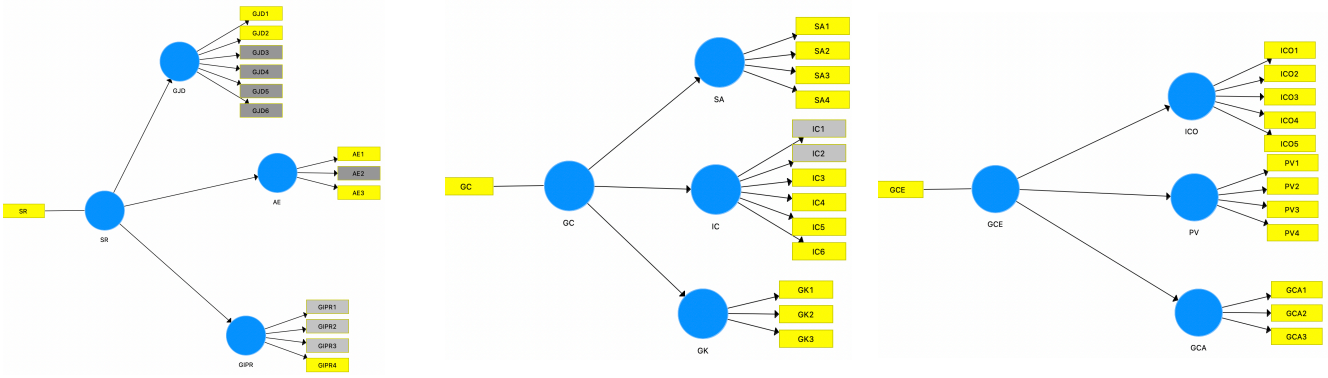

Figure 3: The measurement models of global citizenship components (Social Responsibility; Global Competence; and Global Civic Activism)

The measurement models of the three components experienced some differences from the original one (see Figure 2). The shaded indicators in Figure 3 referred to the one which was removed because it had a weak power of reflecting the result of the latent variables. It was evident that the first component – Social Responsibility – had the highest number of removed indicators. Notably, the indicators from GJD3 to GDJ6 presented the idea of global justice, such as "all of the places all the Earth are fair" or "No one can't be dominant or have the control of the weaker ones." However, it seemed that the students did not believe in these concepts, compared to the current situation. Also, the indicator from GIPR1 to GIPR3 proposed the concept of personal responsibility, including the possibility of learning from other developed nations or the personal involvement of the injustice of the world. These results were significant different from the validation of Morais and Ogden (2011) and Roberts and Wilson (2016, which suggest that these items should be modified in the current context rather than keeping the original ones. With respect to the second component of Global Competence, only two indicators were removed – item IC1 and IC2. These two indicators referred to the cognition and action of adjusting to being suitable with many different multicultural contexts. It could propose that the participants of the current context, a developing country, did not have many opportunities exposing to other foreign cultures. Therefore, when future studies intend to measure this aspect of students' perspectives, adjustments and considerations should be made regarding these items. Surprisingly, this shared the similarity in result of the study from Morais and Ogden (2011) and Roberts and Wilson (2016). Lastly, all the indicators of the last measurement model survived after the statistical analysis. Therefore, this measurement model was the most valid one in the study context.

Regarding the criteria of Construct Reliability, Convergent Validity, and Discriminant Validity, after the removal of insignificant indicators in light of Out Loading Factors, all the measurement models met the standards of validity and reliability as Henseler et al. (2015) suggest. As a result, these measurement models were suitable for applying in the context of universities in developing countries.

4.2 Conclusion and suggestions

In the attempt of validating a measurement model for evaluating student perspectives toward global citizenship in the higher education curriculum in a private university in Vietnam, a developing country, the original scale from Morais and Ogden (2011) was employed. There were three smaller components in the original scale, including Social Responsibility, Global Competence, and Global Civic Activism. All of these components were measured in term of three different models (see figure 2), and all these models were assessed and validated via

PLS-SEM approach. The statistical indexes used were Outer Factor Loading Loadings, Construct Validity, Convergent Validity (examined via Composite Reliability and Average Variance Extracted), and Discriminant Validity (examined via Cross Loadings and HTMT Matrix). The measurement models were distributed to 171 English-majored participants in a private university in Vietnam via the form of online questionnaires. After analyzing the collected data, the result showed that among the three components' measurement models, the models of measuring Social Responsibility and Global Competence should be modified and adjusted to fit the context of some developing countries such as Vietnam. What is more, the model of measuring Global Civic Activism appeared to be valid within many contexts, such as this study or the studies of Morais and Ogden (2011) and Roberts and Wilson (2016). Hence, this study contributed to the measurement model of global citizenship outcomes in higher education curricula, particularly in the context of some developing nations.

Besides these achievements, the study had its limitations. Firstly, the generalization of the study could be better if the number of participants was larger and in different curricula or universities. However, due to the COVID-19 quarantine time, the questionnaires' distributions and the participants' reach were limited. Therefore, it is recommended that future studies should involve a greater number of participants in various contexts. Finally, this study validating the model of measuring each global citizenship component separately via PSL-SEM approach. Because of the limitation of the knowledge of the author in using PSL-SEM advanced models, it is suggested that future studies could examine the students' perspectives toward global citizenship by the employment of high-order constructs.

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Appendix A

The Research Questionnaire Items with Codes

The questionnaire was adopted from the study of Morais and Ogden (2011) and Roberts and Wilson (2016). All the items are rated from 1(Totally Disagree) to 5 (Totally Agree).

1. Social responsibility (SR):

1.1. Global justice and disparities (GJD)

GJD1 I think that most people around the world get what they are entitled to have.
GJD2 It is OK if some people in the world have more opportunities than others.
GJD3 I think that people around the world get the rewards and punishments they deserve.
GJD4 In times of scarcity, it is sometimes necessary to use force against others to get what you need.
GJD5 The world is generally a fair place.
GJD6 No one country or group of people should dominate and exploit others in the world.

1.2. Altruism and empathy (AE)

AE1 The needs of the worlds' most fragile people are more pressing than my own.
AE2 I think that many people around the world are poor because they do not work hard enough.
AE3 I respect and am concerned with the rights of all people globally.

1.3. global interconnectedness and personal responsibility (GIPR)

GIPR1 Developed nations have the obligation to make incomes around the world as equitable as possible.
GIPR 2 Vietnamese should emulate the more sustainable and equitable behaviors of other developed countries.
GIPR 3 I do feel responsible for the world's inequities and problems.
GIPR 4 I think in terms of giving back to the global society.
SR Overall, I think I have responsibilities with the global community.

2. Global competence (GC):

2.1. Self-awareness (SA)

SA1 I am confident that I can thrive in any culture or country.
SA2 I know how to develop a place to help mitigate a global environmental or social problem.
SA3 I know several ways in which I can make a difference on some of this world's most worrisome problems.
SA4 I am able to get other people to care about global problems that concern me.

2.2. Intercultural communication (IC)

IC1 I unconsciously adapt my behavior and mannerisms when I am interacting with people of other cultures**.**
IC 2 I often adapt my communication style to other people's cultural backgrounds.
IC3 I am able to communicate in different ways with people from different cultures.
IC4 I am fluent in more than one language.
IC5 I welcome working with people who have different cultural values from me.
IC6 I am able to mediate interactions between people of different cultures by helping them understand each other's values and practices.

2.3. Global Knowledge (GK)

GK1 I am informed of current issues that impact international relationships.
GK2 I feel comfortable expressing my views regarding a pressing global problem in front of a group of people.
GK3 I am able to write an opinion letter to a local media source expressing my concerns over global inequalities and issues.
GC Overall, I can handle multicultural communication as well as related problems.

3. Global Civic Engagement (GCE):

3.1. Involvement in civic organizations (ICO)

ICO1 Over the next 6 months, I plan to do volunteer work to help individuals and communities abroad.
ICO2 Over the next 6 months, I will participate in a walk, dance, run, or bike ride to support a global cause.
ICO3 Over the next 6 months, I plan to get involved with a global humanitarian organization or project.

ICO4 Over the next 6 months, I plan to get involved in a program that addresses the global environmental crisis.
ICO5 Over the next 6 months, I will pay a membership or make a cash donation to a global charity**.**

3.2. Political voice (PV)

PV1 Over the next 6 months, I will express my views about international politics on a website, blog, or chat room.
PV2 Over the next 6 months, I will sign an e-mail or written petition seeking to help individuals or communities abroad.
PV3 Over the next 6 months, I will display and/or wear badges/stickers/signs that promote a more just and equitable world.
PV4 Over the next 6 months, I will participate in a campus forum, live music, theater performance, or other events where young people express their views about global problems.

3.3. Glocal civic activism (GCA)

GCA1 If at all possible, I will always buy fair-trade or locally grown products and brands.
GCA2 I will deliberately buy brands and products that are known to be good stewards of marginalized people and places.
GCA3 I will boycott brands or products that are known to harm marginalized global people and places.
GCE Overall, I am willing to participate in global activities in order to handle global issues and support weaker people.

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Forgiveness and Perceived Social Support in Teenagers

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Abstract
In this research, the aim is to investigate the relationship between forgiveness and perceived social support in teenagers in terms of various variables (gender, high school type, education level of parents, expressed relative communication and expressed family, friends, teacher support). The population of the research consists of high school students studying in Kocaeli province in 2019-2020 education year and the research sample consists of 422 students who are chosen with appropriate sampling method from four different high school types in Kocaeli. The data was gathered with "Personal Information Form", "Forgiveness Scale for Teenagers" and "Perceived Social Support Scale". Also, in order to analyse the data, pearson product-moment correlation coefficient technique, regression analysis, one-way analysis of variance, T-test were used (p<.05). According to the findings obtained from the research, it was found that there is a significant relation in a positive way between teenagers' forgiveness tendency and perceived social support points. In addition, it was determined that there is a significant and positive relation between perceived social support and empathy establishment aspect of forgiveness and again, between perceived social support and forgiveness tendency. The obtained findings were discussed and interpreted by dealing with the research's hypothesis frame and the related researches. In addition, the research findings and suggestions for the next researches were given place in this research.

Keywords: Puberty, Forgiveness, Perceived Social Support, High School Students

1. Introduction

Adolescence is a period that can differ according to the individual, the society and the period in which he/she lives. This period is a chronological period that begins with the physical, sexual and psychosocial maturation of the individual, and ends at a time when he/she gains independence and productivity. (Derman, 2008). Adams (2000) expressed adolescence as severe mood swings and emphasized emotional change and development. He stated that adolescents exhibit opposing tendencies such as indifference to sensitivity, indifference to energy and excitement, cruelty to compassion, sadness to joy and laughter, and modesty to arrogance. Certel (2003) stated that emotional change and development in adolescents are manifested in the form of increased emotional intensity and imbalance, interest and love for the opposite sex, embarrassment and shyness, daydreaming a lot,

being uneasy and restless, desire to be alone, resistance and reluctance to work, and sudden excitement. Adolescence, in which intense conflict and psychological tension are experienced, is the period in which the individual needs family and social support the most (Türküm, Balkaya, & Balkaya, 2005). It can be said that social support is of great importance for the adolescent trying to form an identity by trying different ways and behaviors, observing and taking role models. Yıldırım (2006) defined the concept of social support, which is seen to be defined in different ways by different opinions, as any kind of help that can include personal, social, psychological and economic factors that individuals receive from their environment. In order to be able to talk about the concept of social support, it is thought that individuals should be able to feel many of the concepts such as mutual love, respect, value, appreciation, interest, emotional support, financial assistance, trust, and importance (Yıldırım, 2006). In addition, when the literature is examined, it is seen that the concept of social support and perceived social support are used interchangeably, although they have different meanings. Demirtaş (2007) defined perceived social support as an individual's expectation and perception of future support relative to the support he received from his environment before. The concept of perceived social support, in a way, is expressed as the value that the individual has set for himself (Özgür, 1993). Stokes (1985) emphasized in his research that perceived social support is more effective on an individual's mental health than social support received.

At the beginning of adolescence, individuals do not have adequate coping strategies, although they are faced with many emotional, physical and psychological psychological tensions (Eryılmaz, 2009). Therefore, the individual needs the social support from his/her environment throughout his/her life and interacts positively with the individuals constituting the sources of social support, and can overcome the difficulties that are likely to be experienced more easily (Tanriverdi, 2012). Social support sources of individuals are family and family environment, friends, teachers, relatives, neighbors and the society in which they live with religious, ideological and ethnic groups (Yıldırım, 1998). It is possible to list the most basic sources of social support of students as family, friends and teachers (Yıldırım, 1997).

It can be said that social development begins with the family, as the first people with whom he/she interacts when he/she opens his/her eyes to the world, as a socio-cultural being, are his/her family. The prosecutor (2006) stated that social support is provided through social relationships. It can be stated that family social support, which is seen as the most important source of social support for the individual, provides a solid basis for individuals to lead a healthy life. In addition, in studies conducted on high school students, it was found that perceived family social support was positively related to individuals' social problem solving (Arslan, 2009), academic achievement levels (Wang & Sound, 2008) and coping with stress (Demirtaş, 2007). However, other important sources of social support that help adolescents cope with the difficulties in their lives are their friends. Considering the developmental periods of the adolescent starting from fertilization and continuing until the end of life, in every developmental period in which he or she lives or is living through infancy, first childhood (game), second childhood (primary school) and adolescence (secondary school-high school), can be said to affect the social development of their friends directly or indirectly. Demir, Baran, and Ulusoy (2005) emphasized that the time adolescents spend with their friends is more than the time they spend with their parents or siblings, and they even bring about many family quarrels. It is thought that friends come before the family, especially in this period when friendship gains importance due to similar psychological, physical and cognitive processes and the high amount of shared time. Since individuals freely express their feelings and thoughts in the presence of their friends, they go a long way in self-expression, self-confidence, social relations and communication skills. In this way, they see their friends, whom they feel close to, as a strong source of social support. In parallel with this, Kıran (2003) stated that adolescents feel relieved when they share their problems with their peers. In addition, Yıldırım (1997) stated that the interests, attitudes and value judgments of adolescents are more influenced by their peers than their families. Another source of social support for adolescents is their teachers, who have an important place in their life along with school life, who are in constant contact at school, where they take role models and spend certain hours of the day. As adolescents' perceived teacher social support increases, self-esteem (Arslan, 2009), commitment to school (Hallinan, 2008), motivation (Wentzel, Battle, Russell, & Looney, 2010), social belonging to school (La Russo, Romer, & Selman, 2008) There is a positive and significant relationship with academic self-belief (Mercer, Nellis, Martinez, & Kirk, 2010) variables. In this

context, it can be said that the perceived social support of family, friends and teachers in adolescents has a preventive role against events and situations that threaten the lives of individuals.

When the literature is examined, it is seen that social support provides benefits to individuals in many areas and is important in the lives of individuals. Social support will help adolescents feel more valuable, increase their self-esteem, and solve their problems in a healthier way (Ünüvar, 2003). Bandura (1997) underlined that as the social support provided by the family and environment increases, the effort they will make to solve the problems they may encounter in entering social events will increase, and thus individuals can be more successful. Gelen (2009) stated that adolescence is the most challenging period of the life cycle and the importance of social support increases even more in this period. Geçtan (2006) also emphasized that when adolescents do not receive the necessary social support, coping with stress and the development of self-confidence are negatively affected. Akın and Ceyhan (2005) stated that social support facilitates self-acceptance in adolescents and that the concepts of social support and self-acceptance support each other in terms of mental health. Based on these, it is thought that evaluating and minimizing the negativities experienced during adolescence in a positive way and providing social support to the adolescent will make significant contributions to the physical and psychological health of the adolescent.

Correctly perceiving social support, which is seen as a protection shield against problems, evaluating the negativities experienced by individuals in a healthy way and continuing their social relations with this perspective may make it possible to integrate forgiveness into their lives during a turbulent adolescence period, where intense emotional development and change are experienced. Scobie and Scobie (1998) defined forgiveness as a decision in which an individual consciously waives his or her legal right to avenge or compensate for a negative action committed against him or her by a person he cares about. He stated that individuals' problems can be resolved in a healthy way and their spiritual recovery will be realized through forgiveness. In addition, forgiveness is considered necessary in terms of both physical and psychological health of the individual (Kara, 2009). In this context, the act of forgiveness is a skill, as individuals' decision to forgive involves understanding what forgiveness means and willingly and consciously putting it into practice (Enright & Fitzgibbons, 2000).

In the researches, life satisfaction with forgiveness (Bugay, Demir, & Delevi, 2012), self-actualization (Sarı, 2014), humility (Berry, Worthington, O'Connor, Parrott, & Wade, 2005), hope (Tayşi, Curun, & Orcan, 2015), subjective well-being (Datu, 2014) was found to be positively and significantly related. Within the scope of this research, it is thought that forgiveness in adolescents may be closely related to their perceived social support, and such a study was needed to determine the effects of variables on each other. In this study, the relationship between forgiveness and perceived social support in adolescents and how the variables affect each other were examined. In addition to all these, the relationships between these concepts and gender, high school type, parental education level, expressed kinship communication and expressed family, friends, and teacher support variables were examined.

2. Method

2.1 Research Method

This study is a relational survey that examines the relationship between forgiveness and perceived social support levels of 9th, 10th, 11th and 12th grade students according to various variables. Relational screening model is a research model that aims to determine the existence and/or degree of co-variance between two or more variables (Karasar, 2002).

2.2 The Population and Sample of The Research

The study group of the research consists of 422 high school students, 221 (52.4%) female students and 201 (47.6%) male students, studying in 4 different types of high schools in Darıca, Kocaeli. 106 (25.1%) of the

participants were Anatolian High School, 122 (28.9%) Science High School, 109 (25.9%) Private High School and 85 (20.1%) Vocational and Technical Anatolian High School students. All participants participated in the study voluntarily.

2.3 Data Collection Tools

Personal Information Form: In the personal information form prepared by the researchers, questions about gender, high school type, parental education level, and family-friend and teacher social support were included.

Forgiveness Scale for Adolescents (FSA): The Forgiveness Scale for Adolescents (FSA) was developed by Asıcı and Karaca (2018) to evaluate adolescents' tendency to forgive in interpersonal relationships. The scale consists of 21 items and 4 sub-dimensions. These sub-dimensions are components of forgiveness, holding anger, taking revenge, and empathizing. First level (SBX2/sd=1.81, RMSEA=.04, CFI=.99, NFI=.97, NNFI=.99, SRMR=.05, GFI=.94, AGFI=.92) and second level (S-. BX2/sd=2.12, RMSEA=.05, CFI=.98, NFI=.97, NNFI=.98, SRMR=.06, GFI=.93, AGFI=.91) confirmatory factor analysis results confirmed the four sub-dimensions obtained. It was determined that the item-total correlation values examined within the scope of item analysis studies were sufficient, and the t values of the lower and upper 27% groups were also significant. It was determined that the relations between the sub-dimensions of the scale ranged from -.40 to .61. It was found that the Cronbach alpha internal consistency coefficients of the scale ranged between .70 and .90, the two-half test reliability coefficients ranged between .65 and .80, and the construct reliability coefficients ranged between .71 and .76. Although there are reverse items in the scale, a high score from the scale means that the individual's tendency to forgive is higher.

Perceived Social Support Scale (PSSS-R): In the study, the Perceived Social Support Scale (PSSS-R), developed by Yıldırım (1997) and renewed in 2004, was used to determine the level of social support students perceive from their family, friends and teachers. The scale consists of 50 items and 3 sub-dimensions. The response style of the scale is triple rated, and a high score means that the individual receives more social support. Alpha reliability coefficient and test-retest reliability (rxx) of PSSS-R were examined. Alpha= .93, rxx = .91 for all PSSS-R; Alpha= .94 for Family Social Support, rxx = .89; Alpha= .91 for Friend Social Support, rxx = .85; Alpha = .93, rxx = .86 for Teacher Social Support. The reliability coefficients obtained showed that the PSSS-R and its subscales can be used safely to measure the social support that students receive from their families, friends and teachers (Yıldırım, 2004).

2.4 Data Analysis

Statistical Package for Social Sciences (SPSS) 20.0 software was used for statistical analysis of the research data. Among the students in the sample group, the data of the students who answered the scales incompletely or incorrectly or did not respond at all were excluded as invalid, and the data of 422 students were included in the scoring and evaluation. Then, statistical analyzes were carried out on the obtained data. The significance level of $p<.05$ was taken as a criterion in interpreting whether the findings were significant or not. Pearson Product Moments Correlation Technique, Regression Analysis, One-Way Analysis of Variance, t-test, Welch test, Scheffe test, Tamhane's T2 test and Levene statistics were used for data analysis.

3. Results

Findings on the relationship between forgiveness and perceived social support scores in adolescents. Correlation analysis was used to examine the relationships between the variables in the study, and the results of the analysis and descriptive statistics are presented in Table 1.

Table 1: Results of Correlation Analysis

Variables	1	2	3	4	5	6
Components of Forgiveness	1					
Empathy	.508**	1				
Sustaining the Anger	-.304**	-.191**	1			
Revenge	-.156**	-.200**	.644**	1		
Perceived Social Support	.080	.108*	-.125*	-.194**	1	
Tendency to Forgive	.744**	.437**	-.804**	-.710**	.166**	1
$\bar{X}$	20.06	8.90	16.15	13.95	125.55	50.17
SS	7.17	3.20	4.98	4.66	13.62	12.65

**p< .01 *p< .05

As a result of the analysis, perceived social support is positively and significantly correlated with the tendency to forgive (r=.166) and empathy (r=.108). It was observed that there was a significant negative correlation with maintaining anger (r=-.125) and taking revenge (r=-.194). It was also found that there was no significant correlation with the components of forgiveness (r=.080).

Regression analysis was performed to examine the predictive level of perceived social support of forgiveness. Before performing the regression analysis, the data were examined in terms of the regression assumptions and the data that damaged the regression assumptions were deleted from the data set before the regression analysis was performed. In this context, the Mahalanobis distance values were calculated and 17 data that distorted the normal distribution were deleted from the data set. The results of the normal distribution and regression assumptions are presented in Table 3. The findings regarding the regression analysis assumptions are also presented in Table 2.

Table 2: Results of Simple Linear Regression Analysis Assumptions

Variables	Skewness	Kurtosis
Tendency to Forgive	-,226	-,272
Perceived Social Support	-,426	-,695

Table 3: Results of Simple Linear Regression Analysis

Predictive Variables	*B*	*SH*	*B*	*T*	*P*	R^2
Invariant	30.850	5.648		5.462	.000	
					.05	
Perceived Social Support	.154	.045	.166	3.441	.001	

When Table 3 is examined, it is seen that forgiveness in adolescents predicts the perceived social support variable (β= .166, p<.05) in a statistically significant level.

Findings on whether the scores of forgiveness and perceived social support in adolescents differ significantly according to gender

In order to reveal whether the scores of forgiveness and perceived social support in adolescents differ according to gender, t-test was used for independent groups. The findings of the analysis are given in Table 4.

Table 4: Independent Groups T-Test Results Regarding the Differences in Adolescents' Forgiveness and Perceived Social Support Scores by Gender

		N	$\bar{X}$	*Sd*	*t*	*p*
Tendency to Forgive	Female	221	50.64	12.66	.799	.425
	Male	201	49.65	12.65		
Components of Forgiveness	Female	221	19.27	6.49	-2.39	.017
	Male	201	20.93	7.77		
Empathy	Female	221	8.86	3.17	-.21	-.066
	Male	201	8.93	3.24		
Revenge	Female	221	9.15	4.25	-4.20	.000
	Male	201	11.02	4.90		
Sustaining the Anger	Female	221	13.47	5.07	-1.59	.112
	Male	201	14.24	4.87		
Perceived Social Support	Female	221	127.68	12.85	3.41	.001
	Male	201	123.21	14.08		

When Table 4 is examined, it is seen that the mean score of the components of forgiveness of female students *($\bar{X}$= 19.27, SD= 6.49)* is lower than the mean of components of forgiveness *($\bar{X}$= 20.93, SD= 7.77)* of male students. The t value (t=-2.39, p<.05) calculated to test the significance of the difference between the mean scores of the two groups shows that the difference between the mean scores of the two groups is significant at the .05 level. According to this finding, it is seen that male students' scores on the components of forgiveness are significantly higher than that of female students in the same period.

It is understood that the mean empathy score of female students *($\bar{X}$= 8.86, SD= 3.17)* is lower than the average point of empathy of male students *($\bar{X}$= 8.93, SD= 3.24).* The t value (t= -,21, p>.05) calculated to test the significance of the difference between the mean scores of the two groups shows that the difference between the mean scores of the two groups is not significant at the .05 level.

It is seen that the mean score of taking revenge of female students *($\bar{X}$= 9.15, SD= 4.25)* is lower than the mean score of taking revenge of male students *($\bar{X}$= 11.02, SD= 4.90).* The t value (t= -4.20 p<.05) calculated to test the significance of the difference between the mean scores of the two groups shows that the difference between the mean scores of the two groups is significant at the .05 level. According to this finding, it is seen that male students' revenge scores are significantly higher than female students in the same period.

It is observed that the mean score of maintaining anger *($\bar{X}$= 13.47, SD= 5.07)* of female students is lower than the mean score of maintaining anger *($\bar{X}$= 14.24, SD= 4.87)* of male students. The t value (t= -1.59, p>.05) calculated to test the significance of the difference between the mean scores of the two groups shows that the difference between the mean scores of the two groups is not significant at the .05 level.

It is found out that the mean forgiving tendency score average of female students *($\bar{X}$= 50.64, SD= 12.66)* is higher than the average score of male students' tendency to forgive *($\bar{X}$= 49.65, SD= 12.65).* The t value (t=.799, p>.05) calculated to test the significance of the difference between the mean scores of the two groups shows that the difference between the mean scores of the two groups is not significant at the .05 level.

It is seen that the mean score of social support perceived by female students *($\bar{X}$= 127.68, SD= 12.85)* is higher than the average score of perceived social support by male students *($\bar{X}$= 123.21, SD= 14.08)*. The t value (t= 3.41 p<.05) calculated to test the significance of the difference between the mean scores of the two groups shows that the difference between the mean scores of the two groups is significant at the .05 level. According to this finding, it is seen that the social support scores perceived by female students are significantly higher than male students in the same period.

Findings on whether the scores of forgiveness and perceived social support in adolescents differ significantly according to the type of high school

In order to reveal whether the forgiveness scores of adolescents differ according to the type of high school, firstly, whether the variances of the scores are homogeneous or not was determined by the Levene test.

Table 5: One-Way Analysis of Variance Results of Forgiveness Levels of Adolescents According to the Variable of High School Type of Education

Levene Test	P	Source of Variance	Sum of Squares	*Sd*	Avarage of Squares	F	*p*
.310	.818	Between groups	4413.322	3	1471.107	9.755	.000
		In-group	63035.050	418	150.802		
		Total	67448.372	421			

As a result of the analysis presented in Table 5, it was seen that the variances were homogeneous for forgiveness [F(3, 418) = .310 , p= .818] and it was decided to perform a one-way analysis of variance. As a result of the one-way analysis of variance (ANOVA) performed to determine whether the levels of forgiveness in adolescents differ according to the variable of high school educational difference was found according to the mean levels of forgiveness in adolescents (F= 9.755; p<.05). Then, in order to use complementary post-hoc techniques in order to determine the source of the significant difference, as a result of the homogeneity test of the variances of the groups performed with Levene's test, it was seen that the variances were homogeneous (L=.310; p>.05). The results of the test are shown in Table 6 below.

Table 6: Results of Post-Hoc Scheffe Test Conducted to Determine Which Groups Caused the Difference in Levels of Forgiveness in Adolescents According to the Variable of High School Type of Education

High School Type (i)	High School Type (j)	x i - x j	Sh x	*p*
Anatolian	Science	-5.50325*	1.63056	.010
	Private	1.62948	1.67516	.814
	Vocational	2.65538	1.78796	.531
Science	Anatolian	5.50325*	1.63056	.010
	Private	7.13273*	1.61851	.000
	Vocational	8.15863*	1.73500	.000
Private	Anatolian	-1.62948	1.67516	.814
	Science	-7.13273*	1.61851	.000
	Vocational	1.02590	1.77697	.954
Vocational	Anatolian	-2.65538	1.78796	.531
	Science	-8.15863*	1.73500	.000
	Private	-1.02590	1.77697	.954

As can be seen in Table 6, the post-hoc multiple comparison technique Scheffe results showed that forgiveness levels were determined by science high school students *($\bar{X}$= 55.04, SD= 12.07)* and Anatolian *($\bar{X}$=49.53, SD= 12.57),* private *($\bar{X}$= 47.90, SD= 12.81)* and vocational high school *($\bar{X}$= 46.88, SD= 11.47)* students in favor of science high school students. According to this finding, it is possible to say that the forgiveness levels of science high school students are higher than Anatolian, private and vocational high school students.

In order to reveal whether the perceived social support scores of adolescents differ according to the type of high school, firstly, whether the variances of the scores are homogeneous or not was determined with the Levene test.

Table 7: One-Way Analysis of Variance Results of Perceived Social Support Levels of Adolescents According to the Variable of High School Type of Education

Levene Test	P	Source of Variance	Sum of Squares	*SD*	Average of Squares	F	*p*
.716	.543	Between groups	645.971	3	215.324	1.162	.324
		In-group	77452.164	418	185.292		
		Total	78098.135	421			

As a result of the analysis presented in Table 7, it was seen that the variances were homogeneous for perceived social support [F(3, 418) = .716 , *p*=.543] and it was decided to perform a one-way analysis of variance. As a result of the one-way analysis of variance (ANOVA) performed to determine whether the perceived social support levels of adolescents differ according to the variable of the type of high school education, no difference was found according to the averages of the perceived social support levels in adolescents (F = 1.162; *p*>.05).
Findings on whether forgiveness and perceived social support scores in adolescents differ significantly according to mother's education level

In order to reveal whether the forgiveness scores of adolescents differ according to the educational level of the mother, firstly, whether the variances of the scores are homogeneous or not was determined by the Levene test.

Table 8: One-Way Analysis of Variance Results of Forgiveness Levels in Adolescents According to Mother Education Level Variable

Levene Test	P	Source of Variance	Sum of Squares	*SD*	Average of Squares	F	*p*
.636	.637	Between groups	27.859	4	6.965	.043	.996
		In-group	67420.513	417	161.680		
		Total	67448.372	421			

As a result of the analysis presented in Table 8, it was seen that the variances were homogeneous for forgiveness [F(4, 417) = .636 , *p*= .637] and it was decided to perform a one-way analysis of variance. As a result of one-way analysis of variance (ANOVA), which was performed to determine whether the levels of forgiveness in adolescents differ according to the mother's education level variable, no difference was found compared to the mean levels of forgiveness in adolescents (F = .043; *p*>.05).

In order to reveal whether the perceived social support scores of adolescents differ according to the educational level of the mother, firstly, whether the variances of the scores are homogeneous or not was determined by Levene test.

Table 9: One-Way Analysis of Variance Results of Perceived Social Support Levels of Adolescents According to Mother Education Level Variable

Levene Test	P	Source of Variance	Sum of Squares	*SD*	Average of Squares	F	*p*
1.034	.389	Between groups	922.856	4	230.714	1.247	.291
		In-group	77175.279	417	185.073		
		Total	78098.135	421			

As a result of the analysis presented in Table 9, it was seen that the variances were homogeneous for perceived social support [F(4, 417) = 1.034, *p*= .389] and it was decided to perform a one-way analysis of variance. As a result of the one-way analysis of variance (ANOVA), which was performed to determine whether the perceived social support levels of adolescents differ according to the mother's education level variable, no difference was found compared to the averages of the perceived social support levels in adolescents (F = 1.247; *p*>.05).

Findings on whether the scores of forgiveness and perceived social support in adolescents differ significantly according to the educational level of the father

In order to reveal whether the forgiveness scores of adolescents differ according to the education level of the father, firstly, whether the variances of the scores are homogeneous or not was determined with the Levene test.

Table 10: One-Way Analysis of Variance Results of Forgiveness Levels in Adolescents According to Father Education Level Variable

Levene Test	P	Source of Variance	Sum of Squares	*SD*	Average of Squares	F	*p*
1.541	.189	Between groups	481.307	4	120.327	.749	.559
		In-group	66967.065	417	160.592		
		Total	67448.372	421			

As a result of the analysis presented in Table 10, it was seen that the variances were homogeneous for forgiveness [F(4, 417) = 1.541 , *p*= .189] and it was decided to perform a one-way analysis of variance. As a result of the one-way analysis of variance (ANOVA) performed to determine whether the levels of forgiveness in adolescents differ according to the father's education level variable, no difference was found compared to the mean levels of forgiveness in adolescents (F = .749; *p*>.05).

In order to reveal whether the perceived social support scores of adolescents differ according to the educational level of the father, firstly, whether the variances of the scores are homogeneous or not was determined by the Levene test.

Table 11: One-Way Analysis of Variance Results of Perceived Social Support Levels in Adolescents According to the Father's Education Level Variable

Levene Test	P	Source of Variance	Sum of Squares	*SD*	Average of Squares	F	*p*
1.218	.303	Between groups	473.025	4	118.256	.635	.638
		In-group	77625.110	417	186.151		
		Total	78098.135	421			

As a result of the analysis presented in Table 11, it was seen that the variances were homogeneous for perceived social support [F(4, 417) = 1.218, *p*= .303] and it was decided to perform a one-way analysis of variance. As a result of the one-way analysis of variance (ANOVA), which was performed to determine whether the perceived social support levels in adolescents differ according to the father's education level variable, no difference was found compared to the averages of the perceived social support levels in adolescents (F= .635; *p*>.05).

Findings on whether the perceived family social support scores of adolescents differ significantly according to the expressed family support

In order to reveal whether the perceived family social support scores of adolescents differ according to the expressed family support, firstly, whether the variances of the scores are homogeneous or not was determined by the Levene test.

Table 12: Welch Test Result of Perceived Family Social Support Scores of Adolescents According to Expressed Family Support

Levene test	P		F	*SD1*	*SD2*	*p*
20.609	.000	Welch	34.900	2	22.690	.000

As a result of the analysis presented in Table 12, it was seen that the variances were not homogeneous for perceived family social support [F(2, 419) = 20.609, *p*= .000]. Thus, it was decided to perform the Welch test, which is an alternative to the one-way analysis of variance. The results from this test were found to be significant [Welch test: F(2,419) = 34,900, *p*< .001]. Thus, it was revealed that the family support expressed according to the perceived family social support score differed significantly. Tamhane's T2 test was applied to determine the source of this difference between the groups and the results of the analysis are presented in Table 13.

Table 13: Tamhane's T2 Test Results Regarding Perceived Family Social Support Scores of Adolescents According to Expressed Family Support

Family Support (i)	Family Support (j)	x i - x j	Sh x	*p*
Low	Moderate	-5.00404	3.59077	.477
	Very	-11.13355*	3.53042	.034
Moderate	Low	5.00404	3.59077	.477
	Very	-6.12951*	.77012	.000
Very	Low	11.13355*	3.53042	.034
	Moderate	6.12951*	.77012	.000

As seen in Table 13, Tamhane's T2, a post-hoc multiple comparison technique used after the Welch test to find out whether the perceived family social support scores of adolescents differ according to the expressed family support variable, showed low family support *($\bar{X}$= 43.40, SD= 11.12)* and moderate *($\bar{X}$= 48.40, SD= 7.11)* and very *($\bar{X}$= 54.53, SD= 5.05)*.

Findings on whether the perceived friend social support scores of adolescents differ significantly according to the expressed friend support

In order to reveal whether the perceived friend social support scores in adolescents differ according to the expressed friend support, firstly, whether the variances of the scores are homogeneous or not was determined by the Levene test.

Table 14: Welch Test Result of Perceived Friend Social Support Scores of Adolescents According to Expressed Friend Support

Levene Test	P		F	Sd1	Sd2	*p*
28.711	.000	Welch	75.936	2	120.909	.000

As a result of the analysis presented in Table 14, it was seen that the variances were not homogeneous for the perceived social support of friends [F(2, 419) = 28.711, *p*= .000]. It was also decided to perform the Welch test, which is an alternative to the one-way analysis of variance. The results from this test were found to be significant [Welch test: F(2,419) = 75,936, *p*< .001]. Thus, it was revealed that the friend support expressed according to the perceived friend social support score differed significantly. Tamhane's T2 test was applied to determine the source of this difference between the groups and the results of the analysis are presented in Table 15.

Table 15: Tamhane's T2 Test Results Regarding Perceived Friend Social Support Scores of Adolescents According to Expressed Friend Support

Friend Support (i)	Friend Support (j)	x i - x j	Sh x	*p*
Low	Moderate	-4.56087*	1.01269	.000
	Very	-8.82477*	.98354	.000
Moderate	Low	4.56087*	1.01269	.000
	Very	-4.26391*	.43613	.000
Very	Low	8.82477*	.98354	.000
	Moderate	4.26391*	.43613	.000

As seen in Table 15, the post-hoc multiple comparison technique used after the Welch test to find out whether the perceived friend social support scores of adolescents differ according to the expressed friend support variable, Tamhane's T2 result showed low friend support *($\bar{X}$= 27.79, SD= 6.64)* and moderate *($\bar{X}$= 32.35, SD= 4.97)* and very *($\bar{X}$= 36.62, SD= 3.38)* in favor of very, and between adolescents who describe it as little and medium, in favor of medium.

Findings on whether the perceived teacher social support scores of adolescents differ significantly according to the expressed teacher support.

In order to reveal whether the perceived teacher social support scores of adolescents differ according to the expressed teacher support, firstly, whether the variances of the scores are homogeneous or not was determined by the Levene test.

Table 16: One-Way Analysis of Variance Results of Perceived Teacher Social Support Scores of Adolescents According to Expressed Teacher Support

Levene Test	P	Source of Variance	Sum of Squares	*SD*	Average of Squares	F	*p*
2.707	.068	Between groups	6551.738	2	3275.869	66.012	.000
		In-group	20793.013	419	49.625		
		Total	27344.751	421			

As a result of the analysis presented in Table 16, it was seen that the variances were homogeneous for perceived social support [F(2, 419) = 2.707, *p*= .068] and it was decided to perform a one-way analysis of variance. The results of the analysis are presented in Table 17.

Table 17: Scheffe Test Results Regarding Perceived Teacher Social Support Scores of Adolescents According to Expressed Teacher Support

Teacher Support (i)	Teacher Support (j)	x i - x j	Sh x	*p*
Low	Moderate	-7.37888*	.92405	.000
	Very	-11.84394*	1.03152	.000
Moderate	Low	7.37888*	.92405	.000
	Very	-4.46506*	.80340	.000
Very	Low	11.84394*	1.03152	.000
	Moderate	4.46506*	.80340	.000

As seen in Table 17, as a result of the Scheffe post-hoc multiple comparison technique applied, adolescents describing teacher support as low *($\bar{X}$= 31.89, SD= 8.27)* and moderate *($\bar{X}$= 39.27, SD= 6.73)* and high *($\bar{X}$= 43.74, SD= 6.74)* in favor of a lot, among the adolescents who describe it as low, it differs significantly in favor of moderate between those who describe it as moderate.

4. Discussion and Recommendations

4.1 Discussion

The relationship between forgiveness and social support.

In this study, a positive and significant relationship was found between forgiveness and perceived social support scores in adolescents. In addition, a positive and significant relationship was found between the perceived social support and the empathy dimension of forgiveness and the forgiveness scale. Again, a negative significant relationship was found between perceived social support and the dimensions of forgiveness, maintaining anger and taking revenge. No significant relationship was found between the dimensions of the components of forgiveness and perceived social support. While this information points to the importance of perceived social support in the ability to forgive, it shows that adolescents with a tendency to forgive have higher perceived social support.

When the literature is examined, it is seen that there are limited number of studies examining forgiveness and its sub-dimensions together with the concept of social support. Anderson (1999) stated that forgiving others in a social environment reduces interpersonal conflict and allows the individual to create and maintain the necessary social support networks in a healthy way. Toussaint (2015) also stated that forgiveness is necessary to protect expanded social networks. He emphasized that the probability of conflict in large social networks is high and that the negative effects of interpersonal conflict can be reduced and social support can be expanded thanks to the ability to forgive. McCulllough (2000) also emphasized in his study that the tendency to forgive others may be related to health, thus contributing to less stressful social relationships and encouraging social support.

Fredrickson (2001) expressed forgiveness as a social action that facilitates social support. Worthington and Scherer (2004) emphasized in their study that forgiveness will indirectly affect health by improving social support, reducing stress in marriages, and improving relational skills and bonds. Lawler- Row and Piferi, 2006, Worthington et al., 2001, and Webb et al., 2011 concluded that individuals with a higher tendency to forgive have higher perceived social support scores. However, while Worthington et al. (2007) concluded that decision-making forgiveness is associated with positive health through good social support. This research supports the findings of Uchino (2009) that social support and positive health are in a relationship and Webb, Hirsch, Visser, and Brewer (2013) examined the mediator role of social support between forgiveness and health. As a result of the research, it was found that social support mediated the relationship between forgiveness and health. Failure to forgive has also been associated with depression and anxiety, as well as poor social support and coping ability (Maltby, Macaskill, & Day, 2001). In the study of Chiaramello et al. (2008), in which the sub-dimensions of forgiveness were examined according to the demographic variable of age, it was found that while the scores of sensitivity to conditions and willingness to forgive were lower in older adolescents than in young adolescents, the scores related to persistent anger and desire to take revenge were higher in older adolescents than in younger adolescents.

Examination of forgiveness and social support in terms of demographic variables of the sample.

When analyzed by gender, it was seen that male students' scores on the components of forgiveness and taking revenge were significantly higher than the female students in the same period. It was concluded that the difference between empathy and maintaining anger dimension scores was not significant for male and female students in the same period. In addition, while it was seen that the perceived social support scores of female students were significantly higher than that of male students in the same period, it was concluded that the difference between the scores of the forgiveness tendency scale was not significant for female and male students in the same period.

Studies in which there is no significant difference between the tendency to forgive according to the gender variable, which supports the research findings (Ercan & Alp, 2011; Han, 2015; Asıcı, 2013; Brown, 2003;

Macaskill et al., 2002; Walker & Gorsuch, 2002; Toussaint & Webb, 2005; Nateghian et al., 2008) constitute the majority of the literature. However, studies in which the tendency to forgive scores were mostly in favor of women (Aslan, Mert, & Yıldız, 2016; Miller, Worthington, & McDaniel, 2008) were found. No studies were found in favor of the tendency to forgive men.

In the literature, there are studies in which the perceived social support score is mostly in favor of women, which supports the findings of the study (Erdeger, 2001; Elbir, 2000; Arslan, 2009; Oktan, 2005; Savi-Çakar & Karataş, 2012; Öztosun, 2018; Bayoğlu & Purutçuoğlu, 2010; Arıcıoğlu, 2008; Ustabaş, 2011; Cırık, 2010). At the same time, there were studies in favor of males (Aliyev & Tunç, 2017) and studies that did not have a significant difference according to the gender variable (Çakır, 1993; Demirtaş, 2007; Kemer & Atik, 2005; Erim, 2001; Gündoğan, 2016).

When examined according to the type of high school attended, the difference was found statistically significant according to the mean scores of the adolescents' tendency to forgive. Adolescents' tendency to forgive scores differ significantly between science high school students and Anatolian, private and vocational high school students in favor of science high school students. According to this information, it is possible to say that science high school students' tendency to forgive is higher than Anatolian, private and vocational high school students. In this context, it is predicted that adolescents studying at science high schools will produce healthier and more positive results in terms of alternative behaviors and attitudes that they can apply in the face of hurt experiences in interpersonal relationships. Although there is no study in the literature that deals with the tendency to forgive and the type of high school studied, it has been observed that there are a limited number of studies involving perceived social support and high school type. Köseoğlu and Erçevik, 2015; Baştürk, 2002 and Kahriman, 2002 stated that there were significant differences in perceived social support scores against vocational high schools, while Cırık stated that 2010 resulted in favor of those studying at private schools. The difference according to the mean scores of perceived social support in adolescents was not statistically significant.

When examined according to the education level of the parents, the difference was not statistically significant according to the mean scores of forgiveness and perceived social support in adolescents. Studies in the literature that support the research findings, in which perceived social support scores are examined according to parental education level and there is no differentiation (Yılmaz, 2000; Kahriman & Polat, 2003; Aliyev & Tunç, 2017; Arslan, 2009; Gündoğan, 2016; Litwin, 2000; Aydın, Kahraman and Everdurmaz, 2017) are available. There are also studies stating that perceived social support scores increase as the education level of parents increases (Ustabaş, 2011; Cırık, 2010; Yağcı, 2010; Köse, 2009; Oktan, 2005; Arıcıoğlu, 2008). On the other hand, Soylu (2002) stated that as father education decreases, perceived social support scores decrease.

When examined according to the expressed family support, the difference according to the averages of the perceived family social support scores in adolescents was found to be statistically significant. It differs significantly between the adolescents who describe the expressed family support as little or medium and those who describe it as much in favor of much. According to this information, it is possible to say that the adolescents who describe the expressed family support as high perceive higher family social support than the adolescents who describe the expressed family support as low or moderate. Studies have also found that family support is negatively related to the incidence of depression and delinquent behaviors (Windle, 1992) and positively to social problem solving (Arslan, 2009; Demirtaş, 2007) and the level of coping with stress (Traş & Arslan, 2013). When analyzed according to the expressed friend social support, the difference was found statistically significant according to the averages of the perceived friend social support scores of the adolescents. It differs significantly between the adolescents who describe the expressed friend support as little or medium and those who describe it as much in favor of much. According to this information, it is possible to say that the adolescents who describe the expressed friend support as high perceive higher friend social support than the adolescents who describe the expressed friend support as low or moderate. Kıran (2003) stated that adolescents are better understood by their friends than their families, and they have the opportunity to freely express their thoughts and problems. However, Santrock (2012) emphasized that adolescents need to be loved and accepted by their friends and peers, and their relationships with their peers are of great importance for their lives. In addition, studies have found that

friend support is positively related to well-being (Doğan, 2006; Lynch & Cicchetti, 1997) and social competence (Traş & Arslan, 2013) and negatively related to irregular behavior (Bal, 2010).

When analyzed according to the expressed teacher social support, the difference according to the averages of perceived teacher social support scores in adolescents was found to be statistically significant. It differs significantly between the adolescents who describe the expressed teacher support as little or medium and those who describe it as much in favor of much. According to this finding, it is possible to say that the adolescents who describe the expressed teacher support as high perceive higher teacher social support than the adolescents who describe the expressed teacher support as low or moderate. Studies have also shown that teacher support is positively related to school engagement (Karababa, Oral, & Dilmaç, 2018; Hallinan, 2008), school success, and feeling of belonging to school (Roeser, Midgley, & Urdan, 1996).

It is seen that the findings including family, friend and teacher social support expressed are consistent with the answers given by the participants to the Perceived Social Support Scale (PSSS-R). In this context, it can be said that the participants gave sincere and sincere answers to the data collection tools. When the studies on the concept of social support in the literature were examined, no findings were found that included the social support of family, friends and teachers, which was expressed to the participants, except for the scores they received from the scales of perceived social support. It is thought that this adds a unique value to the research.

4.2 Recommendations

In line with the results of the research, suggestions to families, school counselors, teachers and researchers are as follows:

To families;
In this study, which reveals that family support plays an important role in the rise of the adolescent's tendency to forgive, it is seen that it is important for families to take active roles in preventive studies that will contribute positively to the mental health and psychological development of the adolescent.
In this developmental period, families can use volunteer activities, short-term internships and courses suitable for their interests to increase their children's empathy skills, minimize anger and revenge, and help them become individuals with a high tendency to forgive.

To school psychological counselors;
Psychological counselors can design psychoeducational programs to improve students' forgiveness tendencies. While designing the aforementioned programs, modules that will improve adolescents' empathy skills and anger control can be included.
Psychoeducational programs on communication skills, assertiveness, self-confidence development, social skills, communication barriers, language of you-me language can be prepared by the psychological counselor in order to strengthen the interpersonal communication of the adolescent and to enable him/her to look at events or situations from a different perspective. Thanks to these programs, the social support of friends can be strengthened.
It is thought that it will be beneficial to organize parent training for families to be more supportive towards adolescents by the psychological counselor. With this training, a different perspective can be given to the family on topics such as what parents can do for the cognitive, social and emotional development areas of the adolescent, and the role of parents in strengthening communication and relationships within the family.
Considering which situations cause low tendency to forgive and social support, psycho-educational programs can be organized and implemented by the psychological counselor to strengthen the family-child-teacher relationship. Including the family and the teacher in the activities will increase the perceived social support of the students.

To teachers;

It is thought that increasing the parent meetings of the classroom guidance teachers and ensuring that the students are followed up regularly will enable the parents to participate more actively in the education process and increase the family social support perceived by the students.

Supporting adolescents by teachers and parents when they are exposed to hurtful situations in their interpersonal relationships will contribute to the recovery process. Therefore, cooperation between teachers and parents is important.

Teachers can direct students to social, cultural and sportive activities in line with their interests and abilities. In this way, when students use their energies correctly and spend a happy and quality time, they can choose to empathize and be sensitive in interpersonal relations and allow them to move away from anger and revenge feelings.

To the researchers;

During the research process, it was noticed that a limited number of studies were conducted on the concept of forgiveness in adolescents in our country. It is thought that there is a need for relational and experimental studies examining the variables of forgiveness and perceived social support together.

In the study, the relationship between forgiveness and perceived social support was discussed. In the research process, the relationship of forgiveness with parental attitudes, loneliness, emotional intelligence, alexithymia and self-image, which is thought to contribute to science, can be examined.

In this study, it was seen that perceived and expressed family, friend and teacher social support showed consistency. Questions about the social support of family, friends and teachers, which are also expressed in different studies, can be included.

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Determination of Psychological Counsellor Candidates' Competency Levels and Educational Needs in terms of Therapeutic Conditions in the Process of Individual Counselling

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Abstract
The purpose of the present study is to enhance the quality of psychological counselling education by identifying needs and competencies in the field. The lack of specific studies on therapeutic conditions in psychological counseling education on a national scale has led us to conduct the current study. The study group consists of 20 students (12 female, 8 male) taking Individual Counselling course during spring term in 2019- 2020 academic year. According to the audio recordings, the participants were seen to be unable to behave at expected level under the title of concreteness of therapeutic conditions. In addition, they were observed not to provide necessary conditions under the title of transparency. However, it has been revealed that they managed to develop empathy. Moreover, they were seen to be unable to fulfill here and now principle at expected level. Finally, they were found to perform respect conditions.

Keywords: Psychological Counsellor, Educational Needs, Therapeutic Conditions

1. Introduction

In Turkey, Counselling and Guidance undergraduate program are the initial and fundamental education. As of 2007, in line with 'Pre-service Teacher Education and Faculty of Education' guide set by Council of Higher Education (CoHE), 180- hour- curriculum- 146 hours of theoretical courses and 34 hours of practicum courses-

has been executed. 34- hours of practicum course includes such courses as individual counselling practicum, professional guidance and counselling practicum, institutional experience, field study and school observations (Atik, 2012). All practicum courses admittedly play a key role in fostering candidates' Professional knowledge and skills. These courses require the planning of professional practicum carried out by candidates, implementation under observation and evaluation.

Individual Counselling is the course during which psychological counselling candidates at bachelor degree manage the counselling process by using the theoretical knowledge and skills they acquired in previous years in order to offer counselling services to their clients. Through this course, it has been seen that counselling candidates acquire a counsellor identity by experiencing a real psychological counselling process, showing that the program within the scope of this course plays a pivotal role (Meydan, 2014).

2. Literature Review

In Psychological Counselling and Guidance educational programs, following theoretical ones, practicum courses are the second most important courses. It can undoubtedly be said that Individual Counselling practicum courses take the lead among those courses. In Turkey, the issue of counsellor training is broadly discussed by scientists. The supervision process, an important part of counsellor training, is also among the issues addressed (Atik, 2012).

There has been a growing interest towards the issue of supervision by scientists (Aladağ, 2004; Büyükgöze-Kavas, 2011; Çetinkaya & Karanmak, 2012; Eryılmaz & Bek, 2019). Although a large number of studies have been observed to be descriptive research, it can be said that compiled research have also been conducted.

Supervision, a core subject of counselling training, is defined, by professionals, as a service provided with the aim of preparing counselling candidates for the profession and enhancing their practical experiences. Receiving supervision serves for two purposes which are to support counselling candidates professional development and to prioritize the client's well- being (Bernard & Goodyear, 2004). Besides, supervision process is considered to be a vital complement of psychological counselling training. Professionals agree that the candidates are to gain professional identity and competency and Professional skills may be gained through supervision during the practicum (Aladağ, 2004; Bernard & Goodyear, 2004; Büyükgöze-Kavas, 2011; Çetinkaya & Karanmak, 2012). DiMino and Risler (2012) highlighted that supervision process is highly significant for each stage in counsellors' professional development. The fact that supervision emerges as a novel specialty in psychological counselling (Dye & Borders, 1990) has increased the interest in supervision practicum.

Researchers in our country have stated that in what way and quality supervision within the scope of Individual Counselling course is given and, even, whether it is given within each curriculum is not well known (Çetinkaya & Karanmak, 2012; Aladağ & Kemer, 2016). Büyükgöze-Kavas (2011) revealed various practices regarding supervision processes in universities. Atik (2012) concluded that it is not possible to mention about the standards on psychological counselling practicum and supervision and added that supervision training did not become prevalent. Therefore, it can be said that there are certain problems and certain expectations for improvements.

In order for psychological counselling offered to the client to have therapeutic effect, an appropriate therapeutic environment which contributes the clients' rebound. The fact that therapeutic conditions are included in counselling process allows the client to have the sense of belonging to the process as well as relying on the counsellor (Eryılmaz & Süral, 2014). As a result, the fact that therapeutic conditions are formed, and counsellors have therapeutic skills is required during the process.

The need may be improving the current performance or remedying a deficiency. A deficiency is considered as a performance failing to meet the current standards. This means that there is a better way to fulfil a task and adopting different ways poses a problem. Need analysis process helps trainers and trainees determine educational needs and the lack of performance. The evaluation may be formal (questionnaire and observation techniques) or informal (asking certain questions to the participants) (Barbazetta, 2006). One important aspect of a needs assessment is

that it helps training professionals provide input for the ultimate training design (McGoldrick & Tobey, 2016). Many of the requests that lead to needs assessments contain unclear goals, incompatible beliefs, and flawed assumptions. They contain little diagnostic information about the particular behaviors or processes that make up the current situation, what specific changes might create the desired situation, or what support from other people may be needed. In such cases, assessing needs before moving on to solutions greatly increases the probability of success and avoids costly mistakes (Gupta, Sleezer & Russ-Eft, 2007).

The decisions concerning whether the individuals acquire training, and the type of training are based on the identification of educational needs. Need analysis facilitates integrating education and its outcomes since the initial decisions regarding the type of education offered by institutions are made. Educational need analysis includes constituting educational objectives and has an effect on the improvement and evaluation of education (Taylor, O'Driscoll & Binning, 2006; Sönmez, Alacapınar, Zeybek, & Yıldızlı, 2019). Although training itself certainly provides skills and learning and development, the training needs assessment is the preliminary process that ensures the training is grounded in the needs of the organization (McGoldrick & Tobey, 2016). In this regard, the analysis on candidates' competencies regarding therapeutic conditions is of importance in terms of uncovering the objectives of curriculum prepared in accordance with their educational needs towards those conditions.

Psychological counsellors are required to gain certain skills in order to manage counselling process. Therefore, the purpose of the current study is to determine how often and in what level candidates' skills to form therapeutic conditions are revealed and, additionally, to evaluate whether a candidate needs training regarding individual counselling competencies. Furthermore, the lack of specific study on therapeutic conditions in psychological counselling education on a national scale has led us to conduct the current study. In fact, the quality of psychological counselling education may be enhanced on the condition that further research is conducted and needs and competencies in the field are determined.

3. Method

The main purpose of the present research is to identify the supervising skills exhibited by candidates. Qualitative approach has been adopted since, in the research, it has been attempted to determine at what levels they realize those skills as well as revealing their strengths and weaknesses. Qualitative data analysis is a process in which researcher arranges the data, divides into analyse units, eventually draws meaningful knowledge and later builds a logical pattern; explores important variables and decides which information she/he includes in his/ her report (Bogdan & Biklen, 1992; Walcott, 1994).

The current research adopted content analysis among qualitative research methods. Content analysis is a research tool widely based on analysing texts and visual images. In content analysis, a set of categories regarding the research are established, and later, count the number of instances that fall into each category (Silverman, 2001).

3.1 Population and Sample of the Study

The sample of the study includes 20 students (12 female, 8 male) taking Individual Counselling course during spring term in 2019- 2020 academic year.

3.2 Data Collection Tools

The participants were requested to carry out eight sessions within the scope of Individual Counselling course and the sessions were recorded and then the recordings were decoded. The data on student competencies are based on approximately 120 hours of audio recordings. The data concerning candidates' competencies depend on these recordings. Since the competencies entail an investigation based on certain criteria and categories, 'Counsellor Skills Evaluation Form' developed to be used for Six- Stage Supervision Model developed by Eryılmaz and Süral (2014) was employed in the research. The form consists of four main titles and sub- titles which are *construction* (duration, process, objective), *therapeutic conditions* (concreteness, transparency, empathy, here and now, respect)

therapeutic skills (inviting to speak, reflection of emotion and content, minimal encouragement, personalization, including oneself, revealing oneself, summation and confrontation) and *managing therapeutic process* (supervising the client, the client's self- supervision and supervising counselling process). In the present study, therapeutic conditions were elaborated, and candidates' skills and educational needs were attempted to be determined. In Counsellor Skills Evaluation Form, 'Yes' option was chosen on the condition that the candidate exhibited the behaviours included in the form; however, 'No' option was selected on the condition that the candidate did not exhibit the behaviours included in the form. In the transparency sub-dimension, if the consultant candidate showed the ability to "create the transparency condition without judging the client," it was evaluated as "yes." If the consultant candidate did not take any action related to this skill, it was evaluated as "no." In the light of the findings of the form, the main skills of the candidates were revealed in addition to identifying the skills they lacked.

4. Results

There is a set of therapeutic conditions that are required to be provided during individual counselling process. These conditions play a key role in resolving clients' problems. In this study, concreteness, transparency, empathy, here and now principles were investigated under the title of therapeutic conditions. The results are as follows.

4.1 Findings concerning concreteness sub-dimension

Table 1 shows the candidates' skills concerning concreteness, transparency, empathy, here and now principles, respect sub- titles.

Table 1: The Frequency of Behaviours regarding Therapeutic Conditions according to the Sessions

Therapeutic Conditions	Sessions															
	1		2		3		4		5		6		7		8	
	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N
Concreteness	5	15	9	11	10	10	11	9	13	7	13	7	14	6	14	6
Transparency	5	15	7	13	7	13	9	11	9	11	10	10	10	10	11	9
Empathy	1	19	4	16	8	12	12	8	14	6	15	5	15	5	16	4
HereandNow	1	19	4	16	5	15	7	13	8	12	10	10	11	9	11	9
Respect	12	8	15	5	16	4	17	2	17	2	18	2	18	0	20	0

Concreteness refers to the therapeutic conditions where counsellor encourages the client to speak more precisely by making him/her focus on his/ her problem instead of other issues (Eryılmaz & Süral, 2014). The candidate is expected to help the client unburden himself/ herself by asking open- ended questions. According to Table 1, it has been seen that the counsellor candidates are insufficient in terms of concreteness skill in the first session; however, as the number of sessions increases, the number of those who demonstrate the above- mentioned skill increases. Nevertheless, it was determined, according to the analysis of the sound recordings, that there was an increase in the quality of the concreteness skill. As an example of the correct use of the concreteness skill, the 15th candidate in the 6th session can be given.

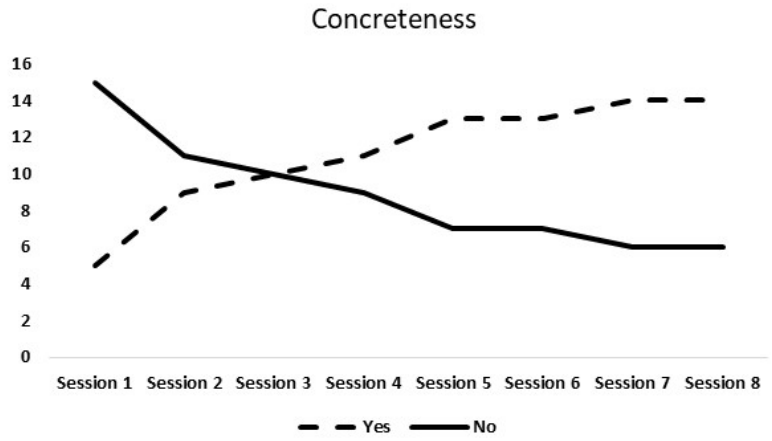
***Client**: Yes, I think that the person in my life has taught me something. I've gone through an overwhelming relationship. Then, I actually think that it has affected my friendship relations.*
***Candidate:** Could you more precisely say that why do you think that it has affected?*
The candidate fulfilled 'concreteness' skill by asking the right questions at right time in order to concretise the problem. Nevertheless, Candidate 8 was observed to fail in terms of concreteness skill.
***Client:** Nobody wants to conflict with his/ her mother. But I sometimes do, then I feel sorry about that. I say to myself it is not a big deal and add that I wish you did that. But it is because of my stubbornness and crave to rest.*
***Candidate:** You said my stubbornness, could you be more precise?*
***Client:** I think that I am a bit stubborn.*

Candidate: *As we did not talk about that.*
Client: *Yes, this may be new. Actually, I think that this is true for us, some people say that. So does my boyfriend. He says that you are such a stubborn person that even I can't deal with it. But I have nothing to do, it sometimes happens.*
Candidate: *You think that it happens in certain conditions.*
Client: *In certain conditions, or it may be more frequent.*
Candidate: *You said that you first noticed your impatience when you were at high school. How have you changed since then?*

The candidate unnecessarily asked 'Could you be more precise?' that would not contribute to the problem. Moreover, the client gave a simple answer. Besides, the client did not have a problem like 'being stubborn' and that was not the main problem to be solved. Therefore, this led to the client to digress from the subject. This situation was observed in a number of sessions with other candidates.

Figure 1: Frequency of Observation of Concreteness Skill by Session

Following eight sessions, it was observed that not all students were able to demonstrate their concreteness skills in expected quality (Figure 1). Despite the explanations made by the supervisor at the end of each session on the development of the skill, 6 counsellor candidates could not transform the expected concreteness skill into



behaviour. It can be said that counsellor candidates need training on concreteness skills.

4.2 Findings concerning transparency sub-dimension

Concreteness refers to the consistency among emotions, thoughts and behaviours during individual counselling and candidate's reflection to the client if necessary (Eryılmaz & Süral, 2014). The candidate should not behave judgementally while fulfilling this condition.

It has been determined that candidates could not manage to realize transparency condition. Instead of transparency condition, they mostly carried out the process through the reflection of content. Furthermore, they were observed to occasionally use judgemental language.

(Candidate 15) 'What you think is not true, how can you change your working conditions. You are completely wrong. If you want to hold on to your work, you should put these thoughts and emotions aside.'
(Candidate 8) "You avoid talking to people. You are not involved in group work. You want to work alone, but you can't do that either. Why is that? You choose hard work to get in the way of others. Not like this, you have to learn to work with your friends.

Candidate 15 and 8 interrupted counselling process by using judgmental language. In particular, as seen in his/ her language, Candidate 8 did not take client's emotions into consideration. It can be said that this would not contribute the client to solve his/ her problem.

Client: The dormitory is not good, so the food is. The rooms are cold, there is no enough hot water so we cannot have a shower. The prices are high. We cannot rent a house. How can I study at a university in such a situation?
Candidate 19: You are not satisfied with the environment you live in. In our first session, you said that you stayed in a decent dormitory and made good friends. What changed your opinions?

Candidate 19 understood the clients' statements correctly, revealed inconsistencies in his/ her opinions by emphasizing the difference between clients' prior and current statements in an attempt to carrying out a healthy counselling process.

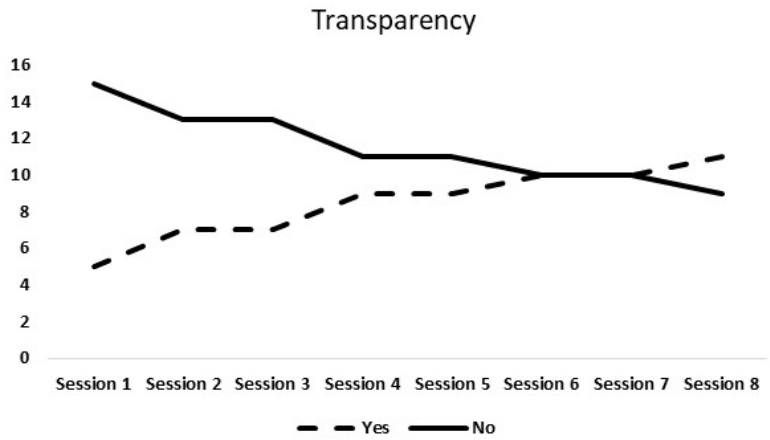


Figure 2: Frequency of Observation of Transparency Skill in Each Session

According to Figure 2, following the sessions, supervision had a positive impact on the use of transparency skills during counselling process to some extent. However, even after the last session, nine candidates were seen to be unable to exhibit transparency skills. On the contrary, eleven candidates were found to exhibit transparency skills at expected level. Based on these findings, it can be concluded that counsellor candidates need training.

4.3 Findings concerning empathy sub-dimension

Empathy condition in individual counselling refers to the fact that candidate's ability to emotionally understand what his/ her client feels, to emphasize that s/ he is here for the client and is ready for listening and understanding (Eryılmaz & Süral, 2014). In this regard, at the end of eight sessions, sixteen out of twenty participants managed to fulfil empathy condition at expected level.

When looking at Candidate 1 in 2nd session;
Client: *I could adapt better after a week. Now, I can adapt more. I got used to the city and my friends. All these helped me adapt.*
Candidate: *As time passes, we can say, your friends helped you adapt to the school.*
In this example, the candidate managed to establish empathy with the client.
(Candidate 17 in 7th session)
Candidate*: Yes, you said that Enes might be a reason. So, what are the reasons? Could you be more precise?*
Client: *There is such a thing that the society confirms you. I guess this may be due to the fact that the society accepts you.*
Candidate: *Alright.*
Client: *For a long time, I did so, but then I didn't. I think I couldn't say no again.*
Candidate: *Alright.*
Client: *This may be due to the fact that I needed to be accepted or to feel the sense of belonging.*
Candidate: *Alright.*

No empathy condition was observed in this example. The client needed to be accepted by a group and to feel the sense of belonging and had difficulty whereas the candidate simply behaved in a way that the conversation went on. The candidate did not use any statements which would show that s/ he understood his/ her client. His/ her statements were observed to be an incentive.

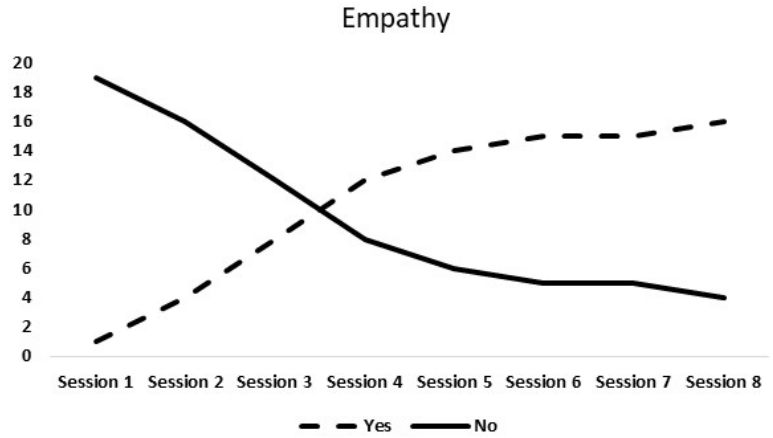


Figure 3: Frequency of Observation of Empathy Skill in Each Session

According to Figure 3, 16 candidates were found to exhibit empathetic skill at expected level. During the interviews with the other candidates, they stated that they considered clients' problems as if the problems were their own problems. This led the candidates to be unable to exhibit empathetic skills as well as interrupting professionalism during counselling process. Apart from four candidates, other candidates were found to exhibit empathetic skills at expected level and they did not need training on this skill.

4.4 Findings concerning here and now sub-dimension

Both counsellor candidates and clients may have a set of behaviours, emotions and thoughts in counsellor- client relationship during counselling. These emotions and thoughts are immediately elaborated during counselling process (Eryılmaz & Süral, 2014). Fulfilling this condition plays a key role in clients' exploring and understanding themselves. Effective listening and silence are considered to be significant in terms of candidate's focusing on here and now principle. In this regard, psychological counsellor candidates make mistakes by misusing the moments of silence, making the client digress from the subject by breaking the silence and finding the client responsible for the silence.

When investigating audio- recordings, no silence expect one in a session was observed during individual counselling. In this regard, the process was vividly and flowingly carried out.
(Candidate 9 in the 1st session)

***Client**: Back to the family, when my father left and I first came here, I had planned what I was going to do here. I planned to leave my family and live there, but now I see that it did not work. My father left and I started to cry because I did not know what to do… (The client was affected so much).*
***Candidate:** I guess this is a bit difficult for you now.*
***Client:** There is no problem when I don't think about that but …*
(Client cried, silence)
***Client:** I have been apart from my family for a week so far. This time it will last for a month and more. I actually thought that I overcame and did not cry but I was wrong.*
***Candidate:** I see. How do you feel when we are talking about that?*
***Client:** We can say sorrow, missing.*

In the situation above, the candidate digressed from the subject by saying 'I see' and asking a new question although she/he attempted to benefit from the moments of silence and emotion. 'I see' is not considered as the right statement here. On the contrary, the candidate was required to summarize what she/he understood from client's statements.

When looking at other candidates' audio recordings, it was revealed that they failed to fulfil here and now principle at expected level.

(Candidate 13 in the 5th session)
Client: *... lack of confidence. I care about confidence and sincere feelings in my relations. For example, I and my friend were talking. Anyway, let's skip this, I tell you about something that happened to me at school.*
Candidate: *Okay, as you know.*
During this process, the candidate could not manage to realize here and now principle by asking the client why she/he wanted to skip this issue, what bothered him/ her so much and saying that thinking about another topic would not solve the current problem.

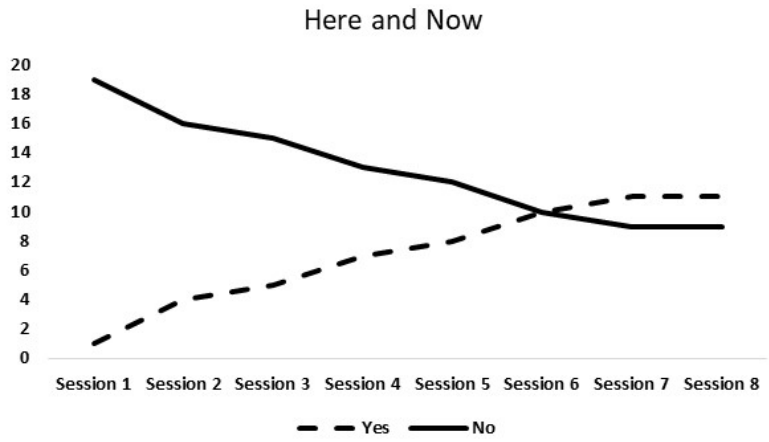


Figure 4: Frequency of observation of here and now skill by session

At the end of eight sessions, 11 out of 20 candidates were observed to exhibit here and now skill; however, 9 were unable to exhibit this skill (Figure 4). Supervision activities following the sessions were seen to be ineffective. Candidates were unable to focus on clients' emotions and use them to solve their problems during sessions. Based on audio recordings, candidates' inability to carry out effective listening was also revealed. In addition, they were found to be unable to reflect emotions. As a result, it can be concluded that training on here and now skill for candidates is required.

4.5 Findings concerning respect sub-dimension

Respect condition in individual counselling refers to the fact that the candidate accepted and stated that his/ her client was an independent person in terms of thoughts, emotions and actions (Eryılmaz & Süral, 2014). Transparency, in other words sincerity, honesty and naturality, means caring about emotions and communicating it. Unconditional acceptance in this process refers to accepting an individual as s/ he is in all his/ her parts.
The candidates were seen to carry out respect condition at the end of the eighth session. Through supervision provided in initial sessions, candidates were observed to perform respect condition during counselling process and no educational need regarding this was identified.

During the first sessions, the candidates were observed to fail to realize respect condition. It was revealed that respect condition was fulfilled in further sessions through supervision.

(Candidate 20 in 8th session)
Client: *I made up my mind, I will keep my distance with my boyfriend by making up excuses. This is going to be better, I am done with him. I can't stand him.*
Candidate: *You want to break up with your boyfriend. Of course, you can make the right decision about that.*
Client: *Yes, it is exactly what I mean. I definitely want to break up.*
Candidate: *You think that a change will be good for you.*
Here, candidate did not ignore client's emotions and did not leave him/ her in a difficult situation by asking questions or making comments. The client's emotion was reflected and it was shown that she/he was accepted.

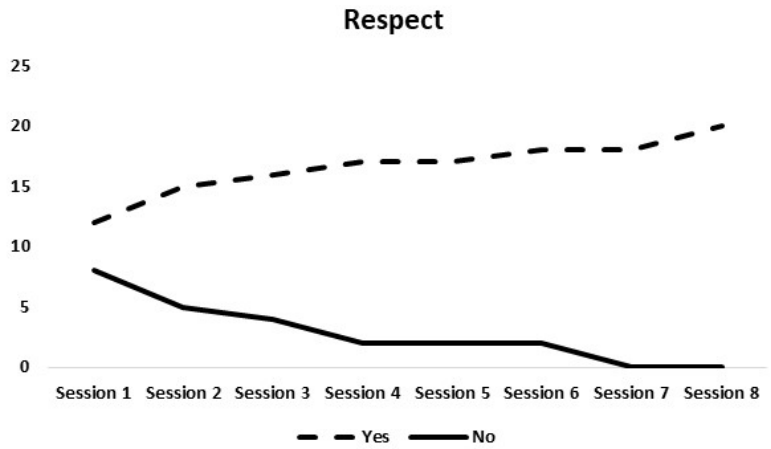


Figure 5: Frequency of observation of respect skill by session

Respect skill has been found to be exhibited easily by the candidates according to Figure 5. Following the eighth session, it was determined that all candidates exhibited respect skill at expected level. Counsellor candidates were observed to take clients' individual differences into consideration. Durig supervision activities, a candidate stated that s/he carried out counselling process with respect although s/he was seen to nearly insult to the client. At the end of sessions, all candidates exhibited empathetic skills and considering positive effects of supervision activities on the process, it can be said that a special training regarding this skill is not required.

5. Result and Discussion

Psychological counselling education play a pivotal role in individuals' mastering in the field and experiencing positive feelings, improving, reinforcing and realizing their skills and strengths (Eryılmaz, 2013).

Gerard (1975) articulated that counsellor candidates were mainly responsible for acquiring certain skills as effective listening, establishing a relationship with empathy, respect, concreteness and sincerity which helped them be effective during counselling process. As the first sub- title 'concreteness' in the research, audio recordings during sessions were examined. The candidates, at this point, were expected to help the client unburden himself/ herself by asking open- ended questions about his/ her situation, thoughts and emotions. The candidates were initially observed to have difficulty during the process; however, they managed to show expected behaviours at the end of practices. Therefore, it cannot be said that all the participants in the research were able to exhibit the expected behaviours at expected levels.

As for the second sub- title, 'transparency', candidates were not able to form necessary conditions whereas they were expected to. Instead of transparency, the process was carried out with the reflection of content and the candidates were observed to use judgemental language at times.

Supervisors require utilizing appropriate and effective interpersonal relationship skills in order to establish and improve a qualified supervision relation. At the very first stages of the relationship, the skills were to be more empathetic and supportive; at further stages, they must be associated with confrontation and evaluation (Campbell, 2000). Regarding another sub- title in the research, empathy, a number of candidates were observed to understand the client's emotions and thoughts, thereby developing empathy towards him/ her as the number of counselling increased. However, %45 of the counsellor candidates were insufficient. Therefore, the candidates need training on empathetic skill for counselling processes to be conducted properly.

The fact that counsellor immediately addresses client's emotions and thoughts during counselling process refers to here and now principle. Fulfilling these conditions is significant in terms of clients' exploring and understanding themselves (Eryılmaz & Süral, 2014). The candidates require to be aware of their own skills, weaknesses and strengths; the characteristics and expectations of the society they live in; in addition, they must make the most appropriate decisions and to adapt to the society (Ercan, 2001). As for this sub- title, however, the candidates were revealed to fail to fulfil here and now principle at expected level. The candidate could not manage to realize here and now principle by asking the client why she/he wanted to skip this issue, what bothered him/ her so much and saying that thinking about another topic would not solve the current problem. Moreover, the candidates were indicated to fulfil respect condition.

According to the findings of the research, further qualitative research is recommended in order to determine candidates' skills and needs. Practical solutions regarding therapeutic skills training may be focused based on psychological counsellors' opinions. Besides, candidates' therapeutic skills can be fostered by using various teaching methods.

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Restructuring the Civic Education Paradigm in Indian Schools: Measures to Cultivate a Generation of Responsible Citizens

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Abstract
Political science as a subject is integral to the development of sensible and patriotic citizens, yet it is not given the attention it deserves in the Indian education system. Solidified by the findings of field research conducted in five schools that cater to India's middle-income bracket (the largest segment of the population), this research paper brings forth the reluctance of over 92% of the representative sample to undertake education in a discipline as important as political science- a distressing figure indeed. The sample involved random selection of students of grade 11 in the five schools mentioned herewith; qualitative research was obtained through anonymous questionnaires allowing a safe space for truthful responses, and quantitative data were obtained through access to the schools' records pertaining to subject selection for grades 11-12. This paper will highlight some of the current deficiencies in the system, undertake a comparative study of how it stands vis-à-vis those of European countries, and arrive at recommendations to the National Council of Educational Research and Training (NCERT) and to the Central Board of Secondary Education (CBSE) on how to improve civic education among high school students in the country, eventually fostering a moral and capable Indian generation.

Keywords: Political Science, Education, Civic Education, Citizenship Education, Indian Education, Curriculum

1. Introduction

In a world more dynamic than ever before, more interconnected than ever before, it is essential to promote the proper instruction of civic studies to schoolchildren to cultivate an Indian generation with a rational national identity; with a unique outlook on the world while maintaining a respect and patriotic duty towards the nation. It is often said that India is only as good as its citizens, and the neglect faced by the civic education system in schools brings forth the challenges of a populace worryingly ignorant of their rights and obligations in society. The colonial mode of education has lingered on in the country with bureaucrats and educators content with the eons-old system and unwilling to disturb the status quo left behind by the British three-quarters of a century ago. Moreover, there has been a surprising lack of research on this issue, and this paper seeks to address this gap. Through an analysis of the current situation supported by on-ground research in schools, and comparative

international best practice evaluations, the paper culminates in recommendations for educational reform and the way forward to ensure that the next generation of Indians grow up worthy of the demonym.

2. Review of Literature

Civic education in the country has been commented on by many noteworthy individuals and organisations who seek to redress the vacuum of quality political science education in the country. Amman Madan in his article on"Old and New Dilemmas in Indian Civic Education" argues that we are faced with the task of reforming the way our children are taught to position themselves as morally good citizens. The National Council of Educational Research and Training (NCERT) must look beyond ingraining the values of an ideal subject of the government in students, and should instead focus on teaching the philosophical underpinnings of the Indian state as established on liberal and socialist principles. This paper shall argue that even going a step beyond this- exposing the students to a variety of political schools of thought and letting them make a value judgement by agreeing with the ones they believe best espouse the culture and spirit of India- is a prudent way to be true to the liberal values we so desire, and lead to citizens who can think for themselves without possessing coloured opinions. The Vikas Concept, an NGO that aims to transform students into active citizens, through its research, raises the point that practicality must be embraced in civic education, with students taking action at an early age and observing the impact of their actions at a formative stage in their lives.

The current mode of instruction of political science is one based solely on rote learning as students navigate their way through a cornucopia of legal-jargon and commit it to memory, only to forget all about it the day after their assessments. A 2017 Pew Research Center survey of citizens revealed that a dismal eight percent of Indian respondents were fully committed to a representative democracy, sparking debate about civic education in the country and how well the values being taught were taken up by the students. Rather than focusing on just specific political bodies in India, the syllabus should put forth moral and fundamental questions such as the style of government, the freedom of the people, and the responsibilities of citizens in the democratic process. This argument can be based on the writing of Frank Islam for the Business Standard; understanding his international comparisons of civic education begs the question as to how the educational authorities in India should restructure the syllabus to align with the progressiveness of the West while retaining our culture. Thus, a review of the existing literature on civic education in India brings out the inherent deficiencies in the dogmatic approach to its syllabus and instruction in schools, and that to meet the needs of modernity while being grounded in the Indian culture, major reform is needed.

3. The current shortcomings in the political science education system in Indian high schools

Political science as a subject is one that is integral to our sustainable and principled advancement as a human race. In India, specifically in the Central Board of Secondary Education (CBSE) curriculum, it is introduced as 'Social and Political Life' in grade VI, 'Democratic Politics' in grade IX, and 'Political Science in grade XI.' Manaskriti School in Faridabad, a CBSE-accredited school that teaches civics was observed for this research paper. After many days of observation and interaction with the students, it was observed that civics was not a popular subject amongst them though students enjoyed studying it they were averse to pursuing it as a subject in their further education. Table 1 shows the number of students opting for political science in grade 11 against the total class strength:

Table 1: The number of students opting for political science in grade 11 against the total class strength

Name of School	Total Grade XI Strength	Students Choosing Political Science	Percentage
Apeejay Public School	175	13	7.4%
Manav Rachna International School, Faridabad	140	13	9.3%
Vidya Mandir Public School, Faridabad	504	31	6.2%
Vidya Niketan School, Faridabad	296	21	7.1%
Navjiwan Public School, Faridabad	38	2	5.3%

These dismal figures show that an average of only 7.1% of the total class strength in the aforementioned schools picked a subject as essential as political science after matriculation. In an attempt to observe an accurate trend, the sample has been limited to 5 schools for middle-income families in the district of Faridabad. The figures were compiled utilizing the support of the school authorities as well as data about class compositions in the academic year 2020-21.

When students were asked about their reasons for not taking political science in the form of an anonymous questionnaire, the most common responses revolved around a few common points. Students feel that there are no job prospects for anyone who studies political science; civics students are rendered jobless in the country hence making it an unwise decision to pursue the same. Moreover, civics is taught in a mundane manner- it is predicated upon rote learning of current systems without fostering analytical thought regarding the way one interacts with others in a democracy and other forms of government. A class 12 student from Vidya Mandir Public School recounted instances where he couldn't memorise many terms and instead wanted to question the teacher about the effectiveness of democracy, he was discouraged from doing so leading to the third major problem diagnosed in the political science education in India: there is no room for interpretation. Civics is a subject that is meant to transform students into model citizens, but *what* that model is must be a choice the students should make. CBSE textbooks lay down only how India interprets democracy and how that is the only way it should be taught, but students want to explore their own ideas about further ways to practice governance and civil responsibilities in society.

From these candid responses and an analysis of Political Science textbooks, it can be found that the following shortcomings exist in the National Council of Educational Research and Training syllabus of the subject and the way it is instructed. The content is very rigid and does not allow room for contradictory thought. The examinations are based just on the rote learning of the textbooks that lay out political systems in India, rather than offering a space for students to explore political and philosophical concepts. Stemming from this, activity based learning approach is absent- group projects and modelling of political systems are some of the mediums through which students can explore the syllabus content in a fun and retentive way. The primary reason surrounding its absence is because teachers who teach the subject are trained only in textbook instruction and lack a berth of other knowledge and perspectives (as derived from interactions with teachers of the aforementioned schools in the study). And lastly, the knowledge passed in the syllabus is heavily moderated and censored to support the political views, ideologies, and roles of the government in power; after nearly every election cycle in India, the supposedly 'autonomous' NCERT amends the syllabus to favour the new government in power, defeating the actual purpose of civic education.

A small flavour of these problems can be seen as the topics on federalism, local governments, citizenship, nationalism, and secularism were completely deleted from the syllabus of 12th grade political science students in the name of "coronavirus-induced restructuring" in 2020. These are concepts that form the basis of a society, and regardless of which career path the student chooses, they must have a basic understanding of these topics to be a good citizen no matter what their profession. To sum up, the research conducted against the backdrop of political science syllabus in India paints a picture of a curriculum confined to certain dogmatic ideals espoused in one solitary textbook taught by limited teachers. How then does India's civic education system size up compared to that of other countries?

4. Comparison of the Indian political science education model with those of European nations.

Indian political science education does not rank at the bottom of the pile, but it is nowhere near the top. Here, one can draw on international best practices for inspiration as to how to reform the way civic education is structured and taught in India.

In the French Republic, political science education is compulsory and rigorous, especially until the age of 16. In 2016, the Education Ministry announced plans for new classes that aimed at instilling the values of liberty, equality, and fraternity, as well as justice, mutual respect, and the absence of discrimination, with special

emphasis on secularism. This programme is taught in all primary and secondary school classrooms and aims to teach children to become active and responsible members of society by the time they turn 16. Here, a bulk of the education is imparted to students before the age of 16 as opposed to India where it occurs between the ages of 16-18. A major advantage of the French system is that students are incentivised to do well in civics and are already well-versed in important moral concepts so that they can focus on career-specific education after 16; in India, most students leave political science at age 16, and therefore miss out on the wealth of knowledge they need to be an ideal global citizen so that they can focus on other career-centric subjects. Another noteworthy aspect of the new French Course on Moral and Civic Education is that it is very clearly structured and divided into four *general* areas of knowledge- Sensitivity, Rules and Rights, Critical Thinking, and Social Responsibility- whereas the NCERT syllabus in India is haphazardly delineated with India-specific topics and a lack of global engagement. Therefore, from France's example, one can conclude that India needs a civic education system that imparts most key concepts *compulsorily, before* the age of 16, and in a manner with a global outlook.

Next, India can look at its former coloniser, the United Kingdom, whose education system reflects deeply in that of India, for inspiration regarding social education. Branded 'citizenship education' in the UK, civic education is compulsory for 11 to 16 year olds, and was introduced with an aim "for people to think of themselves as active citizens, willing, able, and equipped to have an influence in public like and with the critical capabilities to weigh evidence before speaking and acting" (Citizenship Advisory Group). After 2002, when this new policy was introduced, the government began encouraging schools strongly to provide students with an environment to practice their learnings in the classroom at a larger level; most public and nearly all private schools saw the establishment of independent student councils, as opposed to powerless bodies in Indian private schools and non-existent ones in government schools. Therefore, politically active students in India are not given an opportunity to explore and expand on their passion at an early age, thus leaving them discouraged and ill-equipped to bring about civic and public policy change. In the UK, the government is in a continuous consultative process with stakeholders including NGOs (such as the Citizenship Foundation, Amnesty International UNICEF, CND, Oxfam, and Red Cross), and professional organisations and networks (such as the Association for Citizenship Teaching [ACT] and Citizen), meaning the education system is enrolled in a constant feedback mechanism that leads to its advancement. In India, the NCERT unilaterally determines the civics syllabus and reviews it with alarming infrequency leading to redundant, limited systems being in force for multiple years at a time.

The situation, however, is not hopeless as may come across; India still has compulsory civic education until the age of 16, its exam-centric approach ensures that students study the subject, and it is taught widely so more students receive the education. One can conclude that the preceding international best practice comparisons highlight the fact that India has a long way to go in terms of civic education, and a better structured, more transparent curriculum designing process is a good starting place.

5. The future of Indian civic education and potential remedial measures

Today, civic education in India is a volatile entity that is dreaded by many students and heavily regulated by the government. A cursory glance at civics and history textbooks in India will show that the topics pertaining to nationalism and the Rashtriya Swayamsevak Sangh (RSS, the ideological parent of the ruling BJP) are given far more weightage than the advents of Gandhi and Nehru. Controlling education, especially the arena of political science , is a tactic that has worked well for many leaders, the most noteworthy being Adolf Hitler and his overhaul of the civic education sphere to introduce the Hitler Youth and integrate virulent antisemitism into the textbooks. The lesson is that social and political education in schools can be a substantial factor for change, and in India, we must ensure that this change is of the right nature. To this effect, a much-needed overhaul is needed in the way civic education curricula are designed and taught in the country.

A few suggestions that can be gleaned from extensive research and the on ground research analysis (the questionnaire responses and the data regarding popularity of political science education amongst 11th graders)

are that civic education should be based on fundamental principles of moral global citizenship- rather than keep textbooks focused on political structures as they exist in India, the NCERT should promote discussion regarding philosophical and social ideas such as secularism, political pluralism, rights and responsibilities, etc. This syllabus for the political science textbooks should be arrived at through a consultative process involving various key stakeholders including NGOs and education experts. This exercise must be conducted regularly at fixed periods of time to ensure that the students are taught what is most relevant at any given point of time. In terms of instruction, activity-based learning must be embraced, with students applying their learnings in the classroom to areas in their immediate environment, the most obvious example being that of student councils in the UK as mentioned. To enable all this, teachers should be trained so as to have, and thus be able to render, a wide bank of knowledge regarding political science and how it permeates our lives in every field imaginable. This training should provide them with the necessary skills to make the best use of online media ensuring fun classrooms rather than those based on rote learning.

Concurrently, in any educational system, the examination system and the way any course is taught is intrinsically linked, so to bring about the aforementioned changes in the civic education syllabus, a new examination mode has to be constructed where students will be asked to undertake modelling exercises, exercise their critical thinking and judgement in scenarios, and write thoughtful essays. And lastly, the bulk of civic education- especially the basic principles that are deemed necessary for every citizen of the country- should be taught to students until grade 10, so that even if they choose to not take the subject thereafter, they will still move ahead with the knowledge of how to be a good citizen and an independent thinker. Responsible citizens inevitably lead to a burgeoning sense of national pride and identity. Currently, 62% of Indians consider themselves to be patriotic (Statista 2018), a disappointingly low number. This lack of patriotism leads to increased individualistic tendencies without concern for the country as a whole. Proper civic education can remedy this concern by encouraging the youth to become more politically engaged in society; a few examples are promoting active participation in national campaigns (such as the Swachh Bharat Abhiyan, aiming to increase cleanliness levels in the country, a campaign many of the survey participants admitted to having little knowledge about), and enabling citizens to make informed choices in the best interest of the nation when casting their ballot.

6. Conclusion

As this paper has demonstrated, a subject that is essential for all students to study- regardless of their career path- is being mismanaged by the authorities and is lacking the proper syllabus and instruction. The study conducted in the 5 schools can indeed be generalised to most schools in second tier and below cities, and many schools in first tier cities as well since a largely standardised syllabus is followed across promulgated by the Central Board of Secondary Education. This raises an important concern: India may produce the finest doctors, engineers, scientists, and politicians, but the country will not progress in the right direction unless these individuals have imbibed in them the right civic education from their youth. Therefore, the aforementioned recommendations must be incorporated into the political science education system in India by the National Council of Educational Research and Training on an urgent basis; this change now will lead to a better nation in the future, with citizens who are affirmed in their patriotic and global identity while maintaining a strong moral compass and remaining rooted in clear rational thought.

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Opinions of Primary School Teachers about Mathematics Teaching During the Covid-19 Pandemic Period*

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Abstract
This study was conducted to reveal the aspect of distance education studies on teaching of mathematics with the evaluation by class teachers during the Covid-19 Pandemic period. 24 primary school teachers from Onikisubat district of Kahramanmaras province have participated in the research. The semi-structured interview form developed in line with the expert opinions was applied to the primary school teachers separately. This study was required in order to evaluate the events experienced in the distance education process due to the coronavirus pandemic and the effects of the pandemic on the field of education in the direction of the opinions of the class teachers. Qualitative research was carried out to interpret any situation from a different perspective in the study, and a case study has been conducted to reach the depth of the situation. As a data collection tool, a semi-structured interview form was prepared with the approval of expert opinions. After the data were brought together, content analysis was carried out by giving similar descriptions and describing them in a way that the reader could comprehend. The sample of the study consisted of teachers who personally experienced the process in the nearby environment, which consists of easily accessible situation sampling in order to accelerate the study. It is thought that it will be important to work properly execution of the processes that may occur in such times by determining the causes and consequences of the situations experienced in the field of education due to reasons such as the suspension of face-to-face education and the cessation of schools after the pandemic in the world. As a result of the research, suggestions will be made for the studies that can be done about teaching mathematics in distance education.

Keywords: Distance Education, Pandemic, Covid-19, Mathematics Teaching

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1. Introduction

1.1 Problem Statement

Basic life skills in the general objectives of the Turkish Education System; especially cognitive and affective skills are acquired in educational settings. All of the cognitive skills, such as problem solving and adapting solutions to different situations, all the acquisitions that require a connection in the mind belong to the discipline of mathematics. For this reason, we need to ensure that individuals have analytical thinking in the face of the problems they encounter in their entire lives, by paying attention to mathematics teaching during their education period from pre-school to higher education (Baykul, 2020).

Problem solving skills are the basis of today's education programs. The ability to have problem-solving skills is directly proportional to the child's cognitive processes such as sorting, classification, measurement, comparison, and visualization (Yildirim, 2019). It is important that all these gains, which are the basis of mathematics teaching, are given effectively in childhood, when the individual is the most curious and inquisitive, in terms of finding solutions to the problems that he will encounter later in his life. Our lives are shaped by the impact of rapid technological developments in every part of life. In the field of education, the impact of technological developments is quite high. The understanding that has developed in the field of education has made it necessary to benefit from different technological inventions in different disciplines. Receiving technological support during mathematics teaching increased student motivation and made the teaching process more effective (Pesen, 2020). Teaching with technological tools allows students to face more problems without wasting much time, to visualize the problems they encounter, to establish cause-effect relationships and to enjoy the lesson more.

Mathematics, which is considered as a science related to numbers and values, is also a tool that allows us to find solutions to the problems we encounter in daily life, and allows us to understand technology and the environment we live in. With the emergence of humanity, mathematics has found a place where it will constantly live and develop. Since the day it emerged, the development of mathematics can be compared to construction work in that the floors on which an apartment is dug up are solid (Biber, 2019). We can explain the ordinary events happening around us with mathematical science and logical content (Bilgener & Ozel, 2019). The logic of ordinary situations we encounter in daily life, such as the symmetrical appearance of butterflies and the movement of the wind, which is the movement of the air from the place where the air is high, to the direction where it is less, is explained by mathematics. It is unthinkable for us to progress socially and keep up with these advances without understanding mathematics and establishing the connection with the mathematics course in social events in our minds. There is a relationship with mathematics in all disciplines in social life. Associating mathematical expressions with other disciplines gives the ability to recognize and understand the situation. The relationship established with mathematics in all areas of life necessitates the effective presentation of mathematics teaching under all conditions. In this direction, we should act on the basis of the view that "every child can learn mathematics" adopted by our ministry in mathematics teaching. Mathematics skills gained in primary school enable to produce solutions for the complex situations encountered in the later processes of life (Yesilpinar Uyar, 2019).

Although there are many definitions of distance education, researchers; they have come together on a common denominator at the point that the teaching takes place with technological tools without the learner and the teaching element being in the same environment (Bagricak Yilmaz & Karatas, 2020). The concept of distance education first entered the education environment as 'learning by letter' and continued its existence in education with the technological tools developed over time. Its purpose is to ensure that education is received by many people at the same time. Distance education, which is seen as the contribution of technological developments to the field of education, still continues with the developing technology that showed itself in the 1960s in our country (Dincer, 2006).

The importance of presenting different learning environments to the learner has been emphasized many times in the studies conducted to date. In particular, the use of computer and internet technology in the field of education has increased recently. Digital platforms are used in educational environments through computers in terms of rich

content, visualization, gamification, and real experiences (Kiyik Kicir & Demir, 2021). The emergence and spread of the Internet have increased the quality of distance education. Today, every individual with an internet infrastructure can easily access distance education in the field they want (Al & Madran, 2004).

Due to the Coronavirus pandemic that affected the world in 2019-2020, face-to-face education was suspended in schools and different solutions were developed in order not to cause disruption in education. (Can, 2020) In this process, distance education has become widespread in the world and it is aimed to continue education without interruption. The Ministry of National Education keeps up with the developing technologies in education with many applications such as Fatih Project, Education Information Network, smart board, tablet-computer distribution and digital accelerated the transition to education. The necessity of all these platforms emerged during the Covid-19 Pandemic period, which our country was also greatly affected by, and education continued uninterruptedly with the skills of our teachers in this field. (Bayburtlu, 2020) It is thought that distance education, which is used at a high level due to the pandemic spreading around the world, will form the basis of education rather than being seen as an alternative for education in the future. (Sonmez et al., 2020). Distance education has become a necessity out of necessity today. At this point, teachers who have the duty of transferring education have a great role. In order to ensure that our teachers are efficient and effective in this process, there is a greater need for distance education information (Ergin, 2010).

The problems and solutions that the teachers have experienced in teaching mathematics in the distance education period are emphasized according to the opinions of the class teachers in this research. The research aims to reveal the problems faced by class teachers in mathematics teaching in the distance education period and to determine solutions to these problems. For this purpose, answers to the following questions were sought.

1. What are the problems faced by primary school teachers in teaching mathematics in the distance education process during the COVID-19 Pandemic Period?
2. What are the positive/negative effects of the distance education process on mathematics teaching during the COVID-19 Pandemic Period, according to the opinions of primary school teachers?
3. To the opinions of primary school teachers, to what extent does the continuity of participation in live lessons during the distance education process during the COVID-19 Pandemic Period affect the academic success of the students?
4. What are the teaching methods and techniques used by primary school teachers in teaching mathematics in the distance education process during the COVID-19 Pandemic Period? What is the effect of these techniques on the skill to be acquired?
5. What are the digital platforms that primary school teachers use in teaching mathematics in the distance education process during the COVID-19 Pandemic Period? Compare these platforms. (Education Information Network, ZOOM, SKYPE, MEET, WHATSAPP)
6. To the opinions of the primary school teachers, how was the school-family cooperation regarding the mathematics lesson in the distance education process during the COVID-19 Pandemic Period?
7. From primary school teachers' point of view, what are their opinions and suggestions regarding measurement-evaluation for mathematics courses in the distance education process during the COVID-19 Pandemic Period?
8. What do you think are the observable effects of mathematics lesson achievements at upper levels in the distance education process during the COVID-19 Pandemic Period, to the opinions of primary school teachers?
9. What are your suggestions for solutions to the problems encountered in mathematics teaching during the distance education process during the COVID-19 Pandemic Period, up to the opinions of the primary school teachers?

1.2. Purpose and Importance of the research

This study was needed in order to evaluate the events experienced in the distance education process due to the coronavirus pandemic and the effects of the pandemic on the field of education by direction of the opinions of the class teachers. It is thought that it will be important to work properly for the processes that may occur in such times by determining the causes and consequences of the situations experienced in the field of education due to reasons such as the suspension of face-to-face education and the closing the schools temporarily after the pandemic in the world. This study aims to determine the opinions of class teachers about teaching mathematics during the COVID-19 pandemic period.

2. Method

One of the scientific research methods, the qualitative research method, was benefitted from and the data were interpreted with the case study design of the qualitative research in the research. As a data collection tool, semi-structured interview form prepared with expert opinion was preferred. The obtained data were analyzed by the content analysis method. The sample of the study, on the other hand, constitutes an easily accessible case sample. Qualitative research is a research method that explains any situation with different disciplines in order to understand and explain it from different perspectives. Qualitative data collection techniques, such as observation, interview, document review are used in an environment which aim to reveal the situation as a whole. Researchers working with qualitative research often need environmental, perceptual and process information. In qualitative research, it is essential to present the situation in general terms rather than explaining the results by number or majority (Yildirim & Simsek, 2016).

Qualitative research, which is generally preferred in social sciences, is preferred in terms of in-depth analysis of data. Explaining the results by delineating provides a detailed understanding of the researched subject. It is necessary to constantly look at the rapid changes in the world from different ways (Seggie & Akbulut Yildirmis, 2021). Qualitative research involves evaluating events and phenomena from a different perspective. The existence of different perspectives, the researcher's thoughts on the subject, the diversity of methods is effective in determining the basic features of qualitative research. In the light of all this information, the characteristics of qualitative research; the appropriateness of method-theories, participant diversity, researcher-research ideas, and approach-method diversity.

No generalizations are made at the end of qualitative research, events and facts are evaluated on the conditions in their own environment. Because events are always observed literally in their own environment. In qualitative research, the environment in which the research is conducted and the suitability of the environment to the subject are very important. In qualitative research, the researcher is responsible for collecting, examining, transforming, analyzing and reporting data. After examining the parts that make up the qualitative research situation one by one, the result is given as a whole. The people who are the data source of the subject to be investigated in these studies consist of individuals who witnessed the event at the heart of the situation. In qualitative research, the researcher is freer to determine the method and technique to reach the result. Although qualitative research data are ended up numerically in order to form a basis for content analysis, it is essential in qualitative research to describe the situation with its own reality in qualitative research (Gurbuz & Sahin , 2018).

2.1. Research model/pattern

Case study design, one of the qualitative research method designs, was used in this research. The main purpose of the case study is to search the depth of the situation. In a case study, it can be an individual, group, institution or environment. The situation is investigated within the framework of process, environment, events. As a result, with a holistic approach, how it affects and is affected by the situation is revealed. It is very important for the study to determine the questions to be asked in case study examples, to determine the data related to the questions, the data to be collected and the results to be analyzed in what ways (Yildirim & Simsek, 2016).

The case study examines why and how questions in detail. In case studies, there are theories and explanations that can help in understanding similar situations and events without aiming to reach a general conclusion(Seggie & Akbulut Yildirmis, 2021). It also sheds light on similar studies in terms of examining events and situations in real environments in detail and establishing a cause-effect relationship about what happened in the process. In the case study, data are collected with the help of written documents, interviews, observations, archive records, physical documents related to the situation (exam paper, picture, etc.).

2.2. Data collection and Analysis

Data collected with a semi-structured interview form developed by the researchers. During the collection of data, phone calls and calls made via Google Meet or Zoom recorded. While creating the form, support was received from three field experts Data were collected from teachers selected on a voluntary basis using a semi-structured interview form in the study. First of all, the interviews were recorded after the volunteers were approved by the teachers with the consent form. After the interviews, they were converted into text form and recorded in the computer environment. 24 of the interviews with the teachers were made face to face. Teacher interviews lasted between 06 minutes 26 seconds and 18 minutes 41 seconds.

The data collected in line with the opinions of the teachers were analyzed with the content analysis technique. According to Yildirim and Simsek (2005), content analysis is the systematic scanning of printed or visual materials and analyzing them thematically in terms of certain topics. The data obtained through content analysis were classified among certain themes and the relationships between the data were revealed. With content analysis, themes and sub-themes related to the sub-problems of the research were created. The themes created by the researchers were presented to the opinions of field experts and presented in their final form. The analysis of the data collected for the study was provided by content analysis.

In content analysis, which enables similar data to be brought together and interpreted in a way that the reader can understand, the data is expressed descriptively after in-depth analysis. There are four stages to reach the results in content analysis; including coding, creating a theme, organizing the data according to codes-themes, and defining-interpreting the findings (Yildirim & Simsek, 2016).

Inductive or deductive methods can be used in content analysis. If the inductive method is used, it is possible to reach a new and different conclusion about the situation. If the deductive method is used, it has the purpose of testing an existing situation. Content analysis allows the researcher to analyze a large amount of text, saving time and money (Seggie & Akbulut Yildirmis, 2021). The documents found related to the researched subject are not damaged in any way, and accessing the same documents from any place when requested is a situation that facilitates content analysis. While doing content analysis, the researcher is advantageous as he is not controlled by others while doing his own analysis.

In content analysis, the researcher tends to explain the data he has reached. After the data is filtered in detail, it is interpreted within the framework of a certain subject and transferred to the reader (Gurbuz & Sahin, 2018).

2.3. Participants

The universe of the research consists of official primary school teachers in Kahramanmaras. 24 primary school teachers from Onikisubat district of Kahramanmaras province have participated in the research. Easily accessible case sampling method was used in the research.

The easily accessible case sampling used in qualitative research has the feature of accelerating the study and making it practical. In this method, the researcher usually deals with the situation that he can reach most easily. Although easily accessible case sampling is widely used in qualitative research, it is a less preferred method due to the lower validity, reliability and usability of its results compared to other methods (Yildirim & Simsek, 2016).

Accessing a closer state always requires little cost. Convenience sampling is an advantageous situation for researchers because the situation is easily accessible, requires low cost, and generally includes the familiar situation. With these features, easily accessible case sampling facilitates research.

The demographic variables that emerged according to the data obtained before the interviews with the teachers are given in Table 1 as follows:

Table 1: Demographic Characteristics of the Participants

Feature	Teacher Characteristics	f
Gender		
Female	T2, T3. T5, T7, T8, T9, T13, T15, T16, T17, T18, T20	12
Male	T1, T4, T6, T10, T11, T12, T14, T19, T21, T22, T23, T24	12
Age		
Between 30-40	T4, T5, T9, T13, T17, T24	6
Between 40-50	T2, T6, T7, T10, T11, T12, T14, T16, T18, T20, T21, T22	12
50 and above	T1, T3, T8, T15, T19, T23	6
Length of service		
1-10 years	T5	1
10-20 years	T4, T7, T9, T12, T13, T17, T24	7
20-30 years	T1, T2, T6, T10, T11, T14, T15, T16, T18, T19, T20, T21, T22	13
30 and above	T3, T8, T23	3
Technological Devices Used in Distance Education		
Computer	T8, T18, T20	3
Smartphone		
All	T1, T2, T3, T4, T5, T6, T7, T9, T10, T11, T12, T13, T14, T15, T16, T17, T19, T21, T22, T23, T24	21
Way to Connect the Internet in Distance Education		
Mobile network	T3, T12, T14, T19	4
Wi-fi	T4, T5, T7, T8, T9, T11, T16, T17, T20, T21, T24	11
All	T1, T2, T6, T10, T13, T15, T18, T22, T23	9

As seen in Table 1, 12 female and 12 male teachers participated in the study. 6 of the teachers are in the age range of 30-40, 12 of them are in the age range of 40-50, and the other 6 are over the age of 50 and 50. 1 of the teachers has 1-10 years of seniority, 7 of them have 10-20 years of seniority, 13 of them have 20-30 years of seniority, and 3 of them have seniority of 30 and 30 years. In distance education, 3 of the teachers benefited from the computer as a technological device, and 21 of them both computer and smart phone. 4 of the teachers used mobile networks to connect to the internet in distance education, 11 of them used wi-fi, and 9 of them used both mobile network and wi-fi.

Ethical Committee Decision

Ethical permission was obtained from the Inonu University Social and Humanities Scientific Research Ethical Committee (Session Date:13-01-2021 Number of Sessions:2 Number of Decisions:3) for this research. Journal writing rules, publication principles, research and publication ethics and journal ethics rules were obeyed in this article. The authors are responsible for any violations that may arise regarding the article.

3. Results

The findings obtained from the analysis of the data are shown in the form of tables and the themes, sub-themes and categories created are supported and interpreted with examples in this section. During the Covid-19 pandemic period, the opinions of class teachers on teaching mathematics were given as findings.

3.1. Findings on teachers' views towards mathematics teaching in distance education

Views formed by teachers and students towards the lesson in mathematics teaching affect the mathematics teaching process. Teachers' approaches to mathematics teaching in distance education, findings regarding teacher views on mathematics teaching during the Covid-19 pandemic period are presented in the Table 2.

Table 2: Views of Primary School Teachers on the Positive/Negative Effects of Distance Education on Mathematics Teaching During the COVID-19 Pandemic Period

Themes	Sub-themes	f
the positive effects	Making use of images	3
	Digital activities	3
	Providing self-confidence	2
	Possibility of repeating	1
the negative effects	Lack of participation	2
	Not getting feedback	6
	Monotonous	1
	Keeping the narrative abstract	11

As seen in Table 2, the opinions of primary school teachers on mathematics teaching in distance education during the Covid-19 pandemic period were grouped under two themes: "I saw its positive effects" and "I saw its negative effects." Under the theme I saw its positive effects; using visuals (f=3), digital activities (f=3), providing self-confidence (f=2), possibility of repetition (f=1) sub-themes were formed. Under the theme I saw its negative effects; sub-themes such as lack of participation (f=2), lack of feedback (f=6), monotone (f=1), and abstraction of the expression (f=11).

When Table 2 is examined, the views of primary school teachers towards teaching mathematics in distance education are mostly negative during the Covid-19 pandemic period. It was revealed that teachers who stated that they saw the positive effects of the process used different teaching methods in education. It was observed that the teachers who stated that they saw the negative effects of the process experienced student-induced negativity.

When Table 2 is examined, the views of classroom teachers on mathematics teaching in distance education during the Covid-19 pandemic period are mostly negative. For example, T11; “Of course, it negatively affected the process, not like in the classroom, but not in the face-to-face manner. We couldn't do much on the computer because the math textbook was a bit of an abstract-based course.” T1; “*There is no problem in the lectures, but the problem is that we cannot control whether the lesson is understood or not. We teach the lesson, but the class hours are 30 minutes. If not, we cannot control the student due to the fact that it is shortened and there is not enough time for each student. In other words, the course is being taught, different websites are used, that is, it can be taught uniformly*.” statements show the negative opinions of teachers.

It was revealed that teachers who stated that they saw the positive effects of the process used different teaching methods in education. It was observed that the teachers who stated that they saw the negative effects of the process experienced student-induced negativity. In the interview with T23, “Of course, we cannot say that it is as

productive as the classroom environment because there is no appropriate interaction. In addition, when I examine what they have done in the homework process, that is, in the homework we give to get feedback, I cannot comprehend whether the students themselves do it with the help of their family and naturally how much they understand the subject. But if it had happened in a classroom setting, I would have understood that." stated.

3.2. Findings of teachers' views towards concretization in mathematics teaching in distance education

Mathematics teaching in primary school is conveyed to students by making use of concrete objects and examples. The views of primary school teachers during the Covid-19 pandemic period towards concretization in mathematics teaching in distance education are given in Table 3.

Table 3: Views of Primary School Teachers on Concretization in Teaching Mathematics in Distance Education during the COVID-19 Pandemic Period

Themes	Sub-themes	f
Concretized	By reflecting on the digital screen	11
	Using household materials	8
Not concretized		5

Looking at Table 3, the views of the primary school teachers towards concretization in the distance education process in the mathematics lesson formed 2 themes as "I could concretize" and "I could not concretize." I was able to embody the theme; by reflecting on the digital screen (f=11) and using the materials at home (f=8). The number of primary school teachers who stated that they could not embody is 5.

When looked at Table 3, it has been revealed that the majority of primary school teachers in the Covid-19 pandemic period do not have difficulties in concretizing within the possibilities in mathematics teaching in distance education.

T3; *"Yes, I am a teacher who works by concretizing mathematics as much as possible. T14; "I made use of the videos, as I said before, to embody."* Their expressions show the way teachers embody.

3.3. Findings of methods and techniques used by teachers in teaching mathematics in distance education

In order to increase the efficiency of the lesson and ensure the permanence of learning during lesson activities, teachers need to benefit from many different methods and techniques. The methods and techniques used by primary school teachers in distance education mathematics teaching during the Covid-19 pandemic period are given in Table 4.

Table 4: Views of Primary School Teachers on the Methods and Techniques Used in Teaching Mathematics in Distance Education during the COVID-19 Pandemic Period

Themes	Sub-themes	f
Traditional methods	Plain expression technique	13
	Question and answer technique	8
	Demonstration	3

According to Table 4, the methods and techniques used by primary school teachers in distance education mathematics teaching during the Covid-19 pandemic period formed 1 theme as 'Traditional Methods.' Traditional methods theme; It is divided into 3 sub-themes, namely the lecture technique (f=13), the question-answer technique (f=8) and the demonstration (f=3). When Table 4 is examined, primary school teachers generally preferred traditional teaching methods in distance education mathematics teaching during the Covid-19 pandemic period.

S6; "*We used more talking visuals, asking questions and getting answers, so we can do distance education, but we can't do these others anyway*." T17; "*The methods and techniques we used were generally teacher-centered, so we had to use more narrative methods.*" T2; "*Words fly away, writing remains, I print it, and at the last stage I print it. I reinforce it with exercises and activities, questions and answers are definitely exercises. I reinforce them all one by one and in that way, even though we are already in the classroom, so we use them mostly." With their expressions, we see that the methods and techniques used by teachers in distance education are mostly traditional expression techniques."* With their expressions, we see that the methods and techniques used by teachers in distance education are mostly traditional expression techniques.

3.4. Findings on digital platforms used by teachers in teaching mathematics in distance education

With the beginning of compulsory distance education, the use of technological developments in education life has become widespread. The digital platforms that primary school teachers use in distance education mathematics teaching during the Covid-19 pandemic period are shown in Table 5.

Table 5: Views of Primary School Teachers on the Digital Platforms Used in Distance Education Mathematics Teaching During the COVID-19 Pandemic Period

Themes	Sub-themes	f
Live Course Software	Education Information Network,	3
	ZOOM	21
	Others	
Benefitted site	Education Information Network	3
	TV course contents	4
	Morpa Kampus	9
	Okulistik	4
	Others	

As presented Table 5, the digital platforms used by primary school teachers in distance education mathematics teaching during the Covid-19 pandemic period were examined in two themes as 'Live Courseware' and 'Used Site.' Education Information Network and ZOOM platforms formed under the theme of live course software have f=3 and f=21 values, respectively. The sites that teachers use in distance education are Education Information Network course contents (f=3), Morpa Campus (f=4), Okulistik (f=9), other (f=4).

During the Covid-19 pandemic period, it is seen that primary school teachers benefit from the Education Informatics Network developed by the Ministry of National Education and the special software program ZOOM while teaching mathematics in distance education. It has been observed that different sources other than the textbook are also used in the courses established in mutual interaction from Education Information Network and ZOOM. T15; "*I use Education Information Network zoom Morpa Campus if you count them digitally from time to time."* T8; "*I processed from Education Information Network and Zoom in general, of course." It has been observed that different sources other than the textbook are also used in the courses established in mutual interaction from Education Information Network and ZOOM*." T10; "*Now, as I said, I just used z-books. Apart from that, the textbooks are already the first thing we use. Because the textbooks are PDF, there is a Fatih pen program that supports it. I use it. In the Fatih pen program, shape graphics can be painted. So simple graphics. I use the tools for children's comprehension there in Fatih pen, I use PDF in the other one, which has its own special*

interfaces over the z-book, we use it from there, I process it from Education Information Network, I process it from Zoom anyway." Teachers benefited from various resources in distance education.

3.5. Findings of teachers' views on readiness for higher education in distance education mathematics teaching

The periods before the education period provide the students to form the basis of the new information they will learn. During the Covid-19 pandemic period, the statements of primary school teachers regarding the readiness of students at the upper level in teaching mathematics in distance education are shown in Table 6.

Table 6: Views of Primary School Teachers on Students' Readiness for Upper Level in Teaching Mathematics During the COVID-19 Pandemic Period

Themes	**f**
It will start ready.	10
There will be deficiencies.	9
They are not ready.	5

When looked at Table 6, the opinions of primary school teachers about readiness for the upper level in distance education mathematics teaching during the Covid-19 pandemic period formed three themes: it will start as ready (f=10), there will be deficiencies (f=9) and they are not ready (f=5).

According to Table 6, the majority of the primary school teachers stated that the students' readiness for the next level would be insufficient and they were not ready for the next level. T12; *"We are experiencing the same problems in face-to-face education, unfortunately, our students come across us in a way that their readiness level is not fully settled, especially in the mathematics course with numerical lessons because there is a certain stereotype in our students, I cannot do this. I would like to state that we are going through a more difficult process compared to other courses."* T23; *"In that process, our children will inevitably have difficulties in reaching the level we want or the level that the curriculum requires, and there will be some problems in the upper levels, because they will come from behind involuntarily."*

3.6. Findings on the general problems faced by teachers in teaching mathematics in distance education

The pandemic process, which started a new era in education, had positive and negative results. The problems faced by primary school teachers in teaching mathematics in distance education during the Covid-19 pandemic period are given in Table 7.

Table 7: Views of Primary School Teachers on General Problems Encountered in Teaching Mathematics During the COVID-19 Pandemic Period

Themes	**f**
Inability to teach by doing-experiencing and touching	11
Students are reluctant and uninterested	2
Failure to follow-up given activities - lack of feedback	6
Inability to interact face to face	4

According to Table 7, every teacher has experienced negativities in distance education during the Covid-19 pandemic period. These disadvantages are; Inability to teach by doing-experiencing and touching (f=11), students being unwilling and uninterested (f=2), inability to follow the given activities, lack of feedback (f=6) and inability to establish face-to-face interaction (f=4) constituted the themes.

When Table 7 is examined in general, there is no primary school teacher who does not have problems in teaching mathematics in distance education. Primary school teachers stated that the spontaneous interaction process in face-

to-face education is missing or absent in distance education. They also said that they could not see the products of the process due to the low interaction.

T19; "*As in the example I just gave, we make people understand the subject by dipping bread into the glass of the doner kebab shop. This was a very impressive example for me. It is an example that specifically expresses me in mathematics. Because mathematics requires mutual interaction."* T4; *"So we are doing distance education with covid-19, you know, we are experiencing some more difficulties in teaching mathematics, how do we live, we cannot make eye contact with children, I cannot make children feel those questions*." T9; *"Children cannot do anything under our control by doing and touching."*

3.7. Findings of teachers' views on measurement-evaluation in mathematics teaching in distance education

Evaluation of the teachings in the field of education in the process and at the end of the process is essential for the efficiency and permanence of education. The views of primary school teachers on measurement and evaluation in distance education mathematics teaching during the Covid-19 pandemic period are given in Table 8.

Table 8: Views of Primary School Teachers on Assessment-Evaluation Activities in Teaching Mathematics in the COVID-19 Pandemic Period

Themes	**Sub-themes**	**f**
I did assessment activities.	By Exam-Trial	5
	By question and answer	11
I did not do assessment activities.		8

Looked at Table 8, the opinions of primary school teachers about measurement and evaluation in distance education mathematics teaching during the Covid-19 pandemic period are the themes of "I did assessment and evaluation activities" and "I did not do assessment and evaluation activities." I made assessment and evaluation theme; It has sub-themes through exam-trial (f=5) and question-answer (f=11). Eight of the primary school teachers stated that they did not make measurement and evaluation in mathematics teaching during the distance education process.

When Table 8 is examined, measurement-evaluation activities of primary school teachers in distance education mathematics teaching during the Covid-19 pandemic period consist of exam-trial and question-answer methods. T16; "*We make scoring, we do practice tests, we can evaluate in this way, or we can measure children with questions and competitions during the lesson."*

3.8. Findings of teachers' views on mathematics lesson times in distance education

The duration of education in distance education has also changed compared to face-to-face education. During the Covid-19 pandemic period, the views of primary school teachers regarding the course times given in distance education mathematics teaching are shown in Table 9.

Table 9: Primary School Teachers' Opinions on Mathematics Lesson Duration in the COVID-19 Pandemic Period

Themes	**f**
Lesson time are sufficient.	6
Lesson time are not sufficient.	18

According to Table 9, during the Covid-19 pandemic period, primary school teachers' views on the course durations in distance education mathematics teaching were divided as f=6 and not sufficient f=18.
According to Table 9, the majority of teachers have the opinion that the time allocated to mathematics teaching in distance education is insufficient.

3.9. Findings of teachers' views on Education Information Network tv course content in mathematics teaching in distance education

During the Covid-19 pandemic period, the views of primary school teachers on Education Information Network TV course contents in distance education mathematics teaching are given in Table 10.

Table 10: Views of Primary School Teachers on Education Information Network TV Course Contents in Teaching Mathematics in the COVID-19 Pandemic Period

Themes	**f**
I like.	13
I don't like.	4
Can be improved.	4
No idea.	3

In Table 10, the views of primary school teachers on Education Information Network TV course contents in distance education mathematics teaching during the Covid-19 pandemic period are shown in 4 themes as f=13, I don't like f=4, can be improved f=4, I have no idea f=3.

According to Table 10, primary school teachers said that they generally liked Education Information Network TV. There are also teachers who never examine or watch Education Information Network TV. T8; *"I find the Education Information Network TV course contents very positive and effective. I think that every student who participates has benefited from Education Information Network in a very meaningful way."* T14; "*Education Information Network TV course content can be supported with videos that can be enriched with more enrichable materials, let's say a little more plain logic, that is, the narration can be enriched by the other person listening to it."* T6; *"Well, they explain it nicely by going down to the student level." There are also teachers who never examine or watch Education Information Network TV*." T13; *"Frankly, I couldn't look at the Education Information Network TV course contents much. Since I use these platforms, I don't have much information."* T4; *"I don't use it a lot, it's a shortcoming. That's why I don't know the contents."*

3.10. Findings on students' approaches to mathematics teaching in distance education

The views of primary school teachers about students in the distance education process are given in Table 11.

Table 11: Views of Primary School Teachers of Mathematics Teaching in Distance Education of Students in Mathematics Teaching during the COVID-19 Pandemic Period

Themes	**f**
Lots of interest and desire.	20
Little interest or desire.	4

In Table 11, during the Covid-19 pandemic period, the **view**s of the primary school teachers in teaching mathematics in distance education are stated by the teachers as high interest and desire f=20, and low interest and interest f=4.

As to the table, according to the opinions of teachers in teaching mathematics in distance education, students are mostly interested and willing to the lesson. T21; *"Well, they do it very happily. My students are very enthusiastic and even say how many times I teach, let's do math or something. That's why we're in a further place right now."*

3.11. Findings on the effects of parents on mathematics teaching in distance education

The effects of parents on distance education mathematics teaching of primary school teachers during the Covid-19 pandemic period are shown in Table 12.

Table 12: Views of Primary School Teachers on the Effects of Parents on Teaching Mathematics in Distance Education during the COVID-19 Pandemic Period

Themes	Sub-themes	f
Positive	As an assistant	10
	Control and providing feedback	5
Negative	Misdirection	5
	Do it yourself	4

As given in the Table 12, the effects of parents on distance education mathematics teaching of primary school teachers during the Covid-19 pandemic period were examined in 2 themes as 'positive' and 'negative.' Positive theme; It is divided into 2 sub-themes as helping (f=10) and providing control-feedback (f=5). The negative theme formed the sub-themes of misdirecting (f=5) and making oneself (f=4).

When we look at Table 12 in general, the majority of classroom teachers said that parents had positive effects in terms of providing control and feedback at home during the process and helping the teacher. T4; *"I think it had a positive impact as a first class because they gave immediate feedback right next to him and helped because there was a question he could not do, I think it was positive."* T14; *"The positive aspects are that our parents, who are really at peace with mathematics, support the activities we do for their students. They explained the negative effects of the parents in terms of doing the activities themselves without having the students make them do the activities and transferring the subjects to the students as they know them*." T15; *"There are also some parents who do not provide the environment for the child, the noise becomes his brother, the voice speaks next to him and chats. Then our success decreases because the child's interest and attention inevitably gets distracted, or the Count does not do his homework, he does not provide control, then the success goes backwards."* T5; *"I mean, there are positive aspects and negative aspects as well. The negative side is that they tell the child the answer right away without giving the child the opportunity to think and do it, and the child says the answer before he/she learns. You can't intervene either."*

4. Discussion, Conclusion and Recommendations

As a result of the findings of this study, in which the opinions of class teachers on mathematics teaching in distance education were taken during the Covid-19 pandemic period; teachers' views towards mathematics teaching in distance education, teachers' views towards concretization in distance education mathematics teaching, methods and techniques used by teachers in distance education mathematics teaching, teachers' views towards mathematics teaching in distance education and digital platforms used in teaching mathematics in education, opinions of teachers on readiness for higher education in mathematics teaching in distance education, general problems faced by teachers in teaching mathematics in distance education, opinions of teachers on measurement-evaluation in teaching mathematics in distance education, opinions of teachers on course times in mathematics teaching in distance education, teachers' views on distance education mathematics teaching opinions of Education Information Network TV course content in teaching mathematics in education, students' views on math in distance education approaches to mathematics teaching, parents' effects on mathematics teaching in distance education are given under the headings.

In the first title, teachers' views towards teaching mathematics in distance education were discussed with their positive and negative themes. The sub-themes of benefiting from visuals under the positive theme, digital

activities, providing self-confidence and providing the opportunity for repetition; under the negative theme, the sub-themes of lack of participation, lack of feedback, monotonous and abstraction of the expression were formed.

A rapid transition has been achieved from face-to-face education to distance education. In this study, the researchers examined the competencies of the instructors who will give distance education against the new system. As a result of providing instructor training to the instructors with distance education, it contributed positively to their thoughts on self-efficacy and benefit. First of all, the teacher's perspective on distance education will affect the adoption of a new order and efficiency (Ak et al. ,2021).

By taking into account the opinions of teachers, students and parents, researchers working on the efficiency of distance education during the Covid 19 pandemic period, students' inability to actively participate in the lesson, parents and teachers not having sufficient guide model features, not being able to follow up students remotely, system-related problems, technological inadequacy, internet infrastructure. They revealed the existence of many problems such as the problem of (Basaran et al., 2020).

Teachers' views towards concretization in mathematics teaching in distance education were stated as "I could" and "I couldn't." Primary school teachers who can embody used sharing on the digital screen and materials at home as a method of concretization.

The methods and techniques used by teachers in teaching mathematics in distance education were examined under one theme as traditional teaching method. Among the traditional methods, the question-answer technique, the lecture method and demonstration technique were adopted the most.

The digital platforms used by the teachers in teaching mathematics in distance education were examined in two themes as the site used and the live course software used. While the teachers were conducting their course presentations through Education Information Network and ZOOM software, they benefited from the digital books of Okulistik, Morpa Kampus, Education Information Network TV course contents and other publications.

In this study, the Zoom program, Education Information Network distance education system and Education Information Network TV, which are actively used in the distance education process, are emphasized. While the teachers said that they were prepared for the process, they found Education Information Network sufficient in terms of education. They said that platforms in distance education are inadequate in terms of psychomotor skills, measurement and evaluation, and communication. The lack of interaction caused the problem of not being able to reflect the emotions. The inadequacy of distance education has been emphasized in the courses that require applied education. It is thought that teachers and students should receive training in order to be effective in Zoom, Education Information Network and Education Information Network TV applications. It has been suggested that efforts to improve internet infrastructure, technological material support, online platform usage training should be done (Balaman & Hanbay Tiryaki, 2021).

Teachers' views on readiness for higher education in mathematics teaching in distance education are mostly negative. In three separate themes stating that they are ready for the next level, they have deficiencies and they are not ready, the teachers focused on the themes that the students have deficiencies and are not ready.

Under the title of general problems faced by teachers in teaching mathematics in distance education, it has been observed that problems arise due to the lack of learning by doing-experience, by touching, student indifference, lack of feedback and lack of face-to-face interaction. According to the research, it was concluded that the time spent by the students on social media increased when the web-based learning was switched, and online education was most effective at the theoretical level and was not as efficient as face-to-face education (Keskin & Ozer Kaya, 2020).

Many problems have emerged in distance education. In this study, which is thought to affect the changes aimed at minimizing these problems, the subjects that teachers had the most difficulty in the process were communication

problems, problems with parents, and problems with learning. Teachers stated that they tried to create a feeling of being at school by doing activities to motivate students in this process, and they encouraged their students by saying nice words (Cakin & Kulekci Akyavuz, 2020).

Karatas examined the views of people and the level of these views after the Covid 19 pandemic. As a result of the research in his study, a growth was observed in the behaviors to comply with the pandemic rules, and a decrease was observed in people's desire to be in crowded environments. At the same time, the pandemic has increased people's sense of curiosity and affected their news watching behavior (Karatas, 2020).

Teachers' views on measurement-evaluation in mathematics teaching in distance education were examined with the themes of "I did" and "I did not." Primary school teachers who stated that they made measurement-evaluation in mathematics teaching in distance education benefited from exam-trial and question-answer techniques as measurement-evaluation methods.

Pre-service teachers evaluated the results of online training positively. While they found online training useful in terms of time and time saving, they also stated their disadvantages in terms of assessment, application, follow-up and equal opportunity compared to face-to-face training(Gorgulu Ari & Hayir Kanat, 2020).

The themes of 'adequate' and 'not adequate' emerged under the heading of teachers' views on course times in mathematics teaching in distance education. In distance education, most of the primary school teachers think that the time allocated to mathematics teaching is insufficient.

The themes that emerged as a result of teachers' views on Education Information Network TV course contents in distance education mathematics teaching are 'I like,' 'I don't like,' 'can be improved' and 'I have no idea.' The majority of the teachers stated that they examined the course contents of Education Information Network TV and that it was usable, but the students could not benefit from it due to the time.

When students' approaches to mathematics teaching in distance education are examined, it has been revealed that students' interest and desires for mathematics lessons in distance education are as high as in face-to-face education. It was stated by the teachers that the students especially wanted to do the mathematics lesson more than other lessons.

When the effect of parents in mathematics teaching in distance education was examined under the headings of "positive" and "negative" themes, primary school teachers talked about the positive effects of parents in this process. Teachers stated that parents form the gap between the problems that may arise due to the inability of the teacher and the student to come together and provide the best help to the teacher in this process.

With the Covid 19 pandemic process, a rapid transition to distance education has been achieved in educational institutions. Researchers discussed distance education systems with the participation of 33 universities in Turkey. The research is important in order to strengthen the effectiveness in distance education. As a result of the study, it has been revealed that universities carry out the distance education process mostly by using Moodle and ALMS management systems. While Big Blue Button was the most preferred program in live lessons, Zoom and Microsoft Teams programs were also used. It has been determined that universities mostly do not use the synchronous teaching method known as mutual coursework in different places at the same time. It is seen that attendance to courses is followed in more than half of the universities. The majority of the participants are of the opinion that distance education should become widespread. Nearly half of the majority stated that the subjects were not sufficiently understood with distance education. Participants think that instructors should receive training on distance education (Durak, et al., 2020).

Focusing on the social effects of the Covid 19 pandemic process, which affected the whole world in 2020, on children, Erol concluded that with the increase in health problems of children, other developmental areas were negatively affected. The fact that people have to stay at home due to the pandemic has shown that the mental health

of children is affected by causing many problems in the family. He made various suggestions to ensure that children are least affected by this process. He emphasized that psychological counseling centers that will provide free service should be opened and necessary training should be given in order to establish communication in accordance with the age levels of children (Erol, 2020). Due to the pandemic, schools suspended face-to-face education and made a rapid transition to distance education and online courses. This change has affected the efficiency level of education in students. Countries had to abide by the special rules and the general rules taken around the world. Legislation, infrastructure, human resources, content and application themes were taken into consideration at the basis of the decisions to be taken in distance education applications throughout Turkey. In the studies, it is thought that the online education system, which started with necessity, will be the basis of the education system in the future (Telli Yamamoto and Altun, 2020).

Examining the advantages and disadvantages of distance education studies carried out worldwide due to the Covid 19 pandemic, Er Turkuresin reveals the principles of economy, repetition, time and space flexibility as the advantages of distance education; It has been described as disadvantages of learning not being permanent, problems stemming from assessment and evaluation, internet shortage, system problems and lack of interaction. By collecting the opinions of the candidates who received teaching training at the university via e-mail, it was concluded that the students were moderately satisfied with the distance education (Er Turkuresin, 2020).

Kurtdas, who investigates the effects of the Covid 19 pandemic process on society in many ways, emphasizes that the pandemic has created a traumatic effect in all areas of the world. Covid 19 has caused many changes in the economic, social and cultural fields. He emphasized that it is not possible to predict exactly in which direction the changes will affect the countries in the long run, and that it is not necessary to resist the changes caused by the pandemic. Socially, the transition to digital life in the world has accelerated with the pandemic. A rapid transition has made to the digital world in a way that people can take care of all their needs almost without leaving the house, and societies have had to keep up with it(Kurtdas, 2020).

Opinions about education during the pandemic period form the basis for the studies to be carried out. In this respect, Guler inquired the complaints submitted to private schools during the pandemic period in his study. It created ideas for suggestions before possible risks turn into a crisis. When he examined which word registrations people made the most complaints on the internet portal, he found that complaints were created with the word groups such as education fee, meal and book fee, not being able to offer healthy lessons in distance education, and cancellation of registration (Guler, 2020).

The researchers, who examined the effects of Covid 19 on teachers and students separately with the opinions of students and teachers, searched by writing terms using a database. With Covid 19, students feel restricted in the economic and social areas. Students who state that restrictions trigger aggressive behavior on themselves generally have negative feelings during the Covid 19 pandemic process. They also often experience insomnia, loss of appetite, and moodiness. Students prefer face-to-face education at school if they positively evaluate the repetition aspect of videos in distance education. They also stated that they had problems in motivating the lessons and in social interaction. They expressed the positive aspects of distance education as watching the video recordings again and providing learning in accordance with the individual pace. When the opinions of the teachers are examined, it is revealed that distance education is not adopted. The inability to provide sufficient interaction and the inability to make the desired presentations on theory and practice make distance education negative for teachers (Cicek, et al., 2020).

During the Covid-19 pandemic period, the following suggestions can be made for primary school teachers to teach mathematics in distance education:

- Technology trainings can be prepared for teachers, students and parents of students who have problems in using technology due to the closure of schools in distance education as a requirement of the new education model with the Covid-19 pandemic.
- In-service training can be organized in order to increase the competence of teachers in the distance education approach adopted due to the Covid-19 pandemic.

- In order to maintain equality of opportunity in education in the distance education process, the internet infrastructure of all geographical areas and necessary technical services can be expanded.
- Assistance services can be provided for students who cannot attend distance education due to economic reasons.
- Seminars and events can be organized in order to prevent psychological problems that may occur due to quarantine in teachers, students and parents during the distance education process.
- Compensatory education programs can be made for the subjects that are considered insufficient in the distance education process.
- The effectiveness of the subject can be investigated by adopting different titles and different models on the subject covered in this study.

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