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Opinions of Teachers on the Implementation of the Orff-Schulwerk Approach in Online Lessons

Research Article

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ABSTRACT

The purpose of this study is to determine the opinions of teachers on the application of the Orff-Schulwerk approach in online lessons. A qualitative descriptive model was employed in the study. The data were obtained through online course observations and interviews carried out with teachers adopting the Orff-Schulwerk approach. The data were analyzed by qualitative content analysis method. It was found that videoconferencing programs in online lessons suppress the sound, and connection and synchronization problems cause many pedagogical disadvantages for Orff-Schulwerk practices. It was determined that these technological limitations impede group studies in all aspects of music, movement, instrument, and improvisation. Teachers adopting Orff initially followed a reductionist approach by reducing their goals and plans in order to find solutions to these problems. As the process continued, they included additional technologies to online lessons, organized preparation activities before the lessons, and changed the teaching methods and strategies used for the lessons. Furthermore, they created ideas to overcome the limitations of technology and recorded preparation videos. Teachers further stated that the process has advantages such as interacting with the whole world, creating many more and more methodical lesson materials, analyzing with didactic lessons, and developing their own creativity. They stated that technology needs to be developed more in order to carry out Orff-Schulwerk lessons online, and that they would prefer to implement this approach face to face with the conditions at hand for efficiency; however, a time in which they can use the technology more has started.

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Keywords:

Music, Music Education, Orff-Schulwerk, Technology, Online Lessons.

Introduction

Different paradigms have emerged in science, art and education, depending on the developments in other fields. In music education Orff, Kodaly, Gordon, Dalcrose and Suzuki emerged as the pioneers of these new paradigms in the 20th century. Orff-Schulwerk, which is one of these approaches, initiated the transition

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from an environment where virtuosity and higher artistic skills are glorified to an approach that emphasizes the elements of the human beings with movement-music and improvisation. Orff-Schulwerk began as an experimental study to find "a new way of teaching music" that is "artistic rather than purely educational" (Orff, 1978). This approach was critical towards the loss of expression, abilities and creativity innate to humanity under the influence of the European "classical" music tradition (Orff, 1930; Kugler, 2013). In this context, the main purpose of this approach is to reveal the natural expression ability and creativity of the "modern" individuals by returning to state of "primitive" being, that is the soul-mind-body unity (Kugler, 2000). According to (Orff, 1963), elemental music cannot exist by itself; it forms a whole with movement, dance and speech. It is the music produced by the individuals, not as listeners but as participants. Elemental music is close to earth; it is natural, physical, and suitable for everyone to learn and experience. Children reach a deeper understanding of music through creation, improvisation, exploring and experiencing. Adding movement, drama, and visual arts further enriches the learning experience (Lopez- Ibor, 2011). According to Orff, the more basic the foundation of the expression is (basic elements, principles, forms, etc.) and the simpler it is, the stronger its effect (Weinbuch, 2010). Based on these thoughts, Orff shaped his approach with body and body percussion studies, which is the most natural instrument, and instruments such as the wooden xylophone and marimba, which are closest to nature. Orff saw this new concept of musical education as the only way to regain lost skills (Orff, 1930; Kugler, 2000; Jungmair, 2003; Weinbuch, 2010; Kugler, 2013).

Technology in the Orff-Schulwerk Approach

Until this section, it has been mentioned that the basic philosophy of Orff Schulwerk is to meet the elemental nature of human beings. The crucial part here is that the approach emphasizes on the principles of children's developmental characteristics, language development, and the connection of the instruments and materials used to nature. However, recent studies, especially in early music education, have shown that musical environment and nature of the children have also changed in parallel with social and technological developments, and digital technologies have gained dominance (deVries, 2009; Lamont, 2008; Roulston, 2006; Young, 2009). It is observed that children between the ages of zero to six spend an average of 1 hour and 58 minutes in front of the screen in a typical day (Rideout, Vandewater, & Wartella, 2003). Many parents today also believe that musical toys and multimedia tools are more efficient at delivering musical experiences to their children than live performances. Parents state that they do not know how to sing (deVries, 2009) and that multimedia materials are prepared and recorded by field experts (Thomas, 2007) and thus are more educational and aesthetically reliable.

This development in digital technologies is also reflected in Orff Schulwerk. According to Yaprak Kotzian (2018) even if the "elemental" idea, which forms the basis of Orff Schulwerk, has the quality of being beyond time, materials of Orff Schulwerk certainly do not have the quality of being beyond time. Nowadays, digitalization and new media have become a natural phenomenon that young generation has met from birth and a natural part of their sociocultural life. These are the current tools that humanity uses to satisfy the innate drive for self-expression and creation and can be described as "new" elemental. Orff teachers should follow and consider all the developments that time has brought and will bring, and adapt them appropriately in elemental musical practice.

In the development of Orff-Schulwerk ever since 1924, it is seen that the materials he produced have changed over time with the technology of the time. It is observed that many devices such as phonograph, gramophone, cassette, CD player are used in Orff studies with the widespread use of recording technologies. (Frazee, 2006) states that the use of these recordings provides access to music from all over the world especially in music listening studies and that the musical understanding of different composers can be experienced in Orff Schulwerk lessons through these recordings. The advantages offered by online digital technologies in recent years and the widespread use of internet at schools and homes and it becoming an integral part of daily

life have brought a major paradigm shift in learning and education (Teacher Training Agency (TTA) , 1999; Prensky, 2001). In parallel with these developments, materials such as mobile applications, web-based practice assistance programs, videos and slides have started to be used in Orff-Schulwerk practices.

There are studies in the literature that resist and support the use of digital technology. (Goodkin, 2009) states that against the high rate of digitalization in the daily lives of children, technology limitation in Orff lessons will be the antidote of children, and that their learning with a real community contributes to their spiritual development with the union of body-mind-heart. (Koops, 2011) used social networks to communicate with families that support the music education of young children. In this way, he shared knowledge and experience among families. It was found that families gained awareness about their guidance and the development and musical performances of their children. Woody& Fredericksohn (2000) used Master Tracks Pro and Band-in-a-box programs, Rhode (2018) used DJ sets and MIDI technologies in Orff classes to strengthen accompaniment, create concurrent ostinato parties and work in different musical styles. They stated that these practices reinforce the rhythmic parts played by the students, enrich the ostinato, and the accompaniments made with different musical styles have various contributions in terms of getting to know different world cultures. However, they stated that because Orff is an approach that encourages discovery and diversity, it is very difficult to imagine fully or predominantly technology-supported teaching, and it should be a tool that can be used in Orff-Schulwerk classrooms.

There are also online websites designed for general music education, but with the addition of modules according to the needs of music education approaches. On the MusicPlayOnline platform there are practice suggestions for Orff teachers, sections that allow seeing Orff instruments and playing them by clicking. Murillo (2017) states that these web-based sites, which are in line with international exam standards and provide gradual learning, are used and found beneficial by music teachers. In another study conducted by De Ioris, Moggio & Giovannella (2012), they developed the TaTi-Conga, a digital toy instrument, which is inspired by model instruments becoming widespread with digital technologies such as Guitar Hero, with enhanced technology that can be used in different active music approaches such as Orff, Kodaly, Dalcrose. TaTi-Conga is a multi-dimensional design that contains rhythmic and melodic sounds, produces the sounds of different Orff instruments when adjusted, allows listening and playing back accompaniment with midi files, and allows learning with repetitions with the help of the virtual teacher. Although it is interesting as a design, its effect on education and learning is not yet known since there are no studies available on its users yet.

For the first time in Orff Schulwerk, Klopper (2010) launched the "Orff-Tswana" Intercultural Music Making Initiative, which includes the music education students of Australian and African universities, using the video conferencing software. They shared the original songs and recordings each other via video conference and Sibelius software. There is no detail in the research about how video conferences took place. It can be thought that this study was used as a communication tool rather than an online lesson design. Based on the studies in the literature, it is seen that the use of digital technologies in Orff-Schulwerk consists of supportive trials aimed at contributing to education as a material.

The global epidemic affecting musical education approaches all over the world has turned digital technologies, which were previously used only as teaching materials, into the basic communication and lesson platform. Orff Schulwerk approach, which has stages such as face-to-face communication, group studies, playing together and improvisation, has encountered the obligation of providing the entire education on a digital platform. Since it is not known how long this obligation will last, it has become important to investigate the experiences of Orff-Schulwerk teachers in order to shed light on further practices. In this context, the aim of the study is to reveal the perspectives of Orff-Schulwerk teachers to determine the methods and strategies that they apply to handle this situation, to learn their opinions on the advantages and disadvantages of online

lessons. In order to provide a draw framework for this purpose, information about Orff-Schulwerk approach and technology use will be provided.

Method

Study Design

This study is a descriptive case study that was created to determine opinions of teachers in the compulsory technology adaptation process of the Orff-Schulwerk approach and to determine the practices in this process with live lesson implementations. Descriptive case studies provide insight into complex issues and describe natural phenomenon within the context of the data that are being questioned (Zainal, 2007). The goal of a qualitative descriptive study is to summarize the experience of the individuals or participants (Lambert, 2012). Guba (1981) suggests the validity of this type of research is increased when different research methods are pitted against each other in order to cross-check data and interpretations. He suggests that different methodologies like ‘questionnaires, interviews and documentary analyses’ should be used when possible. In this study observation and interview methods were employed to collect research data. There was a total of 36 hours of online live lesson participation for observation. These live lessons include a 20-hour Orff-Schulwerk coaching program, 3 online workshops in which 6 different instructors alternately participate, and observation of the international 'Sunday Sharing' days organised by the Finnish Orff Association.

Study Group

The interviewees were reached with the snowball sampling model. Snowball or chain sampling technique is used when it is difficult to reach the units that make up the population or when information about the population (size and depth of information, etc.) is missing (Patton, 2005). This technique focuses on people and critical situations where rich data can be obtained and reaches the population by following them (Creswell, 2013). A researcher who wants to make a snowball sampling begins by asking the following questions to the people and situations that potentially hold the most knowledge in the population regarding the examined phenomenon: "Who knows the most about this subject? Whom should I start interviewing?" (Flick, 2014). In this way, the researcher tries to get new information by asking people who else they can interview. In this study, people who conduct online lessons and who have higher interaction with other people and institutions were found.

In this context, a person who provides licensed Orff-Schulwerk Teacher Training in Turkey was first contacted and suggestions about who could provide sufficient information were taken. Then, recommendations of each interviewee were sought. Interviews were carried out with 8 teachers in this manner. Detailed information about the working group is given in Table 1.

Table 1. Characteristics of the participants

Code	Gender	Age	Experience Year	Lessons taught	City/Country
O1	F	40	16	Preschool/Orff Teacher Training	Ankara, Turkey
O2	M	40	15	Preschool/Orff Teacher Training	Istanbul, Turkey
O3	M	30	8	Preschool, Elementary school	Istanbul, Turkey
O4	M	30	5	Preschool, Elementary school	Istanbul, Turkey
O5	F	40	15	Preschool/Orff Teacher Training	Salzburg, Austria
O6	F	38	15	Preschool/ University	Samsun, Turkey
O7	F	30	10	Preschool/Orff Teacher Training	Ankara, Turkey
O8	F	45	13	Preschool, University and Orff Teacher Training	Salzburg, Austria

All the interviewees are teachers who have graduates from Orff Teacher Training program, have international studies, have done institutional studies to develop the Orff approach at the international level,

and have Orff teaching experience of 5- 16 years. The identities of the people interviewed in the research were kept confidential upon their requests due to ethical principles and were coded as O1, O2, which means Orff teacher.

Data Collection Tools

Online lesson observation form and semi-structured interview form were used to collect data in the study. Technology preferences and changes in teaching strategies were recorded on the observation form. There were seven interview questions including the differences in technology use of the Orff approach before and after the isolation process; the effect of the process on the application dimensions of the approach and the advantages and disadvantages of the process. The interview questions were shared with two field experts and one language expert. Necessary changes were made in line with expert opinions. Interviews were conducted online via the Zoom video conferencing program. Further questions were asked according to the course of the interview.

Validity and Reliability

In qualitative studies, validity-reliability is addressed differently from quantitative studies (Yıldırım & Şimşek, 2013). Instead of the validity and reliability expressions used in quantitative studies, it would be more correct to mention the expressions such as credibility, accuracy of the results and the competence of the researcher in qualitative studies (Krefting, 1991). Guba and Lincoln (1982) pointed out that validity should be trustworthiness rather than reliability in qualitative studies and categorized the criteria for trustworthiness under four main headings: credibility, reliability, approvability and transferability (Houser, 2015; Merriam, 2013; Whittemore, Chase, & Mandle, 2001).

Data collection methods were diversified in order to increase the credibility and reliability of this study. Therefore, both interview and observation methods were employed. Interviewees' perceptions of the technology integration process may change. 36 hours of live lesson observation was carried out to determine the extent to which the expressions of the participants that adapted to or resisted against the process and the practices in the lessons coincided. The statements of the interviewees were compared with the live lessons.

Data Analysis

Qualitative content analysis was used in the analysis of the study data. The data obtained from observations and interviews were deciphered and encoded with MAXQDA 12 qualitative analysis program. First, interviews and observation notes were collected and transcribed. Second, codes were developed. Third, themes and categories were developed based on a literature review. Fourth, the themes, categories, and codes were tabulated and interpreted. The codes and sub-codes were first analyzed by the researcher, then shared with experts, and the analysis was finalized by examining the overlap of the codes and expressions.

Limitations

This study had two limitations. First, this study is limited to the experience which Orff teachers have built during an average of 9 months of online digital technology. Second, the assessment was based on self-report and observations.

Findings and Interpretation

The codes and sub-codes obtained as a result of the qualitative content analysis shown in the table below.

Table 2. Code System

	Code	Code weight
1	Disadvantages	123
	Technological	56
	Sound	24
	Synchronicity	17
	Screen	15
	Pedagogical	67
	Group Studies	22
	Movement	9
2	Advantages	36
3	Solutions	113
	Reduction	34
	Additional technologies	29
	Individual- Respective	19
	Preperations	13
	Exceeding the limits	13

Table 2. Code System

Disadvantages

As a result of the data analysis, the disadvantages encountered by Orff educators are grouped under two main headings: technological and pedagogical.

Technological: Orff Schulwerk lessons are restricted by technological facilities, as all activities during the isolation process have to be held online. It is seen that the disadvantages of the Orff lessons basically stem from this restriction. The answers of the teachers are clustered under three headings as sound, synchronicity and screen limitation.

Sound: The most basic material of musical education is sound. According to the teachers, the most important problem in online classes has been the transmission of sound and voice. Due to the features of online conference programs to suppress loud sounds, frequencies and background noises, the transfer of musical sounds other than the speech was indicated as the major problem. Although there are available program settings to allow the background sounds, the level expected by Orff teachers has not yet been achieved. O3 stated that programs cannot transmit the timbre to the other side, repetitive sounds are turned off by the program, and that the sounds such as whistling, or glockenspiel is muted. In addition, O6 stated that when the internet connection is poor, the voices go across intermittently and occasionally there are fluctuations in rhythm. O2 mentioned that the lesson passed by trying to fix the problems such as the interruption of the voices, delayed sounds, someone forgetting the microphone off, and there was not enough time left for musical purposes.

O4 criticized sound and connectivity problems in terms of Orff philosophy. *“First of all, the sounds are digital, and [students] cannot hear a natural sound. Or for example, let’s say students brought an item in the house to play and started hitting the bottle. But it does not matter whether it is a bottle or a drum because a vague sound is transmitted to the other side. Since they cannot distinguish those tunes, cannot hear sounds clearly and cannot listen to each other, we cannot make music at the same time and thus eliminate most of the musical achievements that we expect.”* Orff teachers tried to improve the sound quality by strengthening the microphone and sound systems, but they stated that they could not individually solve the synchronization problem caused by the delay in the connection.

Synchronization: The concept of synchronization, which can be defined as performing a piece at the same time in accordance with a tempo is one of the most important essential elements of music and education. By feeling the tempo and rhythm together, playing, singing in choir and orchestral work, all participants are adapted to the same environment at the same time. According to the Orff teachers, it has become impossible to carry out these studies as delays were experienced due to the connection. O8 stated that they made experiments by having all the students to turn on their microphones, opening the voices of everyone in the digital environment created cacophony, so they muted their microphones, and further said that the greatest disadvantage of this for Orff lectures was that the group consisting of 50 participants lost communication with each other.

All the interviewees stated that they could not perform any of the activities involving polyphony such as choir, orchestra, co-improvisation and collective performances due to the synchronization problem. O1 stated that unless this synchronization problem is solved technologically, *"I cannot work canon at the same time. We cannot sing two audio tracks. I cannot accompany them while they sing. We cannot bring the small ostinato together at the same time."* O6 stated that this situation affected both the studies and the presentations and emphasized that *"We cannot present the work that we do together here. We can only take turns. If music, speech, instruments, dance are all involved, we cannot perform it live. We have to be content with just explaining."* On the other hand, O5 stated that this problem interrupted making music and dancing together, thus inspiration and creativity.

Screen: One of the technological disadvantages for Orff teachers is being limited by the screen capacity. O3 and O8 stated that it was arduous to follow group studies and improvisation because everyone was in different frames and scattered on the Zoom screen. The same is true for the screens of the students. O7 stated that each student uses another device for connection and further added that, *"Some devices can prevent other students from being seen on the screen. This is caused due to the settings and the small size of the screen. It is as if the student is not there despite being present. An interaction cannot be fully realized."*

O2, stating that the supervision of the students becomes difficult in the Orff lessons, especially in the dance activities, emphasized that *"When we say dance, they leave the screen. In a lesson of my friend, the one of the boys disappeared for a second and came with a cat. The children do not realize that someone is waiting for them on the screen."* and pointed out to the importance of parents' support in online lessons. O5 emphasized the difficulty of observing the whole class from the screen. *"A teacher in the classroom can easily observe 20-30 students. We can immediately hear what sound is coming from whom, and how we can create a specialized work for that student there. But it is very difficult to do my own job at the same time and to observe what the students are doing one by one and to manage the process on Zoom. Technology does not allow us to hear them all at the same time. It is as if we are teaching to an empty room."*

The problem of all participants seeing each other on the screen also affected the improvisation and the inspiration from the others in the Orff approach. O5 explained this situation by stating that *"What another friend does while dancing together in Orff inspires the individual. Creative dance proceeds in this way through the process of inspiration. Technology has constrained this inspirational process. Unfortunately, it is not possible to see another friend of mine while walking around the room."*

Pedagogical: During the isolation process, Orff lessons were limited with the possibilities of technology, which brought pedagogical disadvantages. According to the statements of the teachers, these disadvantages are clustered under the headings of group studies and movement.

Group studies: Transmission problems occurring in sound and synchronicity have deeply affected the group studies conducted simultaneously. O8 examined this situation in the context of the basics of the Orff approach. According to O8, *"Orff is an approach that teaches how to act together. Creating empathy and synergy is the main goal. When it comes to distance education, I cannot do a group study with you. When it is distant, I am only in*

a small square and I cannot feel your breath. I cannot see your reactions. Unfortunately, the situation we are living in is a situation that is totally contrary to our understanding and requires us to think about how to go through this process as educators again."

O1 examined this situation in the context of feedback and interaction. O1 stated that the problem of synchronicity brought about a chain of pedagogical problems with the following expressions: *"The group studies is completely shelved because of the synchronization problem. The group gets together, moves, songs are learned, ideas are shared, but it is not possible to make music at the same time. In the choir lesson, the teacher sings everyone's part. The students also sing with the teacher, but the teacher cannot hear them. Did they sing it right? Do their intonations sound correct? Does everyone work the same part? The teacher cannot control them. They have to control themselves."*

O3 and O6 said that even though there are group rooms in Zoom, these rooms are generally for sharing ideas. O6 states with the following expressions that social learning aspect is reduced: *"The important thing in social learning is not only to share ideas, but also to learn by looking at ourselves after observing the flexibility and the movements of the other person while dancing together."*

Movement: Orff lessons consist of face-to-face education with the continuous active participation of teachers and students, usually by moving. On the contrary, teachers stated that students sit in front of the screen in online lessons. O5 emphasized with the following expressions that looking at the screen for more than 30 minutes for children up to the age of 11 is very harmful for their brains *"Children should be moving. That was the good thing about Orff anyway. It was discovery by moving. It is limiting in every way to conduct it in this manner."*

All the teachers stated that the physical conditions of each student are not suitable for movement, they sometimes work in very small spaces and they usually plan movements limited to the upper body in order not to hit the environment. O3 mentioned a short work carried out in the lesson by emphasizing that a small screen also limits the movements. *"We tried to make choreography on a rhyme. However, people are always motivated by the upper body. When you do not get up, it makes it difficult to pull the chair and open a space, having problems with seeing and hearing the teacher as you move away from the screen. Therefore, it was limited with hands and the upper body."*

Advantages: Although the teachers mentioned the disadvantages of online lessons, they also touched on the positive parts of the process. It was revealed after the content analysis that it has nine different advantages. Teachers stated that the best advantage was to be able to communicate with the whole world. O2, O3 and O4 stated that, thanks to the online lessons, they had the opportunity to work with experienced teachers working in Orff institutes such as Finland, America, Brazil and Salzburg, where they would not normally attend due to cost and time. Similarly, O6 and O7 stated that it was very difficult for them to get permission from the institutions when they used to attend to an Orff workshop and that they had to change the whole plan, but now, they could work with world-renowned teachers in the comfort of their own home without problems such as permissions and relocations with online lessons. Furthermore, this process led Orff educators to seek immediate solutions and to work together. According to O4, it has also increased the flow of information and interaction between Orff teachers all over the world.

The isolation process has provided an environment for the teachers around the world to produce creative solutions with a new perspective. O7 explained the creation process with the following expressions: *"When we were wondering how to continue the lessons at the beginning, this process led us to creativity. The number of creative instruments increased more than ever. We made instruments from wooden skewers and cork, using materials such as drumsticks, maracas, kitchen tools etc. Whatever is available in the house is involved."*

Another advantage stated by the teachers was that more time was allocated to the analysis and training part of the work. According to O1, *"The didactic part of the work was always in the background. In face-to-face training, people mostly want the answer to the question of what and which. Which song was taught? What activity was carried out? But the question of why remains in the background. The parts of how activities differed according to the groups were shallow. Especially for those who strengthen the didactic part of teacher education with online, the practice dimension and return to normal lessons will be much more successful."* It is also stated as an advantage that online courses can be recorded and watched repeatedly. In this way, students have regular materials at their disposal. O1 stated with the following expressions that not only the videos but also all the materials have become organized and accessible from anywhere: *"We created an e-learning portal. Everybody uploads their lessons and plans to this portal. Now, our much more detailed files are always available."*

Teachers also stated that this process was very relaxing, especially for students who were introverted. Students who suffered from peer bullying and were shy about expressing themselves had the opportunity to experiment freely without experiencing social anxiety with the microphone being turned off during classes. It was observed that the participation of these students in the lessons has increased. The lessons could be taught without interruption due to fewer distractions compared to face-to-face lessons.

Solutions: The second sub-question of the study is to determine which solutions that teachers produce in order to conduct Orff lessons online. After the content analysis, solutions of the teachers were clustered under six headings: reduction, additional technologies, individual-respective studies, preparation and exceeding the limits.

Reduction: The teachers preferred the reduction method primarily in order to continue their Orff lessons online. When observed from a general frame, the class was reduced to screen capacity; movement to upper body exercises; musical instruments to rhythm instruments made at home; experiencing together to making videos and presenting ideas, polyphony to listening; high-level skills such as creativity and improvisation to the level of song learning and imitation. Teachers first preferred to adapt to the environmental conditions. Statements of teachers regarding these limitations are shared in the following.

O7 and O8 stated that *"We did exercises to stay within certain movement limits. Just like working on the upper body, arm and finger using the screen."* O6 stated that *"There was a butterfly dance. We could not dance holding hands on the screen, instead of we danced our fingers with a circular plate."*

O3 stated that *"The transfer to the instruments occurs with the materials in the house. Non-melodic rhythmic instruments are more appropriate."*

O7 stated that *"We have to prefer simpler, easier to learn, short songs in song teaching."*

As can be understood from the statements, the teachers initially were limited to the screen and planned their lessons with the materials at home. However, as the process continued, they sought different solutions. One of these ways is to use additional technologies to the online environment.

Additional technologies: As the process has continued, Orff teachers have begun to use additional technologies to overcome the limitations of technology. Audio and video recording was used by the teachers specially to solve the problem of polyphony and to enable the students to hear the final version of the piece. Students also created videos with new performances on top of the existing performance to create a polyphony environment, especially in group studies.

O1 stated that even though they did not experience the music in the same environment, they achieved a polyphonic sensation by preparing the improvisation of everyone with video recording and editing programs: *"Carl Orff Foundation made a project. They gave a piece of music and asked the participants to complete this piece with their own ostinatos. People shot videos. The teacher cut, edited and put together a composition."* However,

O5 stated that the number of people who can use video recording and editing programs in groups is low, and especially in young groups, recording in rhythm and making it polyphonic by combining this recording is challenging due to the technical infrastructure.

In addition to audio and video recording tools, three teachers stated that they made more use of visual aids such as book pages, scores and pictures representing graphic notation. Only O8 stated that they used digital tools, mobile applications and ready-made loops as an aid to improvisation.

Individual-Respective: As another solution teachers changed their teaching methods and strategies. O8 applied the freezing strategy in movement, improvisation, and singing exercises in online lessons. *“One person starts, when he/she is frozen, the other continues. Musically, this can be understood.”* O6 and O7 wanted their dance moves to be imitated in their workshop, and then they waited for everyone to respectively demonstrate the different movements which they produced. O7 stated that he/she did the rhythm repetitions and reflection studies one by one and respectively. He/she asked the students repeat by playing a rhythm. O3 stated that he/she focused on activities such as questions and answers by first singing short lyrics, rhythms and melodies, and then asking the students to respectively complete. O4, on the other hand, emphasized that everyone is in a different place in the windows on the screen and sometimes people change places, so the queue is confused and stated that they gave numbers to everyone to solve this problem. According to these numbers, everyone stated that they were doing exercises such as posing, freezing and following others in order.

Preparation: Another solution that teachers found is to do preliminary studies They sent a list before the lesson to collect materials at home. Over time, teachers made their own rhythm instruments with the students. O7 recorded videos explaining how to make an instrument from waste materials such as plastic plates and toilet paper rolls and shared them with the students before the lesson. O2 stated that he/she sent videos to be used for warming up just before the lesson, and that the lesson was more efficient when the students participated by doing these exercises.

Teachers sent videos not only for the material but also to prepare for the topics to be covered in the lesson. The recording of a song and the videos with the lyrics were used by all teachers. O3, O6 and O8 stated that they recorded videos in order to have the students hear the final state of the pieces learned in lessons in parts.

Exceeding the limits: Teachers initially shaped their lessons according to technological limitations. However, as their experience increased, they exceed these limitations. The upper body and fixed practices within the limits of the screen followed a lesson aimed at expanding the space. O1 shared an example: *“A colleague of ours gives the children a theme in the live lesson. He/she makes the children prepare materials together with their mothers. This puts children into the atmosphere before the activity starts. He/she says; dig a hole in the middle of the carpet or find something. This keeps the children moving just like in the classroom setting.”* In this example, the screen stays fixed; the student expands the space by moving away from the screen a little. In another application, O2 stated that they found solutions such as *“moving in the room with the computer in our hands”*. *“For example, we say, let’s find something that makes a long noise or a rope. We always stand up to be active. We turn the camera and point our feet. If there is a problem with the position, we fix it.”* O2 gave an example of how they worked by changing the angle of the camera with these expressions.

O3 and O4 enabled the students to leave from and return to the screen as soon as the rhyme was finished with instructions such as *“Walk around the house while the rhyme is sung. What did you do in the pandemic? Choose the item you used the most and perform its move. Come walk around the house until the rhyme is over!”*

Teachers looked for ways to expand the whole-body movements. O2 stated that *“Since our houses are small, we moved the dance lesson to the chair. Yes, this idea was created for online, but we also used stools in regular classes. This way we could also saw each other on the screen.”*

In the instrument dimension, while rhythm instruments were practiced mainly with home materials, melodic instruments were tried as well. O7 stated with the following expressions that he/she tried to make melodic experiments with the materials available in the house: *"I tried to use glasses. But the glass, amount of water in it and matching the exact notes was important. Even if it does not sound right, at least we tried to catch the fifth interval."*

Teachers also experimented with polyphony with sound effects and elongated sounds for synchronization and polyphony. In the workshop organized by O3 and O4, each participant imitated different doorbell effects in the doorbell ringing event, and polyphony was achieved by selecting opposing ones (long versus short sound, etc.). O2 quoted a similar example of working with instruments: *"A guitarist and a violinist play at the same time in the practice. The melody and the song are on the guitar, while the violin plays one sound like the sound of the wind. Even a little polyphony is provided. "*

Conclusion and Recommendations

In this study, the advantages, and disadvantages of online Orff-Schulwerk lessons and the solutions produced by Orff-Schulwerk teachers were discussed. Orff-Schulwerk lessons are widely given in pre-school institutions. Since both preschool and music education have social and face-to-face aims, teachers working in these fields have been caught unprepared for the distance education process, which has become compulsory with the pandemic. According to Yıldırım (2021), primary and secondary schools continued education with television broadcasts and distance education infrastructures created by the national education ministries during the pandemic. Likewise, higher education institutions have coped with the process by strengthening their existing distance education infrastructures. However, preschool institutions do not have an infrastructure for distance education as required by their programs. According to Rees (2002) music educators have been slow to adopt the internet-based distance education process. The continuation of music education, in practice, in a master-apprentice relationship and in face-to-face environments, and the ossification of this method seems to be an important factor for those who want to take music education and music educators to stay away from distance education (Aksoy, Güçlü, & Nayir, 2020). This recessive approach, which is expressed in studies such as general music education and vocational instrument education, is seen as an opportunity within the Orff-Schulwerk philosophy. According to Orff-Schulwerk, music is timeless. This is what he means: anything may change. But the roots that date back to the earliest times of our existence and our existence do not change (Yaprak Kotzian, 2018). It was observed that the teachers participating in the study also acted based on this principle and in a short time they organised lesson plans and activities according to the new situation at hand. However, it turned out that existing technology has too many drawbacks to precisely organise an Orff-Schulwerk lesson. Especially the problems in the transmission of sound, and the problem of connection and synchronization that prevents making music together at the same time caused pedagogical difficulties. Therefore, polyphony and group studies, which are indispensable for Orff-Schulwerk approach, could not be carried out.

According to Digolo, Andang'o, & Katuli, (2011) the problems to be overcome in distance music education are 1) Lack of distance music education pedagogy, 2) Lack of competence in using technology, 3) Lack of software for music and instrument education, and 4) Low internet quality and connection speed. Yıldırım (2021) also states that the most common problem that preschool teachers encounter in the distance education process is internet connection. As a result, he stated that not all students can be accessed, and it becomes difficult to reach pedagogical goals. In the same study, teachers offered suggestions such as strengthening the internet infrastructure, informing parents about the process, requesting parents to send video recordings of activities at home, preparing television programs by the Ministry of National Education, and providing in-service training to teachers. These recommendations point to problems that can be solved by stakeholders other than teachers. Orff-Schulwerk teachers, on the other hand, sought the solution within

themselves because they worked in a much more specific field. Orff-Schulwerk teachers, as a solution, firstly reduced their goals with a reductionist approach. The class was reduced to screen capacity; movement to upper body exercises; musical instruments to rhythm instruments made at home; experiencing together to making videos and presenting ideas, polyphony to listening; high-level skills such as creativity and improvisation to the level of song learning and imitation. Thus, the teacher assumed a one-sided information transmitter role, and the students worked individually in their own homes under the instructions of the teacher. Student-to-teacher feedback was only available through solo parts carried out in turns or video assignments. Furthermore, the interaction of students with each other decreased significantly. It was observed that learning and activities became more individual. However, what is meant by individuality here is far from an education organized according to the learning facilities and differences of each individual, as in today's constructivist learning approaches. Instead, it refers to a lesson environment that is free from the interaction and feedback that each student tries to get by watching the teacher. Therefore, it can be said that the responsibility of learning lies more on the students. As this process continued, teachers created solutions to overcome the limitations of technology by using additional technologies such as audio and video recordings, giving instructions to students to prepare before the lesson and changing their teaching strategies.

This process also had advantages. According to Dodds, Perraton, & Young (1972), distance education has grown due to three perceived main advantages. The first of these is its economic advantage: in distance education, school buildings are not required and far more students can be trained than the school building can accommodate. Its second main advantage is its flexibility: people who work in a job can participate in educational activities in their own free time and at home without having to leave their jobs. The third advantage is that it has the capacity to educate a very large group of people (from nomads to inmates). Kılınc, Yazıcı, Günsoy, & Günsoy (2020) states that distance education can have important functions in terms of decreasing the costs, providing education to the masses, increasing the income and welfare level especially in populated countries. Khan & Williams (2006) argue that distance learning platforms are powerful tools to reduce poverty and increase the social welfare of low-income people, the disabled, long-term patients, minorities and similar disadvantaged groups. In this study As the distances lost their importance, the interaction of Orff-Schulwerk teachers from all over the world came together to produce solutions and to hold share days. It was opportunity to participate in workshops, which are difficult in terms of time, distance, and costs in face-to-face education, with the comfort of the home and low costs.

As another advantages creativity of the teachers developed in this process, they made different instruments from various materials, and devised different teaching strategies and new methods. The teachers recorded more of their work and made them available 7/24, ensured the formation of regular lesson materials. Especially in teacher training, it was stated that a deeper insight was gained about why and how practices were carried out by didactic analysis of the previously applied lessons. This result is determined for a qualified distance education environment; 24/7 access to course materials, flexibility, video, audio, graphics, diversity, high interaction and collaboration opportunities are in line with research in the literature (Meyer, Rose, & Gordon, 2014; Harasim, 2017; Henderson, Selwyn, & Aston, 2017; O'Callaghan, Neumann, Jones, & Creed, 2017).

Become better on the online platform, new technologies that can solve synchronization and audio transmission problems must be developed. Therefore, it is important to share the results of this study with people working in the field of internet and software. Teachers should have easy access to products such as microphones and mixers that can improve the online lesson experience. This access should be provided with institutional support since the technological knowledge and financial situation of each teacher will vary. The sharing days regarding the solution of the problems that occurred in our country and Orff-Schulwerk

institutes and associations in different parts of the world and the development of new lesson methods should be followed, and these should be reported and shared with all colleagues.

This study is limited to the experience which Orff-Schulwerk teachers have built during an average of 9 months of online digital technology. It was observed that teachers spent the first three months with technological decisions such as understanding technological limitations, transmitting better audio and deciding on video conference programs, and the next three months acknowledging the limitations of technology and making lesson plans accordingly. In the last three months, it was observed that ideas started to be generated rapidly in order to overcome these limitations. Therefore, it is recommended that the study is reconstructed and updated as experience increases.

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The Relation between Learning-Centered Leadership and Structural Empowerment of Teachers

Research Article

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ABSTRACT

The aim of the current study is to determine whether there is any significant relationship between school administrators learning-centered leadership and teachers structural empowerment, based on teachers' opinion. The research was designed with the correlational survey model. The participants consist of 261 volunteer teachers working in Bolu central district in the academic year of 2020-2021. Personal information form, learning-centered leadership scale, and teachers structural empowerment scale were used as data collection tools. The data were analyzed with SPSS software. According to the results of Kolmogorov-Smirnov test for normality, it was seen that the data were not distributed normally. That's why Mann-Whitney U and Kruskal Wallis were employed for the data analysis. Spearman correlation analysis was used in order to determine the relationship between learning-centered leadership and teachers structural empowerment. The results of the research show that teacher opinions on learning-centered leadership and structural empowerment are at high level. Also, there are no significances in learning-centered leadership and structural empowerment in terms of gender professional seniority, working period with school manager. While the variable of working period at school makes a significant difference in the factors of managing curriculum and being a role-model of learning-centered leadership, there is no significance in the other factors and the scale. The variable of working period at school does not make a significant difference in teachers structural empowerment and its factors. There is a significant, positive and high relationship between learning-centered leadership and teachers structural empowerment.

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Keywords:

Learning-Centered leadership, Structural empowerment, Teacher.

Introduction

It can be suggested that the effective operation of institutions is related to the competencies of the managers and their ability to manage based on these qualifications (Cerit, 2004). The efficient realization of

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education and training activities in schools and the school administrators have an important role in achieving goals by increasing the quality of education (Ertürk, 2019). In this respect, the idea that school principals have a significant role in achieving the objectives of educational institutions emphasizes the need for having leadership qualities as well as management qualifications. This led the school principals to search for leadership behaviors and emergence of new leadership approaches. One of these leadership approaches is the learning-centered leadership that has attracted a lot of attention in schools recently (Bakan, Doğan, Koçdemir & Oğuz, 2018). Especially, the studies on efficient schools have indicated that some behaviors of school principals have an influence on the quality of the teacher's behavior in the classroom, and the understanding of teaching leadership that forms the basis of learning-centered leadership is in the process of changing towards the concept of "learning-centered leadership", which includes being a model, monitoring and dialogue behaviors (Male & Paleiologou, 2021; Southworth, 2002).

Although learning-centered leadership and educational leadership are closely related to each other, teaching leadership focuses on teaching and learning at schools, and the school administrators who are the teaching leaders provide the necessary resources for the school to achieve its visions and objectives, try to improve the learning environment in the classroom, provide two-way communication with effective language and are in constant communication with the teachers and students in all environments. Learning leaders aim to establish and develop the learning organization by trying to design the organization as a whole in accordance with the learning organization model in that learning-centered leadership focuses on the learning of all employees at the school, including the principals, while empowering the professional learning of employees to create environments that will enable teachers to learn from each other (Çelik, 2015). The studies have showed that learning-centered leaders aim to create a school environment that encourages teachers and students to learn at school (Liu, Hallinger & Feng, 2016).

Learning-centered leadership is defined in various ways in the literature. Murphy, Goldring, Cravens, Elliot and Porter (2011) have stated that learning-centered leadership means to have six basic functions as developing a strong curriculum, providing effective teaching, developing a learning environment and professional behavior, developing good relationships within school environment, and developing a performance accountability mechanism. They have emphasized that there should be a culture that promotes learning and professional behavior, not a culture with a bureaucratic relationship at the school because no success can be achieved as being isolated from society; therefore, school, which is an important part of the society, should have strong relations with the society. Liu et al. (2016) have focused on the role of learning-centered leadership in the professional development of teachers, examining learning-centered leadership in four main dimensions: building a learning vision, providing learning support, managing the curriculum and being a model. Recent studies have also revealed that the learning-centered leadership improves the professional learning of teachers at the school and the confidence among teachers. In learning-centered leadership, the principal not only actively contributes to in-school learning practices, but also contributes to the creation of a school environment that allows teachers at the school to improve their professional learning processes and learn interactively with their colleagues (Kılınç, Bellibaş & Gümüş, 2017). Learning-centered leadership is considered as a process in which the school is organized as a whole by updating, improving and increasing the level of achievement of teachers and other staff at the school (Cravens, 2008; Knapp, Copland, Honig, Plecki & Portin, 2010). In the learning-centered leadership model, leaders develop a vision that encourages and enhances the professional and personal development of teachers as well as other staff of the school (Liu et al., 2016). Perez-Garcia, López and Bolívar (2018) have explained that a learning-centered leader has an effect on the improvement of students' achievement levels by focusing on most appropriate teaching and learning conditions.

It has been concluded that there are two basic perspectives on learning-centered leadership in the literature. Murphy et. al. (2006) have revealed approaches such as leadership and transformational leadership or teaching-oriented leadership at high-performing schools. Accordingly, the character of the learning-centered leader relies on the previous experiences and the knowledge, individual characteristics and values and beliefs he/she gains over time. Also, in-class activities along with the school administration has a positive effect on student success. This indicates that the learning-centered leader has a significant impact on educational activities, whose main goal is student success. Liu et. al. (2016) have considered the learning-centered school leader as providing professional guidance to teachers in order to increase the learning and effectiveness of the school by increasing the professional knowledge of teachers (Saphier, King & D'Auria, 2006; Cravens, 2008; Liu et. al., 2016), and based the learning-centered leadership on four key dimensions: building a learning vision, providing learning support, managing the curriculum and being a model. Goldring, Porter, Murphy, Elliot and Cravens (2009) have discussed the learning-centered leadership in two dimensions: the main components of the principal's strong empowerment of the students' learning process, and the basic processes that emphasize leadership behaviors in order to form a school culture that would increase the commitment of all shareholders to the school (Murphy et al., 2007; Goldring et al., 2009; Elliot & Clifford, 2014).

In terms of educational institutions to be effective, as in all institutions, the performance of teachers is as important as school leaders. Therefore, especially in recent years, it has become one of the new management techniques for the institutions, even the most important one that focuses on empowerment of the employees for them work effectively (Gül & Çöl, 2004). The empowering of employees is expressed as the process of sharing, training, helping and teamwork and also ensuring their participation in decision-making processes and personal development (Koçel, 2010). According to the related literature, it is concluded that there are two ways to empower the employees in the institution. The first one is structural empowerment, which means empowering of employees in terms of knowledge, resources and opportunities by sharing power and transferring it from senior management to those working in the lower ranks. In other words, McDonald's (2014) defines structural empowerment as individuals' using opportunities and resources most effectively to achieve the organization's objectives. In structural empowerment, institutions can change organizational processes, policies and practices by transferring power within the management and hierarchy to the lowest level of employees and encouraging them to participate in management as much as possible (Çavuş, 2006). The second is psychological empowerment, which means empowering the employees in terms of competence, significance and effectiveness (Sürgevil, Tolay & Topoyan, 2013; İlman Püsküllüoğlu & Altinkurt, 2017; İhtiyaroglu, 2017). According to Odabaş (2014), the main objective of psychological empowerment is to increase the quality of the employee's work by increasing the internal motivation of them. Empowering of teachers has been considered as decision-making, professional development, status, self-sufficiency, autonomy and influence by Short and Rinehart (1992); professional development, status, self-effectiveness, autonomy and influence by Mete (2004); participation in the decision, transfer of authority, the chain of command authority, staff authority, functional authority by Taş (2017).

Empowering of the employees will also play a critical role in empowering teachers, who are key figures for educating an individual with regard to expectations of the society. Empowering as a management concept is defined as the development process of teachers by increasing the decision-making authorities of teachers through cooperation, sharing, training and collaboration at school (Aras, 2013). Accordingly, in order to have remarkable teachers at schools, it is necessary to empower the development of teachers, to encourage them about making their own decisions and to provide them a self-check opportunity in terms of professional work (Mete, 2004). Empowerment of teachers increases their confidence in background knowledge and expertise because they feel motivated and perform better in achieving the objectives of their schools by doing work in accordance with the educational purposes of the schools (Çalışkan, 2006). In addition, empowered teachers

ensure continuous improvement at their schools by acting for a certain purpose in their own work and life (Özdaşlı, 2002). Empowering the teachers will contribute positively to them working more enthusiastically and increase their professional knowledge and experience (Bogler & Nir, 2012). In fact, what the learning-centered leader aims to do is to contribute to teachers' professional knowledge and development and to guide them by enabling the educational institutions to develop in accordance with the objectives. In addition, empowering the teachers will improve the quality of education by contributing to the strength of the teachers' personality and their performance (Kirby, Wimpelberg & Keaster 1992). Factors such as teachers' motivations, workplace atmosphere, and level of commitment to the work will ensure the success of institutions. It is very important to empower teachers in order to raise our children and young people as well-educated individuals and to compete with the other countries. The increase in learning-centered leadership will also contribute significantly to this situation.

As a result, empowering teachers in terms of behaviors means encouraging them about the transfer of authority, teamwork, communication for them to participate more in decision making processes at schools (Kıral, 2015). It is considered that school administrators who adopt learning-centered leadership at schools will allow teachers to empower more because learning-centered leaders will provide guidance to teachers about improving themselves, contribute to increase their motivation to see themselves as more knowledgeable and competent, and improve the quality of education. This will be beneficial in developing a positive climate at schools with educational institutions and achieving the objectives of schools. Any research investigating the relationship between learning-centered leadership and structural empowerment could not be seen in the literature. Besides the studies investigating different subjects with both learning-centered leadership (Murphy et al., 2006; Cravens, 2008; Goldring et al., 2009; Knapp et al., 2010; Male & Palaiologou, 2012; Kılınç et al., 2017; Bakan et al, 2018; Polat, 2020) and teachers empowerment (Polatçı ve Özçalık, 2013; Altinkurt ve et al, 2016; Gedik, 2017; İhtiyaroglu, 2017; Umar ve Özen, 2019; Ertürk, 2021).

The Purpose of the Study

The purpose of this study is to determine whether there is a significant correlation between the learning-centered leadership attitudes of school principals and the structural empowerment of teachers based on the views of the teachers working in secondary schools. In accordance with this purpose, research questions were determined as follows:

1. What are the opinions of the secondary school teachers on learning-centered leadership and structural empowerment of teachers?
2. Do the opinions of the secondary school teachers regarding learning-centered leadership and structural empowerment of teachers differ significantly based on gender, professional seniority, years of experience at the school?
3. Is there a significant correlation between the learning-centered leadership of the secondary school teachers and their opinions on structural empowerment of teachers?

Methodology

Research Design

This study is based on correlational survey model and aims to determine the presence and/or degree of variation between two or more variables (Karasar, 2014).

Study Group

The study group of this research consists of 261 teachers working in secondary education institutions in the central district of Bolu province in the 2020-2021 academic year.

51% of the participating teachers are female, and 49% are men. According to the professional seniority variable, 8.8% of the participants have work experience between 0-5 years, 12.3% between 6-10 years, 19.2% between 11-15 years, 24.9% have experience between 16-20 years, while 34.9% have 21 years or more. According to the variable of years of experience at the school, 38.7% of teachers has been working for 0-5 years, 26.1% for 6-10 years, 19.2% for 1-15 years, while 16.1% have 16 years of experience or more. According to the variable of duration of working with the principal, 22.6% of teachers work with the principal for less than 1 year, 44.8% for 1-4 years and 32.6% for 5 years or more.

Data Collection Instruments

In the current study, learning-centered leadership scale and structural empowerment of teachers scale were used as instruments.

Learning-Centered Leadership Scale (LCLS): Learning-Centered Leadership Scale developed by Liu et al. (2016) has been adapted to Turkish context by Kılınc, Bellibaş and Gümüş (2017). It consists of three sub-factors and a total of 19 items. These are *building a learning vision* (5 items), *providing learning support* (7 items) and *managing the curriculum and being a model* (7 items). The internal consistency score ranges from .88 to .91. In this study, the Cronbach Alpha score was calculated as .98 in the whole scale, .94 in the sub-factor of *building a learning vision*, .94 in the sub-factor of *providing learning support*, and .94 in the sub-factors of *managing the curriculum and being a model*.

Teachers' Structural Empowerment Scale: Developed by Ilman Püsküllüoğlu and Altinkut (2017), the scale consists of five sub-factors and a total of 30 items, including 5-point Likert scale (1-strongly disagree and 5 Strongly agree) and *participatory decision-making environment* (9 items), *accountable environment* (4 items), *professional development supportive environment* (4 items), *facilitative school environment* (7 items), *autonomy-supportive environment* (6 items). The Cronbach Alpha for the internal consistency range from .77 to .95. As for the current study, the Cronbach Alpha score of the scale was calculated as .97 in total, .94 for *participatory decision-making environment*, .83 for *accountable environment*, .82 for *professional development supportive environment*, .91 for *facilitative school environment* and .90 for *autonomy-supportive environment*.

Data Analysis

The scales used in data collection were delivered by hand to 480 teachers in the scope of study group, and 309 teachers provided feedbacks accordingly. In the study, 48 of the scales collected from teachers were considered invalid because of incomplete data, and 261 of the scales were evaluated. Social Sciences Statistical Package (SPSS) program was used to analyze the data. Percentage and frequencies were employed in the analysis of the data, and arithmetic mean and standard deviation values were calculated. Since the data did not show normal distribution, the correlation analysis was performed through non-parametric tests (Mann-Whitney U, Kruskal Wallis). The normality of the distribution was examined by the Kolmogorov-Smirnov test in order to determine which analysis to perform on the obtained data, and it was determined that the distribution was not normal ($p < .05$). The current research was ethically approved by Social Sciences Human Research Ethical Committee of Bolu Abant İzzet Baysal University in the meeting on 29.03.2021 and with the protocol number of 2021/120.

Results

Findings and Analysis on the First Sub-Problem

Teachers' views on learning-centered leadership are shown in Table 1.

Table 1. Teacher views on learning-centered leadership

Scale	Sub-factors	n	\bar{x}	ss
Learning-centered Leadership	Building a learning vision	261	3,93	,784
	Providing learning support	261	3,58	,829
	Managing the curriculum and being a model	261	3,69	,798
	Total	261	3,71	,767

When Table 1 was examined, it was determined that teachers' views on the learning-centered leadership scale (\bar{x} =3.71) and in the sub-factors of building a learning vision (\bar{x} =3.93), providing learning support (\bar{x} =3.58), managing the curriculum and being a model (\bar{x} =3.69) were high as "Strongly Agree". This finding suggests that teachers consider that school principals exhibit learning-centered leadership behaviors at their schools.

Teachers' views on the structural empowerment are shown in Table 2.

Table 2. Teachers' views on structural empowerment

Scale	Sub-factors	n	\bar{x}	ss
Structural empowerment of teachers	Participatory decision-making environment	261	3,88	,717
	Accountable environment	261	3,97	,696
	Professional development supportive environment	261	3,35	,836
	Facilitative school environment	261	4,01	,656
	Autonomy-supportive environment	261	4,15	,630
	Total	261	3,91	,613

When Table 2 was examined, it was observed that they reported high levels of feedback on the scale of structural empowerment of teachers as a whole (\bar{x} =3.91), and in the sub-factors of participatory decision-making environment (\bar{x} =3.88), accountable environment (\bar{x} =3.97), professional development supportive environment (\bar{x} =3.35), facilitative school environment (\bar{x} =4.01), autonomy-supportive environment (\bar{x} =4.15). This finding indicates that teachers are structurally supported and empowered at schools.

Findings and Analysis on the Second Sub-Problem

Teachers' views on learning-centered leadership depending on gender variable are shown in Table 3.

Table 3. Mann Whitney-U test results on teachers' learning-centered leadership based on gender variable

Scale	Sub-factors	Gender	n	Mean	Sum of Ranks	U	p
Learning Centered Leadership	Building a learning vision	Female	133	132,67	17645,50	8289,50	,710
		Male	128	129,26	16545,50		
	Providing learning support	Female	133	133,68	17780,00	8155,00	,557
		Male	128	128,21	16411,00		
	Managing the curriculum and being a model	Female	133	134,56	17896,50	8038,50	,435
		Male	128	127,30	16294,50		
	Total	Female	133	133,69	17781,00	8154,00	,557
		Male	128	128,20	16410,00		

p<.05

When Table 3 is examined, gender variable was determined to have no statistically significant difference in teachers' views in the whole scale ($U=8154.00$) and in the sub-factors of building a learning vision ($U=8289.50$), providing learning support ($U=8155.00$), managing the curriculum and being a model ($U=8038.50$). This finding suggests that the gender variable does not refer a statistically significant difference in learning-centered leadership.

Teachers' views on structural empowerment based on gender variable are shown in Table 4.

Table 4. Mann Whitney-U test results on structural empowerment of teachers by gender variable

Scale	Sub-factors	Gender	n	Mean	Sum of Ranks	U	p
Structural Empowerment Of the Teachers	Participatory decision-making environment	Female	133	132,37	17605,00	8330,00	,764
		Male	128	129,58	16586,00		
	Accountable environment	Female	133	131,74	17522,00	8413,00	,870
		Male	128	130,23	16669,00		
	Professional development supportive environment	Female	133	133,36	17737,50	8197,50	,604
		Male	128	128,54	16453,50		
	Facilitative school environment	Female	133	129,45	17217,50	8306,50	,735
		Male	128	132,61	16973,50		
	Autonomy- supportive environment	Female	133	133,66	17776,50	8158,50	,558
		Male	128	128,24	16414,50		
	Total	Female	133	131,49	17488,00	8447,00	,915
		Male	128	130,49	16703,00		

$p<.05$

As shown in Table 4, it was determined that the gender variable did not show a significant difference in teachers' views in the whole scale ($U=8447.00$), and in the sub-factors of participatory decision-making environment ($U=8330.00$), accountable environment ($U=8413.00$), professional development supportive environment ($U=8197.50$), facilitative school environment ($U=8306.50$), and autonomy-supportive environment ($U=8158.50$).

According to the professional seniority variable, teachers' views on learning-centered leadership are shown in Table 5.

Table 5. Kruskal Wallis-H test results on teachers' views about learning-centered leadership based on professional seniority variable

Scale	Sub-factors	Professional seniority	n	Mean Rank	sd	χ^2	p	Significant Difference
Learning Centered Leadership	Building a learning vision	0-5 years	23	136,33	4	3,341	,503	-
		6-10 years	32	110,55				
		11-15 years	50	127,00				
		16-20 years	65	136,29				
		21 years and above	91	135,26				
	Providing learning support	0-5 years	23	133,17	4	8,484	,075	-
		6-10 years	32	100,56				
		11-15 years	50	120,93				

	16-20 years	65	138,75				
	21 years and above	91	141,15				
Managing the curriculum and being a model	0-5 years	23	139,96	4	8,426	,077	-
	6-10 years	32	101,63				
	11-15 years	50	119,35				
	16-20 years	65	140,93				
	21 years and above	91	138,37				
	6-10 years	32	100,23				
	11-15 years	50	122,85				
	16-20 years	65	139,34				
	21 years and above	91	139,25				

When Table 5 was examined, it was determined that the variable of professional seniority did not make a statistically significant difference in teachers' views in the overall scale ($X^2=7,861$) and the sub-factors of building a learning vision ($X^2= 3,341$), providing learning support ($X_2=8,484$), managing the curriculum and being a model ($X^2=8,426$).

Teachers' views on structural empowerment based on the professional seniority variable are shown in Table 6.

Table 6. Kruskal Wallis-H test results on teachers' views on structural empowerment based on the professional seniority variable

Scale	Sub-factors	Professional seniority	n	Mean Rank	sd	X ²	Significant p	Difference
Structural Empowerment of Teachers	Participatory decision-making environment	0-5 years	23	123,30	4	3,930	,415	-
		6-10 years	32	108,95				
		11-15 years	50	130,52				
		16-20 years	65	136,35				
		21 years and above	91	137,14				
	Accountable environment	0-5 years	23	128,50	4	3,212	,523	-
		6-10 years	32	114,58				
		11-15 years	50	130,04				
		16-20 years	65	142,72				
		21 years and above	91	129,57				
	Professional development supportive environment	0-5 years	23	134,46	4	1,147	,887	-
		6-10 years	32	130,88				
		11-15 years	50	123,39				
		16-20 years	65	137,88				
		21 years and above	91	129,44				
Facilitative school environment	0-5 years	23	108,98	4	4,729	,316	-	
	6-10 years	32	117,25					
	11-15 years	50	132,99					

	16-20 years	65	142,87				
	21 years and above	91	131,83				
Autonomy-supportive environment	0-5 years	23	138,89				
	6-10 years	32	122,81				
	11-15 years	50	127,90	4	1,279	,865	-
	16-20 years	65	137,47				
	21 years and above	91	128,97				
Total	0-5 years	23	126,63				
	6-10 years	32	111,53				
	11-15 years	50	129,70	4	3,182	,528	-
	16-20 years	65	139,70				
	21 years and above	91	133,45				

$p < .05$

According to Table 6, the variable of professional seniority does not create a statistically significant difference in teachers' views on the scale of structural empowerment of teachers ($X^2=3,182$), and in the sub-factors of participatory decision-making environment ($X^2=3,930$), accountable environment ($X^2=3,212$), professional development supportive environment ($X^2=1,147$), facilitative school environment ($X^2=4,729$) and autonomy-supportive environment ($X^2=1,279$).

Teachers' views on learning-centered leadership based on the variable of years of experience at the school are shown in Table 7.

Table 7. Kruskal Wallis-H test results on teachers' views on learning-centered leadership based on the variable of years of experience at the school.

Scale	Sub-factors	Years of Experience at School	n	Mean Rank	sd	X^2	p	Significant Difference
Learning Centered Leadership	Building a learning vision	0-5 years	101	129,05				
		6-10 years	68	123,49				
		11-15 years	50	154,67	3	6,865	,076	-
		16 years and above	42	119,65				
	Providing learning support	0-5 years	101	127,11				
		6-10 years	68	120,38				
		11-15 years	50	153,01	3	5,894	,117	-
		16 years and above	42	131,35				
	Managing the curriculum and being a model	0-5 years	101	130,46				
		6-10 years	68	114,24				
		11-15 years	50	154,29	3	8,193	,042	1-3* 2-3*
		16 years and above	42	131,73				
Total	0-5 years	101	128,32	3	6,907	,075	-	

6-10 years	68	118,77
11-15 years	50	154,77
16 years and above	42	128,94

p<.05

According to Table 7, in terms of teachers' years of experience at the school, it is observed that there is no statistically significant difference in teachers' views based on the learning-centered leadership scale ($X^2=6,907$) and the sub-factors of building a learning vision ($X^2=6,865$) and providing learning support ($X^2=5,894$). However, significant differences were found in the sub-factor of managing the curriculum and being a model ($X^2=8,193$). Mann Whitney U test was performed to find out which groups showed significant difference and the groups were compared in pairs. As a result, it was determined that there was a significant difference in favor of the teachers having between 11-15 years of experience ($U=2060,500$, $p<.05$) when compared to those having between 0-5 years of experience depending on the sub-factor of managing the curriculum and being a model, and significant difference was found in favor of teachers having between 11-15 years of experience ($U=1177,500$, $p<.05$) when compared to those having between 6-10 years of experience. As a result, it was observed that as the teachers' years of experience at the school increase, the perceptions of learning-centered leadership increase in the same way.

Teachers' views on structural empowerment depending on the variable of years of experience at the school are shown in Table 8.

Table 8. Kruskal Wallis-H test results on the teachers' views on structural empowerment based on the variable of years of experience at the school.

Scale	Sub-factors	Years of Experience at School	n	Mean Rank	sd	X ²	p	Significant Difference	
Structural Empowerment of Teachers	Participatory decision-making environment	0-5 years	101	132,45	3	4,899	,179	-	
		6-10 years	68	124,85					
		11-15 years	50	148,79					
		16 years and above	42	116,30					
	Accountable environment	0-5 years	101	128,28	3	6,461	,091	-	
		6-10 years	68	133,24					
		11-15 years	50	150,16					
		16 years and above	42	111,11					
	Professional development supportive environment	0-5 years	101	134,92	3	2,702	,440	-	
		6-10 years	68	120,56					
		11-15 years	50	141,30					
		16 years and above	42	126,21					
	Facilitative school environment	0-5 years	101	126,37	3	5,896	,117	-	
		6-10 years	68	137,79					
		11-15 years	50	147,02					
		16 years and above	42	112,07					
			0-5 years	101	132,60	3	4,415	,220	-

Autonomy-supportive environment	6-10 years	68	129,95				
	11-15 years	50	144,91				
	16 years and above	42	112,30				
Total	0-5 years	101	130,85	3	3,875	,275	-
	6-10 years	68	128,85				
	11-15 years	50	146,76				
	16 years and above	42	116,10				

$p < .05$

As shown in Table 8, it could be seen that the variable of the years of experience shows no significant difference in teachers' views according to the scale of structural empowerment of teachers ($X^2=3,875$) and in the sub-factors of the participatory decision-making environment ($X^2= 4,899$), accountable environment ($X^2=6,461$), professional development supportive environment ($X^2=2,702$), facilitative school environment ($X^2=5,896$), and autonomy-supportive environment.

Teachers' views on learning-centered leadership based on the duration of working with the principal variable are shown in Table 9.

Table 9. Kruskal Wallis-H test results on teachers' views on learning-centered leadership based on duration of working with the principal variable.

Scale	Sub-factors	Duration of working with the principal	n	Sum of Ranks	sd	X^2	p	Significant Difference
Learning Centered Leadership	Building a learning vision	Less than 1 year	59	134,42	2	1,344	,511	-
		1-4 years	117	125,18				
		5 years and above	85	136,65				
	Providing learning support	Less than 1 year	59	133,55	2	2,191	,334	-
		1-4 years	117	123,71				
		5 years and above	85	139,27				
	Managing the curriculum and being a model	Less than 1 year	59	133,21	2	2,253	,324	-
		1-4 years	117	123,69				
		5 years and above	85	139,53				
	Total	Less than 1 year	59	133,92	2	2,174	,337	-
		1-4 years	117	123,65				
		5 years and above	85	139,09				

$p < .05$

When Table 9 is examined, it can be observed that there is no significant difference in teachers' views depending on the duration of working with the principal variable based on the learning-centered leadership scale ($X^2=2,174$) in the sub-factors of building a learning vision ($X^2= 1,344$), providing learning support ($X^2=2,191$), the managing the curriculums, and being a model ($X^2=2,253$).

Teachers' views on structural empowerment according to the duration of working with the principal variable are shown in Table 10.

Table 10. Kruskal Wallis-H test results on teachers' views on structural empowerment of teachers according to the duration of working with the principal variable

Scale	Sub-factors	Duration of working with the principal	n	Sum of Ranks	sd	X ²	p	Significant Difference
Structural Empowerment of Teachers	Participatory decision-making environment	Less than 1 year	59	140,13	2	2,080	,353	-
		1-4 years	117	123,92				
		5 years and above	85	134,41				
	Accountable Environment	Less than 1 year	59	134,71	2	,399	,819	-
		1-4 years	117	127,86				
		5 years and above	85	132,75				
	Professional development supportive environment	Less than 1 year	59	138,68	2	1,542	,463	-
		1-4 years	117	124,87				
		5 years and above	85	134,11				
	Facilitative school environment	Less than 1 year	59	128,53	2	3,095	,213	-
		1-4 years	117	123,91				
		5 years and above	85	142,47				
	Autonomy-supportive environment	Less than 1 year	59	133,76	2	,429	,807	-
		1-4 years	117	127,64				
		5 years and above	85	133,71				
	Total	Less than 1 year	59	138,96	2	2,846	,241	-
		1-4 years	117	122,28				
		5 years and above	85	137,48				

p<.05

As Table 10 shows, there is no significant difference in teachers' views depending on the duration of working with the principal variable according to the structural empowerment of teachers ($X^2=2,846$) and in the sub-factors of the participatory decision-making environment ($X^2= 2,080$), accountable environment ($X^2=.399$), professional development supportive environment ($X^2=1,542$), facilitative school environment ($X^2=3,095$) and autonomy-supportive environment ($X^2=429$).

Findings and Analysis on the Third Sub-Problem

Table 11 includes correlation analysis to determine the relationship between learning-centered leadership and structural empowerment of teachers.

Table 11. Correlation analysis table for determining the relationship between learning-centered leadership and structural empowerment of teachers

		Building a learning vision	Providing learning support	Managing the curriculum and being a model	Learning Centered Leadership Scale Total	
The Scale of Structural	Participatory decision-making environment	r	,625	,686	,642	,691
		P	,000	,000	,000	,000
	Accountable Environment	r	,636	,605	,597	,642
		p	,000	,000	,000	,000
	Professional development	r	,609	,735	,671	,718
		p	,000	,000	,000	,000

supportive environment					
Facilitative school environment	r	,676	,596	,590	,648
	p	,000	,000	,000	,000
Autonomy-supportive environment	r	,546	,485	,485	,527
	p	,000	,000	,000	,000
Total	r	,709	,723	,690	,749
	p	,000	,000	,000	,000

* $p < .05$ ** $p < .01$

As shown in the table, a significant, positive and important correlation was found between the learning-centered leadership scale and the scale of structural empowerment of teachers ($r = .749$; $p = .000$). It was also seen that the relation between scales and sub-factors was significant, moderate and positive. The highest connection was observed between the supporting of professional development and the sub-factors of providing learning support which was positively high ($r = .735$; $p = .000$), and the lowest level of connection was observed between autonomy-supportive environment and the sub-factors of providing learning support and managing the curriculums and being a model ($r = .485$; $p = .000$) which was positively moderate.

Conclusion, Discussion and Recommendations

According to the findings, teachers have a high level of views on learning-centered leadership. Learning-centered leadership enables school principals to contribute actively to in-class learning teaching practices, as well as to improve and support teachers' professional learning processes; it is very important for teachers to be provided with opportunities to learn in an interactive way with their colleagues (Kılıç et al., 2017). Since schools are educational institutions that require continuous learning, the fact that school principals create visions for learning and provide learning support to teachers will contribute to teachers' quality teaching activities and improve student success. The result of the current study on learning-centered leadership is similar to Polat's (2020) research in the literature.

The results also showed that teachers had a high level of views on the structural support. On the other hand, very different results were identified when the literature was reviewed. While the findings of the current study are in line with the results of Arabacı's (2019) study, in another study, Duman (2018) has obtained moderately high and moderately low results in some sub-factors, and Altınkurt, Türkktaş-Anasız and Ekinci (2016) has found at moderate levels. In the qualitative study conducted by Umar and Özer (2019), teachers stated that they did not receive full support from the school principals. The reason that the current study reveals different results from other studies can be caused by the increase in the number of school administrators' trainings of teachers professional development and studies' different participant groups.

It has been very important that school administrators adopt change and creativity, and empower teachers structurally to be compatible with the change and innovations by 21st century and to carry out the innovations and changes in their schools (Yıldız & Ertürk, 2019). The school principals are now expected to demonstrate a management style enabling teachers' participation in the decision and which is facilitative, accountable, supporting the professional development of teachers and providing teachers with an autonomous working environment. All these factors will contribute to the quality of activities at schools by ensuring that teachers are structurally empowered. The teachers who participate in decision-making processes will be more willing to adopt and implement the decisions quickly. When teachers are able to express their opinions, they become more willing and efficient in implementing them (Ertürk, 2020). In institutions where participation in the decision-making processes is supported, the quality, creativity, acceptability, clarity, evaluation and accuracy of the decision increase and provide more benefits than an individual decision (Lunenburg & Ornstein, 2013). In accountable school environments, school principals should be able to aware

of their own responsibilities, provide shareholders with clear information on the issues required, and answer questions concerning the school. By means of being accountable managers, they develop good relationships with teachers and gain their trust. Good relations and trust between administrators and teachers can contribute to the formation of a healthy institutional climate at schools (Kalman & Gedikoğlu, 2014). In the institutions where empowerment of teachers is achieved by providing them necessary support and cooperation, the feelings such as the sense of work, influence, self-confidence, determination, perseverance and competence develop better (McCarthy, 2004). Facilitating leadership behaviors which empower employees at both the school and classroom has significantly positive effects on the quality of education, academic achievements of the students, the job satisfaction of teachers, organizational commitment and productivity levels (Marks & Louis, 1997). In order to be beneficial to students, teachers are required to have certain level of proficiency (Seferoğlu, 2004). For teachers to reach a certain level of competence and be aware of innovations, professional support of school principals and other colleagues are required as well as their teacher's own efforts.

A school environment that promotes autonomy contributes to the empowerment of teachers and increases student success by making them more effective in educational practices. Therefore, teachers should be offered the opportunity to use new methods and techniques, to consider the needs of their students, to make their own decisions in teaching and to implement these decisions, to make choices about the order of working environments related to the conduct of professional activities, and to be included in the management. Teachers' role in program development, participation in school administration and their activeness in the decisions making processes should be increased in order to contribute to the improvement of educational environments. Student success and the quality of education can be improved by providing teachers with the opportunity of autonomy in the preparation of curriculums, determining the methods and techniques to be applied, and providing them with autonomy in the selection of materials (Ertürk, 2020). Consequently, positive outcomes could be developed for students, teachers, administrators and schools with structural empowerment of teachers.

While there is no significant difference in teachers' views on learning-centered leadership in terms of gender, professional seniority, and duration of working with the principal, it differs in the sub-factor of managing the curriculum and being a model based on the years of experience. This difference is in favor of the teachers having between 11-15 years of experience when compared to those having between 0-5 years of experience and in favor of the teachers having between 11-15 years of experience when compared to those having between 6-10 years of experience. It is determined in the literature that while there is no difference between the teachers' views on learning-centered leadership and its sub-factors of depending on the gender and years of experience at the school variables, there are differences in teachers' opinions depending on the professional seniority variables according to Polat's study (2020).

Teachers' views on structural empowerment does not show significant difference in terms of gender, professional seniority, years of experience at the school and duration of working with the principal. On the one hand, there are a number of studies in the literature suggesting that gender variable does not make a difference in teachers' views on the structural empowerment and supporting the results of this research (İhtiyaroğlu, 2017; Taş, 2017; Altınkurt, Türkkaş-Anasız & Ekinci, 2016; Odabaş, 2014); on the other hand, there are some studies suggesting different results. Additionally, while a variety of studies in the literature support the results of this research depending on the professional seniority variable (Özaslan, 2018; İhtiyaroğlu, 2017; Taş, 2017; Altınkurt, Türkkaş-Anasız & Ekinci, 2016; Mete, 2014); there are also other studies with different results (Uygur & Arabacı, 2019; Duman, 2018). These significances can be caused by the differences in the number of participants of studies. Another reason of the significances can be that some school administrators are more successful in empowering teachers, and teachers' different demands and needs of empowerment, as

a result of that the school administrators working in the locations of the studies have different professional development.

Previous studies has suggested that there is no significant difference in teachers' views on structural empowerment depending on the years of experience at the school (Taş, 2017; Altınkurt, Türkkaş-Anasız, Ekinci, 2016). On the contrary, Duman (2018) has concluded that there are some differences between teachers' views on structural empowerment depending on the years of experience at the school.

A significant, positive and high correlation was found between the teacher-centered leadership scale and the scale of structural empowerment of teachers. It is obvious that the relation between the scales and sub-factors are also significant and positive at mostly moderate level. Since learning-centered leadership is the process by which the principal participates, supports and manages teacher learning in order to empower teachers' professional development, increase student success and improve the school (Liu et al., 2016), it is usual to observe a significant, positive and high level of correlation between learning-centered leadership and structural empowerment of teachers. Accordingly, the learning process, which is the basis of learning-centered leadership, plays an important role in empowering teachers. Since the main goal of learning-centered leadership is to improve the professional knowledge of school leaders and ultimately to guide, manage, support and participate in teacher learning in order to improve student learning and the effectiveness of the school (Liu et al., 2016), supporting the professional development of teachers by school principals, acting as role models for teachers and ensuring their learning will contribute to their structural empowering.

The highest level of correlation is positive and high among the sub-factors of professional development supportive environment and providing learning support. The lowest-level of correlation was found between the autonomy-supportive environment and the sub-factors of providing learning support and managing the curriculums and becoming models. This indicates that having learning-centered leaders at schools will make teachers more empowered because the goal of learning-centered leaders is to support and guide teachers, students and all staff for their professional development, including themselves. Polat (2020) has concluded that there are statistically significant relationships between teacher professionalism and learning-centered leadership in a positive and moderate level. Bakan, Doğan, Koçdemir and Oğuz (2018) have suggested that learned strength have a positive effect on learning-centered leadership.

As sub-factors of learning-centered leadership are analyzed, it is seen that the factors such as building a vision of learning, developing a school-wide learning vision and helping the teachers set professional goals individually, providing learning support, supply the teachers with the necessary resources and coordination to achieve their learning goals, managing the curriculum, guiding teachers to realize their professional learning, designing a development program, tracking the process, encouraging the teachers and being a model refer to the struggle of the school principal to influence the teachers by their desire for learning (Kılıç et al., 2017). Therefore, it is inevitable to observe moderate and positive relationships between learning-centered leadership and structural empowerment of teachers. Besides, the learning support provided to the teachers can be considered to have an important role in empowering teachers by helping and guiding teachers to set individual professional goals. Koçel (2010) emphasizes that sharing, training, cooperation and teamwork are significant for the empowerment of employees which is related to learning centered leadership.

When the literature is reviewed, it is seen that the issue of structural empowering of teachers is associated with many variables. In the studies, it has been determined that there is a moderate positive relationship between personnel empowering and organizational trust (Uygur & Arabacı, 2019). It has been observed that teachers' perceptions on the level of structural empowering at the schools shows negative, low or moderate correlation with organizational cynicism, (Özaslan, 2018), and that structural empowering is the significant precursor of teachers' autonomy behavior (Yorulmaz, Çolak & Çiçek-Sağlam, 2018). Moreover, it has been concluded that there is a positive and significant relationship between empowering leadership and

structural and psychological empowering (Gedik, 2017), and a positive and significant relationship between teachers' structural and psychological perceptions and external and internal motivation levels (İhtiyaroğlu, 2017). It has also been identified that there is a connection between behavioral empowerment of teachers and leadership characters (Taş, 2017); psychological and structural empowerment of teachers is the precursor of organizational citizenship behavior (Altinkurt, Türkkân-Anasız & Ekici, 2016). Also, it has emerged that there is a connection between structural empowering and organizational commitment, but psychological empowering does not play a mediator role in this relationship (Odabaş, 2014). Besides, it has been found that there is a strong interaction between structural empowering and workplace discourtesy. (Polatçı & Özçalık, 2013), and a moderate positive correlation between teachers' behavioral empowerment and organizational dedication (Ertürk, 2021).

In line with the results of the study, the following recommendations were determined:

1. Due to the positive and high-level relationship between learning-centered leadership and structural empowerment of teachers, school administrators should create a learning vision at school, provide the teachers with learning support, and be role-models for teachers by taking an active role in the management of the curriculum since the structural empowering of teachers will also increase along with the learning-centered leadership behaviors of school administrators.
2. Further studies related to learning-centered leadership and structural empowerment can be conducted with different methods, study groups, and school levels.

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Mobile Art Applications Acceptance Scale - Validity and Reliability Study

Research Article

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ABSTRACT

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The purpose of this study is to develop an acceptance scale whose reliability and validity were tested for the use of m-art applications for Visual Arts preservice teachers. Mobile art applications acceptance scale was tried to determine the theoretical framework based on Davis' (1989) technology acceptance model. The study group was formed with 446 Visual Arts preservice teachers studying in three different universities with an Art teaching program in the Eastern Anatolia Region. In order to determine the structure of the scale, EFA was performed and CFA was used to verify this structure through SPSS 17.0 software. The fit indices of the structure obtained for the scale ($\chi^2 / sd = 1.93$, RMSEA = .074, SRMR = .069, NFI = .93, NNFI = .96, IFI = .97, CFI = 0.97 and GFI = 0.85) show acceptable fit according to Brown (2006), Sümer (2000), Meydan and Şeşen (2011) and Seçer (2013). In this respect, it was seen that the factor structure obtained from EFA as a result of CFA has acceptable fit. Cronbach alpha (α) internal consistency coefficient was found .869 for 19 items of the scale. In scale studies, Cronbach Alpha value is reliable with measurements of .70 and above (Büyüköztürk, 2004; Nunnally & Bernstein, 1994). It can be said that the measurements obtained in this direction are evidence for the reliability of the scale.

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Keywords:

Mobile Art Applications, Arts preservice teachers, Acceptance Scale, Validity, Reliability

Introduction

In today's world, one of the most important skills in terms of maximizing the productivity is the ability to use information technologies. Especially, considering the speed of technological developments, using information technologies alone is insufficient. At the same time, it is necessary to stay up-to-date with these developments. Although some tools such as board, chalk, eraser (Uşun, 2006) are defined as educational technology, the most common concepts are computer, computer softwares, smart board, internet, and artificial intelligence. Educational technologies have entered a period, which is called the automation and cybernation period today, that can change the structure of the future school system, and

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eliminate the classical teaching approach (Vural, 2014). Naturally, this transition cannot happen suddenly. At this stage, it might therefore be argued that the process of integration of technology into classical learning has begun. In this sense, blended education is used as an important approach that combines online technologies together with face-to-face education, and takes advantage of their superiority during the teaching-learning processes (Kocaman Karaoğlu, Kiraz, & Özden, 2014). Recent studies suggests that the information technologies offered for the purpose of supporting the educational activities carried out face to face make a significant contribution (Fakomogbon, Bolaji, 2017).

One of the important information technologies that are increasingly used in the learning environment is mobile phone applications. Mobile learning is a form of learning that occurs as a result of the integration of mobile computing and e-learning areas and enables access to e-learning content, utilizing dynamically produced services and communicating with others, regardless of a particular location (Ağca, Bağcı, 2013). The main difference that distinguishes mobile learning from other learning activities is that the learning processes continue even if the learner is constantly on the move. It is an important privilege that the individual can start the learning process wherever and whenever s/he wants and intervene in the process at any time by staying independent from time and space (Çakır, 2011). Students, who benefit from the opportunities of developing technology with mobile applications, can learn at their own pace, unlike the classical education. In this self-learning process, the students can do research, determine their direction and repeat the topics they want or have problems (Delil, 2017). It has been observed that mobile applications offer effective and productive use and arouse students' curiosity, increase academic achievement and make learning simpler and fun with abstract and technical subjects, make students feel safe and make learning more permanent (Demir & Akpınar, 2016).

Mobile Art (M-Art) Applications

Mobile learning can be defined as the use of portable technologies in support of education. Mobile phones, smartphones, tablet computers and laptops may be included in this definition. According to this definition, it can be said that mobile learning takes place in the portability spectrum of e-learning (Traxler, 2005). Mobile learning contributes to reducing education costs in terms of providing independence from time and space, creating and delivering instant multimedia content. In addition, it provides important contributions to education in terms of providing lifelong and needy learning and improving the literacy level especially among young adults (Bulun, Gülnar, Güran, 2004; Mehdipour, Zerehkafi, 2013).

As mobile learning allows to establish the connection between learning inside and outside the classroom, it is imperative for educational institutions to provide mobile devices to students or to develop tools and software suitable for their devices (Demir & Akpınar, 2016). Mobile technologies are developing more and more every single day, especially with the rapid advances in information technologies in recent years, image transfer during speech, faster data transfer, high quality in all areas, more economical communication, and personalized service opportunities (Çakır, 2011). With these software, many teaching services are provided in various areas from language education to health, from literature to art, such as taking notes, solving problems, running projects, presenting exhibitions or participating. The m-arts practices, which are important components of education, inform us about the cultural and artistic activities that take place all over the world. It contains important information for those who want to prepare their works of art more professionally. It provides access to artists from all over the world to obtain current art ideas. Applications that make important contributions in many areas from encyclopedic knowledge to virtual reality, affects the quality of art works by increasing our art accumulation. It contributes, with important tips, to all art works from photography art to all kinds of paint techniques, from traditional arts to three-dimensional works. These practices, which have become widespread all over the world, have turned into important sources of artists.

Technology Acceptance Model

There are many models regarding technology acceptance. However, Davis's model is one of the most preferred, expanded and adapted models used by researchers. Within the scope of his doctoral dissertation, presented in 1986, Davis has brought a new model to the acceptance research literature with his work having a sound theoretical background and testability. The technology acceptance model (TAM) was developed in order to reveal the attitudes and usage behaviors of individuals towards technological tools and to disclose the role that these systems will play in human life in the future. TAM basically refers to a structure that includes cognitive and psychological factors that are effective in accepting a technology for its use. In this context, TAM has been developed to determine the technology preferences of people, to reveal how they might react to change and to explain the reasons why people are resistant to the use of information technologies, and to foresee how they will respond to change (Davis, 1987; Uğur, Turan, 2016; Yıldırım and Kaplan, 2019).

The ability of individuals to use a technology depends primarily on the perception of that tool as useful and easy to use. In the model, perceived utility and perceived ease of use for technology are affected by external variables and affect the attitude towards the use. The attitude towards the use means that the individual has a positive or negative attitude towards technology. Attitude, on the other hand, affects the intention to use the vehicle and as a result of the intention, the behavior of using the vehicle takes place (Fig. 1) (Canan Güngören, Bektaş, Öztürk, Horzum, 2014).

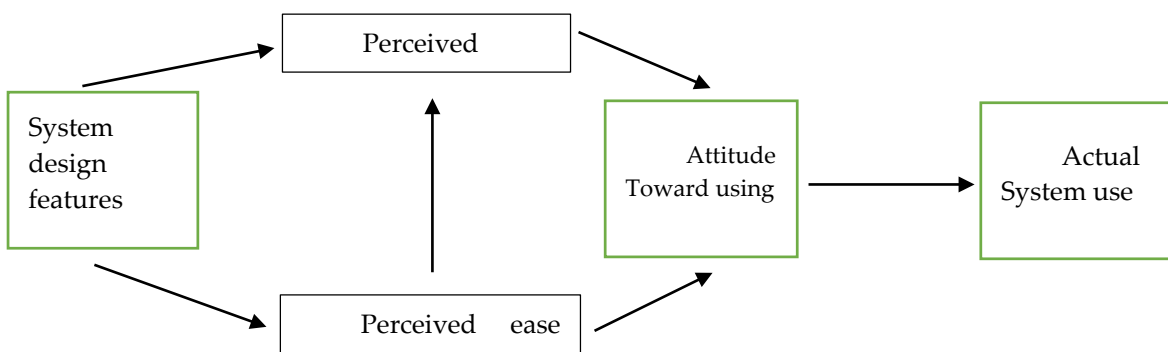


Figure 1. Technology Acceptance Model (Davis, 1993)

TAM, which is the most frequently used model in the literature, has been used in many studies with different samples containing different technologies. When these studies are examined, it is seen that they focused on many different varieties of information technologies such as computers, computer software, tablets (Canan Güngören, Bektaş, Öztürk, Horzum, 2014), e-learning, mobile learning. However, there is no previous research that yielded an acceptance scale specifically prepared for m-art applications, which paved the way for the attempt to conduct the present study by increasing its importance.

Purpose of the Study

The aim of this work is to develop an acceptance scale for the reliability and validity of Visual Arts teacher candidates for using m-art applications.

Method

This study is a scale development study that will evaluate the acceptance of the Visual Arts teacher candidates' mobile art applications.

Study Group

The study group of the research was formed with 446 Visual Arts teacher candidates studying in three different universities with an Art-Work teaching program in the Eastern Anatolia Region. Data were collected from the study group at two different times for exploratory factor analysis (EFA) and confirmatory factor analysis (CFA). Data were collected from 277 prospective teachers studying at two different universities in the Eastern Anatolia Region for the EFA in the fall semester of the academic year 2019-2020. For the CFA of the study, data were collected from a total of 169 teacher candidates studying at a university in the Eastern Anatolia Region during the spring term. Some researchers state that the sample size should be at least 5 times the number of items on the scale in scale development studies (Bryman & Cramer, 1999; Gorsuch, 1983; Kline, 2010). Accordingly, it can be said that the working group determined for EFA and CFA is sufficient. Demographic information of the study group is given in Table 1 in detail.

Table 1. Demographic Information about the Study Group

		Variables	n	%
EFA Study Group	Gender	Male	150	54,2
		Female	127	45,8
	Grade Level	1. Grade	70	25,3
		2. Grade	77	27,8
		3. Grade	65	23,5
		4. Grade	65	23,5
Total		277	100	
CFA Study Group	Gender	Male	96	56,8
		Female	73	43,2
	Grade Level	1. Grade	45	26,6
		2. Grade	50	29,6
		3. Grade	33	19,5
		4. Grade	41	24,3
Total		169	100	

Scale Development Process

This research aims to develop a scale that will evaluate the acceptance of the Visual Arts teacher candidates' mobile art applications. For this purpose, it is important to determine the theoretical structure of the scale in the first stage (Erkuş, 2016; DeVelis, 2014). Mobile art applications acceptance scale was tried to be based on the theoretical framework set by Davis's (1989) technology acceptance model. Then, by investigating the related literature, the items that measure "perceived benefit", "perceived ease of use", "attitude towards use" and "intention towards use" were determined for the item pool. Based on the works of Biljon and Kotze (2007); Chavoshi and Hamidi, (2019); Davis, (1989); Nikolopoulou, (2018) Park and Yang, (2006); Özer, Özcan and Aktaş, (2010); Uğur, (2016); Wu and Wang, (2005); Yang and Yoo (2004) and Yıldırım and Kaplan (2019) a 30-item item pool has been created. Items in the scale were determined according to Likert-type five-point grading: "I strongly agree" -5, "I agree" -4, "I am indecisive" -3, "I disagree" -2 and "I strongly disagree" -1.

In the second stage, the draft form was presented to the opinions of a group of experts including 1 from Measurement and Evaluation, 1 from Turkish Language and Literature and 2 from Visual Arts Education departments of universities. Expert evaluation can be done by verbal panel method (Erkuş, 2016). In this regard, interviews were conducted with the experts through verbal panel method and continued until a consensus has been arrived on the items. As a result of the meeting, experts decided to remove 8 items in

the draft form and change the statements in 3 items. Thus, the acceptance scale of mobile art applications has been turned into a draft form consisting of 22 items in align with the opinions of the experts.

In the third stage, a pre-test application was made to 20 prospective teachers on the draft form. As a result of the pre-trial application, no problem was seen in the intelligibility of texts and application environment of the acceptance scale of mobile art applications. At the last stage, the draft form was applied to the scale development sample.

Data Analysis

The collected data was first coded in the SPSS 17.0 package program. Reverse coding was made for the items with negative expression in the acceptance scale of mobile art applications. Then, missing data and the existence of extreme values were examined. In order to determine the structure of the scale, EFA was performed through SPSS 17.0 package program. To verify this structure determined in the next step, ISER 8.80 package program was used for CFA.

It was checked whether the collected data were normally distributed before starting EFA and CFA. For EFA, skewness value -, 273 and kurtosis value - was 102, and CFA skewness value - 960 and kurtosis value was 540. "The skewness coefficient within the limits of ± 1.0 can be interpreted as the scores show no deviation from the normal" (Büyüköztürk, Çokluk and Köklü, 2016 p. 48).

Findings

Findings Regarding Item Analysis

Before starting the factor analysis, "item-total scale correlations and marks of the scale and internal consistency of the first attempt must be examined" (Erkuş, 2016 p. 101). Accordingly, among the items included in the scale, the items with item total correlations below .30 were first eliminated. In addition, the significance test of the difference between the lower 27% and upper 27% groups which was determined according to the total scores of the items in the scale was also examined. Appropriately, the item analysis results of the draft mobile art applications acceptance scale are given in Table 2.

Table 2. Draft Mobile Art Applications Acceptance Scale Item Analysis Results

Item Number	Item Total Correlations	t (Lower % 27-Upper %27)**
M1	,476	-9,034***
M2	,424	-8,111***
M3	,457	-9,052***
M4	,595	-10,720***
M5	,521	-9,435***
M6	,199	-4,976***
M7	,568	-9,530***
M8	,441	-8,900***
M9	,503	-8,795***
M10	,493	-8,533***
M11	,356	-6,067***
M12	,416	-6,707***
M13	,597	-12,139***
M14	,495	-8,588***
M15	,315	-6,130***
M16	,372	-7,723***
M17	,523	-9,300***

M18	,560	-11,005***
M19	,593	-12,526***
M20	,519	-10,492***
M21	,470	-8,838***
M22	,542	-10,139***

n = 277, *** p < 0,01

When Table 2 is examined, it was seen that the item-total correlations of 22 items in the scale form ranged from .199 to .597. Since item-total correlations with items below .30 were accepted as problematic items (Büyüköztürk, 2004), item 6 was removed from the draft scale form. In addition, the t-value of all items in the scale was found to be significant with $p < .001$ level. The significant difference between the lower 27% and the upper 27% groups was considered as an indication of the internal consistency of the test (Büyüköztürk, 2004).

Findings for EFA

EFA was performed with the remaining 21 items from the item analysis in mobile art applications acceptance scale. Before starting EFA, the adequacy of the sample was examined using the Kaiser-Meyer-Olkin (KMO) value and the suitability of the data for factor analysis using Bartlett's Sphericity value. It has been determined that KMO value is .875 and Bartlett's test value is ($\chi^2 = 2254,030$; $p = 0,000$). KMO value can be evaluated as very well between .80 and .90 (Field, 2005). These findings show that the data can be subjected to EFA.

The theoretical structure of the research is an important basis in determining the number of factors of the scale (Erkuş, 2016). Theoretically, mobile art applications acceptance scale consists of four sub-dimensions. Evidence for the four-factor structure of the scale is presented with the data obtained from the slope deposit graph. Figure 1 shows the slope deposit graph for the structure of the scale.

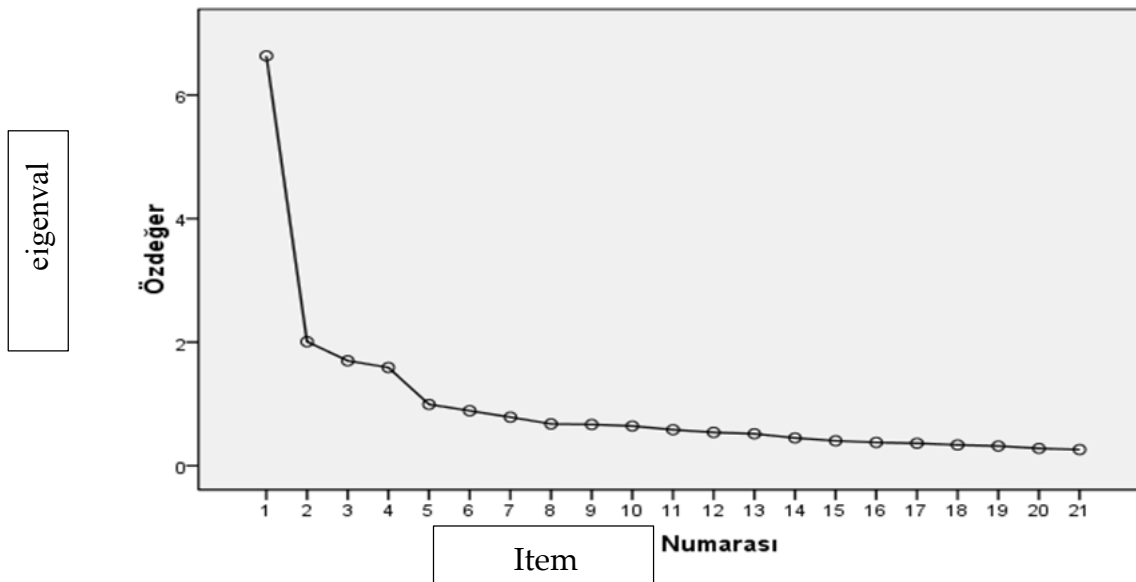


Figure 2. Slope-Accumulation Chart (Scree Plot)

When the theoretical structure of the mobile art applications acceptance scale is examined, sub-dimensions are considered as unrelated. Such factors are defined as orthogonal (DeVelis, 2014). The use of "Varimax", which is one of the vertical turning techniques, can be expressed as a suitable choice when multi-factor structures occur (Büyüköztürk, 2002). Therefore, 21 items of the scale were subjected to basic components analysis with a factor number of four and varimax (25) axis rotation was performed. Factor loads of the items should be checked after the rotation. Load values below .32 (Tabachnick & Fidell, 2001)

and overlapping items should be removed from the scale (Büyüköztürk, 2004). As a result of the analyses made in this direction, "M8" and "M13" are accepted as binary substances and are excluded from the analysis. After problematic items are completely removed from the scale, factor common variances of the final mobile art applications acceptance scale and load values after rotation are presented in Table 3.

Table 3. Factor Common Variances of Items of the Final Mobile Art Practices Acceptance Scale and Post-Rotational Load Values

Item	Number	Factor Common Variance	Load Value After Rotation			
			AF	AKK	KYT	KYN
AF1		.661	.792			
AF2		.667	.813			
AF3		.478	.621			
AF4		.677	.766			
AF5		.466	.637			
AF6		.454	.536			
AKK1		.529		.660		
AKK2		.479		.605		
AKK3		.516		.704		
AKK4		.476		.651		
AKK5		.528		.622		
KYT1		.664			.803	
KYT2		.718			.822	
KYT3		.724			.775	
KYN1		.619				.734
KYN2		.660				.745
KYN3		.592				.732
KYN4		.583				.744
KYN5		.684				.789
		Eigenvalues	3.273	3.269	2.503	2.131
		Variance %	17.229	17.204	13.172	11.215
		Total Variance %	58.820			

When Table 3 is analyzed, it is seen that the first dimension, called perceived benefit (AF), consists of 6 items and a factor load value between .536 and .813. The second dimension of the scale is the perceived ease of use, which consists of 5 items and has a factor load value between .605 and .704. The third dimension is the attitude towards use (KYT), consisting of 3 items, with a factor load value between .775 and .822. The fourth dimension is the intention for use, consisting of 5 items, with a factor load value between .7332 and .789 (KYN). In addition, it explains 58.820% of the total variance of the scale, each of the dimensions determined has an eigenvalue greater than 1, and respectively; it was observed that it had 17.229%, 17.204%, 13.172%, 11.215% variance.

Findings for CFA

CFA is performed to test the accuracy of a specific structure as a model (Çokluk, Şekercioğlu & Büyüköztürk, 2016). Accordingly, the structure of the mobile arts applications acceptance scale, consisting of 19 items and four factors, was tested with CFA. In the first stage of the analysis, the significance levels of the "t" values and the error variances of the observed variables were examined. It has been determined that "t" values are significant at .01 level and error variances vary between .17 and .72 values. Then, the modification suggestions were examined, and the suggestion for correction between one and two items of the AF factor was made. The path diagram of the first level CFA results of the mobile arts applications acceptance scale is presented in Figure 3.

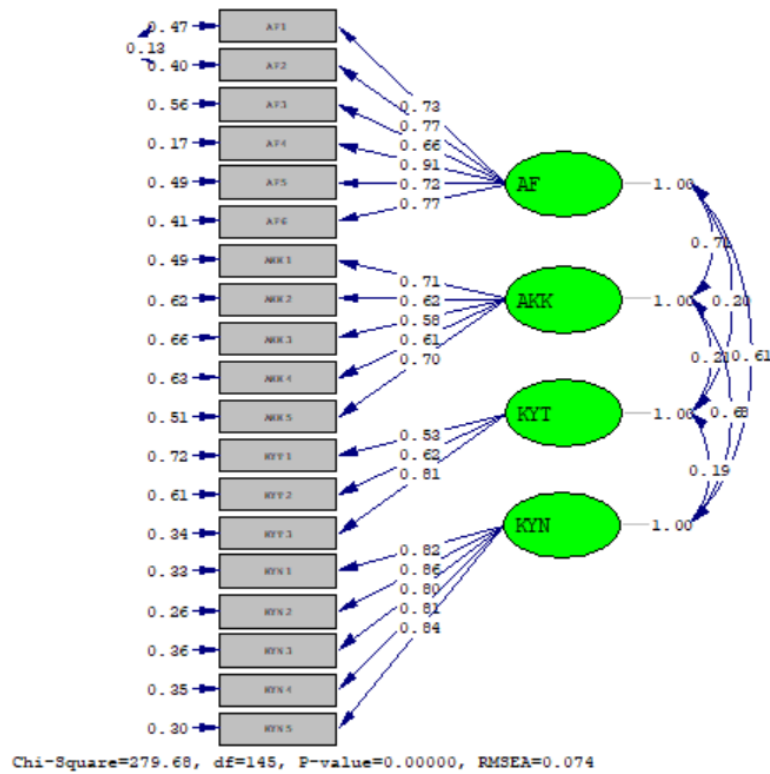


Figure 3. The Path Diagram of the First Level CFA Results of the Mobile Art Applications Acceptance Scale (Standardized model)

When Figure 2 is examined, it is seen that the factor loads of the items ranged between .53 and .91. The fact that each item has standardized values of .30 and above indicates that it has an acceptable effect size (Kline, 2010). In the next stage of the analysis, p value was examined, and it was concluded that p value was significant ($p < .05$). At the same time, as a result of CFA, χ^2/df (279.68 / 145) ratio was calculated as 1.93 and it was found that it gave a perfect fit value (Çokluk et al., 2016). Information on other fit indexes is presented in Table 4.

Table 4. Values Regarding Fit Indexes for Mobile Art Applications Acceptance Scale

Compliance Statistics	Acceptable Limit	Perfect Fit Limit	Source	First Level Adjustment Values of the Scale
RMSEA	$\leq .08$	$\leq .05$	Sümer (2000)	.074
SRMR	$\leq .08$	$\leq .05$	Brown (2006)	.069
NFI	$\geq .90$	$\geq .95$	Sümer (2000)	.93
NNFI	$\geq .90$	$\geq .95$	Sümer (2000)	.96
IFI	$\geq .90$	$\geq .95$	Meydan ve Şeşen, (2011)	.97
CFI	$\geq .90$	$\geq .95$	Sümer (2000)	.97
GFI	$\geq .85$	$\geq .90$	Seğer, 2013	.85

When Table 4 is analyzed, it is seen that RMSEA, SRMR, NFI and GFI fit indexes are acceptable and fit indexes such as NNFI, IFI and CFI are excellent. Accordingly, evidence has been provided to validate the mobile art applications acceptance scale, which consists of 19 items, as a 4-factor structure model.

Findings for Reliability

Cronbach alpha (α) internal consistency coefficient and item total correlations were investigated to obtain evidence for the reliability of the mobile art applications acceptance scale. Cronbach alpha (α) internal consistency coefficient was found .869 for 19 items of the scale. When the item-total correlations of the items with the last form of the scale were analyzed, it was determined that it was between .602 and .330. In addition, the Cronbach alpha (α) internal consistency coefficient of each factor was .827 for calculated AF; It was observed that it was .722 for AKK, .775 for KYT and .850 for KYN. Cronbach Alpha value should be .70 and above in scale development studies (Büyüköztürk, 2004). It can be said that the values obtained in this direction show evidence of the reliability of the scale.

Discussion, Conclusion and Suggestions

With the latest technological developments in mobile devices such as smartphones and tablet computers, individuals have easy access to information. Also, with mobile technologies, mobile applications are developing rapidly and used in art education. Visual Arts teacher candidates are asked to use their mobile applications effectively in the art education process. Accordingly, it is important for teacher candidates to determine their perceptions about the acceptance of mobile art applications. In this context, it is aimed to develop Mobile Art Applications Acceptance Scale based on technology acceptance model.

Theoretical framework of the mobile art applications acceptance scale was tried to be determined based on Davis' (1989) technology acceptance model. In this direction, a pool of items consisting of 30 items in 5-point Likert type was created by investigating the literature with the deductive approach method. In line with the opinions of the experts, 8 items were removed from the scale. Thus, a draft measurement tool with 22 items was obtained. The draft form of the scale was applied to 277 Visual Arts teacher candidates. As a result of the EFA, a structure consisting of 19 items and consisting of "perceived benefit", "perceived ease of use", "attitude towards use" and "intention towards use" has emerged. CFA was performed to determine the degree of verification of the determined structure. The final form resulting from the EFA was applied to 169 prospective teachers. The fit indexes of the structure obtained for the scale ($\chi^2 / sd = 1.93$, RMSEA = .074, SRMR = .069, NFI = .93, NNFI = .96, IFI = .97, CFI = 0.97 and GFI = 0.85) show acceptable compliance with Brown (2006), Sümer (2000), Meydan and Şeşen, (2011) and Seçer (2013). In this respect, it was seen that the factor structure obtained from EFA as a result of CFA has acceptable fit. Cronbach alpha (α) internal consistency coefficient was found .869 for 19 items of the scale. In scale studies, Cronbach Alpha value of .70 and above is regarded as reliable. (Büyüköztürk, 2004; Nunnally & Bernstein, 1994).

Visual Arts teacher candidates use various mobile applications in art learning processes, especially in workshop lessons. In this respect, it is very important to determine the correct acceptance of the pre-service teachers' mobile art applications and to carry out research aimed at increasing the acceptance levels of the pre-service teachers. In addition, when the literature is examined, it is seen that there is no previous study on the Visual Arts teacher candidates' acceptance of mobile art applications. In this case, it is thought that the present study may fill this gap in the literature. In the study, pre-service teachers were not included in different sample study groups according to the main art workshop type (painting, graphic, etc.). However, Hiçyılmaz and Inam Karahan (2018) stated in their study that there is a significant difference between the technological knowledge of prospective teachers and the main art workshop type. In this respect, different studies can be carried out by taking samples from prospective teachers studying in different main art workshops for future research.

Aşağıdaki ifadelerden size uygun olanı işaretleyiniz.

Cinsiyetiniz: () Kadın () Erkek

Sınıf Düzeyiniz: 1. Sınıf () 2. Sınıf () 3. Sınıf () 4. Sınıf ()

		Kesinlikle Katılmıyorum	Hiçyılmaz	Kararsızım	Katılıyorum	Kesinlikle Katılıyorum
ALGILANAN FAYDA						
1	m-sanat uygulamaları üretkenliğimi arttırır.	1	2	3	4	5
2	m-sanat uygulamaları atölye işlerimi kolaylaştırır	1	2	3	4	5
3	m-sanat uygulamalarının sunduğu hizmetler sanatsal ihtiyaçlarımı karşılar.	1	2	3	4	5
4	m-sanat uygulamaları yararlı buluyorum	1	2	3	4	5
5	m-sanat uygulamalarını derslerime yardımcı olarak kullanırım.	1	2	3	4	5
6	m-sanat uygulamalarını kullanmak masraflarımı azaltır.	1	2	3	4	5
7	m-sanat uygulamaları yeni fikirler bulmamı sağlar.	1	2	3	4	5
8	m-sanat uygulamaları zamandan tasarruf etmemi sağlar.	1	2	3	4	5
ALGILANAN KULLANIM KOLAYLIĞI						
9	Genel olarak m-sanat uygulamaları kullanımı kolaydır.	1	2	3	4	5
10	m- sanat uygulamaları aracılığıyla ders içeriklerime her zaman ulaşırım	1	2	3	4	5
11	m-sanat uygulamaları kullanmak benim için fazla çaba gerektirmiyor.	1	2	3	4	5
12	Uygulama mağazasından (app store, google play store vb.) ihtiyaçlarıma yönelik m-sanat uygulamaları indirirken zorlanmam	1	2	3	4	5
13	m-sanat uygulamaları benim öğrenimim için kullanışlıdır.	1	2	3	4	5
14	m-sanat uygulamalarının kullanımı açık ve anlaşılırdır	1	2	3	4	5
TUTUM						
15	Güncel m-sanat uygulamalarını takip etmeyi severim	1	2	3	4	5
16	Yeni m-sanat uygulamalarını ilk deneyenler arasında olmak isterim.	1	2	3	4	5
17	Derslerimde m-sanat uygulamalarını kullanmak beni mutlu eder	1	2	3	4	5
18	Derslerimde m-sanat uygulamalarının kullanımını gereksiz buluyorum	1	2	3	4	5
19	m-sanat uygulamalarını kullanmak ilgimi çekmiyor	1	2	3	4	5
20	m-sanat uygulamalarını sıkıcı buluyorum	1	2	3	4	5
NİYET						
21	m-sanat uygulamalarını başkalarının kullanmasına tavsiye edeceğim.	1	2	3	4	5
22	Sanırım gelecekte m-sanat uygulamalarını kullanacağım.	1	2	3	4	5
23	m-sanat uygulamalarını kullanmayı düşünüyorum.	1	2	3	4	5
24	m-sanat uygulamalarını kullanacağımı pek sanmıyorum	1	2	3	4	5
25	m-sanat uygulamalarına meydana gelecek yenilikleri takip etmeye çalışacağım	1	2	3	4	5
26	m-sanat uygulamalarını kullanmaya başlamak veya devam etmek niyetindeyim.	1	2	3	4	5

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Examination of Test Anxiety and Cognitive Flexibility Levels of Students Preparing for the University Exam

Research Article

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ABSTRACT

The aim of this study was to investigate the relationship between test anxiety and cognitive flexibility levels of students preparing for the university exam. 650 students studying in private training centers in Malatya in 2019-2020 academic year participated in this study. Relational survey model was used in this study. In data collection, "IDA Test Anxiety Scale" developed by Başol (2017) was used to examine test anxiety and "Cognitive Flexibility Inventory" adapted to Turkish by Gülüm and Dağ (2012) was used to investigate cognitive flexibility levels. The IDA Test Anxiety Scale consists of two sub-scales: Anxiety caused by Social Factors and Cognitive and Physiological Anxiety. Cognitive flexibility inventory consists of two sub-scales: Alternatives and Control. The Cronbach alpha value of the Test Anxiety Scale was .88. The Cronbach alpha value of the Cognitive Flexibility Inventory was .87. The results of this study showed that the participants sometimes had "Anxiety caused by Social Factors" and "Cognitive and Physiological Anxiety". It was found that female participants had significantly higher test anxiety levels. The participants stated that they were neutral about the statements in the Control sub-scale whereas they agreed with the statements in the Alternatives sub-scale. There was no significant difference between the general cognitive flexibility level of the participants and gender. It was found that there was a low and negative relationship between test anxiety and cognitive flexibility levels of the participants. Based on the findings of this study, suggestions were offered to decrease students' test anxiety levels and increase their cognitive flexibility levels.

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Keywords:

Test Anxiety, Cognitive Flexibility, Students preparing for university exam

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Introduction

Anxiety is the feeling that the individual will experience unpleasant events and having this feeling all the time (Biçer, 2015, p. 17). Individual's different mental, physical, intellectual behaviors when he or she faces with a situation he or she wants to avoid is regarded as state of anxiety (Semerci & Özer, 2007, p. 11). Individuals experiencing anxiety are constantly having thoughts as if something bad will happen and they will face an uncomfortable situation. The individual can experience the state of anxiety in his/her dreams and can wake up in panic. The individual may not realize the grounds of anxiety (Uluşahin & Öztürk, 2014, p. 452).

Individuals may feel as if an earthquake is happening in situations they are experiencing anxiety, which can even lead to loss of body balance. In addition, conditions such as color change in the skin and itching may be experienced (Kurt, 2006, pp. 20-21). The level of anxiety also influences the level of the individual's speech as the vibration of the vocal cords is also affected and thus individuals experience difficulties in establishing communication. During communication, they may swallow words, say the same words repetitively or use erroneous words (Cormier & Hackney, 2013, p.139). Individuals set goals for their futures and thus they are required to take a number of exams to achieve them. While preparing for these exams, they may feel anxiety.

Exams are conducted to measure individuals' knowledge and levels. Individuals are required to take many exams before starting their professional life. Since exams will have a significant impact on the life of each individual in socio-economical terms, they lead to anxiety, fear and stress on people. Thus, individuals cannot reflect the knowledge they have in exams accurately (Semerci & Özer, 2007, p. 24-25). Test anxiety takes place when individuals remove their past experiences from the consciousness level using their defense mechanisms, and when they experience a similar situation, they associate this situation with their past experience. In this sense, an unsuccessful exam in the past may cause anxiety in future exams (Kurt, 2006, p.15).

Thinking about exams can lead to anxiety when it affects the lives and emotions of individuals. If thinking about exam negatively affects people's mood, makes them nervous and affects their lives in a way that makes them feel uneasy, it leads to anxiety. The changes in emotional state and psychological effects experienced by an individual before the exam disrupt his/her daily routine and life order. In this context, spiritual gaps in their feelings can also be observed (Semerci & Özer, 2007, p.23). Students preparing for the university exam may experience test anxiety and, in this period, conflict become a process that exhausts students emotionally. Test anxiety is the state of anxiety experienced by individuals during and after the period in which they prepare for the exam. It refers to the situation that the individual cannot use the information and knowledge he or she has in the exam (Biçer, 2015, p. 18). Individuals suffering from test anxiety may think, during the exam, that they are more unsuccessful than everyone, they may feel uncertain about their IQ level and overexcited, they may not feel comfortable in their body, they may be uneasy, they may forget the knowledge they have learned and they may think intensely about their future (Semerci & Özer, 2007, p. 72-76).

While preparing for the exam, students seek solutions when they are confronted with problems and cognitively use their thoughts in the solution process. Cognitive flexibility refers to our ability to produce solutions when we are faced with a problem. The level of cognitive flexibility plays an important role in individuals' communication with other individuals. Individuals having higher cognitive flexibility presents favorable attitudes in their communication with others (Bilgin, 2009a, p. 145). Cognitive flexibility facilitates individuals to have a positive perspective on situations, in that, they produce numerous options instead of making a single choice in their lives. They also do not deal their choices with stress or hopelessness, on the contrary, they act in a confident and positive way. Cognitive flexibility enhances constructive communication in interpersonal relationships. It provides a broader perspective rather than dealing with situations in a

negative way (Dalkılıç, 2017, p. 215). In order to have cognitive flexibility, individuals need to be knowledgeable in their field and as a result their success in solving problems increases and becomes flexible. In addition, if an individual think through the job assigned to him or her cognitively flexible in spite of several obstacles, he or she will deal with the job in detail (Sinnott, Hilton, Wood, & Douglas, 2020, p. 4).

Cognitive flexibility takes place as a result of the interaction of cognitive processes. When a figure is shown to individuals, they treat it with different perspectives and each grasps a different meaning. The flexibility skills of individuals are important in adapting to new situations since individuals change their perceptions on the basis of their flexibility. Cognitive flexibility is directly related to our language ability. Language ability is the basic tool for social interaction (Deák, 2003, pp. 272-275). Individuals thinking cognitively flexible try to come up with alternatives and seek new ways in line with the new situation in circumstances they have not experienced before in their daily routine, and try to produce more than one solution in such situations. It can be said that being productive is closely linked to cognitive flexibility (Çuhadaroğlu, 2011, p. 15).

Students may confront with more than one problem while preparing for the exam, and these problems may lead to anxiety. Problem solving skills can reduce individuals' anxiety. As individuals find solutions to the problems they face, their anxiety decreases and their problem-solving skills increase. Cognitive flexibility is related to individuals' problem-solving skills. It is thought that test anxiety and cognitive flexibility may have a significant role in this context. The aim of this study was to investigate the relationship between test anxiety and cognitive flexibility of students preparing for the university exam.

Method

The quantitative research design was used in this study the aim of which was to examine the relationship between test anxiety and cognitive flexibility of students preparing for the university exam. In addition, relational survey model was adopted in the study. Relational survey is used to explain the connection between more than one variable and correlation is applied to interpret the relationship Karaca, Yurdabakan, Çetin, Nartgün, & Kapaksız, 2010, p. 282). The relationship between test anxiety and cognitive flexibility was investigated in the present study.

Population and Sample

The population of this study consisted of students between 18-23 years old who were attending the university exam preparation institutions in Malatya province in 2019-2020. Non-random convenience sampling was used to select the participants. Convenience sampling is the sampling method that is easily accessible, saves time and contributes to reaching more participants (Büyüköztürk, Çakmak, Akgün, Karadeniz, & Demirel, 2015, p. 92). As a result, a total of 650 students, 371 females and 279 males, preparing for the university exam in Malatya took part in the present study.

Data Collection Tools

IDA Test Anxiety Scale

The "IDA Test Anxiety Scale" developed by Başol (2017) was used to collect data on test anxiety. It consists of a total of 15 items and is a 5-point Likert-type scale. Items 5 and 15 are reverse scored. The highest test score that can be obtained from the scale is 75. The total score less than 45 points indicates low test anxiety, score between 45-60 points indicates moderate test anxiety, and score above 60 points indicates the high level of test anxiety (Başol, 2017). The scale consists of two sub-scales: cognitive and physiological anxiety and anxiety caused by social factors. The Cognitive and Physiological Anxiety sub-scale consists of items 1, 2, 4, 6, 8, 9, 11, 12, 14. A score below 27 in this sub-scale means that there is no anxiety. The Anxiety caused by Social Factors sub-scale consists of items 3, 5, 7, 10, 13, 15. A score below 18 indicates no anxiety in this sub-scale

(Başol, 2017). The Cronbach Alpha coefficients of the scale are .89 for the Cognitive and Physiological Anxiety sub-scale, .70 for Anxiety caused by Social Factors sub-scale, and .86 for the total scale (Başol, 2017). The reliability analysis of the scale showed that it had Cronbach's alpha value of .885. The Cronbach's alpha value on the basis of factors is .898 for Factor 1 and .618 for Factor 2. KMO value of the scale was calculated as .938 and the Bartlett's test as 4522,466 $p=.000$ in this study. It is a five-point Likert-type scale for each item and one of the options "never", "rarely", "sometimes", "often" and "always" is marked. Scores from 1 to 5 are given.

The Cognitive Flexibility Inventory

Cognitive Flexibility Inventory developed by Dennis and Wal and adapted into Turkish by Gülüm and Dağ (2012) was used to collect data on cognitive flexibility. The scale, which consists of 20 items, is developed in order to measure individuals' ability to produce alternative, coordinated, appropriate and balanced thoughts in difficult situations. Higher scores obtained from the inventory indicates higher cognitive flexibility. It consists of two sub-scales as alternatives and control. Items 2, 4, 7, 9, 11 and 17 are reverse scored. Items 2, 4, 7, 9, 11, 15 and 17 are included in the control sub-scale. All other items are involved in the alternatives sub-scales. The Cronbach's alpha value in the adaptation study of the scale was .81 (Gülüm & Dağ, 2012). The reliability analysis showed that the Cronbach alpha value of the inventory was .87. Cronbach's alpha value on the basis of factors is .799 for Factor 1 and .886 for Factor 2. KMO value of the scale was calculated as .922 and the Bartlett's test as 4450,057 $p=.000$ in this study. It is a five-point Likert-type scale and one of the options "strongly disagree", "somewhat disagree", "neutral", "agree" and "strongly agree" is marked. Scores from 1 to 5 are given.

Data Analysis

SPSS 22.0 package program was used in data analysis. The percentages and frequencies for the gender of the participants were determined. The means and standard deviations of the Likert type items were calculated to determine the test anxiety and cognitive flexibility levels of the participants.

Prior to the analyses, the kurtosis and skewness coefficients were investigated in order to determine whether the scores were normally distributed. IDA Test Anxiety Scale had a total kurtosis value of -.754 and a skewness value of -.133. The kurtosis value of the Cognitive Flexibility Inventory was .399 and the skewness value was -.343. The kurtosis and skewness values between +1 and -1 indicate that the data is normally distributed (Büyüköztürk, 2016, p. 40).

The "t-test" was performed in order to determine whether there was a significant difference between the test anxiety and cognitive flexibility levels of the participants in terms of gender. When a significant difference was found, the means were compared. The t-test reveals the significance of the difference between the means of two unrelated samples (Büyüköztürk, 2016, p. 39).

Pearson product-moment correlation coefficient (r) analysis was applied to reveal the relationship between test anxiety levels and cognitive flexibility levels of the participants. The Pearson Correlation Coefficient determines whether there is a relationship between two continuous and normally distributed variables. The correlation coefficient takes a value between +1 and -1. A negative value indicates a negative relationship and a positive value means a positive relationship. The relationship gets stronger as it approaches -1 or +1. 0.00-0.30 indicates low correlation, 0.30-0.70 moderate correlation, and 0.70-1.00 high correlation. The statistical significance level was $p<0.05$. P value less than 0.05 indicates statistically significant whereas p value greater than 0.05 means that it is not statistically significant (Büyüköztürk, Çokluk, & Köklü, 2013, p. 144).

Findings

This section presents the results of the analysis performed to investigate the test anxiety and cognitive flexibility of the participants, and the level of significance between them.

Table 1. Participants' opinions on "Cognitive and Physiological Anxiety" sub-scale

Item	Statements	n	\bar{X}	sd
1	As the exam gets closer, I get excited or worried if I confuse what I know.	650	3.41	1.30
2	As the exam gets closer, thoughts such as if I slide the answers out, if I confuse what I know because of anxiety, occupy my mind.	650	2.86	1.44
4	As the exam gets closer, my delusions such as I wish I had studied harder, I wish I had prepared differently, or what if fail, increase.	650	3.51	1.30
6	As the exam day gets closer, my concerns about the exam increase as the number of topics/questions I cannot solve increases.	650	3.62	1.25
8	During the exam, I experience physiological problems (such as accelerated heartbeat, headache, cold hands, sweating, etc.).	650	2.74	1.45
9	I cannot convince myself that I am ready on the exam day, even though I studied hard before.	650	2.94	1.42
11	Being physically exhausted in the exam (not being able to sleep due to stress, being tired, exhausted, nervous) damage my morale on the exam day.	650	3.22	1.41
12	The concern that I will fail puts a lot of pressure on me on the exam day.	650	3.25	1.40
14	As the exam gets closer, my anxiety increases as I cannot think of anything else.	650	3.30	1.36
The cognitive and physiological sub-scale		650	3.20	1.02

The means and standard deviations in the Cognitive and Physiological Anxiety sub-scale in Table 1 showed that the first three items with the highest mean score are as follows: Item 6 "As the exam day gets closer, my concerns about the exam increase as the number of topics/questions I cannot solve increases." (=3.62), Item 4 "As the exam gets closer, my delusions such as I wish I had studied harder, I wish I had prepared differently, or what if fail, increase." (=3.51), and Item 1 "As the exam gets closer, I get excited or worried if I confuse what I know." (=3.41), respectively.

Table 2. Participants' opinions on "Anxiety Based on Family and Environment"

Item	Statements	n	\bar{X}	sd
3	Worries such as what will be the reaction of the people around me if I get a bad result in the exam occupy my mind.	650	3.52	1.36
5	I do not worry about what my family will say (reproaching, getting angry, comparing, blaming, accusing) if I have a bad exam.	650	3.27	1.42
7	The thought that if I get a bad result in the exam, I will become worthless in the eyes of the people I love, exhausts me.	650	2.69	1.53
10	Thinking about what will happen if I fail (upsetting the family, making no progress while others are leading their lives, falling behind) occupies my mind.	650	3.55	1.37
13	I do not even want to think about the reactions I will get from the environment if I fail the exam.	650	3.20	1.53
15	My success or failure in the exam means little to my family and friends.	650	4.08	1.24
Anxiety caused by Social Factors sub-scale		650	3.38	.83

The means and standard deviations in the Anxiety caused by Social Factors sub-scale in Table 2 indicated that the first three items with the highest mean score are as follows: Item 15 "My success or failure in the exam means little to my family and friends." (=4.08), Item 10 "Thinking about what will happen if I fail (upsetting the family, making no progress while others are leading their lives, falling behind) occupies my mind." (=3.55) and Item 3 "Worries such as what will be the reaction of the people around me if I get a bad result in the exam occupy my mind." (=3.52), respectively.

The t-test results regarding whether the participants' test anxiety differs by gender are presented in Table 3.

Table 3. T-Test results of the Participants' Test Anxiety in terms of Gender

Scale	Gender	n	\bar{X}	sd	sd	t	p
The Cognitive and Physiological	Female	371	31.32	8.40	648	8.175	0,000*
	Male	279	25.64	9.24			
Anxiety caused by Social Factors	Female	371	21.19	4.81	648	5.131	0,000*
	Male	279	19.20	5.00			
Test Anxiety	Female	371	52.52	11.84	648	7.814	0,000*
	Male	279	44.84	13.10			

*p<0,05

As shown in Table 3, the examination of Cognitive and Physiological Anxiety sub-scale of the participants in terms of gender revealed a significant difference [$t(648)= 8.175$; $p<.05$]. It was also found that the female participants' average score of cognitive and physiological anxiety ($=31.32$) was higher than that of male participants ($=25.64$).

Similarly, the examination of Anxiety caused by Social Factors sub-scale in terms of gender showed a significant difference [$t(648)= 5.131$; $p<.05$]. It was found that female participants' average score of the anxiety sub-dimension ($=21.19$) was higher than that of the male participants ($=19.20$). Both male and female participants had anxiety caused by social factors.

Finally, the result of test anxiety levels with regard to gender indicated a significant difference [$t(648)= 7.814$; $p=0.000$ $p<.05$]. It was found that female participants' average test anxiety scores ($=52.52$) were higher than those of male participants ($=44.84$).

The Cognitive Flexibility Inventory results of the participants are presented below. First of all, statistical tests appropriate for the variables were performed and then result were presented in tables.

Table 4. Participant's opinions on the "Control" Sub-scale

Item	Statements	n	\bar{X}	sd
2	I have a hard time making decisions when faced with difficult situations.	650	3.19	1.28
4	When I encounter difficult situations, I feel like I am losing control.	650	3.18	1.40
7	When encountering difficult situations, I become so stressed that I cannot think of a way to resolve the situation.	650	3.54	1.33
9	find it troublesome that there are so many different ways to deal with difficult situations	650	3.13	1.36
11	When I encounter difficult situations, I just don't know what to do.	650	3.58	1.30
15	I am capable of overcoming the difficulties in life that I face.	650	3.79	1.06
17	I feel I have no power to change things in difficult Situation.	650	3.36	1.32
Control Sub-scale		650	3.40	.87

The means and standard deviations in the Control sub-scale of the Cognitive Flexibility Inventory in Table 2 showed that the first three items with the highest mean score are as follows: Item 15 "I am capable of overcoming the difficulties in life that I face." ($=3.79$), Item 11 "When I encounter difficult situations, I just don't know what to do." ($=3.58$) and Item 7 "When encountering difficult situations, I become so stressed that I cannot think of a way to resolve the situation." ($=3.54$), respectively.

Table 5. Participant's opinions on the "Alternatives" Sub-scale

Item	Statements	n	\bar{X}	sd
1	I am good at "sizing up" situations.	650	3.80	1.05
3	I consider multiple options before making a decision.	650	3.99	1.12
5	I like to look at difficult situations from many different angles.	650	3.81	1.17
6	I seek additional information not immediately available before attributing causes to behavior.	650	3.64	1.18
8	I try to think about things from another person's point of view.	650	3.67	1.24
10	I am good at putting myself in others' shoes.	650	3.73	1.27

12	It is important to look at difficult situations from many angles.	650	4.12	1.11
13	When in difficult situations, I consider multiple options before deciding how to behave..	650	3.91	1.10
14	I often look at a situation from different viewpoints.	650	3.92	1.08
16	I consider all the available facts and information when attributing causes to behavior.	650	3.90	1.06
18	When I encounter difficult situations, I stop and try to think of several ways to resolve it.	650	3.85	1.12
19	I can think of more than one way to resolve a difficult situation I'm confronted with.	650	3.71	1.04
20	I consider multiple options before responding to difficult situations.	650	3.82	1.18
Alternatives Sub-scale		650	3.84	.739

The means and standard deviations in the Alternatives sub-scale of the Cognitive Flexibility Inventory in Table 2 revealed that the first three items with the highest mean score are as follows: Item 12 "It is important to look at difficult situations from many angles." (=4.12), Item 3 "I consider multiple options before making a decision." (=3.99) and Item 14 "I often look at a situation from different viewpoints." (=3.92), respectively.

The t-test results regarding whether the participants' cognitive flexibility differs by gender are presented in Table 6.

Table 6. T-Test results of the Participants' Cognitive Flexibility in terms of Gender

Scale	Gender	n	\bar{X}	sd	sd	t	p
Control	Female	371	23.07	5.91	648	-3.529	0,000*
	Male	279	24.77	6.29			
Alternatives	Female	371	50.10	9.42	648	.520	0,603
	Male	279	49.70	9.87			
Cognitive Flexibility	Female	371	73.17	12.48	648	-1.279	0,201
	Male	279	74.47	13.37			

*p<0,05

As is seen in Table 3, the examination of Control sub-scale of the participants in terms of gender revealed a significant difference [$t(648) = -3.529$; $p = 0.000$ $p < 0.05$]. It was also found that the male participants' average score in Control sub-scale ($X = 24.77$) was higher than that of female participants ($X = 23.07$).

However, the examination of Alternatives sub-scale in terms of gender did not indicate a significant difference [$t(648) = .520$; $p = 0.603 > 0.05$]. It was found that that the cognitive flexibility score of female students was higher than that of male students.

Similarly, the result of cognitive flexibility level of the participants with regard to gender did not reveal a significant difference [$t(648) = -1.279$; $p = 0.201 > 0.05$]. The examination of cognitive flexibility levels also showed that both female participants ($X = 73.17$) male participants ($X = 74.47$) had a higher level of cognitive flexibility. Finally, it was found that male participants had higher cognitive flexibility scores than female participants.

The results of the Correlation Analysis performed to investigate the relationship between Test Anxiety and Cognitive Flexibility of the participants are presented in Table 7.

Table 7. Correlation Analysis Results of the Relationship Between Test Anxiety and Cognitive Flexibility of the Participants

Variable	Test Anxiety	Test Anxiety The Cognitive and Physiological	Test Anxiety Anxiety caused by Social Factors	Cognitive Flexibility	Cognitive Flexibility Control	Cognitive Flexibility Alternatives
Test Anxiety	1	.954*(r ² =.910)	.835*(r ² =.697)	-.172*(r ² =.029)	-.438*(r ² =.191)	.049
Test Anxiety The Cognitive and Physiological Anxiety	.954*(r ² =.910)	1	.632*(r ² =.399)	-.164*(r ² =.026)	-.448*(r ² =.200)	.067
Test Anxiety Anxiety caused by Social Factors	.835*(r ² =.697)	.632*(r ² =.399)	1	-.146*(r ² =.021)	-.311*(r ² =.096)	.003
Cognitive Flexibility	-.172*(r ² =.029)	-.164*(r ² =.026)	-.146*(r ² =.021)	1	.702*(r ² =.492)	.891*(r ² =.793)
Cognitive Flexibility Control	-.438*(r ² =.191)	-.448*(r ² =.200)	-.311*(r ² =.096)	.702*(r ² =.492)	1	.302*(r ² =.091)
Cognitive Flexibility Alternatives	.049	.067	.003	.891*(r ² =.793)	.302*(r ² =.091)	1

*p<0,01

With regard to the sub-problem of the present study, "What is the relationship between test anxiety and cognitive flexibility levels of students preparing for the university exam?", correlation coefficients were calculated in order to find out whether there was a relationship between test anxiety and cognitive flexibility of the participants." Table 7 revealed a statistical relationship between test anxiety and cognitive flexibility of the participants.

The results showed that there was a low, negative and significant relationship between test anxiety and cognitive flexibility of the participants ($r=-.172$; $p<0.01$). The participants' test anxiety levels increased, as their cognitive flexibility levels decreased.

A moderate, negative and significant relationship was found between the test anxiety and the control sub-scale of Cognitive Flexibility Inventory ($r=-.438$; $p<0.01$). It was found that the cognitive flexibility control levels of the participants decreased with the increase in their test anxiety levels.

A significant relationship was not found between the test anxiety and the Alternatives sub-scale of Cognitive Flexibility Inventory.

In addition, a low, negative and significant relationship was found between Cognitive and Physiological Anxiety sub-scale of IDA Test Anxiety Scale, and cognitive flexibility of the participants ($r=-.164$; $p<0.01$). It was revealed that the cognitive flexibility levels of the participants decreased as their cognitive and physiological anxiety levels increased.

A moderate, negative and significant relationship was found between Cognitive and Physiological Anxiety sub-scale of IDA Test Anxiety Scale and Control sub-scale of Cognitive Flexibility Inventory ($r=-.448$; $p<0.01$). It was revealed that the highest relationship was between Cognitive and Physiological Anxiety and Control sub-scale of Cognitive Flexibility Inventory. In other words, as cognitive and physiological anxiety increased, cognitive flexibility control levels decreased.

A low, negative and significant relationship was found between Anxiety caused by Social Factors sub-scale of IDA Test Anxiety Scale and cognitive flexibility of the participants ($r=-.146$; $p<0.01$). The participants' anxiety levels caused by social factor increased with the decrease in their cognitive flexibility levels.

Finally, a moderate, negative and significant relationship was found between Anxiety caused by Social Factors sub-scale of IDA Test Anxiety Scale and Control sub-scale of Cognitive Flexibility Inventory ($r=-.311$; $p<0.01$). In other words, cognitive and physiological anxiety increased, cognitive flexibility control levels decreased.

Discussion, Conclusion and Suggestions

The aim of this research was to investigate the test anxiety and cognitive flexibility levels of students preparing for the university exam, and to examine their relationship.

The findings of the present study showed that the participants had a moderate level of test anxiety. There was a significant difference between test anxiety level, Cognitive and Physiological Anxiety sub-scale, Anxiety caused by Social Factors sub-scale with regard to gender in favor of female participants.

This finding of the present study is in consistence with the findings of Atak (2004), Alammari and Bukhary (2019), Bacanlı and Driver (2006), Boztepe (2016), Bilir (2019), Dalkıran (2012), Smoke (2008), Gençdoğan (2010), Güler and Çakır (2013) , Hanımoğlu (2010), Mohammadyari (2012), Onuk (2017), Kilit (2019), Lakot (2019), Pazarlı (2009), Putwain (2007), Softa, Karaahmetoğlu and Çabuk (2015), Serim (2016), Şahinler (2018), Ürgüp (2017), Yalçınkaya (2011), Yolcu (2014), and Yusefzadeh, Iranagh and Nabilou (2019). However, the findings of Boyacıoğlu (2010), Bozkurt (2012), Kurt (2017) and Ün (2018) do not support the findings of the present study. The possible reason for this difference may be that the cities and cultures of the students are different and their perspectives on the exam differ. In addition, the findings of Atak (2004), Ün (2018) and Yolcu (2014) differ from the results of the present study with regard to Anxiety caused by Social Factors sub-scale. The possible explanation of this difference may be the difference in the examination system and the time when the studies were carried out.

The present study showed that the general cognitive flexibility scores of the participants had higher cognitive flexibility levels. The studies of Gürbüz (2017), Bozkurt (2019), Kardeş (2016) and Zahal (2014) supports this finding. The possible reason for this finding may be that individuals gain experience through preparing for the exam and experiencing many problems.

The examination of cognitive flexibility level of the participants in terms of gender revealed no significant difference. The examination Control sub-scale in Cognitive Flexibility Inventory with regard to gender showed a significant difference and that the cognitive flexibility levels of male participants were higher than their female counterparts. The studies of Asici and Twin (2015), Bozkurt (2019), Çelikkaleli (2014), Farmer (2019), Çuhadaroğlu (2011), Gürbüz (2017), Kardeş (2016), Kurt (2019), Özcan (2016), Sinnott, Hilton, Wood and Douglas (2020), Tutuş (2019), Zahal (2014) are consistent with this finding of the present study. However, the studies of Oral and Kolburan (2019) and Yavuz (2019) are in contrast with this finding. It can be thought that there may be a difference in the result of the study due to the fact that the research group of the study consisted of students and the other study consisted of adults, and the average age was higher than our study. The reason for this difference may be that the sample of the present study consisted of students while adults took part in other studies, and that the average age in these studies was higher than the present study. Zahal (2014) and Çiftçi (2019) stated in their studies that there was not a significant difference between gender and Control sub-scale, which does not support the result of the present study. A possible explanation for this difference may be the difference of the region where the students live and cultural differences. In addition, it may be put forward that women are more emotional and they have more detailed perspectives on situations than men.

A low, negative and significant relationship was found between test anxiety and cognitive flexibility of the participants. In other words, test anxiety increased as cognitive flexibility levels decreased. A possible reason for this situation may be that individuals having test anxiety may have a negative perception on problems and may experience more anxiety and hopelessness due to the difficulties they are confronted with. If an individual is looking for ways to cope with a situation in which he or she will be harmed and believes that he or she will deal with it, his or her anxiety will begin to decrease. In contrast, if an individual does not believe in himself or herself and does not believe that he or she will cope with the situation and if this situation leads to more harm to the individual, his or her anxiety increases (Beck, 2005, p. 65). On the other hand, individuals who do not have cognitive flexibility exaggerate the problems and make them more problematic instead of solving them, as well as questioning why they are confronted with these problems (Bedel & Ulubey, 2015, p. 298). Bozkurt (2019) stated in her study that there was no relationship between test anxiety and cognitive flexibility levels of the students. A possible reason for this situation may be that the environment in which the student group lives and the difficulties they face are different and thus the anxiety they have during the exam may differ.

Future studies should address the following issues:

- The sample of the present study consisted of students preparing for the university exam in Malatya. Therefore, similar studies can be carried out with students preparing for different exams and different research groups.
- Students living in different provinces can take part in future studies.
- The present study was a quantitative study. A qualitative study can be carried out in order to investigate the reasons for the student's test anxiety and the factors that lead to the development of cognitive flexibility.

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Occupational Resilience Belief Life Satisfaction and Superior Support as the Predictors of the Job Stress in Teachers

Research Article

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ABSTRACT

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The purpose of the current study is to determine the extent to which occupational resilience belief, life satisfaction and superior support predict job stress in teachers. The relational survey model was employed in the present study to investigate the relationships between occupational resilience belief, life satisfaction, superior support and job stress. The study group of the current research is comprised of a total of 254 teachers. In the current study, the job stress scale, the life satisfaction scale, the occupational resilience belief scale and the perceived superior support scale were used to collect data. In order to determine the extent to which occupational resilience belief, life satisfaction, superior support, gender and age predict job stress in teachers, multiple regression analysis was conducted. The findings have revealed that while life satisfaction, occupational resilience belief and age negatively and significantly predict job stress in teachers, superior support and gender do not significantly predict job stress in teachers. In other words, with teachers' increasing life satisfaction, occupational resilience belief and age, their job stress decreases.

Keywords:

Occupational resilience, superior support, job stress, life satisfaction, teachers

Introduction

In their daily lives, each individual can be frequently confronted with stressful situations. The differences between them is how stressful situations are perceived and how they affect by individuals. People can exhibit different reactions in stressful situations. While some of these reactions can be healthy, others can be unhealthy.

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In general, stress is caused by the conflict between the external world and the inner world of the individual, which causes emotional and physical pressure. In the adult world, it is inevitable to experience stress (Kotteswari & Sharief, 2014). According to Selye (1936), stress is the non-specific reaction of the individual's body in response to pleasant or unpleasant conditions. Selye (1936) defines the sudden reaction given by the body to protect itself in the face of stress as general adaptation syndrome (cited in Rice, 2000). According to Baltaş and Baltaş (2013), the body gives the “fight or run away” reaction in the presence of stress. Individuals run away in stressful situations if they believe that they cannot cope with otherwise, they may choose to fight if they believe that they can cope with. In other words, people exhibit different reactions in stressful conditions.

Teaching has been identified as one of the professions associated with very high levels of occupational stress. Teaching career is difficult and full of challenges in nowadays. Also this stress can bring undesirable results such as less effort and negative effect on students (Acirrt, 2002; Giurian et al., 2011). In teaching profession, distress has been linked to dissatisfaction with job and to negative affective and professional consequences. (Ruma et al., 2010).

Work Stress

Work stress includes physical and emotional reactions that occur when an employee's abilities, resources, and needs do not match with his/her job requirements (Leka, Grifitths & Cox, 2003). The International Labor Organization (ILO, 2016) states that all countries and professional groups, employees and their families are somehow affected by stress. According to the ILO (2016) reports, 40 million people in Europe are affected by work stress; moreover, 30% of the European population is under heavy work stress and most of the stressful jobs are in the education and health sectors. In the same report, it is stated that people who are experiencing intense stress feel unhappy, depressed and anxious.

Work stress affects people in different ways. Especially long-lasting traumatic work stress can disrupt workers' psychology and prevent them from working (Schermerhorn, Hunt & Osborn, 2002). One of the most important consequences of job stress is that it negatively affects job performance. Many studies show that there is a negative correlation between job stress and job performance (Cottrell, 2001; Kotteswari & Sharief, 2014; Park, 2007). In addition, there are some studies reporting a connection of job stress with depression (Shields, 2006); chronic health problems and sleep problems (Alves, 2005; Norfolk, 1989), substance abuse (Oginska-Bulik, 2006); burn-out syndrome (Derviřođlu, 2000; Weisberg, 1994).

The stress experienced in the work environment may impair the balance between the work and private life of the individual. Situations such as the birth of a new child, economic difficulties, divorce etc. in the private life can increase the stress of the individual in the work environment. On the other hand, stress induced by the characteristics of a job can increase the individual's stress in the private life as well (Schermerhorn, Hunt & Osborn, 2002). Job-related stress can arise from high or low duty requirements, role conflicts or role ambiguities, poor interpersonal relationships, inappropriate working conditions, low or excessively high wages or characteristics of the organization.

The pressures from life, work and social environment, may have an adverse impact on teachers' mental health, and the probability that psychological disorder occurs in this occupation goes far higher than that of general population. Teachers' occupation stress is more likely to harm their physical and

mental health, thereby degrading their teaching quality, behaviors and life satisfaction (Lasalvia & Tansella, 2011; Wang et al., 2015). According to Duxbury and Higgens (2013) teachers are more likely to report a depressed mood, be less committed to their organization, and have lower job satisfaction than other professional groups. Teacher stress impacts teacher absenteeism and work-related illnesses.

Life Satisfaction

Life satisfaction is one of the important concepts that can be related to individuals' job stress. According to Diener (2000), life satisfaction is one of the basic elements that people should have in order to be happy in their lives and to make their lives meaningful. Subjective well-being consists of three elements: positive emotions, negative emotions and life satisfaction. Life satisfaction constitutes the cognitive dimension of subjective well-being. According to Haybron (2004), life satisfaction includes an individual's overall evaluation of his/her life in line with his/her own criteria. Life satisfaction refers to the situation or result arising from the person's comparison of his/her possessions with his/her expectations. Life satisfaction of people as a whole refers to the sum of their evaluations about situations such as family, environment, and working life (Suldo, Riley & Shaffer, 2006). For this reason, it is thought that how teachers evaluate their working life is related to their life satisfaction (Kumar et al., 2013; Türker and Çelik, 2019; Ünüvar and Tagay, 2015).

Occupational Resilience

Due to the rapid changes encountered in the current century, new ways are sought to cope with the difficulties confronted with in professional life. These ways also affect the individual's success in personal and business life. There are three key attitudes important for psychological resilience in business life: commitment to profession, challenge and control. When an individual finds his/her profession important and valuable, he/she can use all his/her attention, imagination and effort to strive in this profession. If he/she believes that he/she is competent in his/her job, he/she will not be affected negatively by the consequences of changes in his/her working life. Hence, he/she can struggle with negative external forces. In other words, he/she can challenge negative situations. Such people view stressful life situations in the workplace as opportunity for personal growth, not as a threat, as they believe in change rather than stativity (Maddi, Harvey, Khoshaba, Fazel, Resurreccion & 2009). Harland, Harrison, Jones, and Palmon (2005) described psychological resilience factors in professional life as follows; *external support* such as good role-models and family, *internal strengths* such as empathy ability, goal presence and optimism and *interpersonal problem-solving skills* such as seeking help when needed and using new ideas. As stated by Tait (2008), the common opinion in the literature is that while risk factors increase psychological stress, protective factors reduce the effect of the problems experienced.

Although many studies have been conducted over the years regarding the stress experienced by teachers in working life, research on teacher resilience has just started in recent years (Beltman, Mansfield & Price, 2011). Bobek (2010) defined teacher resilience as "teachers' adaptation to different conditions and the ability to face negative conditions." In another definition, teacher resilience is described as "the quality that enables a teacher to maintain his/her commitment to teaching despite difficult conditions and repetitive obstacles" (Brunetti, 2006 p.813). In line with these definitions, the teaching profession resilience belief is defined in the current study as the belief that one can adapt to the difficult conditions of teaching profession, cope with obstacles and maintain his/her commitment to the profession.

Various studies have been conducted to determine the qualities possessed by psychologically resilient teachers. Stanford (2001) found that people with high professional resilience have high job satisfaction and can receive support from people around them in school and private life. Patterson, Collins, and Abbott (2004) observed that teachers who can cope with difficulties at school in a healthy way have the characteristics of making decisions based on values, caring about their professional development, solving problems by taking responsibility, seeking help from colleagues and friends, and being flexible. Brunetti (2006) defined these teachers as people who are devoted to their profession and gain strength from difficulties. Tait (2008) determined the indicators of teacher resilience as optimism, being able to adapt to troubled situations, showing reactions, being flexible, establishing supportive relationships, having problem solving skills, making plans, asking for help, acting independently, having goals and determination and taking risks. Beltman, Mansfield, and Price (2011) reviewed 50 studies on teacher resilience and they determined that the following characteristics are possessed by teachers who can cope with adverse conditions in a healthy way; altruism, strong intrinsic motivation, perseverance, optimism, sense of humor, emotional intelligence, patience, flexibility, risk taking, self-efficacy belief, internal locus of control, problem solving ability, ability to seek help, ability to overcome failure, interpersonal skills, self-confidence in professional competence, creativity, self-assessment, professional goals, effort for professional development and standing on one's own feet.

In the literature, it is suggested that teachers' occupational resilience can be particularly affect their professional performance. There are studies showing that the health and performance of individuals, especially those who experience intense stress, have a negative effect on their resilience (Maddi, 2002). For example, Knight (2007) suggests that teachers with high levels of resilience will be more comfortable in meeting students' social and emotional needs. These teachers will focus on their students' strengths rather than their inadequacies, and that they will cope more easily with the stress of teaching. As a result, as Bobek (2010) points out, teachers' occupational resilience will improve as they develop their competence of adapting to changing conditions, handling events with a positive and flexible approach, evaluating negative situations correctly, learning from previous experiences, establishing positive interactions and ways of coping and reaching appropriate solutions.

Superior Support

There are many effects of superior support on the work life of employees because managers are the people that employees work in close contact with. Employees usually get feedback from their managers and this feedback determines their sense of failure or success. Managers control many aspects of employees' lives at work such as: leave permission, rewards, penalty or reprimand, counselling and guidance (Garip, 2013). Managers have the responsibility to evaluate and direct the performance of their subordinates and act as representatives of the organization. As a result of this, employees will regard managers as indicators of support of the organization on the basis of their positive or negative guidance (Eisenberger et al., 2002). Superior support is an important resource for employees to be successful in their jobs and to do their jobs effectively. Superior support sends an important message to the employees, and thus increases the positive views of the organization and strengthens the employees' commitment to the organization. Otherwise, the lack of superior support causes the resources to decline and the employees to question the organization and which may cause the employees and the organization to fall apart in the long run (Lambert et al., 2015). When a supportive manager shows empathy and understanding of employees' obligations related to the work-family relationship, it increases the psychological dispositions of individuals in coping with stress, thus reducing conflict and problems in their workload (Goh et al., 2015). Strong support provided by managers increases the job

satisfaction and performance of employees in organizations, reduces the effects of stress and provides a better working environment (Ynag et al., 2015).

Teachers develop general views on the extent to which their contribution to the school is appreciated by school administrators and to what extent administrators pay attention to their well-being (Eisenberger, Stinglhamber, Vandenberghe, Sucharski & Rhoades, 2002). Perceived administrative support is also considered as the assurance that the administrator will provide assistance when needed so that teachers can effectively perform their jobs and cope with stressful situations (Randall et al., 1999).

In the current study, it is aimed to determine to what extent professional resilience belief, life satisfaction, superior support, age and gender predict teachers' job stress. Stress has become very common in daily life and has become a part of life. Stress cannot be avoided but can be coped with. It is a fact that stress in work life affects people negatively in every sense (Kotteeswari & Sharief, 2014). Healthy work environment for teachers is very important both for the education and emotional life of students and for teachers' own health too. The results of this study are expected to contribute to both the field of teaching profession and researchers. Identifying the predictors of teachers' work stress may lead to new studies. It can help to realize the problems in the education system.

Method

Design of the study

The relational survey model was employed in the present study to investigate the relationships between occupational resilience belief, life satisfaction, superior support and job stress. The dependent variable of this study was job stress and the independent variables were occupational resilience, superior support, age and gender.

Study Group

The study group of the current research is comprised of a total of 254 teachers (131 females and 123 males). The ages of these teachers vary between 24 and 60. Of the participants, 34 are primary school teachers, 91 are secondary school teachers and 129 are high school teachers. 104 teachers for 0-5 years, 94 teachers for 5-10 years, and 56 teachers for 10 years or more work at the same school. The study group was determined using convenient sampling method. The convenient sampling method enables the application of a questionnaire to the participants that are within the reach of the researcher (Balci, 2001).

Data Collection Tools

Job Stress Scale

The job stress scale developed by House and Rizzo (1972) to measure job stress was used to collect data. This scale measures psychological and psychosomatic symptoms of stress experienced by employees in the workplace. The scale was adapted to Turkish by Efeoğlu (2006). This is a five-point Likert scale consisted of seven items. Higher scores taken from the scale indicate increasing job stress. In the studies using the job stress scale, Cronbach alpha values ranging from 0.71 to 0.89 have been found (Grandey & Cropanzano, 1998; Kacmar, 1999; Güler, 2016). Job stress has been found to be

positively correlated with role uncertainty, work-family life conflict, family-induced stress, intention to quit and poor physical health (Grandey & Cropanzano, 1998; Sanchez & Brock, 1996).

Perceived superior support scale. The scale developed by Kottke and Sharafinski (1988) was translated and adapted to Turkish by Özdemir (2010). The scale is a five-point Likert scale consisted of 14 items and a single dimension. In the reliability analysis of the scale in this study, Cronbach Alpha coefficient was found to be 0.96.

Life Satisfaction Scale: The scale developed by Diener, Emmons and Griffin (1985) was adapted to Turkish by Köker (1991). In the scale, there are seven items related to life satisfaction and each item is responded on a seven-point Likert scale (ranging from 1: completely unsuitable to 7: very suitable). The scale aims to measure general life satisfaction at all ages, from adolescents to adults. As a result of the item analysis of the scale, the correlation was found to be sufficient and the test-retest reliability coefficient was found to be .85. In the study conducted by Yetim (1993), the Cronbach alpha value was found to be .86 and the reliability coefficient determined with test-retest method was calculated to be .73. Higher scores taken from the scale indicate higher life satisfaction. In the current study, the Cronbach alpha value of the scale was found to be .92.

Data Collection Procedure

The researcher using the scales explained the purpose and the procedure to the participants. Each participant received a voluntary participation form and the data collected only came from voluntary participants. The administration of the scales lasted for about 30 minutes. The author declares that she has carried out the research within the framework of the Helsinki Declaration and with the volunteer participation. Informed consent was obtained from all individual participants included in the study. All participants were debriefed in the research process. Before the data were collected, ethical approval was obtained from Burdur Mehmet Akif Ersoy University Non-Interventional Clinical Research Ethics Committee, dated 03.04.2019 and numbered 79.

Data Analysis

Multiple regression analysis was run to determine the extent to which occupational resilience belief, life satisfaction, superior support, gender and age predict job stress in teachers. Prior to the regression analysis, the means, standard deviations, skewness and kurtosis coefficients of the variables were calculated. In order to test whether each variable satisfies the normality assumption, kurtosis and skewness coefficients were checked. For each of the variables, Kurtosis and skewness coefficients were found to be within the reference value range of -1.0 and +1.0. Thus, it can be said that the data are distributed normally (Büyüköztürk, Çokluk & Şekercioğlu, 2011). In order to test the autocorrelation in the determined model, the Durbin Watson value was checked and this value expected to be between 1.5 and 2.5 (Kalaycı, 2006) was found to be 1.72. Thus, as there was no autocorrelation in the model, the regression assumption was satisfied. Simple (binary) correlations between variables were examined to check if there was a multicollinearity problem. As a result of the analysis, it was seen that all of the binary correlation values between variables were lower than .90 (Tabachnick & Fidell, 2007). Thus, it was concluded that there is no multicollinearity problem between the variables.

Moreover, the variance inflation factor (VIF) and condition index (CI) values were also checked to determine whether there is a multicollinearity problem in the data set; for all the items, VIF values

were found to be lower than 10 and CI values were found to be lower than 30 (Field, 2009). Thus, it can be said that there is no multicollinearity problem between the variables.

In the current study, job stress among teachers was determined as the dependent variable while life satisfaction, occupational resilience, superior support, gender and age were determined as the independent variables. Gender was coded as 1 for females and 0 for males and was taken as the dummy variable. In the statistical analyses, SPSS 20.0 program package was used and the significance level was set to be .05.

Findings

Multiple regression analysis was conducted to determine if teachers' occupational resilience beliefs, life satisfaction, perceived superior support, gender and age predict their job stress. Prior to the regression analysis, Pearson correlation coefficients between the dependent and independent variables were calculated to determine whether there was the multicollinearity problem between the dependent and independent variables and the results are given in Table 1.

Table 1. Correlation between Variables

Variables	1	2	3	4	5
1. Job Stress	-				
2. Life satisfaction	-.272**	-			
3. Occupational resilience	-.351**	.218**	-		
4. Superior Support	-.047	.070	.159*	-	
5. Age	-.128*	-.034	.032	.131*	-
M	.51	26.93	113.75	55.05	39.80
SD	.50	4.94	10.52	12.48	8.00
Skew.	.29	-.35	-.47	-.41	-.83
Kurt.	-.30	.14	-.46	-.45	.20

** $p < .01$, * $p < .05$

As can be seen in Table 1, there is a negative and significant correlation between the teachers' job stress and life satisfaction ($r = -.272$, $p < .01$), occupational resilience ($r = -.351$, $p < .01$) and age ($r = -.128$, $p < .05$). Moreover, there is a positive and insignificant correlation between job stress and superior support ($r = .047$, $p > .05$).

The fact that these correlations in the constructed model do not cause the problem of multicollinearity in the model (lower than .90). The results obtained from the multiple linear regression analysis conducted to determine if life satisfaction, occupational resilience, perceived superior support and age significantly predict job stress in teachers are presented in Table 2.

Table 2. Results of the Multiple Linear Regression Analysis for Job Stress among Teachers

Variables	B	sh	β	t	p
Job Stress					
Life satisfaction	-.296	.084	-.209	-3.53	.00**

Occupational resilience	-.201	.040	-.302	-5.05	.00**
Superior Support	.015	.033	.028	.466	.64
Age	-.120	.051	-.137	-2.33	.02*
Gender	-.620	.828	-.044	-.749	.45
R=.426 R ² =.182 R ² _{ch} = .165 F= 11.020					

** $p < .01$, * $p < .05$

Life satisfaction, occupational resilience, superior support, age and gender were found to predict nearly 18% of the total variance ($R = .426$ $R^2 = .182$ $F_{(5,254)} = 11.020$ $p < .01$). When Table 2 including the results of t-test related to the significance of the regression coefficients is examined, it is seen that life satisfaction ($t = -3.53$, $p < .01$), occupational resilience ($t = -5.05$, $p < .01$) and age ($t = -2.33$, $p < .05$) are significant predictors of job stress among teachers negatively. According to the standardized regression coefficient (β), the relative order of importance of the predictor variables on job stress in teachers is as follows: occupational resilience ($\beta = -.302$), life satisfaction ($\beta = -.209$) and age ($\beta = -.137$).

If the findings obtained from the standard multiple regression analysis are summarized, it can be said that while life satisfaction, occupational resilience and age negatively predict job stress among teachers, superior support and gender do not significantly predict job stress among teachers. In other words, with teachers' increasing life satisfaction, occupational resilience and age, their job stress decreases.

Discussion and Conclusion

According to the results of the current study, it is seen that teachers with high level of occupational resilience have less job stress. As it stands, occupational resilience is the capacity to overcome difficulties and to demonstrate the personal strength required to cope with difficulties. Resilience is the process of dealing with destructive and stressful life events and can vary from person to person, from time to time (Boniwell & Ryan, 2012).

Personal and environmental factors affect resilience and it is known that professional resilience in teachers is very important in the education system. In the existing resilience models, it is stated that resilience is a factor that neutralizes exposure to risk. Negative experiences prepare the individual for the next challenge (Gu & Day, 2013; Ledesma, 2014; O'Leary, 1998). When the literature is examined, it is seen that occupational resilience has positive effects for novice teachers (Doney, 2013; Hong, 2012), professional resilience is effective in training students with high self-efficacy (Bouillet, Ivanec & Miljevi-Riiki, 2014), and teachers' occupational resilience alleviates the negative effects of stress and burnout (Lai-Kaen Lo, 2014). Castro, Kelly, and Shin (2010) determined that teachers with high levels of resilience are teachers who can seek help, solve problems and manage difficult relationships. In the current study, it was also found that the most important variable that predicts teachers' job stress at the highest level is occupational resilience. It can be said that this result concurs with the literature.

Another important result obtained in the current study is that teachers with high life satisfaction have lower levels of job stress. Life satisfaction consists of individual's own subjective judgments and emotions. In this process, the individual is expected to evaluate his/her own life rationally and his/her life satisfaction is affected by many factors. It is also known that job satisfaction and life satisfaction are closely related concepts (Bano & Malik, 2014). Blegen (1993) found that age, autonomy, commitment, communication, justice, locus of control, stress, and experience are associated with life satisfaction. In

the same study, it was determined that stress and commitment have the strongest relationship with life satisfaction. Rode (2004) stated that administrative support, student behavior, school environment, relationship with parents and autonomy affect job satisfaction and that individuals who are satisfied with their jobs tend to be satisfied with their lives. Similar to the result of the current study, there are studies demonstrating that life satisfaction is related to job stress (Bano & Malik, 2014; Barke, 2003; Kumar-Dey and et al., 2013).

According to another result of the current study, the older teachers are, the more job stress decreases. This can be explained by the increase in the work experience of teachers with their age. Day & Gu (2010) stated that the first years of the profession are difficult for teachers and teachers have more adaptation problems in their first years. Antoniou, et al. (2006) found that young teachers have higher levels of emotional exhaustion and disengagement from the profession; Byrne (1991) determined that young teachers experience more burnout and depersonalization. It was also stated that the reason for this may be that young teachers have difficulties in activating appropriate coping mechanisms to reduce professional stress. In the current study, it was concluded that older teachers experienced less job stress confirming other studies in the literature.

Interestingly, perceived superior support does not significantly predict teachers' job stress. Teachers are the ones who carry out many studies in educational settings and it is known that teachers frequently cooperate with the school administrators in this process. There are studies in the literature reported that superior support is related to job stress (Balaban, 2000; Küçükköy, 2006). However, In the current study, it was found that superior support does not significantly predict teachers' job stress. Göksoy and Argon (2014) stated that, due to the lack of institutional support for teachers in schools, teachers develop personal solutions instead of institutional support and receive support from their colleagues and families. It is thought that such a result may have been achieved as teachers do not fully conceive the scope of superior support in schools. In addition, there are studies stating that teachers think differently about the competencies of administrators and that some teachers do not see school administrators as a leaders (Yolcu & Bayram, 2015) and this is due to the appointment and selection criteria of administrators in Turkey (Tekişik, 1995). This can be the reason why superior support does not significantly predict job stress.

Finally, according to the results of the study, the gender variable did not significantly predict teachers' job stress. Research on teachers' gender and job stress has not been conclusive. For example, Kantas (2010) determined that female teachers are more affected by the negative environment at school and they experience more job stress. However, there are also studies showing that teachers' job stress levels do not vary significantly depending on gender (Abacı, 2004; Altınok, 2009; Çardak, 2002; Çivilidağ, 2003).

The results obtained in the current study are limited to the teachers in the study group. Similar studies can be conducted with larger groups of teachers. It may also be suggested to conduct qualitative studies to investigate teachers' job stress. In addition, it will be important to include activities that will increase the occupational resilience and life satisfaction of teachers in terms of reducing job stress. It is thought that the support activities to be offered to novice teachers will reduce the job stress of young teachers.

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Effectiveness Correlates of School Leadership Styles and Teachers' Job Satisfaction: A Meta-Analytic Review

Research Article

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ABSTRACT

The main purpose of this study is to determine the correlational effect of school leadership styles on teachers' job satisfaction in the context of Turkey. Following a meta-analysis model, this study conducts a quantitative systematic review combining similar statistical data to obtain an aggregate score. Eligible correlational studies conducted in Turkey were included in the meta-analysis. The full-range leadership model is available to measure its effects by Multifactor Leadership Questionnaire (MLQ). It was the basic scale of the studies included. The main scale for job satisfaction in the studies is Minnesota Satisfaction Questionnaire (MSQ). The studies selected for meta-analysis employed the MLQ and/or MSQ. The findings reached revealed there to be a strong correlation between transformational leadership and teacher's job satisfaction, which had a large, positive effect. There is a positive correlation between transactional leadership and teachers' job satisfaction, which had a moderate positive effect. Lastly, there is a negative correlation between laissez-faire leadership and teachers' job satisfaction, which had a small, negative effect. The moderator variables (i.e., publication type, school level, and region) were significant for the transformational leadership style. The moderator variables that were statistically significant for transactional leadership were school level and the region where the study was conducted. The only significant moderator for laissez-faire leadership was the region. The study concluded that transformational and transactional school leadership styles had the greatest effect on teachers' job satisfaction. School leaders should avoid laissez-faire leadership behaviors.

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Keywords:

Leadership, Job satisfaction, Meta-analysis

Introduction

A considerable number of studies on leadership have been conducted throughout the world. Leadership styles are heavily researched by scholars, who then make practical recommendations based on the results. Educational institutions benefit from these recommendations by adjusting their leadership and management styles. Educational institutions and their administration must become accustomed to renewing itself. It is impossible for organizations to survive in today's competitive world unless they come up with new ideas and create change. Leading, world-renowned educational institutions are those that have adopted effective leadership strategies capable of meeting the ever-changing requirements of the times. Given that educational institutions are different from other types of organizations, having dynamic leadership is a must so that schools may stay abreast with prevailing leadership qualifications. Having human beings as their capital, it is imperative that educational institutions espouse the most effective leadership style so as to nurture the desired human qualifications through education.

Burns (1978) introduced both transformational and transactional leadership, after which several scholars (Bass, 1985; Bass, 1998; Avolio & Bass, 1995; Judge & Piccolo, 2004; Avolio & Bass, 2002) made important contributions to the literature on leadership, bringing leadership theory to its current form. Bass and Avolio (1997) developed a comprehensive model, which they dubbed the full-range leadership model, and the Multifactor Leadership Questionnaire (MLQ), able to measure the full range of leadership qualifications (Avolio & Bass, 1995). This model of leadership divides leadership into three main styles, namely, transformational, transactional, and laissez-faire. The current study, however, focuses on the correlational effects of the full-range leadership model on teachers' job satisfaction levels in Turkey vis-à-vis transformational, transactional, and laissez-faire school leadership styles. As the main scale to measure job satisfaction, the Minnesota Satisfaction Questionnaire (MSQ) developed by Weiss, Dawis, England, and Lofquist (1967) was taken into consideration. These two scales are the main instruments employed to measure leadership styles' correlational effect on job satisfaction in the studies subject to meta-analysis in the current study.

Transformational Leadership

Transformational leaders help people distinguish between leadership styles. First, transformational leaders help their followers grow and themselves become leaders by responding to individual followers' needs, empowering them, and harmonizing the objectives and goals of each follower, the leader, the group, and the larger organization. Evidence has accumulated demonstrating that transformational leadership can propel followers to exceed performance expectation and to attain high levels of follower satisfaction and commitment toward the group and organization (Bass, 1985, 1998).

Transformational leaders undertake several roles to achieve their goals. They have a sophisticated, yet succinct way of behaving. Moreover, although followers may sometimes misunderstand them, their comprehensive leadership style is able to reconcile problems. Concerning performance, transformational leaders sometimes give directions but are also active participants in the process. Followers see them as democratic, authoritarian, elitist, or equalizing. The dynamic nature of their characteristics may cause followers to mistake them for being elitist and antidemocratic (Avolio & Bass, 2002).

Distinguishing themselves from other types of leaders, transformational leaders have more interactions with their colleagues and followers. Through simple exchanges and agreements, they transform followers' behaviors into premeditated, goal-oriented activities. The core components of transformational leadership were determined by Avolio, Bass, and Jung (1999) and can be measured by MLQ. These components are idealized influence, inspirational motivation, intellectual stimulation, and individualized consideration (Bass & Riggio 2006).

Idealized influence: Transformational leaders act as role models to their followers, whose actions and appearance are respected and admired. They influence followers in such a way that tend to be imitated. Furthermore, their followers perceive them as having extraordinary capabilities, high levels of persistence, and deep determination. The two aspects of idealized influence are the leader's behaviors and elements that are allotted to the leader by followers and other associates.

Inspirational motivation: Transformational leaders motivate their followers by providing meaning and created challenges for them to complete. Followers know what their job requires of them and are motivated to overcome difficulties. This motivation creates a team atmosphere that inspires hope and excitement in team members, makes them stakeholders in the organization's future, and, by creating a shared vision and boosting commitment, bolsters effective communication. Inspirational motivation leads the followers act as a team not as an individual.

Intellectual stimulation: Transformational leaders nurture their followers' desire to be creative and innovative by including them in the decision-making process of the organization. Followers can suggest new ideas and are not prevented from vocalizing their opinions. These opportunities are a result of leaders' effective transformational style. Through intellectual stimulation the followers search for new ideas and opinions that help participating organizational processes.

Individualized consideration: Transformational leaders consider each person as an important element of the organization. They pay careful attention to the needs of every individual and offering their followers guidance so that they may be successful is a priority for them. By considering individuals' personal needs and learning styles, they create a supportive organizational climate in which followers are able to achieve their goals. Well guided individuals as an important component of the organization can make contributions to achieve organizational goals because of being considered separately.

Transactional Leadership

Transactional leaders compel their followers to perform their best and to achieve their objective through either reward or punish. Contingent rewards form the basis for effective transactional leadership. Furthermore, if transactional leaders improve their leadership skills, they will be more effective, innovative, risk-taking, and satisfied (Avolio & Bass, 2002).

Transactional leadership is based on discipline where leaders manage the organization through rewards and penalties to followers' performance. Transactional leaders control the processes through either positive contingent rewards or management-by-exception (Bass & Riggio, 2006).

Contingent reward: This is a tool used to motivate followers. Transactional leaders make it clear when one becomes eligible for a reward. This clear understanding makes followers work in such a way that would cause them to deserve reward.

Management-by-exception: This is a corrective tool employed to manage followers. In the event of failure, the leader intervenes to make followers take certain actions to meet performance standards. In this type of management, the leader may not take action unless complaints are received.

Laissez-faire Leadership

Laissez-faire leaders allow their followers to do what they want, as this style eschews autocratic leadership. In fact, it may be described as the absence of leadership. Even in case of serious problems, this type of leader avoids involving him/herself in them (Bass & Riggio, 2006). Consequently, laissez-faire leadership is not expected to have a positive effect on job satisfaction. Although teachers require external motivation to work effectively, laissez-faire leadership does not provide this motivational support. Therefore, motivational problems are inevitable and a detrimental effect on satisfaction.

Job Satisfaction

There is no single definition of job satisfaction. One of the most cited definitions was made by Locke (1976), who considers job satisfaction to refer to how happy and content a person is about his/her work or simply whether the individual likes the job or not. Others, however, draw attention to a person's psychological responses to the job (Hulin & Judge, 2003). The Routledge Dictionary of Business defines job satisfaction as the extent to which a worker feels contented with his or her job, especially in terms of intrinsic motivation (Statt, 2004). Newstrom (2007) suggests that job satisfaction is a set of favorable or unfavorable feelings and emotions through which employees perceive their work. Therefore, job satisfaction is an attitude related to feelings, thoughts, and intentions. A worker satisfied with his/her job expresses his/her feelings accordingly, shares his/her thoughts about his/her job, and can talk about future intentions regarding either continuing or leaving the job.

Teachers are among the frailest workers and frequently need to be motivated and feel a sense of security, energy, and enthusiasm to do their job effectively. Keeping them in a good mood requires efficient leadership, as influential leadership can increase teachers' motivation, in turn, leading to greater job satisfaction. As an organization, effective leadership and job satisfaction are absolutely necessary if educational institutions are to survive in this competitive age. According to Northouse (2010), teachers satisfied with their job have higher levels of morale, inspiration, and enthusiasm. These qualities help teachers enhance their potentials.

In educational literature, teachers' job satisfaction levels have an affective relation with their roles as teachers. It also describes the perception of the desired and offered forms of teaching in the real world (Papanastasiou & Zembylas, 2005). There are two main components of teacher job satisfaction: job comfort and job fulfillment. Job comfort is the satisfaction level related to job conditions and circumstances. Job fulfillment is the extent to which an individual's personal accomplishments pertaining to meaningful aspects of his/her job come true (Evans, 1997). On the other hand, teachers' job satisfaction factors can be categorized as either intrinsic or extrinsic. Intrinsic factors of teachers are related to classroom activities with students (Papanastasiou & Papanastasiou, 1998). Extrinsic factors, however, are associated with teachers' salaries, school principals' support, teaching resources, work load, and extra-curricular assignment expectations (Thompson, McNamara, & Hoyle, 1997).

Studies exploring job satisfaction generally investigate business organizations. The findings confirm that leadership behaviors (such as initiating structure and consideration, creating positive atmosphere at work, providing stability in work, good relations with the followers, efficient management) have a profound and consistent influence on employees' job satisfaction levels (Palupi, Cahjono, & Satyawati, 2017; Sypniewska, 2013; Qasim, Cheema, & Syed, 2012; Hayta, 2007; Griffin & Bateman, 1986; Steers & Rhodes, 1978). In the same manner, results of the studies conducted in school settings have also shown that leaders' behaviors and school working conditions influence teachers' job satisfaction (Toropova, Myrberg, & Johansson, 2020; Lytle, 2013; Bursalioglu, 2010; Bolin, 2007; Bogler, 2001; Dinham & Scott, 2000; Ostroff, 1992; Morris & Sherman, 1981).

Relevant Studies

Studies exploring leadership conducted in Turkey are generally focused on the relation between a leadership style and qualification, such as commitment, cynicism, and gender. Some studies review leadership styles and job satisfaction as a subcategory of the research problems. A limited number of meta-analyses conducted on leadership and school outputs review the leadership style and job satisfaction as a sub-problem. This study investigates school leadership styles' effect on teachers' job satisfaction in terms of the full-range leadership model developed by Bass and Avolio (1997). The effect of school principals' transformational, transactional, and laissez-faire leadership styles on teachers' job satisfaction were subject to a meta-analysis.

The correlational studies included in this meta-analysis investigated the relation between school leadership styles and teachers' job satisfaction in different school levels. Eleven studies were theses (Tura, 2012; Canpolat Kirpik, 2019; Genç Yücel, 2019; Yılmaz, 2014; Akyol Kılıç, 2014; Aslan, 2013; Kete, 2015; Benibol, 2015; Çulha, 2017; Çelebi, 2012; Kul, 2010) whereas the other five were in article format (Eğriboyun, 2015; Tok & Bacak, 2015; Tanrıverdi & Paşaoğlu, 2014; Taş, 2017; Başaran & Güçlü, 2018). Although they review certain additional qualifications (e.g., commitment and burnout), all of the studies examine leadership styles and job satisfaction. Starting from this point, the findings of all studies pertaining to correlation coefficients are combined to obtain a common correlation through the meta-analytical process.

The number of meta-analyses conducted on the same topic in Turkey is limited. No meta-analysis resembling the current study, which is strictly a review of the full range of school leaders' leadership styles and teachers' job satisfaction, has been conducted in Turkey. This forms the rationale for this study. Relevant meta-analyses reviewed the relation between leadership styles or school leaders' behaviors and teachers' job satisfaction as a subcategory or an additional variable of the study. In their meta-analysis Aydın, Sarier, and Uysal (2013) studied the effect of school leaders' leadership styles on organizational commitment and teacher job satisfaction in terms of a full-range leadership model. Another meta-analysis by Sarier (2013) focused on the relation between school principals' leadership styles and school outputs. Çoğaltay, Karadağ, and Öztekin (2014) reviewed the effect of school principals' transformational leadership behaviors on teachers' organizational commitment meta-analytically. Çoğaltay and Karadağ (2016) studied the effect of educational leadership on some organizational variables including job satisfaction in Turkey meta-analytically. The meta-analysis conducted by Çoğaltay, Yalçın, and Karadağ (2016) reviewed the correlation of educational leadership and teacher job satisfaction based on studies published between 2000 and 2016 in Turkey. The current meta-analysis is also a correlational meta-analysis of school leadership styles and teachers' job satisfaction based on the studies published between 2010 and 2020 in Turkey. Another distinction of the current and other study cited concerns the full range of leadership behaviors and MLQ in the review.

Numerous meta-analyses have been conducted on school leadership styles and school outputs including teachers' job satisfaction on the international level. A sample of studies conducted as systematic reviews or meta-analyses are cited here to make a comparison. The meta-analysis conducted by Chin (2007) is a study that reviews the effects of transformational school leadership on school outcomes in Taiwan and the USA. In another meta-analysis, Lowe, Kroeck, and Sivasubramaniam (1996) studied the effectiveness of transformational and transactional leadership by reviewing the literature on MLQ. Judge and Piccolo (2004) tested the validity of transformational and transactional leadership meta-analytically. A meta-analysis of the relationships between different leadership practices and organizational, teaming, leader, and employee outcomes, including job satisfaction, was conducted by Dunst, Bruder, Hamby, Howse, and Wilkie (2018).

Purpose

The aim of this study is to determine the correlational effect of full-range leadership model on teachers' job satisfaction meta-analytically. To this end, empirical data have been gathered from relevant studies to determine an overall effect size. Performing a meta-analysis, similar statistical data from similar studies were compiled to obtain an aggregate statistical data for effect size. Based on this aim, the following hypotheses were tested:

H1: The correlational effect of transformational school leadership on teachers' job satisfaction is higher than any other leadership style.

H2: The correlational effect of transactional school leadership on teachers' job satisfaction is positive.

H3: The correlational effect of laissez-faire school leadership on teachers' job satisfaction is lower than any other leadership style.

Methodology

The method followed in the current study is a systematic research synthesis known as meta-analysis. A meta-analysis, in a nutshell, is a method of combining, integrating, summarizing, and reinterpreting sets of selected scholarly studies in several fields (Lipsey & Wilson, 2001). The core concept of a meta-analysis is the effect size. Effect size is a statistical value that represents the effect of a variable on a treatment group by comparing a control group or a correlational value that shows the relation between two variables. In this study, the effect of leadership style on job satisfaction calculated by using Fisher 's Z values. Then it was converted into Pearson correlation coefficients (r) to make interpretations. According to the classification of Lipsey & Wilson (2001), the effect size of correlational levels is interpreted by using the following thresholds:

$0 < r \leq 0.10$ small effect

$0.10 < r < 0.40$ medium effect

$r \geq 0.40$ large effect

In this meta-analysis, correlational studies analyzing the effects of leadership styles on teachers' job satisfaction were reviewed. The common goal of the studies included was to determine the correlation between school principals' leadership styles and teachers' job satisfaction. The measurement tools or scales used in the studies are almost the same. The leadership qualifications were determined by the Multifactor Leadership Questionnaire (MLQ), whereas job satisfaction levels were determined by Minnesota Satisfaction Questionnaire (MSQ). The majority of the studies used both of these instruments. Whereas studies using MLQ and/or MSQ were included in the analysis and those studies that used neither of them were excluded.

Data Collection, Inclusion Criteria and Coding Process

The following inclusion criteria were used to determine which studies were to be included in the meta-analysis.

1. Studies conducted between January 01, 2010 and June 30, 2020.
2. Studies conducted in Turkey.
3. Studies in the form of articles or theses.
4. Studies having correlational statistics (r) and sample size (n).
5. Studies using either MLQ or MSQ as a scale.
6. Studies published in Turkish or English.

Since this study focuses on Turkish school principals' leadership styles and teachers' job satisfaction levels, studies conducted in Turkey were selected. Data gathered from Turkish educational institutions were analyzed. Three leadership styles derived from the MLQ scale (i.e., transformational, transactional and laissez-faire) were taken into account. MSQ was used to determine job satisfaction levels. The majority of the selected studies use both of these instruments. Studies incorporating only one of these scales include correlational data comparing leadership style and job satisfaction. When studies were repeated as an article or thesis, theses were selected for analysis. After applying the inclusion criteria, 11 theses, 4 articles, and 15 studies were analyzed. These studies have similar statistical data and research design.

In this study doctoral theses, master's theses and papers published in refereed journals are taken into consideration as the type of publication to be included. In order to determine the researches to be included in the study first of all, a literature review was made in YOK (Council of Higher Education in Turkey) National Thesis Center, ULAKBIM (Turkish Academic Network and Information Center) National Academic Network, and Google Scholar databases were searched to identify all the studies related to the research problem. In the first step, search was made by using the statements "school leadership style, teachers' job satisfaction, leadership, job satisfaction". There were 1739 theses on National Thesis Center's site, 1794 articles and theses

on National Academic Network's site and 1930 theses, books, book reviews, papers and articles on Google Academic. In the first screening the books, book reviews, papers and repeated items were eliminated. There were 688 theses on National Thesis Center, 108 articles and theses on National Academic Network and 105 articles and theses on Google Academic left. After the second elimination by applying the inclusion criteria more detailed the search resulted in 29 studies being found in the National Thesis Center and 21 studies being found in the National Academic Network and 23 items on Google Academic. At the last stage of elimination, the repeated studies, the studies have not MLQ or MSQ scales eliminated. Finally, 11 theses from National Thesis Center, 1 article from National Academic Network and 3 articles from Google Academic thus, 15 studies included in the analysis by applying all the inclusion criteria. The studies eligible to the inclusion criteria selected by also reviewing the statistical data suitable to calculate the effect size metric.

The studies included in the meta-analysis were coded by publication year and type, statistical data, leadership style and job satisfaction scales, sample sizes, and school levels. After the author coded all of the studies, a doctorate student performed a second coding process. Coding agreement was then checked, resulting in an intercoder reliability of 95%.

Data Analysis

As a correlational meta-analysis, leadership styles' effect on job satisfaction was determined by combining the correlation coefficients of all related studies. Each study contains a correlation coefficient for leadership style and job satisfaction, which were each accepted as an analysis unit. The effect of transformational, transactional, and laissez-faire leadership styles on job satisfaction was each calculated separately. Both SPSS and CMA were used to conduct and illustrate statistical calculations.

The entire collection of studies was carefully combed through to identify which used correlation coefficients and which used a different data format. If there was a single correlation between a specific leadership style and job satisfaction, that value was taken as the correlation to be combined. If correlation coefficients were given for sub-scales of a specific leadership style or job satisfaction, the mean of all correlations was taken instead. Methods of correcting the average correlations are various; however, most of these methods can result in high correlation estimates (Schyns & Schilling, 2013). A conservative estimation was used as the average correlation which creates a conservative estimation of the entire correlation in this study. For instance, if in a study the correlation between the five sub-scales of transformational leadership and job satisfaction, the sum of all the correlations was divided by five to obtain a mean correlation. If a study provided the correlations for intrinsic and extrinsic job satisfaction of a specific leadership style, the sum of the correlations was divided by two. Total effect sizes, forest plots, heterogeneity analyses, publication bias tests, and moderator analysis were made for each leadership style and then interpreted.

Describing the degree of a correlation or the ratio of the difference between experimental and control means and the standard deviation, effect size is one of the fundamental calculations made in meta-analyses. There are two types of effect size calculations: fixed effect and random effect models. In fixed models, it is assumed that all effect sizes are computed from the same sample whereas in random model, it is accepted that all effect sizes are computed from different samples (Borenstein, Hedges, Higgins, & Rothstein, 2009). Since the samples in the study are all different, it was decided to employ a random-effect model to calculate effect sizes. Sub-categorical analyses for publication bias (i.e., funnel plot, Orwin and Rosenthal fail-safe number, Egger's test, Begg and Mazumdar's test, Duval and Tweedie trim and fill test) were likewise performed for each case in accordance to the random model. The only exceptional analysis made was Orwin's fail safe number analysis. The software used to perform the analyses was set to make calculations for fixed-effect models. This does not affect the overall means and results of the study it simply supplies the number of studies needed to bring the calculated effect size value to a critical value.

Findings

The meta-analytic findings on leadership styles and job satisfaction are depicted in figures and tables. The correlational effect sizes of leadership style and job satisfaction were calculated in a random effect model. The calculations made for job satisfaction and for each leadership style were checked to determine whether the distributions of effect sizes were affected by publication bias, heterogeneity, and moderators. Following these audits, we checked the findings for hypotheses. Correlational effect size statistics were revisited for each hypothesis. Effect sizes' thresholds determined the correlation level between that leadership style and job satisfaction. In-depth interpretation of the findings is included in the discussion and results sections. Meta-analytical statistics were compared to the statistics of previous studies conducted in similar fields. Although this study is not a replication of any previous study, the statistical results of the most similar studies were checked and meta-analytical results interpreted. Especially findings of the similar studies reviewed to make comparisons of the effect sizes. Findings of the correlational studies were also checked to make comparisons between the impact of leadership styles on teachers' job satisfaction.

Findings for Transformational Leadership and Job Satisfaction

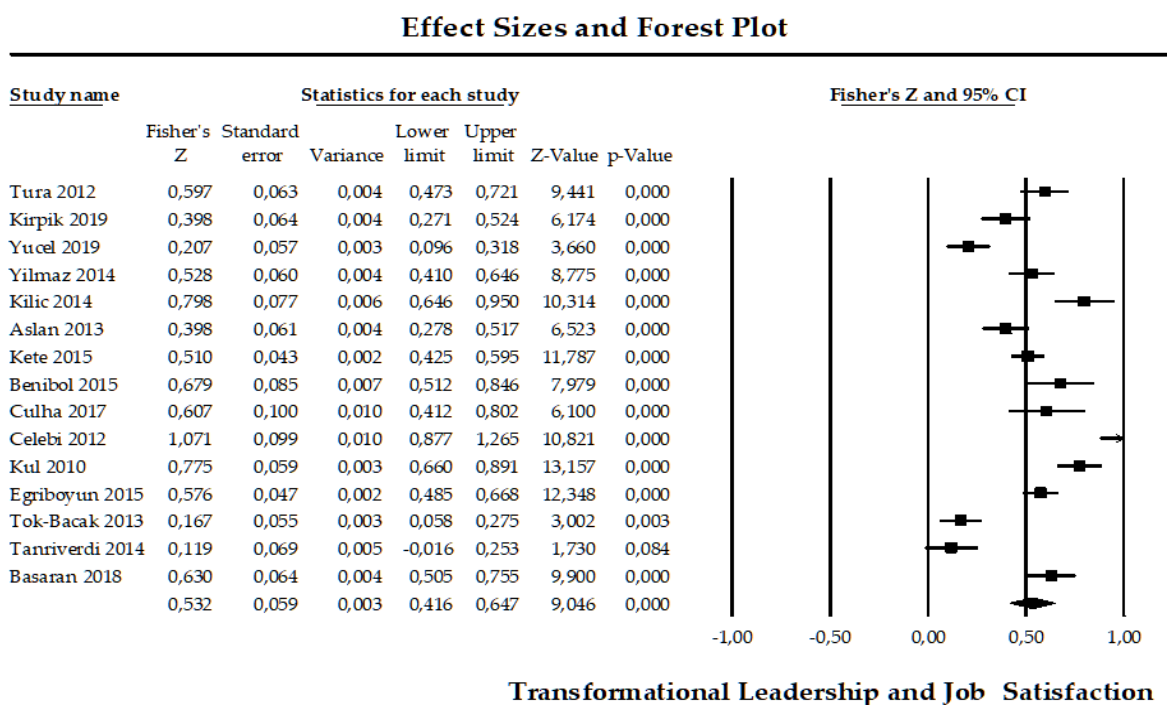


Figure 1. Meta-analytic statistics of transformational leadership and job satisfaction.

As for the relationship between transformational leadership and job satisfaction, the correlational effect sizes and forest plot depicted in Figure 1 shows that effect size distributions vary between 0.119 and 1.071. The overall effect size calculated in the random model and in terms of Fisher's Z values is 0.532, and that the confidence interval of effect sizes' distribution is 95% at $p < 0.05$.

Table 1. Effect of Transformational Leadership on Job Satisfaction and Heterogeneity Statistics

Model	Effect Sizes and 95% Interval				Null Hypothesis Test (Two-Tailed)		Heterogeneity			
	Number of studies	Point estimate	Lower limit	Upper limit	Z	p	Q	df(Q)	p	I ²
Fixed	15	0.461	0.436	0.485	3.220	0.000				
							184.391	14	0.000	92.407
Random	15	0.487	0.394	0.570	9.046	0.000				

Table 1 illustrates that there is a positive correlation between transformational leadership and job satisfaction. The effect of leadership style on job satisfaction is calculated by using Fisher's Z values. Then it was converted into Pearson correlation coefficients (r) to make interpretations. The effect of transformational leadership on job satisfaction in the random model and in terms of Pearson correlation coefficient is $r = 0.487$, indicating a large effect size. The null hypothesis test shows there to be a significant correlation between transformational leadership and job satisfaction ($p < 0.05$). Heterogeneity statistics denote the amount of variance observed in the studies. Although an I^2 value of 92.407 means that the ratio of observed variance to the real variance is very high, it is not the only evidence of heterogeneity. The prediction power of intervals and the disparity of effect sizes among studies confirm there to be heterogeneity, thereby requiring moderator analyses to be conducted.

Publication Bias Analyses

In the process of bias analysis funnel plot, trim and fill, fail-safe numbers, and some other special tests developed for meta-analyses are used to test for publication bias in the findings. The statistics of each test were assessed in accordance to that test's own rules. The result of tests determines whether the effect sizes of the analyses are biased or not.

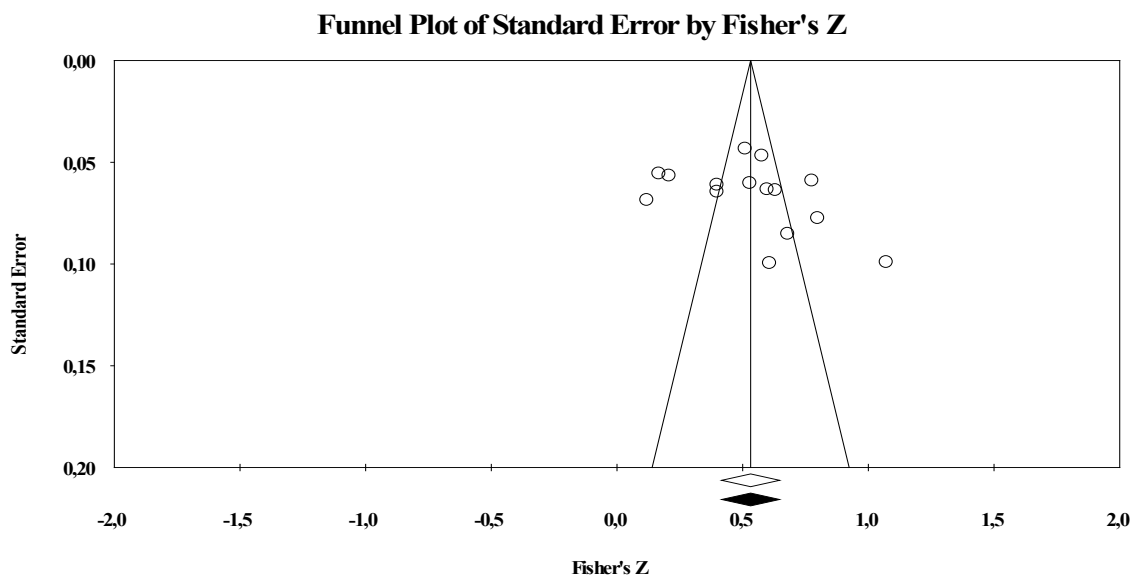
**Figure 2.** Funnel plot for transformational leadership and job satisfaction.

Figure 2 depicts the funnel plot of the effect sizes in terms of Fisher's Z values and standard error. The plot shows that no study was missed so as to fix the bias. It is depicted by one white and black diamond. If it were any bias, missing studies would be denoted by black dots and the diamonds would not be in line (Üstün & Eryılmaz, 2014). The results of this analysis shows that there are no black dots and the diamonds are abreast.

Duval and Tweedie's trim and fill test applied for the bias as well. The results of Duval and Tweedie's trim-and-fill test showed that there was not any trimmed and filled study to fix the bias. Had there been any bias, there would be adjusted values. Another bias test in the study is Begg and Mazumdar's rank-correlation test. In this test, the values of Tau and p were checked to ascertain whether the data were biased. A significant value of a one-tailed p indicates the possibility of publication bias. Results of the Tau value is 0.267 and $p = 0.083$, which is not significant at 0.05 level. Egger's test for bias applied to the data as well. According to the results, the standard error is 4.205, the t value is 1.204, and the one-tailed p is 0.119. The significance of p is taken into consideration for bias in this test. And the value of p was insignificant at level of 0.05. One more type of bias test in the study was fail safe number test. The results of Rosenthal's fail-safe number test checked. The significance level and Z value are 0.05 and 1.96 respectively. There should be 3842 missing studies so that p (0.000) will be greater than 0.05. This means that at least 3842 studies with null effect are required to nullify the effect sizes calculated in this meta-analysis. But this figure greatly exceeds the number of studies analyzed. Another fail safe number test was Orwin's test. The effect size (calculated in fixed model) in this study is 0.461. The trivial criterion determined for the current study is 0.01 and the mean correlation of missing studies is 0.000. These statistics show that there must be 733 studies with a mean correlation of 0.000 to reduce the effect size from 0.461 to the trivial level of 0.01. This number is significantly greater than the total number of studies included in the analysis.

Moderator Analysis

Table 2 presents the findings of the moderator variables for transformational leadership and job satisfaction. The three main moderators are publication type, school level, and the region in Turkey where the study was conducted. The statistics for the moderator analysis were evaluated at a significance level $p = 0.05$.

Table 2. Moderator Analysis for Transformational Leadership and Job Satisfaction

Moderator	Groups	n	r	Lower limit	Upper limit	Z	P
Publication type	Articles	4	0.358	0.117	0.559	2.856	0.004
	Theses	11	0.530	0.433	0.614	9.206	0.000
	Overall	15	0.499	0.410	0.579	9.525	0.000*
Level	Preschool	4	0.420	0.123	0.648	2.710	0.007
	Primary	11	0.509	0.418	0.590	9.470	0.000
	Overall	15	0.499	0.413	0.577	9.829	0.000*
Region	Aegean	3	0.425	0.151	0.638	2.949	0.003
	Southeastern	3	0.357	0.190	0.504	4.039	0.000
	Marmara	6	0.528	0.368	0.657	5.731	0.000
	Other	3	0.586	0.351	0.751	4.312	0.000
	Overall	15	0.459	0.364	0.544	8.518	0.000*

The results of the moderator analyses depicted in Table 2 shows that the variation in the effect size by publication type, school level, and region is significant ($p < 0.05$). The effect size of articles is 0.358, that of theses is 0.530, and the overall effect size for all types of publications is 0.499. The effect size for preschool is 0.420, that for primary school is 0.509, and the overall effect size for both school levels is 0.499. The effect size for the Aegean region is 0.425, that for the Southeastern region is 0.357, that for the Marmara region is 0.528, that for the other regions is 0.586, and the overall effect size for all regions is 0.459.

Findings for Transactional Leadership and Job Satisfaction

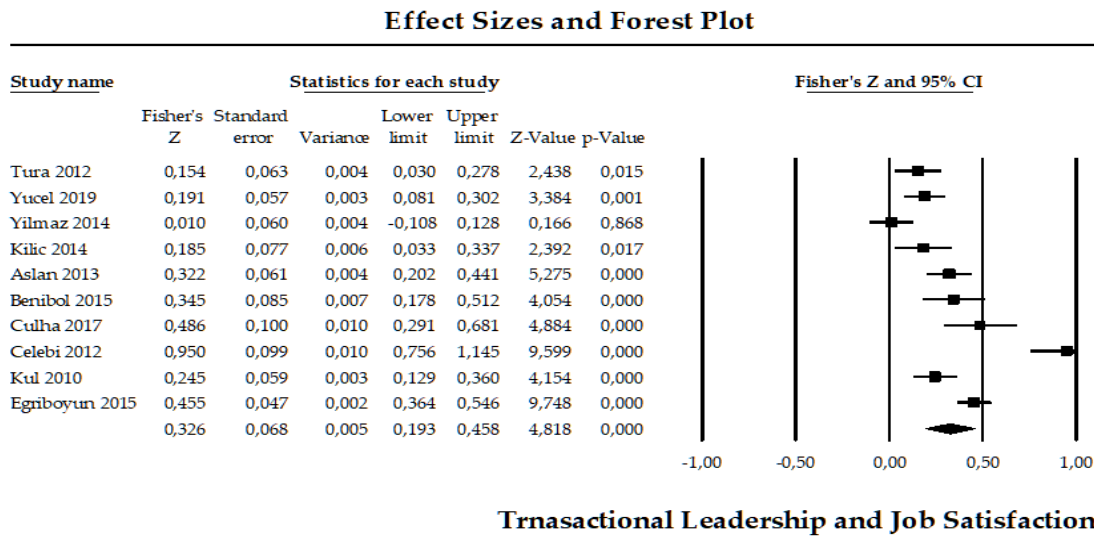


Figure 3. Meta-analytic statistics for transactional leadership and job satisfaction.

Figure 3 depicts the correlational effect sizes and forest plot of transactional leadership style and job satisfaction. Distributions of the effect sizes range between 0.010 and 0.950. The overall effect size calculated in the random model in terms of Fisher's Z value is 0.326. The confidence interval of the effect sizes' distribution is 95% at $p < 0.05$.

Table 3. Effect of Transactional Leadership on Job Satisfaction and Heterogeneity Statistics

Model	Effect Sizes and 95% Interval				Null Hypothesis Test (Two-Tailed)		Heterogeneity			
	Number studies	Point estimate	Lower limit	Upper limit	Z	P	Q	df(Q)	P	I ²
Fixed	10	0.285	0.247	0.321	14.228	0.000				
Random	10	0.315	0.191	0.429	4.818	0.000	93.266	9	0.000	90.350

As seen in Table 3, there is a positive correlation between transactional leadership and job satisfaction. The effect of leadership style on job satisfaction is calculated by using Fisher's Z values. Then it was converted into Pearson correlation coefficients (r) to make interpretations. The effect of transactional leadership on job satisfaction in the random model is moderate, at $r = 0.315$. The null hypothesis test shows that there is a significant correlation between transactional leadership and job satisfaction ($p < 0.05$). Moreover, heterogeneity statistics demonstrate the variance of studies. Although an I^2 value of 90.350 means that the ratio of observed to real variance is quite high, it is not the only evidence of heterogeneity. The prediction power of intervals and variability of effect sizes between studies establishes that there is heterogeneity, which then requires moderator analyses to be conducted.

Publication Bias Analyses

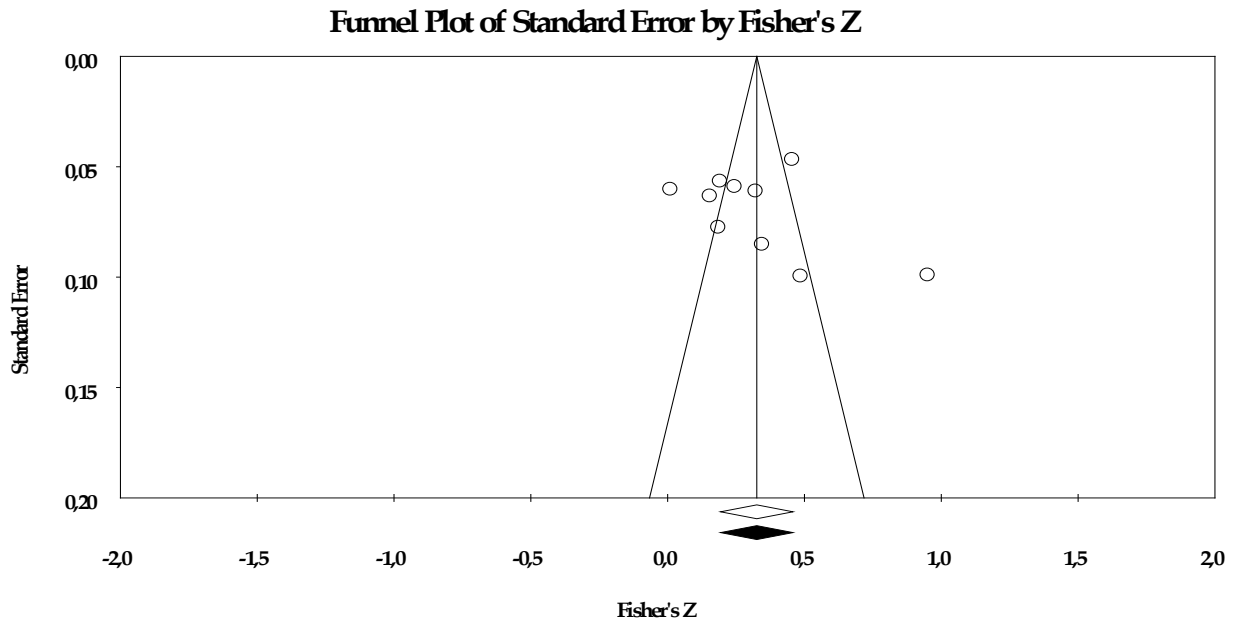


Figure 4. Funnel plot of transactional leadership and job satisfaction.

Figure 4 depicts the funnel plot of the effect sizes in terms of Fisher's Z values and standard error. The plot shows that no study was missed study to fix the bias. Had there been any bias, the missing studies would have been denoted by black dots and the diamonds would not have been in line (Üstün & Eryılmaz, 2014). The results of this analysis shows that there are no black dots and the diamonds are abreast.

Another bias test is Duval and Tweedie's trim-and-fill test. The effect size is calculated in a random model. The results prove that no study was trimmed and filled to fix the bias. Had there been any bias, there would have been adjusted values. Begg and Mazumdar's rank-correlation bias test was applied as well. In this test, Tau and p values were checked to ascertain whether the data were biased. A significant value of one-tailed p indicates the possibility of publication bias. Tau value is 0.267 and $p = 0.142$, which is not significant at level of 0.05. One more type of bias test is Egger's test. According to the results, the standard error is 4.506, the t value is 0.984, and the one-tailed p is 0.177. The significance of p is taken into consideration for bias in this test. The value of p is insignificant at the level of $p = 0.05$. There were also fail-safe number calculations for bias in the study. Rosenthal's fail-safe number test. The significance level α and Z value for α are 0.05 and 1.96, respectively. There must be 544 missing studies for the p value (0.000) to be greater than α level. This means that at least 544 studies with null effect to nullify the effect sizes calculated in this meta-analysis. But this number required is significantly greater than the total 10 studies analyzed. The other fail-safe number test is Orwin's test. The effect size calculated in the fixed model in this study is 0.285. The trivial criterion determined for the current study is 0.01 and the mean correlation for missing studies is 0.000. These statistics show that 283 studies with a mean correlation of 0.000 are required to reduce the effect size from 0.285 to the trivial level of 0.01. Again, this number is highly greater than the total number of studies.

Moderator Analyses

Table 4 presents the findings of the moderator variables for transactional leadership and job satisfaction. The two main moderators are school level and the region in Turkey where the study was conducted. The statistics for the moderator analysis were evaluated at a significance level of $p = 0.05$.

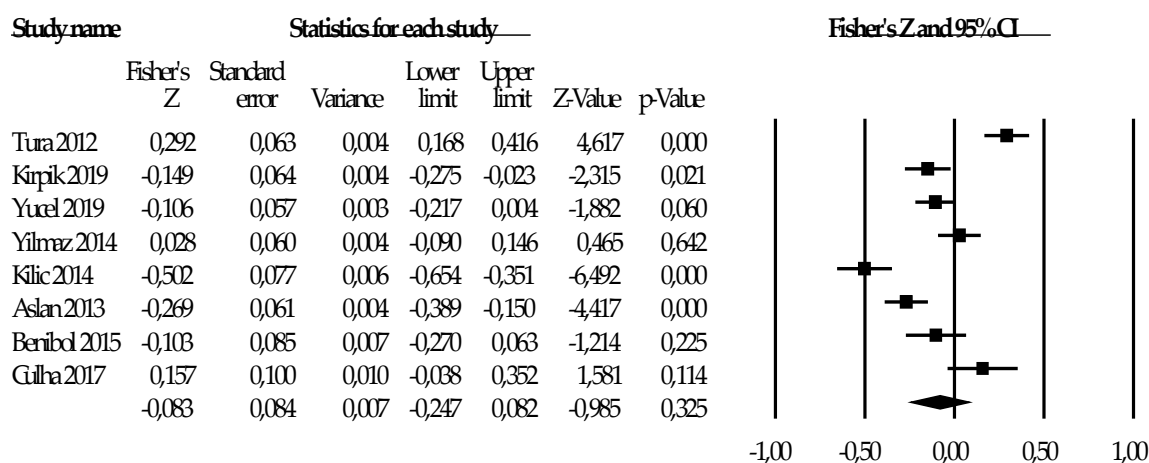
Table 4. Moderator Analysis for Transactional Leadership and Job Satisfaction

Moderator	Groups	n	r	Lower limit	Upper limit	Z	P
Level	Preschool	3	0.224	0.135	0.309	4.854	0.000
	Primary	7	0.350	0.181	0.499	3.916	0.000
	Overall	10	0.250	0.172	0.326	6.096	0.000*
Region	Marmara	4	0.246	0.131	0.355	4.129	0.000
	Other	6	0.355	0.164	0.520	3.544	0.000
	Overall	15	0.275	0.177	0.267	5.352	0.000*

The statistics for the moderator analyses shown in Table 4 demonstrates that variation in the effect sizes by school level and region is significant ($p < 0.05$). The effect size for preschools is 0.224, that of primary schools is 0.350, and the overall effect size for both school levels is 0.250. The effect size for the Marmara region is 0.246, that for other regions is 0.355, and the overall effect size for all regions is 0.275.

Findings for Laissez-faire Leadership and Job Satisfaction

Effect Sizes and Forest Plot



Laissez-faire Leadership and Job Satisfaction

Figure 5. Meta-analytic statistics of laissez- faire leadership and job satisfaction.

Figure 5 depicts the correlational effect sizes and forest plot for laissez-faire leadership and job satisfaction in terms of Fisher's Z values. Distributions of the effect sizes range between -0.502 and 0.292. The overall effect size calculated in the random model is -0.083. There is a negative correlation between laissez-faire leadership and job satisfaction. The confidence interval of the effect sizes' distribution is 95% at $p < 0.05$.

Table 5. Effect of Laissez-faire Leadership on Job Satisfaction and Heterogeneity Statistics

Model	Effect Sizes and 95% Interval				Null Hypothesis Test (Two-Tailed)		Heterogeneity			
	Number studies	Point estimate	Lower limit	Upper limit	Z	P	Q	df(Q)	p	I ²
Fixed	8	-0.081	-0.128	-0.035	-3.419	0.001	84.385	7	0.000	91.705
Random	8	-0.082	-0.242	0.082	-0.985	0.325				

It is seen in Table 5, there is a negative correlation between laissez-faire leadership and job satisfaction. The effect of leadership style on job satisfaction is calculated by using Fisher 's Z values. Then it was converted into Pearson correlation coefficients (r) to make interpretations. There is a small, negative correlation between laissez-faire leadership and job satisfaction (r = -0.082). The null hypothesis test shows that there is a significant relation between laissez-faire leadership style and job satisfaction (p < 0.05). Statistics of heterogeneity denotes the variance of studies. Although the I² value of 91.705 obtained demonstrates that the ratio of observed to real variance is very high, it is not the only evidence for heterogeneity. The prediction power of intervals and variability of effect sizes between studies establishes that there is heterogeneity, which then requires moderator analyses to be conducted.

Publication Bias Analyses

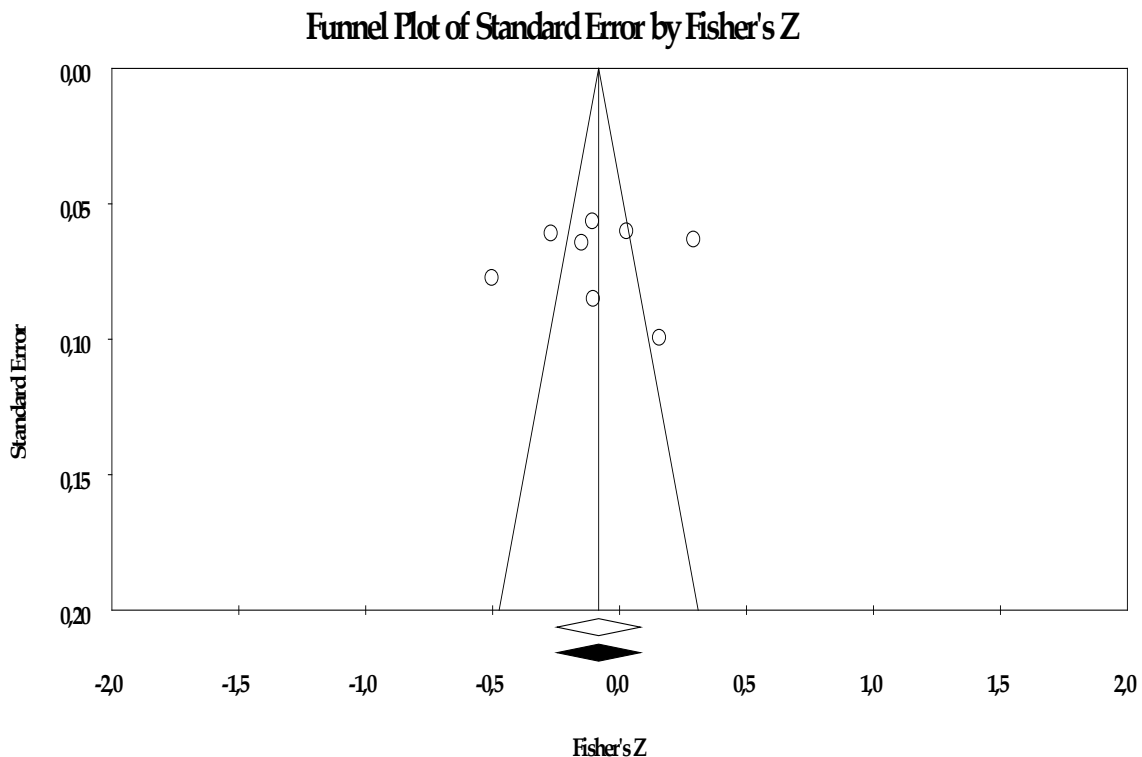


Figure 6. Funnel plot of laissez-faire leadership and job satisfaction.

Figure 6 depicts the funnel plot for effect sizes in terms of Fisher's Z values and standard error. The plot shows that no missed study was missed in order to fix the bias. If there had been any bias, missing studies would be denoted by black dots and the diamonds would not have been in line

(Üstün & Eryılmaz, 2014). The results of this analysis shows that there are no black dots and the diamonds are abreast.

Another bias test applied in the study is Duval and Tweedie's trim-and-fill test. The effect size is calculated in a random model. The results demonstrate that no study was trimmed and filled to fix any bias. Had there been any bias, there would be adjusted values. The other bias test in the study is Begg and Mazumdar's rank-correlation test. In this test, Tau and p values were checked to ascertain the bias. A significant value of a one-tailed p indicates the possibility of publication bias. According to the results, Tau value is 0.036 and $p = 0.451$. This value is not significant at the level of 0.05. Egger's test applied for bias as well. The calculated standard error is 7.787, the t value is 0.071, and the one-tailed p is 0.473. The significance of p is taken into consideration for bias in this test. As a result, the value of $p = 0.473$ is non-significant at the level of 0.05.

As a fail-safe number, Rosenthal's fail-safe number test is applied. Significance level and Z value are 0.05 and 1.96 respectively. According to the result, there should be 17 missing studies so that p (0.001) will be greater than 0.05. This means that at least 17 studies with null effect are required to nullify the effect sizes calculated in this meta-analysis. But this figure is more than double the total number of studies analyzed. The other fail-safe number test is Orwin's test. The effect size (calculated in a fixed model) in this study is -0.081. The trivial criterion determined for the study is -0.01 and the mean correlation of missing studies is 0.000. These statistics show that there must be 58 studies with a mean correlation of 0.000 to increase the effect size from -0.081 to the trivial level of 0.01. This number is also greater than the total number of studies.

Moderator Analyses

Table 21 presents the findings of the moderator variables for laissez-faire leadership and job satisfaction. The two main moderators are school level and the region in Turkey where the study was conducted. The statistics for the moderator analysis were evaluated at the significance level of $p = 0.05$.

Table 6. Moderator Analysis for Laissez-faire Leadership Style and Job Satisfaction

Moderator	Groups	n	r	Lower limit	Upper limit	Z	P
Level	Preschool	3	-0.232	-0.454	0.018	-1.823	0.068
	Primary	5	0.009	-0.195	0.211	0.083	0.934
	Overall	8	-0.088	-0.243	0.071	-1.085	0.278
Region	Marmara	3	-0.018	-0.485	0.457	-0.068	0.946
	Other	5	-0.120	-0.216	-0.021	-2.377	0.017
	Overall	8	-0.116	-0.211	-0.019	-2.346	0.019*

The results of the moderator analyses depicted in Table 6 shows that variation of the effect sizes by school level is not significant ($p > 0.05$). Variance of the effect size by regions is, however, significant ($p < 0.05$). The effect size for preschools is -0.232, that of primary schools is 0.009, and the overall effect size for both school level is -0.088. Effect size for the Marmara region is -0.018, that for other regions is -0.120, and overall effect size for all region is -0.116.

Findings for the Hypotheses

The results for leadership styles' effect on job satisfaction in terms of correlations are as follows: Transformational leadership's effect size on job satisfaction is large ($r = 0.487$). The effect size of transactional leadership on job satisfaction is moderate ($r = 0.315$). The only leadership style with a negative effect on job satisfaction is the laissez-faire style of leadership is small ($r = -0.082$).

The findings reveal that transformational leadership has the greatest effect on teachers' job satisfaction, as verified by effect sizes. This result confirms the first hypothesis (H1) asserting that the correlational effect of transformational school leadership style on teachers' job satisfaction is higher than any other leadership style.

The comparisons made for effect sizes' magnitudes reveal that transactional leadership has the second largest effect on teachers' job satisfaction. Specifically, transactional leadership has a moderate, positive effect on job satisfaction. This result confirms the second hypothesis (H2) asserting that transactional school leadership has a positive effect on teachers' job satisfaction.

Laissez-faire leadership is the sole leadership style that has a negative effect on teachers' job satisfaction. The statistics empirically confirm this notion. Laissez-faire leadership has a small, negative effect on job satisfaction. The third hypothesis of the study (H3) asserting that the correlational effect of laissez-faire school leadership on teachers' job satisfaction is lower than any other leadership style was also confirmed.

Discussions, Conclusions, and Suggestions

The findings of this study show that school principals' leadership styles have an effect on teachers' job satisfaction levels. Regarding the components of a full-length leadership model, it is clear that transformational leadership has the greatest positive effect on teachers' job satisfaction followed by transactional leadership. The only leadership style with a negative effect on job satisfaction is laissez-faire leadership, which is the absence of leadership. The results agree with the findings of earlier studies. There is a common conviction in the literature that transformational leadership can motivate teachers and change their attitude for the better. Transactional leadership positively effects teachers and makes them feel content whereas laissez-faire leadership decreases teachers' satisfaction levels.

The meta-analysis conducted by Çoğaltay et al., (2016) reviewed the correlation between educational leadership and teacher job satisfaction. The studies included in the analysis were published in Turkey between the years 2000 and 2016. The current meta-analysis also reviews school leadership styles and teachers' job satisfaction during a different period, namely, from 2010 to 2020, in Turkey. According to the results of the preceding study, transformational leadership has strongest large effect (0.520) on job satisfaction, the strongest of all leadership styles. The same result was found in the current meta-analysis, namely that the effect size is large ($r = 0.487$). Transformational leadership is the leadership style analyzed in both studies, and the results are similar. There are likewise similar subcategories analyzed as moderators in both studies, namely, publication type, school level, and region where the studies being analyzed were conducted. The results reached in both studies indicate that region is a moderator variable on the correlation between educational leadership and job satisfaction. The results of the cited study did not find the level and type of school to have a moderating role on job satisfaction. On the contrary, school level was determined to be statistically significant for transformational and transactional leadership style and not supported significantly for laissez-faire style in the current meta-analysis. Publication type has a significant moderating role on the effect sizes of leadership style and job satisfaction for transformational leadership in the current meta-analysis. On the other hand, publication type did not have a mediating role in either of the other two leadership styles in this study or the cited meta-analysis.

In the meta-analysis conducted by Aydın et al., (2013), the effect of school leaders' leadership style on organizational commitment and teacher job satisfaction was sought in terms of a full-range leadership model. Although the cited study found, using a fixed-effect model, that transformational leadership had a large effect (0.810) on job satisfaction, the current meta-analysis found it to be 0.487. Whereas the study cited found transactional leadership to have a large effect (0.560) on job satisfaction, the same calculation resulted in a moderate effect (0.315) in the current study. In both studies, there was a negative correlation between the

laissez-faire leadership style and teachers' job satisfaction. The effect size of the current study is a small level (-0.082) whereas the effect size of the cited study (-0.150) was moderate.

Another meta-analysis by Sarier (2013) focused on the correlation between school principals' leadership styles and school outputs, which include teachers' job satisfaction. The findings were similar to the results of the current meta-analysis for the relevant statistics. In the cited study, the correlational effect size of transformational leadership was large (0.650) whereas the effect size determined in the current meta-analysis is 0.487. The transactional leadership was large (0.420) whereas the current study found it to be moderate (0.315). In both studies, the correlational effect sizes for laissez-faire leadership were negative and small, -0.050 for the cited one and -0.082 for the current study.

A similar study published outside of Turkey conducted by Chin (2007) is a meta-analysis reviewing the effects of transformational school leadership on school outcomes in Taiwan and the USA. The common variables of the current meta-analysis and the cited study are transformational school leadership and job satisfaction. According to the results of the cited study, transformational leadership has a positive, significant, large effect ($r = 0.707$) on teacher job satisfaction. The correlational effect size of transformational leadership and job satisfaction of the current meta-analysis ($r = 0.487$) is also positive and large.

In their meta-analytical study, Judge and Piccolo (2004) tested transformational and transactional leadership relative validity. The findings reveal positive correlations for transformational leadership ($r = 0.440$) and transactional leadership ($r = 0.390$), and a negative correlation for laissez-faire leadership ($r = -0.370$). These statistics partially confirm the results of the present study. The statistics of the current study support previous studies through positive and negative correlations between leadership styles and job satisfaction.

In conclusion, these findings are consistent with the results of other researchers (Avolio et al., 1999, Leithwood & Jantzi, 1999; Leithwood, 1992) and proved that thoughtful educational leaders interested in teachers as individuals affect them positively. Proactive leaders produce positive results for teachers, such as teachers having higher job satisfaction levels and perceiving their schools to be more effective. These results make it clear that if school leaders wish to influence school outcomes, they should reevaluate their leadership style and endeavor to incorporate transformational and transactional leadership dimensions, as identified by the MLQ. Moreover, laissez-faire leadership behaviors should not be preferred by leaders. As Leithwood (1992) has indicated, transformational leadership behaviors help school leaders establish sustainable and constant innovations in their school. As concluded by Leithwood and Jantzi (1999), transformational school leaders working with teachers cooperatively can develop problem solving skills, strengthen organizational commitment, and make them contribute the common goals. These behaviors of transformational and transactional leadership styles consequently also lead teachers to feel more content about their job. Because transformational and transactional leadership styles are similar, it is difficult to make a clear distinction between their unique effects. This is an implication of the view supported by Bass (1985), which sees transformational and transactional leadership as two distinct, though not mutually exclusive processes.

Given the results of the present and other studies, some suggestions can be made for researchers and educational leaders, namely:

- Transformational and transactional leadership activities can be conducted through educational workshops.
- Having transactional leadership workshops will be beneficial for school leaders because transformational and transactional styles can be used interchangeably in some cases.
- School leaders should avoid performing no leadership behaviors, or, in other words, adopt laissez-faire leadership practices because it has negative effects on teachers' job satisfaction.

- Meta-analyses reviewing the dimensions of transformational and transactional leadership styles in connection with teachers' job satisfaction can be conducted.

APPENDIX 1: Data about the studies included in the meta-analysis

Data of the Studies Included in the Meta-Analysis									
No	Type	Year	Study Name	Level	Region	Variable	Correlation	Leadership	Scale
1	Thesis	2012	Tura, M.(2012). İlköğretim okulu müdürlerinin liderlik stillerinin öğretmenlerin iş doyumuna etkisi: Karacabey ilçesi örneği.	Primary	Marmara	Independent: Leadership style Dependent: Job satisfaction	r1 = 0,535 r2 = 0,153 r3 = 0,284 N = 253	Transformational Transactional Laissez faire	MLQ MSQ
2	Thesis	2019	Carpolat Kırpık, A.N.(2019). Okul yöneticilerinin liderlik tarzları ile öğretmenlerin iş doyumunu arasındaki ilişkinin incelenmesi.	Primary	Mediterranean	Independent: Leadership style Dependent: Job satisfaction	r1 = 0,378 r3 = -0,148 N = 244	Transformational Laissez faire	MLQ MSQ
3	Thesis	2019	Yücel Genç, B. (2019). Okul öncesi yöneticilerinin liderlik stilleri ile öğretmenlerin iş doyumunu arasındaki ilişki.	Preschool	Southeastern	Independent: Leadership style Dependent: Job satisfaction	r1 = 0,204 r2 = 0,189 r3 = -0,106 N = 316	Transformational Transactional Laissez faire	MLQ MSQ
4	Thesis	2014	Yılmaz, T.(2014). Özel okullardaki ilkökull müdürlerinin liderlik biçimi ile sınıf öğretmenlerinin iş doyumunu arasındaki ilişki.	Primary	Aegean	Independent: Leadership style Dependent: Job satisfaction	r1 = 0,484 r2 = 0,010 r3 = 0,028 N = 279	Transformational Transactional Laissez faire	MLQ MSQ
5	Thesis	2014	Akyol Kılıç, M.(2014). Okul öncesi öğretmenlerin yöneticilerinde algıladıkları liderlik stilleri ile kendi iş doyumunu düzeyleri arasındaki ilişkinin incelenmesi: İstanbul-Manila örneği.	Preschool	Marmara	Independent: Leadership style Dependent: Job satisfaction	r1 = 0,663 r2 = 0,183 r3 = -0,464 N = 170	Transformational Transactional Laissez faire	MLQ MSQ
6	Thesis	2013	Aslan, Ü.(2013). Okul müdürlerinin liderlik stilleri ile öğretmenlerin iş doyumunu arasındaki ilişkinin incelenmesi.	Primary	Southeastern	Independent: Leadership style Dependent: Job satisfaction	r1 = 0,378 r2 = 0,311 r3 = -0,263 N = 272	Transformational Transactional Laissez faire	MLQ MSQ
7	Thesis	2015	Kete, D.(2015). Okul müdürlerinin liderlik stilleri ile öğretmenlerin iş doyumunu ve örgütsel adalet algıları arasındaki ilişkinin incelenmesi.	Primary	Southeastern	Independent: Leadership style Dependent: Job satisfaction	r1 = 0,470 N = 537	Transformational	MSQ
8	Thesis	2015	Benibol, H.(2015). Okul öncesi eğitiminden sorumlu müdürlerinin liderlik stillerinin öğretmenlerin iş doyumunu üzerine etkisi.	Preschool	Aegean	Independent: Leadership style Dependent: Job satisfaction	r1 = 0,591 r2 = 0,332 r3 = -0,103 N = 141	Transformational Transactional Laissez faire	MLQ MSQ
9	Thesis	2017	Çulha, Y.(2017). Okul psikolojik danışmanlarının müdürlerinin liderlik stillerini algılamaları ile kendi iş doyumunu ve tükenmişlik düzeyleri arasındaki ilişkinin incelenmesi.	Primary	Marmara	Independent: Leadership style Dependent: Job satisfaction	r1 = 0,542 r2 = 0,451 r3 = 0,156 N = 104	Transformational Transactional Laissez faire	MLQ MSQ
10	Thesis	2012	Çelebi, C. (2012). İlköğretim okullarında görev yapan okul müdürlerinin okulda gösterdikleri liderlik stilleri ile öğretmenlerin iş doyumunu arasındaki ilişki.	Primary	Central Anatolia	Independent: Leadership style Dependent: Job satisfaction	r1 = 0,790 r2 = 0,740 r3 = 0,029 N = 105	Transformational Transactional Laissez faire	MLQ
11	Thesis	2010	Kul, M.(2010). Okul yöneticilerinin liderlik stilleri ile beden eğitimi öğretmenlerinin yıldırma (mobbing) yaşama düzeyleri, örgütsel bağlılıklar ve iş doyumunu arasındaki ilişki.	Primary	Marmara	Independent: Leadership style Dependent: Job satisfaction	r1 = 0,650 r2 = 0,240 N = 291	Transformational Transactional	MLQ MSQ
12	Article	2015	Eğribayın, D. (2015). Ortaöğretim okullarında görev yapan yönetici ve öğretmenlerin liderlik uygulamaları ve iş doyumunu algıları arasındaki ilişki.	Primary	Black Sea	Independent: Leadership style Dependent: Job satisfaction	r1 = 0,520 r2 = 0,426 N = 462	Transformational Transactional	MLQ MSQ
13	Article	2013	Tok, T.N., & Bacak, E. (2013). Öğretmenlerin iş doyumunu ile yöneticileri için algıladıkları dönüşümcü liderlik özellikleri arasındaki ilişki.	Primary	Aegean	Independent: Leadership style Dependent: Job satisfaction	r1 = 0,165 N = 328	Transformational	MLQ
14	Article	2014	Tannverdi, H., & Paşaoğlu, S. (2014). Dönüşümcü liderlik, örgütsel adalet ve iş tatmini arasındaki ilişkileri belirlemeye yönelik okul öncesi öğretmenler üzerinde bir araştırma.	Preschool	Marmara	Independent: Leadership style Dependent: Job satisfaction	r1 = 0,118 N = 216	Transformational	MSQ
15	Article	2018	Başaran, M., & Güçlü, N. (2018). Okul	Primary	Marmara	Independent:	r1 = 0,558	Transformational	MSQ

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Social Studies Teacher Candidates' Views on Science, Technology, and Society

Research Article

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ABSTRACT

To qualify individuals in society as scientifically literate, they need to have a sufficient understanding of science, technology, and the relationship of society. Educational restructuring efforts emphasize scientific literacy as an important goal. The studies, in the literature, reveal that teachers and teacher candidates have misconceptions about science and technology and there is an important lack of knowledge about the effects of science and technology on society. This study aims to determine the opinions of social studies teacher candidates about science, technology, and the impact of science and technology on society. A semi-structured interview technique was used in this study, designed as a case study, among qualitative research methods. The study was carried out with 10 social studies teacher candidates who took the Science-Technology and Social Change course at a university in the Western Black Sea region in 2018. The themes reached in the analysis process were grouped under three dimensions: science, technology, and the relationship of society with science and technology. The results obtained from the study show that teacher candidates have misconceptions about science, that they confuse the concepts of science and technology, and that science and technology studies are affected by the social structure of the society.

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Keywords:

Social studies teacher candidates, Science, Technology, Society, Scientific literacy.

Introduction

In times of rapid social changes, sociologists try to explain this change and question its source. Society has effects on science and technology, and science and technology on society. This effect also causes social change. Science and technology are improving day by day, considering the needs of society. At the same time, it gains a new shape by being influenced by scientific and technological developments in social norms.

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Science is developing every day, taking into account the needs of society. At the same time, social norms are taking on a new form, influenced by scientific developments. Developments in science and technology are an important factor that enables the development of society as well as accelerate social change (Sadler & Zeidler, 2005). Today's society is constantly facing advancing science and technology (Kolstø, 2006). Scientific advances provide many examples of how science and society interact with each other. On the one hand, in the globalizing world depending on scientific developments, science and technology are renewing themselves every day and pushing the limits of today (Ata, 2017). On the other hand, societies that are aware of this process aim to teach new generations the ways to access information by using science and technology (Özdemir, 2011; Gültekin, 2020). In this globalized world, countries are competing with each other and it is aimed to educate generations who research, study, question, and think critically (Kaymakçı, 2010). For this purpose, countries aimed to educate scientifically literate individuals to bring all citizens in society to a level that will adapt to scientific and technological developments (American Association for the Advancement of Science [AAAS], 1990; Ministry of National Education [MoNE], 2014, 2016, 2019).

Scientific literacy can be defined as having the knowledge and skills necessary for an individual to make effective decisions and take responsibility for science and technology-based issues related to society (Laugksch, 2000). For the new generation to adapt to the rapidly changing environment, it is important to create a society consisting of scientifically literate individuals within the modern education system (Çepni, Ayvaci, & Bacanak, 2009). A society consisting of individuals who grow up to be scientifically literate will increasingly demand a higher level, more qualified, and efficient manpower (Jan 2017; Gültekin, 2020). Scientifically literate society will be achieved by raising scientifically literate individuals, expanding education, and raising the level of education. (Çepni & Bacanak, 2002). Therefore, education has important responsibilities.

Education restructuring efforts, which have been going on for many years at the international level, emphasize scientific literacy as an important goal for the educational process (AAAS, 1989, 1990; National Research Council [NRC], 1996; 2004; National Council for the Social Studies [NCSS], 2010). As a result of taking into account the international studies, which have reflections on the Turkish education system, restructuring studies have also started in our country. In this structuring initiative, educating scientifically literate individuals has been identified as an important goal (MoNE, 2004; 2016; 2019; Çakıcı, 2012).

Many definitions of scientific literacy have been made in the literature (AAAS, 1989; National Science Teachers Association [NSTA], 1991; National Science Education Standards [NSES], 1996; Bybee, 1997; Holbrook & Rannikmae, 1997; Hurd, 2000; Laugksch, 2000; Organisation for Economic Co-operation and Development [OECD], 2003; 2007). The main aim of the emphasis on scientific literacy is to educate individuals who know and understand the natural world, who can use appropriate scientific processes and methods in personal decisions, who can engage in discussions on scientific and technological issues (NRC, 1996; NCSS, 2004; MoNE, 2006). Science-Technology-Society (STS) is an important dimension of scientific literacy. It is important to understand how science and technology are affecting society or influenced by society (Hurd, 2000). This dimension is important for scientifically literate individuals to examine more comprehensively and make more informed decisions while making decisions on scientific or technological issues of interest to society (Kılıç, Haymana, & Bozyılmaz, 2008; Jan 2017; Benzer, 2020). With the reform movements in education, one of the themes of the social studies course has been determined as "Science-Technology-Society" (NCSS, 2010; MoNE, 2016; MoNE, 2019). It is important to have social studies teachers who are aware of the relationship between science-technology-society for students to understand science-technology-society issues. Therefore, the Science Technology and Social Change course has been included as a compulsory course in the social studies teaching program to realize the aims such as learning about the concepts of science-technology-society and the relationship between these issues and realizing their interactions (Council of Higher Education

[YÖK], 1997). Within the renewed social studies teacher education program, this course continues as a compulsory course with the same content as Science, Technology, and Society (YÖK, 2019). To fulfill the task of educating scientifically literate individuals, teacher candidates must have a sufficient level of knowledge about this issue (Duban, 2010; Jan 2017). Teacher candidates should be able to have ideas on issues related to science and technology, have access to scientific knowledge, understand and interpret scientific knowledge, and participate in decision-making (AAAS, 1990; NRC, 2004; NCSS, 2010; MoNE, 2016; YÖK, 2018; MoNE, 2019).

When studies in our country are examined, it is seen that teachers and teacher candidates have misconceptions about science and technology and that they have significant deficiencies in knowledge about the impact of science and technology on society. Teachers should know the relationship between science, technology, and society which are the dimensions of scientific literacy. Therefore, the awareness of the teacher candidates about the relationship between science and technology, which is the dimension of scientific literacy, is important before they enter the teaching profession. Although its social emphasis is clear in the field of social studies education, scientific literacy studies on the subject are quite a few (Şahin, 2010; Akgün, 2015; Şahin, 2017). At the same time, studies with social studies teacher candidates are limited. This study aims to fill this gap in the field by focusing on the opinions of social studies teacher candidates on "science", "technology" and "the impact of science and technology on society".

Method

This study has been designed as a case study among qualitative research methods. A case study is a detailed examination of an event, a phenomenon, or a subject (Stake, 1995).

Participants

The convenience sampling method was used to determine the participants of his research (Patton, 2005). The easiest and most convenient sample available to the researcher was selected (Creswell, 2013). The study was carried out with 10 social studies teacher candidates at a university in the Western Black Sea region in the spring semester of 2018. Teacher candidates who took the course "Science, Technology, Social Change" conducted by the researcher and agreed to participate voluntarily in the research participated in the study. Each participant was informed beforehand about the purpose of the research. Per ethical principles, the names of the participants were kept confidential and each participant was given a nickname (K1, K2...K10).

Data collection tools

A semi-structured interview technique was used in this study based on the qualitative study method. The semi-structured interview technique includes both explicit and open-ended questions as a mixture of structured and unstructured interview types. (Merriam, 2009). The researcher prepared a semi-structured interview form by using the researches in the literature to get the opinions of the participants about science, technology, and the effects of science and technology on society (Ryan & Aikenhead, 1992; Lederman, Abd-El-Khalick, Bell & Schwartz, 2002). Questions such as "What is science?", "What is technology?", "How is the relationship between science and technology with society?" Were asked to the participants. Guiding questions were also asked to enable the participants to express their thoughts more clearly. Guiding questions such as "What distinguishes science from other disciplines?", "What is an experiment?", "Is the experiment necessary for the development of scientific knowledge?" etc. were asked in addition to the question of "What is science?" to get in-depth answers from the participants. The questions were prepared by taking the opinion of an academic working in the field of social studies education and directed to two social studies teacher candidates to determine whether the questions were understandable and fit for purpose and the necessary corrections were made. After the consent of the participants was obtained, face-to-face interviews with each participant were recorded on a voice recorder. Audio recordings were transcribed and converted into text.

Data analysis

When analyzing the data obtained in the study, sub-dimensions were created according to the questions under each dimension, and the answers of the participants were examined by the induction method according to these sub-dimensions. With this review, common statements were determined and common themes were formed by gathering the determined common statements (Miles & Huberman, 1994). The themes reached in the analysis process were grouped under three dimensions: science, technology, and the relationship of society with science and technology (Ryan & Aikenhead, 1992). The science was analyzed in "content of science, the purpose of science, the method in science", sub-dimensions, the technology was analyzed in "definition of technology, advantages, and disadvantages" while the relationship of society with science and technology was analyzed in "science-technology relationship, the effect of science and technology on society, society's impact on science and technology".

The records of the data used in the research were read separately by the researcher and an expert, and the codes, themes, and sub-dimensions were examined for "consensus" and "disagreement". The reliability of data analysis was examined using the formula of "Reliability = [Consensus / (Consensus + Disagreement)] x 100". (Miles & Huberman, 1994). The compliance percentage was found to be 91%. A compliance rate of above 70% is considered reliable for qualitative studies (Miles & Huberman, 1994). The issues with differences of opinion were discussed and necessary arrangements were made (Creswell, 2005; 239).

Findings

Views of social studies teacher candidates about Science Technology Society

The opinions of social studies teacher candidates about science, technology, and society were examined in headings separately as views about science, views about technology, and the effects of science and technology on society.

Views of social studies teacher candidates' on science

Views of social studies teacher candidates on science were examined in the dimensions of content of science, the purpose of science, the method in science. The results obtained from the opinions of the teacher candidates according to these dimensions are presented in Table 1.

Table 1. Views of social studies teacher candidates' on science

Theme	Category	Statements
Science	Content of science	Fields such as history and geography are also science (K2, K4, K5, K10)
		Proven, reproducible, practicable things are science, areas such as history, geography are not science (K3)
		Science is knowledge, information that develops (K1, K2, K6)
		Science is the work done for the benefit of mankind to make life easier (K2, K7, K10)
	Purpose of science	To make life easier, for the benefit of humanity, society, for a better life (K3, K4, K8, K9)
		It does not always give beneficial results to humanity (example of an atomic bomb) (K1, K5, K6, K8, K9, K10)
		Invention and technological product design (K1, K9)
	Method in science	In science, it takes experiments to prove (K1, K4, K5)
		The experiment in science is not the only method, there are different methods (K3, K7, K8, K10)
Scientists follow the scientific method (hypothesis building - testing - data collection - data analysis, interpretation of findings - conclusion) when conducting research (K8)		
		The scientific method differs according to the field (K4, K5, K6, K10).

It has been observed that there were teacher candidates who accept fields such as history and geography related to the content of science as branches of science, as well as teacher candidates who do not accept these fields as branches of science. K7, who considers history and geography as the fields of science, in regards to the content of science, stated that *"Everything that can be studied, seen, measured is science. History is also science, but it is not studied, the evidence that exists is used"*. Teacher candidates stated that they do not accept the fields of history and geography as a science field because of the difficulty of proving these areas. I don't think K5 can answer some of the questions of "history. "I don't think you can answer some of the questions of history. Unrepeatable events are difficult to prove, so I don't see history as a science" which was the statement of K5, showed that there were teacher candidates who did not accept these fields as science.

Teacher candidates have defined science as knowledge that develops. They expressed the purpose of science as inventing things, designing technological products. From these statements, it can be said that candidate teachers confuse science and technology. K3, K4, K8, K9 have defined the purpose of science as *"making life easier and revealing the facts."* Some of the teacher candidates believe that scientific research is harmful to humanity and society. K10's *"Scientific studies are not always used for good purposes. For example, the use of it as an atomic bomb "and K6's" can also be areas where science is abused. For example, scientific research that is used to make weapons, the atom bomb is the greatest example of this"* supports the idea that science is not always used for good, scientific discoveries are used for malicious purposes. As mentioned in the statements of K10 and K6, most of the teacher candidates used the example of an atomic bomb when describing the malicious use of science.

Some teacher candidates defined science as finding new things through experiments. The statement of K2, who defends that experiment is a necessary method in science, is as follows: *"Experiment is something that science does to prove. An experiment is required for every scientific research. It is a necessary tool for us to believe."* There were also teacher candidates who believe that the experiment is not the only method in science. K8 stated that observation is also a method in science as *"Experiment is not necessary for every single scientific research because sometimes scientific research can be done through observation."*

Another candidate's opinion on the method of science is that scientists follow the scientific method (hypothesis building - testing - data collection - data analysis, interpretation of findings - conclusion) when conducting research. The opinion of K10 regarding the method of science, *"There is a formal science-based on experiments, and social science-based on observation. For example, history studies use the documents in the archives as a method and analyze the information in these documents. The experiment is the domain of science."* shows that the scientific method differs according to the field, for example, a scientist dealing with natural sciences uses the experiment and observation methods while the scientist dealing with social sciences follows a different method. Besides, in regards to the method of science, teacher candidates think that experimentation is necessary for fields of natural sciences such as physics and chemistry, but that experimentation is not necessary for areas of social sciences.

Views of social studies teacher candidates' on technology

Views of social studies teacher candidates on technology were examined in the dimensions of definition of technology, the advantages, and disadvantages of technology. According to these dimensions, the codes obtained from the opinions of the teacher candidates are presented in Table 2.

Table 2. Views of social studies teacher candidates' on technology

Theme	Category	Statements
Technology	Definition of technology	It is similar to science, it is the application of science (K6, K7, K8, K9)
		Necessary ideas and techniques to develop society

	(K3, K10)
	To invent, design, discover new inventions.
	(K5, K7)
Advantages	Makes human life easier (K1,K2,K3,K4,K5,K6,K7, K8,K9,K10)
	Tools that facilitate daily life (K4, K5, K7, K10)
Disadvantages	Affect the health adversely (K1, K3, K4, K5, K7, K10)
	Computers, cars, machines harm health (K3)

We see that teacher candidates define technology as tools and electronics that make life easier. The statement of K7, "When we say technology, small things come to my mind, small things that allow you to communicate very quickly even from far away that does not take up much space. This is related to the advancement of technology, people probably can make them smaller." leads to the definition of technology as small tools. Besides, the fact that K9 and K6 use the statement "similar to science" when defining technology shows that teacher candidates consider science and technology the same. Statements such as "Technology is the tool that science uses, it is the way science is expressed" (K9), "Without technology, we cannot understand how science progresses or how it develops (K8)" regarding the definition of technology show that, they consider science and technology as two inseparable fields.

Teacher candidates stated that technology has advantages and disadvantages. All of the teacher candidates participating in the study stated that technology facilitates human life as its advantages. "The positive features of the technology are that it makes human life easier. For example, it enables people to access information more quickly." statement of K3 and "Everything, even the smallest, is at hand with the computer, there is no need for too much effort." statement of K7 might be cited as examples.

Many of the teacher candidates see the negative effects of technology on health as a disadvantage of technology. While K10 describes the negative effects of technology as "making people cumbersome and making people drift away from social life", K7's statement "harmful to health but you use technology to get rid of it" is noteworthy.

Views of social studies teacher candidates on the relationship of science and technology with society

Views of social studies teacher candidates on the relationship of science and technology with society were examined in the dimensions of the relationship between science and technology, the impact of science and technology on society, the impact of society on science and technology. According to these dimensions, the codes obtained from the opinions of the teacher candidates are presented in Table 3.

Table 3. Views of social studies teacher candidates on the relationship of science and technology with society

Theme	Category	Statements
Science, technology, and society relationship	Relationship between science and technology	Science and technology are closely related (K1, K4, K5, K7, K10)
		Technology is the reflection of science (K5, K7)
		Science enters our lives through technology (K10)
		Scientific research guides technological developments (K3, K4, K5, K7, K10).

	Technological developments lead to the development of scientific research (K3, K4, K5, K7, K10)
	There is no technology without science (K1, K10)
Impact of science on technology and society	Scientific knowledge varies depending on the characteristics of different societies and cultures (K1, K3, K4, K5, K10,)
	The studies of scientists living in different countries are not the same because the development and needs of the countries are effective (K4, K10)
	It also depends on the education that the scientist receives (K5)
	Cultural values of society affect scientific studies (K1, K4, K10)
Impact of society on science and technology	The economic level of the country affects scientific studies (K1, K5, K10)
	Society has an impact on the work done in science and technology (K1, K6, K7, K10)
	Cultural values of society affect scientific studies (K3, K4, K5, K8)
	It is the study done for the needs of society, for the benefit of society (K3, K4, K8, K10)

The opinions of the teacher candidates on the relationship between science and technology are that science and technology are closely related, technology is a reflection of science, and science enters our lives with technology. *"Science and technology are parallel, the more the science develops, the technology progresses with it"* statement of K7 and *"Science cannot be without technology, technology cannot be without science"* statement of K9, reveal the relationship between science and technology.

In terms of the impact of science and technology on society, most candidate teachers believe that social and cultural structure affects science and technology. *"Scientists reveal their studies in the society they live in by being influenced by their own culture. It uses technology as a tool also. The point of view of the scientist living in America or Egypt may be different due to the influence of the culture of their societies."* statement of K6 is quite noteworthy. The cultural system of a country affects the results of scientists and the reason for this is that the subject scientists in different countries will work on is different in their studies according to the development levels and needs of the countries. Most of the teacher candidates stated that the culture and structure of the society in which scientific studies are conducted affect the scientist and scientific research.

In addition to the culture of the society in which the scientific study was conducted, the candidate teachers stated that the level of development of the country and its economy also influences the scientific study. *"Developed societies are aware of science, they can contribute to science and can immediately benefit from the opportunities provided by science, but in undeveloped societies, science has developed in only limited areas which are used by a certain group of people."* statement of K3, is noteworthy in this regard.

They noted that science and technology affect society, and this effect can be positive, as well as cause negative consequences. They noted that the positive effects of science and technology on society have benefits in areas such as making life easier, raising the welfare level of people, society, transportation, communication. They stated that, due to the negative effects of science and technology, people are drifting away from social life due to excessive use of the internet and phone usage, as well as a decrease in the number of visits to relatives.

Discussion

According to the results obtained from the study, teacher candidates have misconceptions about science. "Experiment is the only way for scientific research, social sciences are not a field of science, and definition of science as an invention", statements from the teacher candidates, show that some teacher candidates have misconceptions about science.

According to the content of science, some of the teacher candidates do not consider social science fields such as history, geography as a science, because they believe that knowledge of these fields cannot be proven. Considering that the field of social studies is also included in the social sciences, it is an important result that the teacher candidates do not accept their field as a science. This conclusion is also supported by the results of other studies in the literature that examine the views of teacher candidates on science (Abd-El-Khalick & BouJaoude, 1997; Chen, 2001; Tairab, 2001; Doğan, 2005; Er, 2017; Sönmez & Pektaş, 2017; Kesgin & Timur, 2020; Turgut & Yakar, 2020; Yakmacı, 1998). The fact that some of the teacher candidates expressed the purpose of science as a new invention, and designing technological tools showed that they confused science and technology. This result is similar to many previous study results (Yakmacı, 1998; Erdoğan, 2004; Kahyaoğlu, 2004; Doğan Bora, 2005; Turgut, 2005; Çınar & Köksal, 2013; Pala & Başbüyük, 2020). In his study with science teacher candidates, Turgut (2005) stated that teacher candidates were confused when defining science and technology. Teacher candidates have said that science can have positive and negative consequences. It is noteworthy that all of the teacher candidates gave the atom bomb example to the negative consequences of science.

Teacher candidates expressed technology as tools that make human life easier (computers, internet, electronic devices, and machines). Teacher candidates have identified computers, the internet, or electronic devices as technology. These statements are similar to studies in the literature (Ryan & Aikenhead, 1992; Volk & Dugger, 2005; Yalvaç, Tekkaya, Çakıroğlu & Kahyaoğlu, 2007; Yiğit, 2011; Akgün & Akgün, 2020; Özer, Kıray & Çardak, 2020; Yürektürk & Coşkun, 2020). Most of the teacher candidates see the health effects of technology as a disadvantage.

In terms of the relationship between science, technology, and society, most of the teacher candidates think that the social and cultural structure affects both science and technology and that it is affected by science and technology. There are studies supporting this view (Zeidler, Walker, Ackett, & Simmons, 2002; Yılmaz, 2014; Er, 2017; Kabatas Memis & Ezberci Cevik, 2017; Benzer, 2020; Özer, Kıray & Çardak, 2020). Teacher candidates' views that technology significantly affects society's value judgments are similar to other research results in the literature (Yiğit, Çengelci, & Karaduman, 2013). They also noted that countries' levels of development, levels of prosperity, and economies also affect scientific and technological work.

Conclusion

This study was conducted to determine social studies teacher candidates' views on science, technology, and society. Interview technique was used in qualitative research methods in the study conducted with 10 social studies teacher candidates. As a result of the interviews, in line with the information in the literature, the opinions of the teacher candidates about science, technology, and society were examined under science, technology, and the relationship between science and technology.

The views of teacher candidates about science were examined in terms of the content of science, the aim of science, and the scientific method. In terms of the content of science, some teacher candidates considered social fields such as history and geography as science fields, while some teacher candidates stated that they did not accept these fields as a science because they believe that knowledge of these fields cannot be proven.

In terms of the purpose of science, some teacher candidates express science as making life easier and revealing the facts, while others think that it is malicious or harmful to humanity and society. All of the teacher candidates gave the atom bomb example to the malicious use of science. It is also seen that during the definition of science, some of them expressed the purpose of science as inventing things, designing technological products. From these statements, it can be said that candidate teachers confuse science and technology.

In the method of science category, some teacher candidates stated that the experiment is necessary for proving, while some teacher candidates stated that the experiment is not the only method.

Teacher candidates have defined technology as tools and electronics that make life easier. They expressed the advantage of technology as making human life easier, and its disadvantage is its harm to health.

Most of the teacher candidates think that socio-cultural structure affects scientific knowledge. They also stated that the culture and structure of the society in which scientific studies are conducted affect the scientist and scientific research. In addition to the culture of the society in which the scientific study was conducted, the candidate teachers stated that the level of development of the country and its economy also influences the scientific study.

Recommendations

In line with the results of this study, activities can be organized to eliminate the misconceptions of social studies teacher candidates about science and technology. Example situations and activities can be created with social studies teacher candidates related to the social effects of science and technology. The Science, Technology and Society course in the social studies teaching program is appropriate in terms of being a course in which the social effects of science and technology will be discussed. Within the scope of this course, classroom activities, and practices that cover the social dimensions of science and technology can be conducted with teacher candidates. Course activities can be prepared covering the characteristics of science, the development of scientific knowledge, and the relationship between science and technology with society.

Conducting the courses in the social studies teaching program with a focus on science-technology-society issues will increase the awareness and knowledge of pre-service teachers by making discussions on these topics.

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The Effect of Education Status of Parents on Their Parental Attitudes and School Readiness of Their Children*

Research Article

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ABSTRACT

The aim of this study is to determine the effect of the education status of parents of girls and boys aged between 48-72 months on the parental attitudes and school readiness of their children who attend private preschool education institutions. The study group of the study consists of a total of 339 subjects; 113 mothers, 113 fathers and 113 children attending private preschool education institutions in the Bursa province. In this study, Parental Attitude Scale (PTS), which was developed by Karabulut Demir and Sendil and whose validity and reliability analyzes were performed, was used in order to determine parental attitudes. Additionally, the Metropolitan School Readiness Test developed by Hildert et al and adapted into Turkish by Oktay was used to determine the school readiness levels of the children. The data obtained in this study were analyzed with IBM SPSS Statistics Version 22 package program. As a result of the study, it was seen that majority of the parents adopted a democratic attitude. There was a statistically significant relationship between the total readiness status of the children and the educational status of their fathers. The increase in the educational status of the father positively impacted the school readiness of the children. There was a statistically significant difference between the educational status of the fathers in terms of their democratic, permissive and overprotective father scores ($p < 0.05$). It was observed that as the education level of the father increased, the democratic attitude score increased as well and the permissive and overprotective attitude scores, however, decreased. There was statistically no significant difference between the other scores and the educational status ($p > 0.05$).

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Keywords:

Preschool education, parental attitude, school readiness, parent education, readiness.

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Introduction

"Pre-school education is a systematic education process where children's physical, emotional, linguistic, social and mental development, from birth to compulsory education age, is supported by rich environmental stimulants, where their creative aspects are discovered, and where parents and educators are active, taking into account their developmental characteristics, individual differences and abilities" (Ministry of National Education [MNE], 2016). "The pre-school education program has been developed with the aim of ensuring that children attending pre-school education institutions grow healthily through rich learning experiences, attain the highest level of development in motor, social and emotional, language and cognitive development, acquire self-care skills and be ready for the primary school." (MNE, 2013, p.14). Readiness for primary school is the skill levels that children possess when they start primary school and will affect their success in the following years (Snow, 2006; cited in Adagideli, 2018). There are four main factors that affect the readiness for primary school: These are: Physiological, emotional, mental and environmental factors. Physiological factors are; hearing, vision, hand-eye coordination, health status and gender. The attitude of family members towards each other are emphasized in the emotional factors. Mental factors are generally considered within the scope of intelligence. Environmental factors, on the other hand, include the entire environment of the child, especially the environment in which the child has grown up and the family (Oktay, 2010). Especially during the first five years of a child's life, his/her family and environment are his/her main educational institutions. The natural environment, socio-economic situation of the child, the family's view of education, the number of members in the family affect his/her readiness for primary school (Emig, 2001; cited in Oktay, 2010). It is clearly seen that the most important factor among all these factors is the family. The effect of parental attitude is very important in adapting to school. The economic status and education level of the parents are reflected in both the child's adaptation to school and school success (Demiral, 1996).

Child-rearing mentality and styles are determined by the lifestyle of the host society (Yörükoğlu, 1993). At this point, the attitude differences come to the fore. Even though there are various groupings, the parental attitudes can be examined under four main headings. Three of these are democratic, authoritarian and permissive attitudes defined by Baumrind (1966). Later, in addition to these three dimensions, the overprotective attitude that is common in our culture has been added (Levy, 1966; Kuzgun, 1991; Yavuzer, 1999).

Parents with a democratic attitude are planned and organized. They have high school-readiness expectations, are child-centered, understand their children and help them to solve their problems. They encourage their children to be independent but still set rules and limits for them (Santrock, 2007; cited in Şahin Zeteroğlu, 2014).

Parents with authoritarian attitudes apply pressure on their children, do not take into account the abilities of the child, do not care about their thoughts, want him/her to be fixed-minded, expect obedience, and do not allow verbal communication with the child (Bilal, 1984). This attitude negatively affects the child's relationships with friends and makes it difficult to have an independent personality in the future (Bayraktar, 1998).

Parents with a permissive attitude provide their children with freedom, they cannot control them, and they tolerate to the level of negligence. Children, on the other hand, do whatever they want whenever they want, their impulse control is weak, their academic success is low, and they tolerate themselves (Baumrind, 1966).

Parents with an overly protective attitude, on the other hand, take care, protect and watch over their children more than necessary. Accordingly, they bring limitations to their children in every field, and they make every decision about their children themselves (Demiriz & Öğretir, 2007). A child brought up with this

attitude can be a spoiled, self-lacking and timid individual who cannot take any responsibility (Ömeroğlu, 1996).

Considering all this information, it is possible to say that the parental attitudes have an effect on children in every sense. In the present study, it was aimed to make a contribution to the relevant literature by examining the effect of the education-level based attitudes of the parents of young girls and boys aged between 48-72 months and on the school readiness of their children who attend private preschool education institutions.

In line with this general aim, answers to the following questions were sought.

1. Is there a relationship between children's school readiness and education level of their parents?
2. Is there a relationship between parents' attitude scores and their education levels?

Method

The study was conducted in order to examine and discover the effect of the education status of the parents of girls and boys aged between 48-72 months on the parental attitudes and school readiness of their children who attended private preschool education institutions. For this purpose, the study was carried out in relational scanning model to determine the change and degree of change of many variables. The relational screening model is a research model that aims to determine the existence or degree of change of two or more variables together (Karasar, 2014).

The Study Group

The target population of the study consisted of children attending private pre-school education institutions in the central district of Bursa province in the 2018-2019 academic year and their parents. The sample of the research was created by criterion sampling. This method is based on situations that meet a set of predetermined criteria. The criteria mentioned can be prepared by the researcher or any existing criteria list may be preferred to be used (Yıldırım & Şimşek, 2008). The criteria for this study are the age of the children, whether their parents are alive and their volunteering.

Data Collection Tools

The data of the study were collected by using two different tools. Firstly, the Metropolitan School Readiness Test, developed by Hildert et al. and adapted into Turkish by Oktay, was applied to 113 children attending pre-school education. Parental Attitude Scale (PAS) developed by Karabulut Demir and Şendil was applied to the parents of the participating children. Demographic information of mothers and fathers was obtained with the personal information form. The data obtained in this study were analyzed with IBM SPSS Statistics Version 22 package program.

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Results

The findings obtained in this part of the study, which has examined the effect of the education status of the parents of 48-72 month-old children attending private kindergartens in the Bursa province, on the parental attitudes and school readiness of their children will be indicated in tables.

Table 1. The Relationship Between Parental Attitude and Mothers' Education Status

		<i>Mothers' Education</i>					<i>Kruskal Wallis H Test</i>			
		<i>n</i>	<i>Mean</i>	<i>Median</i>	<i>Min</i>	<i>Max</i>	<i>ss</i>	<i>Rank Avg.</i>	<i>H</i>	<i>p</i>
Democratic Mother Attitude	Secondary School and below	9	66,33	72	0	84	25,74	47,17	3,982	0,408
	High school	24	73	76,5	0	85	16,48	55,83		
	Undergrad.	67	74,31	78	0	85	14,69	60,6		
	Postgraduate	8	75,63	75	68	85	6,16	55,25		
	Doctorate	5	71,8	70	67	77	4,44	34,8		
	Total	113	73,38	77	0	85	15,44			
Authoritarian Mother Attitude	Secondary School and below	9	17,67	19	0	30	8,05	59,22	6,31	0,177
	High school	24	18,83	19,5	0	41	7,64	60,15		
	Undergrad.	67	17,45	17	0	31	5,38	53,01		
	Postgraduate	8	18,25	19,5	11	25	4,8	58		
	Doctorate	5	22,6	23	19	26	2,51	89,8		
	Total	113	18,04	18	0	41	6,05			
Overprotective Mother Attitude	Secondary School and below	9	27,44	28	0	41	11,39	54,28	5,608	0,230
	High school	24	31,17	32	0	44	9,53	66,81		
	Undergrad.	67	29,1	30	0	44	7,82	56,29		
	Postgraduate	8	28,63	30	16	37	7,17	53		
	Doctorate	5	24,4	23	18	34	5,86	30,7		
	Total	113	29,17	30	0	44	8,4			
Permissive Mother Attitude	Secondary School and below	9	20,78	23	0	33	9,44	69	4,771	0,312
	High school	24	20,79	20	0	34	6,47	61,83		
	Undergrad.	67	19,31	19	0	31	5,51	52,4		
	Postgraduate	8	20,25	20	14	28	5,01	55,69		
	Doctorate	5	22,6	22	20	27	2,97	76		
	Total	113	19,96	20	0	34	5,96			
Democratic Father Attitude	Secondary School and below	9	72,56	71	62	84	7,73	54,44	6,404	0,171
	High school	24	57,08	69,5	0	85	30,48	43,04		
	Undergrad.	67	67,6	76	0	85	23,98	61,31		
	Postgraduate	8	66	73,5	0	84	27,1	57,44		
	Doctorate	5	76,2	76	73	78	2,05	70,2		
	Total	113	66,03	74	0	85	24,63			
Authoritarian Father Attitude	Secondary School and below	9	18	18	11	31	5,81	57,56	7,659	0,105
	High school	24	16,5	19	0	34	10,11	61,02		
	Undergrad.	67	15,7	16	0	29	6,67	52,53		
	Postgraduate	8	17,88	17,5	0	37	10,71	59,38		
	Doctorate	5	23	21	20	27	3,24	92,8		
	Total	113								

	Total	113	16,53	17	0	37	7,73			
	Secondary									
	School and below	9	32,67	33	20	42	6,86	74,44		
Overprotective Father Attitude	High school	24	25	29,5	0	40	14	55,65	3,869	0,424
	Undergrad.	67	27,04	29	0	42	10,62	56,55		
	Postgraduate	8	24,13	25,5	0	36	11,1	44,13		
	Doctorate	5	29,6	28	25	34	3,78	58,7		
	Total	113	26,96	29	0	42	11,07			
	Secondary									
	School and below	9	24	23	12	35	7,4	76,11		
Permissive Father Attitude	High school	24	17,33	21	0	30	9,96	56,5	6,976	0,137
	Undergrad.	67	18,36	20	0	28	7,33	54,54		
	Postgraduate	8	16,38	18	0	28	8,33	43,94		
	Doctorate	5	24	23	19	33	5,29	78,8		
	Total	113	18,7	21	0	35	8,1			

As seen in Table 1, there is no statistically significant difference between mothers' education status in terms of parental attitude scores ($p > 0.05$).

Table 2. The Relationship between Parental Attitude and Fathers' Education Status

		<i>Fathers' Education</i>						<i>Kruskal Wallis H Test</i>		
		<i>n</i>	<i>Mean</i>	<i>Median</i>	<i>Min</i>	<i>Max</i>	<i>ss</i>	<i>Rank Avg.</i>	<i>H</i>	<i>p</i>
Democratic Mother Attitude	Secondary School and below	6	77	77	71	84	5,4	62,25		
	High school	25	71,96	77	0	85	16,16	51,08	1,685	0,640
	Undergrad.	71	73,93	76	0	85	14,16	57,36		
	Postgraduate	11	71,09	79	0	85	24,55	65,27		
	Total	113	73,38	77	0	85	15,44			
Authoritarian Mother Attitude	Secondary School and below	6	20,17	19,5	11	30	6,85	66,5		
	High school	25	18,4	20	0	30	5,89	61,96	2,445	0,485
	Undergrad.	71	18,11	18	0	41	5,95	56,2		
	Postgraduate	11	15,64	16	0	26	6,83	45,68		
	Total	113	18,04	18	0	41	6,05			
Overprotective Mother Attitude	Secondary School and below	6	30,83	30,5	24	41	6,18	60,42		
	High school	25	29,96	31	0	42	8,82	61,28	1,98	0,577
	Undergrad.	71	28,68	30	0	44	8,12	53,82		
	Postgraduate	11	29,64	33	0	40	10,81	65,91		
	Total	113	29,17	30	0	44	8,4			
Permissive Mother Attitude	Secondary School and below	6	24,5	24,5	14	33	6,28	82,17		
	High school	25	20,16	20	0	34	6,82	58,52	7,631	0,054
	Undergrad.	71	20,06	20	0	31	5,26	57,39		
	Postgraduate	11	16,36	17	0	25	6,74	37,27		
	Total	113	20,06	20	0	31	5,26	57,39		

	Total	113	19,96	20	0	34	5,96		
Democratic Father Attitude	Secondary School and below	6	72,33	72	65	82	6,19	51,67	
	High school	25	69,48	72	0	83	15,51	50,84	8,181 0,042
	Undergrad.	71	62,31	75	0	85	28,88	55,58	
	Postgraduate	11	78,73	79	70	85	5,35	83,09	
	Total	113	66,03	74	0	85	24,63	2-4	
Authoritarian Father Attitude	Secondary School and below	6	18,83	17	11	31	6,94	61,17	
	High school	25	19,52	20	0	34	6,83	69,94	5,686 0,128
	Undergrad.	71	14,96	16	0	27	7,83	51,99	
	Postgraduate	11	18,64	15	12	37	7,5	57,64	
	Total	113	16,53	17	0	37	7,73		
Overprotective Father Attitude	Secondary School and below	6	35,67	34,5	29	42	5,05	88,92	
	High school	25	30,64	32	0	39	7,76	69,3	13,229 0,004
	Undergrad.	71	24,49	27	0	42	12,33	49,4	
	Postgraduate	11	29,82	29	22	36	4,58	60,68	
	Total	113	26,96	29	0	42	11,07	3-1	
Permissive Father Attitude	Secondary School and below	6	27,33	26,5	22	35	5,39	95,08	
	High school	25	19,76	21	0	30	6,15	58,22	9,382 0,025
	Undergrad.	71	17,32	20	0	33	8,81	52,92	
	Postgraduate	11	20,45	19	12	28	4,7	59,77	
	Total	113	18,7	21	0	35	8,1	3-1	

As seen in Table 2, there is a statistically significant difference between the education level of the fathers in terms of democratic father scores ($p < 0.05$). The democratic attitude score of high school graduate fathers is significantly lower than those with a graduate degree.

There is a statistically significant difference between the educational status of the fathers in terms of overprotective father scores ($p < 0.05$). Overprotective attitude score of fathers with undergraduate degrees is significantly lower than those with secondary school degree and below.

There is a statistically significant difference between the educational status of the fathers in terms of permissive father scores ($p < 0.05$). The permissive father score of the undergraduate graduate fathers is significantly lower than those with secondary school degree and below.

There is no statistically significant difference between the education level of the fathers in terms of other parental attitude scores ($p > 0.05$).

Tablo 3. Chi-Square Test Results Examining Education of Mothers and Fathers and Children's School Readiness Variable

		<i>Total Readiness</i>								<i>Chi-Square Test</i>	
		Secondary School and below		<i>Above Secondary School</i>		<i>Higher</i>		<i>Total</i>		<i>Chi-Square</i>	<i>p</i>
		<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%		
Mothers' Education	Secondary School and below	4	21,05	5	8,06	0	0	9	7,96	0,156	
	High school	5	26,32	13	20,97	6	18,75	24	21,24		
	Undergrad.	10	52,63	37	59,68	20	62,5	67	59,29		
	Postgraduate	0	0	5	8,06	3	9,38	8	7,08		
	Total	0	0	2	3,23	3	9,38	5	4,42		
Fathers' Education	Secondary School and below	19	100	62	100	32	100	113	100	0,002	
	Secondary School and below	3	15,79	3	4,84	0	0	6	5,31		
	High school	6	31,58	19	30,65	0	0	25	22,12		
	Undergrad.	9	47,37	34	54,84	28	87,5	71	62,83		
	Postgraduate	1	5,26	6	9,68	4	12,5	11	9,73		
Total	19	100	62	100	32	100	113	100			

According to Table 3, there is a statistically significant relationship between the total readiness status of the children and the educational status of their fathers ($p < 0.05$).

While the fathers of 47.37% of the children whose total readiness is intermediate and below the intermediate level, 54.84% of those whose total readiness is above intermediate and 87.5% of those whose total readiness is higher have undergraduate degrees, the fathers of 15.79% of children whose total readiness is intermediate and below the intermediate level, and 4.84% of those whose total readiness is intermediate level are only secondary school graduates and below. There is no statistically significant relationship between the total readiness of the children and other variables ($p > 0.05$).

Discussion and Conclusion

Pre-school period is the time period in which the foundation of one's personality is laid (Kaya, 1997). During this period, the parental attitudes impact the child's cognitive, physical, linguistic, social and emotional development (Razon, 1987). In this study, the effect of education levels of mothers and fathers of children who attended pre-school education on parental attitudes and school readiness of children was examined. In the light of the results obtained from the study and these results, recommendations for teachers and researchers were offered.

Öndegider (2013) stated that the psychological health of the child depended on how s/he understood and interpreted his/her parents' behavior. McElmeel and Sharron (2002) also emphasized the importance of the family in education of values with the statement that "The most effective way of good character for children is for the parents to be a role-model for their children in the best and correct way".

There is no statistically significant difference between mothers' education level in terms of the parental attitude scores. However, there is a statistically significant difference between the democratic attitude score of

the fathers and the educational status of the fathers in terms of the parental attitude scores ($p < 0.05$). The democratic attitude score of high school graduate fathers is significantly lower than the democratic attitude scores of their fathers who are undergraduates. The overprotective attitude score of fathers with a graduate degree is significantly lower than the overprotective attitude score of fathers who are graduates of secondary school and below. It is clearly observed that as the educational level of fathers increases, they have a more democratic attitude, and their overprotective and permissive attitudes are inversely related to their educational status. There is no statistically significant difference between the educational status of the father in terms of authoritarian father attitude scores ($p > 0.05$). By the same token, Begde (2015) stated that fathers' democratic and overprotective attitudes towards their children were affected by the educational status of fathers, and fathers who were primary and secondary school graduates displayed more protective attitudes towards their children compared to fathers with a graduate degree. These results show that the increase in the educational status of fathers reflects positively on their attitudes; they approach their children more democratically, and their overprotective attitudes decrease.

There is a statistically significant relationship between the total readiness status of the children and the educational status of their fathers ($p < 0.05$). The fathers of 47.37% of children whose total readiness is intermediate and below the intermediate level, 54.84% of children with a total readiness above intermediate and 87.5% of children with higher readiness have undergraduate degrees. The fathers of 15.79% of children whose total readiness is intermediate and below intermediate level, and 4.84% of those whose total readiness is above intermediate are secondary school graduates and below. This result shows that as the father's education level increases, the school readiness level of the children also increases. In this case, it is possible to think that the higher the education level of fathers, the more time they spend with their children, the more they support them in this field and the more they cooperate with their children's schooling.

While there was no statistically significant relationship between the total readiness level of the children and the education level of their mothers in this study, in the study conducted by Wynn (2002), the contribution of children's families or caretakers to the development of children's literacy and numeracy skills was evaluated. Wynn concluded that the skills that families considered necessary for school readiness varied according to their education levels and that children of families with higher education completed the preschool period with a wider range of skills. Özcan (2014) and Çıkrıkçı (1999) reported that as the education level of parents increased, child success increased as well. The difference of the present study from the mentioned studies is that the study group has consisted of children attending a private institution and their parents. It is thought that the reason for the lack of a meaningful relationship between the mothers' education level and the children's total readiness level may be due to the fact that the institution allows the families into the world of their children's education and family participation activities, and that the differences in maternal education levels can be eliminated in this way.

Seminars can be conducted for the parents of children attending the pre-school education institutions in cooperation with the National Education Directorates and school administration and family participation activities can be organized. The seminars to be organized can provide information to parents about what to expect from their children in the preparation process for primary school and how they can help their children for school readiness. Efforts can be exerted for these seminars to be offered to large masses.

Parents can be offered education opportunities to be informed about parental attitudes. Training programs can be arranged for parents to participate together. This will imply that parents' positive attitude development is supported.

It is thought that the findings obtained within the scope of this study can contribute to the studies to be carried out in the future. Consequently, it is predicted that applying the variables of this study to a larger

sample will yield more generalizable results. Future researchers who will work on a similar subject can investigate the relationship between different demographic data and the variables available in this study.

In conclusion, the studies that are planned to be conducted in a similar way can be tested using children from different regions, sample groups and different measurement tools.

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Effect of the Argumentation-Supported PBL on the Determination of Pre-Service Science Teachers' Misconceptions about the Particulate, Space, and Motion Nature of Matter

Research Article

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ABSTRACT

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Within the scope of the study, the effect of the argumentation-supported problem based learning method on the detection of the misconceptions of the students studying in the Department of Science Education about "Particulate, Space and Motion Nature of Matter" was examined. Based on this main purpose action research in practice-based was applied in the study, one of the qualitative research methods. The study group of the research consists of 22 pre-service science teachers. It was observed that pre-service science teachers structured non-scientific claims, could not provide sufficient grounds, and could not use their rebuttal skills adequately before the implications. After the implications, it was observed that the pre-service science teachers had the targeted arguments and were able to write grounds and rebuttal in the categories of completely/partially correct to their arguments.

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Keywords:

Argumentation-supported implications, misconception, particulate, space and motion nature of matter, pre-service science teacher, problem based learning

Introduction

In order to raise individuals with 21st century skills, which include learning and innovation skills, life and professional skills, and knowledge, media and technology skills, it is very important to integrate these skills into education programs and use them in educational environments (Karamustafaoğlu, 2018). Studies

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carried out by adding these skills to learning environments, especially within the scope of science courses, have been examined and all students support their claims with data and grounds; thus, the presence of argumentation-supported learning, which is one of the alternative approaches that encourage them to get into scientific discussion process, to think critically, to make reasoning, to make scientific decisions using scientific thinking skills draws attention (Aydoğdu, 2017; Balcı, 2015; Çekbaş, 2017; Demirel, 2017; Kalemkuş, 2018; Karakaş, 2018; Şahin, 2016; Şengül, 2018). In recent years, Ministry of National Education (MoNE) (2018) has been making improvements in science curricula that will provide learning environments in which students can easily express their opinions, support their opinions on many grounds, and rebuttal the claims of their classmates and thus develop opposite claims.

The concept of argument first came into the literature by Toulmin in 1958. Argumentation is an important part of science education, which includes group or individual thinking and writing activities (Driver, Newton & Osborne, 2000; Osborne, Erduran & Simon, 2004), supported and evaluated by scientific claims (Erduran & Jimenez-Aleixandre, 2008), applied or theoretical evidence. When the literature is examined for the studies that examine the effectiveness of the argumentation-supported learning, there are also studies that result in negative feedback from the method in contrast to the positive feedback from the students. In some studies, it was observed that learners did not develop an argument skill at the expected level or they were not very active during the process (Demirel, 2015; Namdar & Demir, 2016; Özdemir, 2015). Kuhn (2010) states that the reason why students do not show the expected level of behaviour and/or skills in science classrooms where they use argumentation-supported learning is that especially learners have difficulties in managing and structuring the relationship between argument elements such as data and argument. In the argumentation implications carried out in classrooms, it was observed that students often made similar mistakes while constructing their claims and teachers should be aware of these errors and take precautions against them in order to obtain the expected results from the implications (Driver, Newton & Osborne, 2000). In science classes, it is necessary to prevent the difficulties students experience at these stages and to benefit from appropriate teaching strategies to improve these skills. In this context, it is stated that using a wide variety of strategies in learning environments where argumentation-supported learning is handled can help to overcome these problems. These are; table of expressions, concept maps made up of student ideas, experiment report, competing theories - theories competing with cartoons, theories competing with a story, theories competing with opinions and proofs, structure an argument, predict-observe-explain (POE) and experiment design (Osborne, Erduran & Simon, 2004).

One of the other learning environments that enables students to consider course subjects as a problem associated with daily life events as in the argumentation-supported learning, and that enables the student who encounters the problem to try to reach a result by using his/her own knowledge in solving that problem, conducting research, discussing the data they have with their group friends is problem-based learning (PBL) (Ali, Hukamdad, Akhter & Khan, 2010; Duch, Groh & Allen, 2001; Torp & Sage, 2002; Tosun, Tatar, Şenocak & Sözbilir, 2015). The applicability of problem-based learning to science education has been researched by many researchers and it has been concluded that it is a very suitable approach for the student model of science education, and it positively affects variables such as success, critical thinking, self-efficacy, gaining researcher identity and positive attitude development (Akpınar & Engin, 2005; Alper & Deryakulu, 2008; Birgegard & Lindquist, 1998; Cerezo, 2004; Özekeken & Yıldırım, 2011; Şenocak & Taşkesenligil, 2005). In addition to studies showing that problem-based learning increases the academic achievement of students, there are also studies showing that it has no effect on academic achievement. It is thought that they will have more conscious and rich learning when problem-based learning is applied together with other learning strategies (Kılınç, 2007). While it is tried to gain high-level thinking skills; lack of knowledge occurs and focusing on problems that cause students to think only a limited subject content are some of the criticisms in problem-based learning (Banta, Black & Kline, 2000). In many studies, incomplete knowledge acquisition of problem-based learning

has been mentioned as a disadvantage (Dochy, Segers, Bossche & Gijbels, 2003; Tatar, Oktay & Tüysüz, 2009; Tosun et al., 2015). There are many studies in the educational literature on the applicability of an approach, method and technique to the education of a field. However, it has been observed that the number of researches on hybrid methods such as argumentation-supported PBL on factors (such as attitude, motivation, self-efficacy) affecting student achievement is low. As an example of these hybrid methods; problem-based learning with argumentation (Mcghee, 2015; Eyceyurt Türk, 2017); computer-aided instruction (Belland, Glazewski & Richardson, 2011), and concept maps (Hsu, 2004; Johnstone & Otis, 2006) are limited to those listed here. Argumentation and problem-based learning have been the subject of studies investigating the extent to which one affects the other instead of being used together (Belland, Glazewski & Richardson, 2011; Cassel, 2002; Mcghee, 2015). Many researchers emphasize that using argumentation-supported implications in "discussion" processes in the problem-based learning to close the deficit knowledge learning gap of the problem-based learning (Kelly & Finlayson, 2009; Nussbaum & Edwards, 2011).

It is very important for science teaching to create curricula and course contents (theoretical and applied) for effective university level (Physics, Chemistry and Biology disciplines), to increase the academic success of pre-service science teachers, to make science concepts meaningful and to be able to be interpreted with daily life. In the scope of the study, it was aimed to determine the contribution of argumentation-supported PBL to the conceptual learning of pre-service science teachers on the subject of "particulate, space and motion nature of matter" and to examine the effectiveness of the method in determining the current misconceptions of pre-service science teachers.

Method

In this study, action research in practice-based, which is one of the qualitative research methods, which aims to determine possible problems that arise in practice, the possible factors that cause these problems and possible ways of intervention, was used (Sagor, 2000).

Study Group

The study group of the research consists of 22 pre-service science teachers (19-20 years old) studying in the spring semester of the 2018-2019 academic year. The groups consist of 3-4 people. The study group of the study was determined according to the purposeful sampling type, one of the non-random sampling techniques (Creswell, 2012).

Data Collection Tools

The data collection tools of the research consist of worksheets filled by pre-service science teachers during the implications. These worksheets include activity papers that contain a problem situation for each subject and instructions that allow the argumentation process to be followed. The content validity of the data collection tool was provided by the control of two educators (science educators and chemistry educators). The reliability was provided with a 95% consistency between the same researchers' coding and categorizing the data.

Data Analysis

In the analysis of the worksheets distributed to pre-service science teachers for argumentation-supported PBL, studies aimed at determining students' understanding and misunderstanding about many basic science concepts in the literature were examined (Abraham, Grzybowski, Renner, & Marek, 1992; Ayvaci & Durmuş, 2016; Ayas, Yaman & Kala, 2010; Balaydin & Altnok, 2018; Birinci-Konur & Ayas, 2010; Meşeci, Tekin & Karamustafoglu, 2013). The pre-service science teachers' predictions and their claims; the grounds for backing their claims; observations and data obtained during the experimental application process; in order to evaluate the scientific explanations and the level of their rebuttal, if any, the categories determined in the

literature were used. The categories given in Table 1 were used in the analysis of the worksheets completed by the pre-service science teachers in cooperation with their group mates. While creating the categories, the answers in all categories for the misconceptions of pre-service science teachers regarding the levels of "making claim", "being able to write grounds (fact, evidence)", "collecting data", "being able to make explanation (warrant, backing, qualifier)" and "being able to rebuttal" were examined and analyzed.

Table1. Categories used for scientific claims in the analysis of worksheets

Categories of Arguments	Codes used in the analysis of pre-service science teachers' responds		
Making claim	Correct Claim (completely and Partially Correct)	Wrong Claim	No Claim
Being able to write grounds (fact, evidence)	Correct Grounds (completely and Partially Correct)	Wrong Grounds	No Grounds
Collecting data	Correct Data (completely and Partially Correct)	Wrong Data	No Data
Being able to make explanation (warrant, backing, qualifier)	Correct Explanation (completely and Partially Correct)	Wrong Explanation	No Explanation
Being able to rebuttal	Correct Rebuttal (completely and Partially Correct)	Wrong Rebuttal	No Rebuttal

Implication Process

In the study, argumentation-supported PBL implications were carried out for pre-service science teachers' conceptual learning about "particulate, space and motion natures of matter". The implications, including the argument structuring preparation activities of the pre-service science teachers, lasted for 3 weeks in total. The two-week flow chart of the implications is shown in Figure 1.

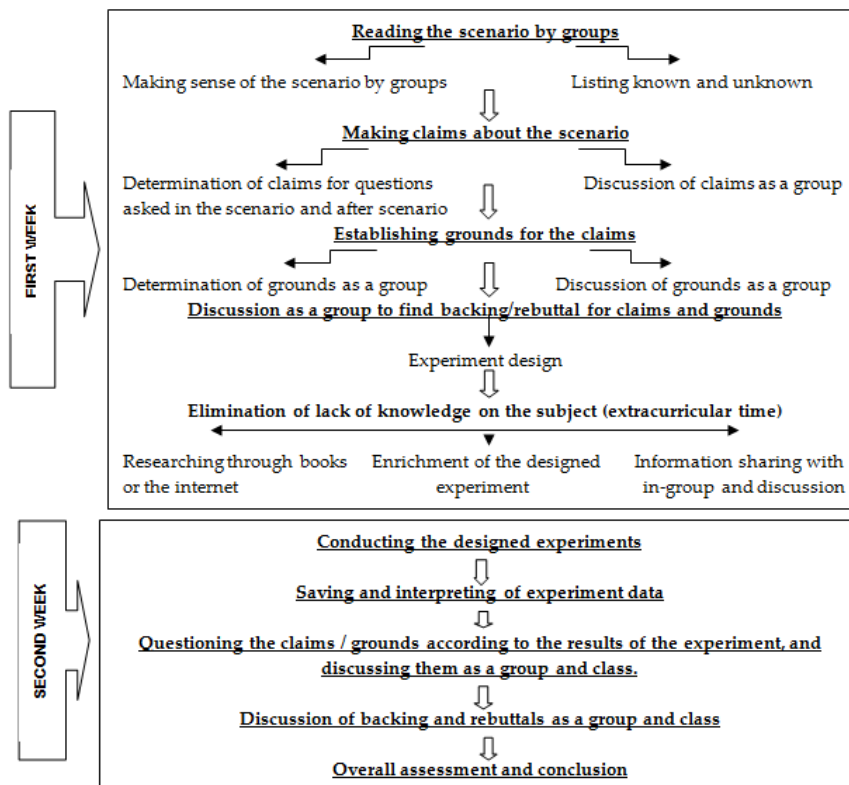


Figure 1. Argumentation-supported PBL lesson flow chart

The pilot implications of the research were carried out with the pre-service science teachers who took the general chemistry lab-I and II course in the previous academic year (2017-2018 academic years). The pilot implications were carried out in order to detect negative situations that may arise before the main implications and to take measures. It was observed that some problems were experienced during the pilot implications, that the pre-service science teachers had difficulties especially in understanding the arguments (claim, grounds (fact, evidence, data), warrant, backing, qualifier and rebuttal) and they also had difficulties in group discussions, and this situation decreased with the increasing number of activities. The worksheets and the contents of the activities were organized as a result of the consultations made with two different educators, taking into account expert opinions, and passed on to the main implications.

Before starting the main implications for argumentation-supported PBL, preliminary studies were carried out with the pre-service science teachers to activate their argument skills in order to prepare for the implications. Preliminary studies conducted with pre-service science teachers consist of activities, which includes studies of "being able to write a claim/grounds and then design an experiment", and POE activity, where the pre-service science teacher' "predict-observe and explain" skills are examined. These pre-study activities started with a problem situation in which pre-service science teachers would use their prior knowledge and predictions. Afterwards, they were allowed to design and carry out an experimental activity that they would observe, and consequently, their ability to record their observations was activated in this process. In the last stages of the pre-study activities, an environment was provided in which they compared their predictions and the results they obtained based on the data they obtained during their observations. During all these pre-activity stages, pre-service science teachers worked as a group. During the pre-study, the conceptual learning of the relevant subject targeted within the scope of the study was started with the pre-service science teachers who had information about the stages of an argument structuring process. The argumentation-supported PBL for the relevant chemistry subject given to pre-service science teachers were carried out for 2 weeks. They made pre-studies to design an experiment by forming their arguments for the problem situation given in the first week. In the second week, they had the opportunity to test the claims they had created in the previous lesson by carrying out the experiments they planned in the laboratory, and they explained them by comparing them after the experiments.

Findings and Interpretation

During the argumentation-supported PBL about the particulate, space and motion natures of the matter, the pre-service science teachers were asked to fill in the worksheets distributed to them with their group friends. The worksheets start with a problem situation that requires an experimental process. The claims given by the pre-service science teachers in the worksheets were analyzed by content analysis and the findings obtained are presented in Table 2. The claims of the pre-service science teachers were criticized based on the following scientific claims (Atasoy, 2018):

- ⊙ All matters in solid, liquid and gas state under any pressure and temperature conditions consist of particles. The structures, sizes and chemical formulas of the particles in these three states are the same for any matter. The difference is the kinetic energies of the particles, the spaces between the particles, and the way the particles come together.

- ⊙ The solid, liquid and gas state of the matters is mentioned, but the particles that make up the matters do not have the state. There is no such thing as solid particle, fast particle or gas particle. The particles in all three of the matters are the same particles.

- ⊙ The mass, size and chemical composition of the particles in all three states of a matter are the same. If this were not so, the mass of some of a matter in solid, liquid and gas states would have been different.

⊙ The movement of particles of matter is not the same for the three states of matter. The solid particles of the materials also have only vibrational movements and therefore the inter particles spaces are constant. In other words, the places of the particles are fixed. In addition to the vibrational movement of the liquid and gas particles of the matter, there are translational movements resulting from the rotation and displacement caused by the collisions of the particles. However, these movements in liquids are slower than gases. As is known, if there is movement in a system, that system has a kinetic energy.

⊙ The property of a matter is determined by the properties of its particles and the way the particles come together. In other words, the particles of any matter do not have the properties of the macroscopic structure of that matter.

In order to determine the claim levels of the pre-service science teachers about the specified chemistry subject, the problem situation given in Figure 2 was presented by the researchers and then they were asked to write their claims and grounds for the main problem sentence.

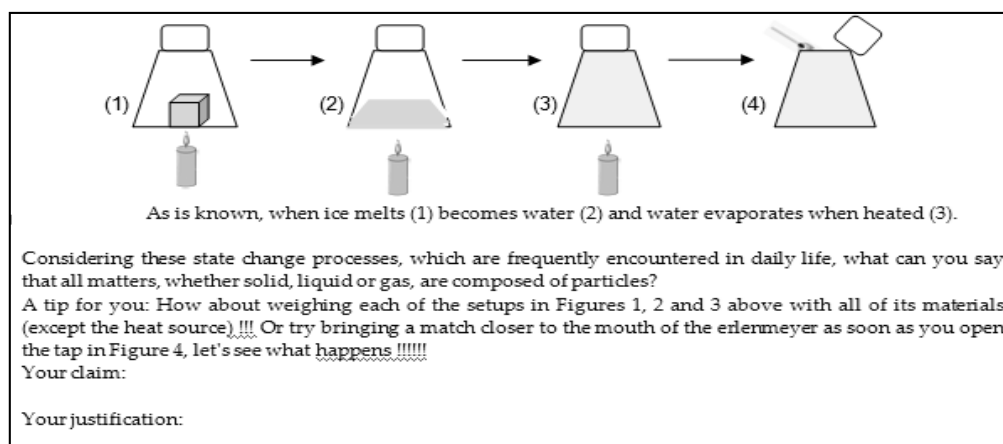


Figure 2. Problem situation regarding the particulate nature of matter

Following the claims and grounds put forward by the pre-service science teachers with their group mates, the following questions were directed to all group members by the researchers:

- Think of an iron bar. The iron bar is heated and beaten and turned into a plate. How did an iron bar become a plate? In this case, what could have changed in iron so that it could become a plate?

- A tip for you: Do you think there is a correlation between the heating of an iron bar to become a plate and further thinning by being beaten, and children playing on the beach smoothing small piles of sand with their hands?

With the answers given by the group members to all the questions above, the researchers obtained clues about pre-service science teachers' preliminary knowledge about the "particulate nature of matter". Afterwards, pre-service science teachers were asked to perform their experiments according to the experimental setup given in Figure 2. They were asked to write all their observations during the experiment process in the relevant places in the worksheets distributed to them. This stage is the process in which the students are questioned whether their pre-experimental predictions (their claims to researchers and other classmates) are compatible with their observations during the process and the data they have obtained. The last explanations made by the group members about the compatibility of the data obtained from their observations with the claims before the experimental process gave the researchers clues about the change in the argument levels of the pre-service science teachers, and the frequencies and percentages of all findings obtained are summarized in Table 2.

Table 2. Categories and codes of argument levels of pre-service science teachers about the particulate nature of matter

Categories of Argument	Codes used in the analysis of pre-service science teachers' responds							
	Correct Claim				Wrong Claim		No Claim	
Making claim	Completely Correct		Partially Correct					
	f	%	f	%	f	%	f	%
	4	18	6	27	12	55	-	-
Being able to write grounds (fact, evidence)	Correct Grounds				Wrong Grounds		No Grounds	
	Completely Correct		Partially Correct					
	f	%	f	%	f	%	f	%
	4	18	-	-	12	55	6	27
Collecting data	Correct Data				Wrong Data		No Data	
	f		%		f		%	
	22		100		-		-	
Being able to make explanation (warrant, backing, qualifier)	Correct Explanation				Wrong Explanation		No Explanation	
	Completely Correct		Partially Correct					
	f	%	f	%	f	%	f	%
	8	36	14	64	-	-	-	-
Being able to rebuttal	Correct Rebuttal				Wrong Rebuttal		No Rebuttal	
	Completely Correct		Partially Correct					
	f	%	f	%	f	%	f	%
	8	36	4	18	-	-	10	46

The pre-service science teachers were asked to write their claims and grounds about the particulate nature of matter, depending on the comparison of the total masses of the matters before and after the state changes for "the process of heating an ice cube placed in a closed conical flask to water and then to water vapour by continuing to heat it". Only one group (3rd group) of the pre-service science teachers gave answers in the category of making correct claims and providing correct grounds (18%): *"The particles of solid matter are found very close to each other. In the liquid state there is some distance, while in the gas state they are quite far apart. We can compare the solid state to the fact that people get closer to each other when they get very cold. But as we get warmer, we keep distance from people, and when the environment is very hot, we move away from each other. When the air is very close to each other, we look like a single piece, but as the distance between us and people grows, we all start to look like a single piece, just like this, there are actually a lot of particles in the ice cube, in water and in water vapour"*. 27% of the pre-service science teachers made partially correct claims, the pre-service science teachers representing this group are the students who could not provide grounds and as an example to the sentences: *"The solid state materials turn into water when they get heat, if they continue to get heat, they turn into gas. We know that metals such as iron can turn into wires and plates, when they are heated they become plates more easily"*. 55% of the pre-service science teachers submitted wrong claims and wrong grounds to the given problem situation: *"As matter changes state, its particles will also change state. Therefore, the liquid and gas nature of the matter take the shape of the flask in which it is placed. Thus, the solid state (ice cube) occupied a very small part of the flask, while the gas state covered the entire flask"*; *"When a bar made of iron is hit with a hammer by heating, the iron atoms will also be crushed, so the particles that make up the iron by being crushed flatten"*. All of the pre-service science teachers (100%) were able to collect the data correctly in the experimental procedure process requested by the researchers. After comparing the compatibility of the pre-service science teachers' claims and grounds after the process requiring experimental processing with the data they obtained, there were two groups of students (36%) who were able to present completely correct explanation and correct rebuttal: *"When we control the weighing results during the whole process, we have proved that the process is both physical change and there is no material loss, as the results are the*

same"; "We did not open the plug of the Erlenmeyer flask until the end of the process, and we did not lose any matter because there was no product coming out, so during the process change, the particles that make up the matter only changed in the distance between them"; "Then we can say that all matters, such as water in a liquid state or a matter with an ice in a solid state, were created by an array of particles with varying distance ratios between them. We did not expect to observe anything when the match got closer, there would be water vapour coming out of the conch, because this substance is the gaseous state of the matter whose liquid state is water. Water vapour is not a matter that catches fire even more". The remaining 64% of the pre-service science teachers made explanations at the level of partially correct explanation, but 18% of this group of students were able to partially correct rebuttal and the remaining students could not respond at the level of rebuttal.

When all the feedbacks of the pre-service science teachers about the particulate nature of matter were examined, it was observed that the multi-spaced and motion model of matter was tried to be explained rather than the particulate model. In the experimental implication process, the pre-service science teachers were asked questions by the researchers: "Your weighing results are equal as shown in all three figures, what grounds you give for this? (- It shows that there is no matter loss), well, the solid and liquid state of the substance can be seen, but what could be the reason why water vapour, which is the gas state, cannot be seen clearly? (-With the evaporation of the water, the gas particles (molecules) spread throughout the flask in which they are placed) (36%)".

None of the pre-service science teachers could give satisfactory responses to the question of how the iron bar can easily turn into a plate when heated. However, the purpose of heating the iron rod is to increase the vibrations of the particles forming the iron thanks to the heat and thus to make them move away from each other, that is to make them more forgeable. By forging the iron plate, the iron atoms whose affinity force between them decreases by sliding over each other and dispersing them. This situation can be compared to the manual smoothing of sand grains in sand heaps. When iron sheet is forged into shape, the atoms neither flatten nor expand with the effect of temperature.

In order to reveal the pre-knowledge of the pre-service science teachers about the "spaced nature of matter", the group members were presented with the problem situation given in Figure 3, and then they were asked to write their claims and grounds for the main problem sentence.

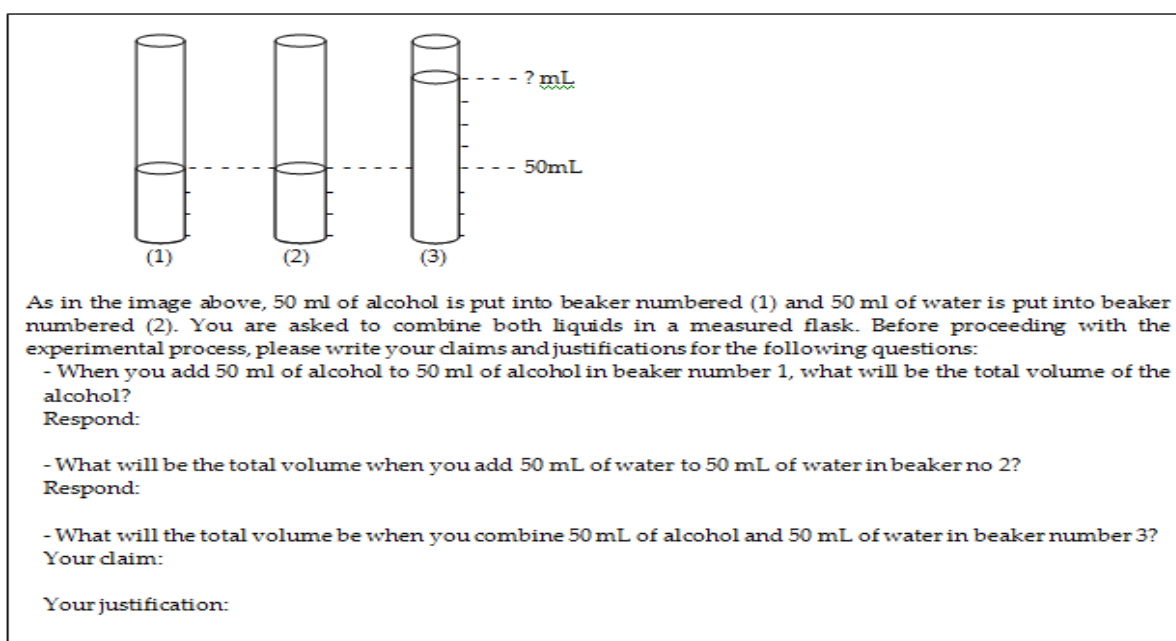


Figure 3. Problem situation regarding the space nature of matter

Following the claims and grounds of the pre-service science teachers and their group mates for the problem situation given in Figure 3, the following questions were directed to all group members by the researchers:

-Before proceeding to the above experimental process, put 50 mL of chickpeas in a graduated container as above. Put 50 mL of sand in another grade container. Then add chickpeas in a bowl filled with sand. What did you observe? Please write.

-Have you ever thought about what might happen if a drop of red colour solution (such as ink) is dropped on a surface made of solid matter such as wood, glass or tile? Please write down your data regarding your observations with your grounds.

With the responds given by the group members to all the above questions, the researchers obtained clues about the pre-knowledge of the pre-service science teachers about "the space nature of matter" and all the findings obtained are shown in Table 3. Afterwards, the pre-service science teachers were asked to perform their experiments according to the experimental setup given in Figure 3. They were asked to write all their observations during the experimental process in the relevant places in the worksheets distributed to them. The last explanations made by the group members about the compatibility of the data obtained from their observations with their claims and grounds before the experimental process and their rebuttal, if any, gave clues to the researchers about the changes in the pre-service science teachers' argument levels, and all the findings obtained are summarized in Table 3.

Table 3. Categories and codes of argument levels of pre-service science teachers about the space nature of matter

Categories of Argument	Codes used in the analysis of pre-service science teachers' responds							
	Correct Claim				Wrong Claim		No Claim	
Making claim	Completely Correct		Partially Correct					
	f	%	f	%	f	%	f	%
	-	-	10	45	12	55	-	-
Being able to write grounds (fact, evidence)	Correct Grounds				Wrong Grounds		No Grounds	
	Completely Correct		Partially Correct					
	f	%	f	%	f	%	f	%
-	-	7	32	8	36	7	32	
Collecting data	Correct Data				Wrong Data		No Data	
	f		%		f		%	
	22		100		-		-	
Being able to make explanation (warrant, backing, qualifier)	Correct Explanation				Wrong Explanation		No Explanation	
	Completely Correct		Partially Correct					
	f	%	f	%	f	%	f	%
11	50	11	50	-	-	-	-	
Being able to rebuttal	Correct Rebuttal				Wrong Rebuttal		No Rebuttal	
	Completely Correct		Partially Correct					
	f	%	f	%	f	%	f	%
11	50	7	32	-	-	4	18	

For the problem situations "What will be the total volume of 50 mL alcohol and 50 mL of alcohol or when 50 mL of water and 50 mL of water are pooled in a measuring cup", the responds of the pre-service science teachers were taken, and after making observations, again "What will be the total volume of 50 mL of alcohol and 50 mL of water are pooled in a measuring cup", the claims and grounds of the pre-service science teachers asked in writing.

45% of the pre-service science teachers responded in the partially correct claim category: "When 50mL of water is pooled with 50mL of alcohol, the total volume is expected to be 100mL just like two alcohol or water samples. Because alcohol and water do not react". 55% of the pre-service science teachers made wrong claims, students in this category said, "When both liquid samples are pooled in the same amount, the total volume will be 100 mL just like alcohol and water samples, the total volume will be 100 mL". "Like water, alcohol is a transparent but scented liquid and its volatility is very high and the total volume will be 100 mL". Although 55% of the pre-service science teachers made a partially correct claim, 32% were able to provide partially correct grounds: "Alcohol and water do not dissolve in each other. But because the two liquids are different types, it means that their particles are also different". 36% of the pre-service science teachers were found to have misconceptions by presenting grounds in the category of wrong grounds: "Since alcohol is a very volatile liquid, its total volume will be less when pooled with water", "Alcohol and water will react, the total volume will be less". 32% of the pre-service science teachers did not provide any grounds for this problem. After the claims and grounds of the pre-service science teachers were obtained, they were asked to perform the experimental procedures (alcohol + water and chickpea + sand samples). After the experimental process, 50% of the pre-service science teachers made correct explanations and 50% of them gave partially correct explanations: "The particles of alcohol and water samples are also different. Therefore, the spaces between the particles will also be different", "We can compare the particles of alcohol to chickpea samples, and we can compare the water to the sand sample. The grains of sand will diffuse the spaces between the chickpea grains, and the total volume has decreased as the particles that make up the water will diffuse between the particles that make up the alcohol". The pre-service science teachers were also able to use their rebuttal skills after all the applications. 50% of the group students were able to refute in the completely correct category: "Colored solutions such as ink remain when dropped on the glass surface, but on surfaces such as wood, where the space between the particles is large enough to allow the particles of water to diffuse, the surface will absorb water". 32% of the pre-service science teachers refuted in the partially correct category: "Alcohol and water are both transparent liquid solutions, and when both samples are pooled, the total volume is 100 mL, but in the sand and chickpea sample, the total volume may not always be 100 mL when chickpeas are pooled". 18% of the pre-service science teachers did not refute.

It was observed that pre-service science teachers used more and more advanced argument skills in their conceptual understanding about the space model of matter compared to the particle model of matter. Although the analogy of alcohol-water samples is made with the chickpea-sand model based on the combination of alcohol-alcohol and water-water samples, this model confirms the model in which the particulate nature of the matter and the space between the particles is accepted. With the chickpea-sand analogy, students are reminded that alcohol and water particles should not be considered global. When colored solutions are dropped on surfaces such as wood, the particles that make up the liquid diffused the spaces between the particles of the matter that make up the wood. However, since the particles in the solid cannot move, the particles of the liquid are trapped between the particles of the solid. The reason why colored liquids remain on surfaces such as glass and tiles is that the space between the particles in glass and tiles is not large enough for the particles of the liquid to diffuse.

The problem situation given in Figure 4 was presented to the group members in order to reveal the pre-knowledge of the pre-service science teachers about "motion nature of matter", and then they were asked to write their claims and grounds for the main problem statement.

When you come home from school with a very hungry stomach, have you ever realized which food was cooked at the entrance of the apartment? Or, have you ever thought why your eyes tears when you or your mother chop onions? Or, how can the smell of naphthalene used by your grandmothers to protect your winter wool dothes come to our nose? Let's ask a more theoretical question, how can you explain the pressure of a gas compressed in a bin?

-Your claims:

-Your justifications:

Figure 4. Problem status regarding the motion nature of matter

After the claims and grounds of the pre-service science teachers and their group mates for the problem situations given in Figure 4, the researchers were asked to do the following experimental procedures to all group members:

- Very carefully pour some concentrated ammonia (NH_3) on a piece of cotton and some hydrochloric acid (HCl) on another cotton. And, without wasting time, place both cotton balls at both ends of a long thin glass tube. What did you observe?

- Have you ever thought about what might happen after you wait for a while when you drop 1-2 drops of ink or a colored solution into a small amount of still water in a beaker?

- Or how do you explain the heating of the edge of an iron bar that we hold with our hands, one edge of which is held on fire?

With the answers given by the group members to all the questions above, the researchers obtained clues about the pre-knowledge of the pre-service science teachers about "the motion nature of matter" and all the findings obtained are shown in Table 4. The pre-service science teachers were asked to perform their experiments according to all the experimental setups for the above questions posed by the researchers. They were asked to write all their observations during the experimental process in the relevant places in the worksheets distributed to them. The last explanations made by the group members regarding the compatibility of all the data they obtained from their observations with their claims and grounds before the experimental process and their rebuttal-if any, gave clues to the researchers about the change in the argument levels of the pre-service science teachers and all the findings obtained are summarized in Table 4.

Table 4. Categories and codes of argument levels of pre-service science teachers about the motion nature of matter

Categories of argument	Codes used in the analysis of pre-service science teachers' responds							
	Correct Claim				Wrong Claim		No Claim	
Making claim	Completely Correct		Partially Correct					
	f	%	f	%	f	%	f	%
	7	32	15	68	-	-	-	-
Being able to write grounds (fact, evidence)	Correct Grounds				Wrong Grounds		No Grounds	
	Completely Correct		Partially Correct					
	f	%	f	%	f	%	f	%
7	32	8	36	-	-	7	32	
Collecting data	Correct Data				Wrong Data		No Data	
	f	%			f	%	f	%
	22	100			-	-	-	-
Being able to make explanation	Correct Explanation				Wrong Explanation		No Explanation	
	Completely Correct		Partially Correct					
	f	%	f	%	f	%	f	%

(warrant, backing, qualifier)	11	50	11	50	-	-	-	-
Being able to rebuttal	Correct Rebuttal				Wrong Rebuttal		No Rebuttal	
	Completely Correct		Partially Correct					
	f	%	f	%	f	%	f	%
	4	18	7	32	-	-	11	50

All of the pre-service science teachers were able to make correct claims about the "the motion nature of matter", but 32% of these students made claims in the completely correct category and 68% of them in the partially correct category. Group students who submit a claim in the completely correct category said: *"The reason why we tear our eyes while chopping onions is the gas that comes out of the onion and makes our eyes tear"*, *"When we spray deodorant in one corner of the room, after a short while, as someone in the other corner of the room smells it, it is also the movement of particles of gas matter in our smell when we entering the apartment"*. For claims in the partially correct category they said, *"Naphthalene is a substance that bypasses its liquid state at room temperature and passes into the gas phase, we can smell the gases from naphthalene, which gradually passes into the gas phase"*. 32% of the pre-service science teachers were able to write exactly the correct reason: *"The particles of gas matter can do all vibration, translator and rotational movements, so they spread over a large surface in a short time"*. 36% of the students, on the other hand, realized their applications with partially correct grounds: *"Gas matter move faster because the space between the particles is large"*. With the guidance of the researchers, the pre-service science teachers who carried out all the experimental applications, together with the data they obtained from their observations, then their scientific explanation and rebuttal skills were examined. 50% of the pre-service science teachers made explanations in the completely correct category and the remaining 50% in the partially correct category: For completely and partially correct categories: *The white smoke that emerges near the HCl side after the cotton with HCl and NH₃ placed at both edges of a long thin glass tube is NH₄Cl. In other words, it is a gas formed by the reaction of HCl and NH₃. It is formed by the reaction of the solutions dropped on these two cotton to react. That is, the particles of these two solutions are mobile that they could react even though they were put away from each other"* or *"NH₄Cl, a white smoke, was formed by the reaction of HCl and NH₃ in the glass tube"* can be given. Within the scope of the applications, 18% of the pre-service science teachers used the correct rebuttal skills, 32% partially correct, and 50% did not refute the subject of "The Motion Nature of Matter". As an example of the answers that the pre-service science teachers used their rebuttal skills; *"When a colored solution such as ink is dropped into still water, it disperses after a while, the reason may be that the particles of the solution in liquid form are motion"*, *"We can explain the heating of a metal whose one edge is kept on fire until the part that does not touch fire"* *When we tell a few of our friends to move, they will only be able to vibrate in their places, but if we said to move in a way that they touch each other a little, they will both vibrate in their places and also rotate around themselves and even partially change their place, which explains the state of taking the shape of the bin in which they are placed"*.

It was observed that pre-service science teachers did not have misconceptions in the implications carried out for the motion nature of matter within the scope of the argumentation-supported PBL. The movements of the particles in the matters are different for all three states of the matters. While the particles in the solid nature of the matters are only in vibrational motion, the spaces between the particles are also fixed. Liquid and gas particles have translational movements caused by rotation and substitution caused by collisions, including vibration. However, these movements in the particles in liquids are slower than those in gas.

The most striking finding after argumentation-supported PBL is that pre-service science teachers usually construct non-scientific arguments before the activity, and after the activity, they change their wrong and or incomplete/inadequate arguments, form scientific arguments and realize their misconceptions and correct them. Furthermore, it was observed that while the pre-service science teachers could not justify many of their arguments before the experiments they carried out during the activities, they were able to write

completely or partially correct explanations and refutes for their arguments in the light of the data they obtained based on their observations during the experimental procedures they were expected to do in practice.

Results and Discussion

The reasons why chemistry is seen as a difficult discipline for students; it can be thought by both teachers and researchers that the way many chemical events occur is unfamiliar to learners and that the language used by chemistry is difficult to express these events. All these cause students to develop misconceptions about some chemical concepts (Ayas & Demirbaş, 1997; Hewson & Hewson, 1983; Nakhleh, 1992; Zoller, 1990; Pardo & Partoles, 1995). Studies conducted to determine students' pre-knowledge and misconceptions show that misconceptions are not specific to a particular age group and are carried by students from all groups and levels (Bar & Travis, 1991; Fensham, Gunstone & White, 1995; Gonzalez, 1997; Özmen, 2005). If there are misconceptions in the students' pre-knowledge, these may not only interpret new information, but also sometimes prevent the comprehension of new information and lead to new misconceptions, which can increase the formation of undesired learning products (Andersson, 1986; Griffiths & Preston, 1992).

Concept teaching in learning-teaching environments has an important place in revealing students' misconceptions. Misconception about a phenomenon/event or concept negatively affects the learning of other subjects. Therefore, it is important to diagnose and eliminate misconceptions in advance. In this context, educators should plan their learning-teaching environments by taking the prior knowledge of students into consideration and make arrangements to eliminate existing misconceptions beforehand. Considering from this point of view, one of the learning-teaching environments that can be used in the diagnosis and elimination of misconceptions in science education is the argumentation-supported PBL practices that we have discussed in the scope of the study. In order to increase the quality of teaching and contribute to the development of science education, it is widely accepted that pre-knowledge and advanced misconceptions about concepts in students must first be identified and then changed (Hackling & Garnett, 1985; Taber, 1999). As a result, there are an increasing number of studies on basic concepts to determine students' level of understanding. Methods such as concept mapping, interviews, drawings, tests are used in studies on the detection of misconceptions and levels of understanding (White & Gunstone, 1992). Although many different techniques are used to reveal students' pre-knowledge and diagnose misconceptions, concept map (Hazel & Prosser, 1994), prediction-observation-explanation (POE) technique in argumentation based learning (Liew & Treagust, 1994), and interviews about events and situations (Osborne & Gilbert, 1980; Osborne & Cosgrove, 1983; Scaife & Abdullah, 1997), full/semi-structured student views on concepts, student drawings (Smith & Metz, 1996), word association (Maskill & Cachapuz, 1989), two/three/four-stage diagnostic tests (Karslı & Çalık, 2012; Treagust & Chandrasegaran, 2007; Tüysüz, 2009; White & Gustone, 1992) or different combinations of related techniques are the most commonly used techniques. In recent years, it has been observed that the studies carried out in science education are aimed at determining student understanding of the basic concepts in science and to identify and eliminate the existing misconceptions: In chemistry education, it has been determined that there are studies aimed at detecting and eliminating the current misconceptions in students for almost all concepts in chemistry: chemical balance (Hackling & Garnett, 1985; Voska & Heikkinen, 2000; Yamtinah et al., 2019; Yıldırım, Demircioğlu, Özmen & Ayas, 2000), acids and bases (Demircioğlu, Özmen & Ayas, 2001; Özmen, 2003; Özmen & Demircioğlu, 2003), solutions and solubility (Ebenezzer & Fraser, 2001; Çalık, 2003; Kalın & Arıkal, 2010); colligative properties (Coştu, Ayas, Açıkar & Çalık, 2007; Çalık & Ayas, 2008; Demircioğlu & Vural, 2014; Özmen, 2002); electrochemistry and electrolytic conductivity (Çalık & Ayas, 2005; Garnett & Treagust, 1992), reaction rate (Çakmakçı, Leach & Donnelly, 2006; Kolomuç & Tekin, 2011), particulate nature of matter (Akman & Özdilek, 2018; Balım & Ormancı, 2016; Çavdar, Okumuş & Doymuş, 2016; Kenan & Özmen, 2011; Meşeci, Tekin & Karamustafaoğlu, 2013; Mısır & Laçın Şimşek, 2017).

In this study, the misconceptions of pre-service science teachers about the particulate, space and motion nature of matter were investigated with the activities carried out within the scope of the argumentation-supported PBL was determined. This situation once again demonstrated that misconceptions on the relevant topic are ideas that are extremely resistant to change in all cultures and class levels. When the data in Tables 2, 3 and 4 are examined for the current misconceptions in pre-service science teachers, it was observed that all misconceptions were determined at "Being able to write grounds" argument level, and that implications within the argumentation-supported PBL could be effective in eliminating the misconceptions in pre-service science teachers. In the Turkish education system, students frequently encounter the subject of matter and its properties starting from the primary school 3rd grade according to the Science course teaching curriculum. When the relevant literature is examined, it shows that students have misconceptions about the particulate, space and motion nature of matter (Boz, 2006; Harrison & Treagust, 1996; Kapıcı & Akçay, 2016; Nakhleh & Samarapungavan, 1999; Nakhleh, Samarapungavan & Sağlam, 2005). According to Özmen & Kenan (2007) and Balım & Ormancı (2012), one of the main reasons for students' misconceptions about the particulate nature of matter is that the subject contains too many abstract concepts. Kapıcı and Akçay (2016) states that it may be another misconceptions for students to incorrectly associate the events encountered in daily events with the particulate structure of matter (Adadan, Irving & Trundle, 2009) or to interpret their particulate structure model according to the physical state of matter (Özalp, 2011). The findings of this study showed that argumentation-supported PBL was effective in understanding the macroscopic and microscopic dimensions of the particulate, space and motion nature of matter and the relationships between these dimensions. In this respect, it was observed that students were able to use all the skills that are considered important in terms of understanding the relevant chemistry subject correctly and clearly in argumentation-supported PBL: such as interacting actively in learning environments, making claims and justifications, using experimental practices as supporters, making scientific explanations after observations, using rebuttal skills for the scientific explanations of other group mates.

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The Meaning of out-of-Field Teaching for Social Studies and Professional Experiences

Research Article

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ABSTRACT

Researches about out-of-field teaching and out-of-field teaching in social studies are relatively limited in Turkey. This study aims to investigate what the social studies teachers from other fields think about out-of-field teaching and what their life experiences are as out-of-field social studies teachers. In the research, the case study method from qualitative research designs was used. The study group consists of 24 teachers who are working as social studies teachers in official secondary schools affiliated with the Ministry of National Education in the districts of Ankara province. During the data collection stage, a structured interview form was prepared by researchers based on literature and expert opinions. As we understand from the essential findings of the study, the opinions of social studies teachers who are teaching as out-of-field teachers may be supportive or adverse. The important thing is that there have been emerging opinions about increasing the quality of teachers. As one of the challenges of being an out-of-field teacher, participants bring forward the issue of lowering their tone to students' level, but it was found that usually there isn't much problem since the teachers transfer from similar fields. One of the prominent views is the idea of increasing the quality of out-of-field teachers by conducting professional development practices in their employment processes. Participants in the research stated that out-of-field education has a negative effect on the formation of a qualified education and that it is a difficult process for a teacher from outside the field to adapt to the current branch. The reason for this situation can be revealed with a new research (qualitative).

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Keywords:

Teacher education, social studies teacher, professional identity, out-of-field teaching

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Introduction

There are many components that affect success in education. The primary component is the teacher factor (Çinkır & Kurum, 2015; Fitchett & Heafner, 2018; Pacaña et al., 2019). The teacher factor is discussed as a part of the education quality matter. Public dissatisfaction with the quality of education is associated with the quality of the teacher (Darling-Hammond, 2000). There are many research findings showing that teachers contribute significantly to student achievement in mathematics, reading and science (Savage, 2019).

In discussions about the quality of teachers, the teacher development before and during their employment is presented as a solution. In particular, teachers must graduate well-equipped before their service, and must be employed accordingly to the field and competencies in which they graduated. The source fields for social studies differ according to the teacher training and employment policies of the countries. The source fields for social studies differ according to teacher training and employment policies of the countries. Social Studies teachers who came from various fields can bring disadvantages in terms of completely mastering the knowledge in social studies. Since 1998, Social Studies Teacher program in Turkey has been a part of the higher education system. In the past, with the introduction of the Social Studies course in the curriculum in 1968, a department with the same name was opened in Educational Institutes (İnan, 2014; Kaymakçı, 2012). With the decision no. 9 of the Board of Education and Training, the General Directorate of Personnel has clearly stated the issues related to which areas of higher education programs will be graduated from the areas based on the appointment. In Turkey, there are several different branches (classroom teaching, history, geography, social studies teacher, etc.) that are sources for the field of social studies teaching. In 1998, social studies teaching department was established in Turkey during the restructuring of education faculties and gave its first graduates in 2002.

The teaching quality can be emphasized by associating the evaluation of social studies teachers' academic preparation processes with student outcomes. Teaching quality is related to the teacher's academic background. Employment in the graduating field is described as in-field teaching. The variation in the graduation field and the employment field highlight the concepts of the out-of-field education and out-of-field employment. There is little research on out-of-field teaching in the field of social studies education (Conklin, 2012; Pacaña et al., 2019; Savage, 2019). However, while how teachers affect student success is a matter of debate among researchers, there are also limited studies examining the role of social studies teachers in increasing student success (Fitchett & Heafner, 2018; Savage, 2019).

One of the primary objectives of teacher education is the development of teaching and professional knowledge. The successful development of field knowledge, pedagogical field knowledge and curriculum knowledge affects the teacher's ability to implement curriculums in the classroom and to include appropriate teaching processes. It is beneficial to improve the professional development field and competencies of social studies teachers who provide effective education in an integrated manner. In qualitative studies on the academic disciplines of social studies teachers coming from different fields, there are indications that social studies teachers prefer disciplinary knowledge and teaching appropriate to their academic disciplines (Savage, 2019).

Out-of-field education is a trending topic in educational policies and reform studies (Ingersoll, 2001a). Out-of-field teaching is a concept used in cases where the teacher does not have an academic main field or certificate related to the subject (Dee & Cohodes, 2008; Pacaña et al., 2019; Sharplin, 2014). When a highly qualified teacher in any field teaches in a different field from their primary field and has relatively less experience as background, it can be considered unqualified (Ingersoll, 2001a). In teaching profession, subject field knowledge and pedagogical content knowledge competency areas stand out in general. In cases where the subject field knowledge is sufficient, if the pedagogical content knowledge is sufficient, it can be mentioned the person is competent as a teacher. Ingersoll (2001a; 2001b), in his studies on the problem of teaching in and

out of the field, argues a teacher can be a successful regardless of educational background and preparation processes, which depend specifically on their own abilities, but in terms of professionalism, this cannot be generalized.

Out-of-field teaching has often been exposed due to the supply-demand balance related to teacher employment (Sharplin, 2014). In the United States, there are three criteria for a teacher to be recognized as a highly qualified teacher: To have a bachelor's degree in the field which he or she teaches, to have relevant certificates about teaching, and to be able to demonstrate content knowledge in the field he teaches (Sharplin, 2014). This certainly does not mean out-of-field teachers are unqualified. Essentially, it can be considered as employment incompatibility. Field identification can be a development area that should be acquired by out-of-field teachers. Identification with the field, just like professional identification, can contribute to the feeling of belonging to both the profession and the field. Studies have been conducted on the effect of out-of-field teaching on student achievement, professional development and its relationship with the problems experienced (Dee & Cohodes, 2008; Ingersoll & Gruber, 1996; Loveys, 2011; Olitsky, 2006; Pacaña et al., 2019; Sharplin, 2014). Issues like the relationship of out-of-field teaching with academic success, the professional development of the teacher, and their experiences in their career have been mentioned in the literature (Sharplin, 2014). People from other teaching branches and disciplines who choose to teach social studies as their alternative career may have various difficulties or conveniences in their transition to the profession. It is recognized that the branches of teachers who chose social studies teaching as their alternative career are primarily related to the social sciences. Professional identity formation is a long term process. The identity of the teacher must be balanced pedagogically and didactically. It is noted that experienced teachers in profession follow a more didactic approach in their classes and move away from the pedagogical approach (Hong, 2010). It is known that out-of-field teachers experience problems like lack of self-confidence, low interest, and confusion in learning transfer (Pacaña et al. 2019).

Social studies education and social studies teachers have a critical responsibility in supporting the intellectual development of students in terms of democracy (Conklin, 2012; Fitchett & Heafner, 2018). Basically, the field of social studies education has a relationship between citizenship skills (Öntaş & Koç, 2020) and political socialization (Öntaş et al., 2020). Teacher qualifications of social studies course, which has a central importance in the development of citizenship skills, can also be discussed. Applications such as inquiry, discussion and resource analysis that positively affect the teaching processes of social studies field can contribute to the skill development of students (Fitchett & Heafner, 2018).

Educating the teachers by acquiring relevant competencies and skills before job and then starting their career with being employed also includes various processes. The teacher's professional preparation process at the start of his/her career comes with it an internalized professional experience. However, the inability to continue the process by internalizing it may negatively affect professional development (Girgin & Cavus, 2019). Assimilation of professional life is associated with the development of professional identity. Choosing the profession, deciding to become a teacher (necessity, willingness, and family expectation), and professional life (appointment stretched -starting service, provinces-schools, trainings received and professional experiences-memories) are the experience patterns experienced by teachers in the career process (Girgin & Cavus, 2019). Along with these experience patterns, the patterns of role-congruence, role-displacement, role-, phase-congruence, phase-displacement and phase-stretched are also emerging in the service process (Sharplin, 2014). Role-congruence is the compatibility of skills and competencies with the field in which the teacher is assigned. It is the employment of a teacher graduated from the social studies teaching into the field of social studies teaching. Role-displacement is that skill competencies are incompatible with the field in which the teacher is assigned. An example is the employment of a teacher graduated from the field of social studies teaching as a philosophy teacher. Role-stretched is that although the skills and abilities are compatible with the

field in which the teacher is assigned, the previous experiences and qualifications of the teacher are unsuitable. Phase-congruence is the appointment of the teacher to the relevant teaching level in accordance with their skills and abilities. The phase-displacement is the teacher is not assigned to the teaching level in accordance with his/her skills and abilities. Phase-stretched is also related to the incompatibility of previous experiences, although the skills and abilities are compatible with the teaching level. The mentioned patterns stand out in terms of out-of-field education.

The concept of identity, mentioned in the context of professional identity development, is a broad concept that concerns many social sciences such as psychology, sociology, and anthropology (Olsen, 2008). Identity can be divided into personal, social, professional identity and teacher identity (Kavrayıcı, 2019). Social studies course is also a curriculum that contributes to the development of identity for students. In this context, social studies teachers' professional identity and teacher identity characteristics are important. While teaching also involves highly dynamic and fluid processes, perceptions, attitudes, practices contain tensions and struggles throughout the entire career. There is a relationship between professional identity and professional actions. Teacher identity is important in terms of deciding who we are in private lives. The professional identity of the teacher is an effective tool to understand his professional life and career decision making processes (Hong, 2010). There are different models of professional identity formation (Gee, 1996a, 1996b, 2000; Beijaard et al., 2000). Studies on the teacher's professional identity show that identity is the main factor in teacher motivation, effectiveness, and retention (Avalos & Aylwin, 2007; Hong, 2010). The concept of professional identity does not only refer to the effects of other people's concepts and expectations. It also includes acceptable images of what the teacher should know and do. In addition, teachers' practical experiences and personal backgrounds are also important (Aslan, 2016). The contents that teachers encounter in working life affect their identities in many ways. Girgin & Cavus (2019) stated the content evaluated in two categories: class interactions, evaluations, material designs and task definitions in observable field and cognition, beliefs, expectations and emotions in unobservable field.

This study aims to investigate the thoughts of social studies teachers from outside the field and their life experiences as out-of-field social studies teachers. Although out-of-field social studies teaching does not stand as a problem in today's employment policies in Turkey, the presence of out-of-field social studies teachers currently working and the fact that no studies have been found in the field of social studies teaching can be stated as the necessity of the research.

Method

Research Model

The case study method, one of the qualitative research designs, was used in the study. Case studies are a way of looking at what is actually happening in the environment, collecting data, analyzing data in a systematic way, and presenting results. The resulting product is a sharp understanding of why the event is the way it is and what to focus on in more detail for future research (Davey, 1991). In addition, the case study is a research design that tries to reveal detailed information that investigates the participants, institutions or events in daily life and their effects on each other in an integral and realistic manner (Yıldırım & Şimşek, 2013). However, it is also possible to say the case study is a research method based on how and why questions, which allows the researcher to examine the depth of the event or something that the researcher cannot control. (Yıldırım & Şimşek, 2013). In this study, the detailed examination of the experiences of the out-of-field social sciences teachers within their personal views in the official secondary schools affiliated to the Ministry of Education in Ankara provincial districts established a rationale for the use of case study pattern.

Study group

The study group of the research consists of 24 teachers working as social studies teachers in official secondary schools affiliated to the Ministry of National Education in the districts of Ankara. Participants were selected equally in all districts of Ankara province. At the stage of determining the participants, a purposeful sample was used from non-probability sampling types. In addition, criteria sampling was used in the purposeful sampling stage. As a criterion, it has been determined that participants came from outside the field and works as a social studies teacher in official secondary schools affiliated to the Ministry of National Education in Ankara province districts. Some demographic information about the participants is covered in Table 1.

Table 1. Demographic data about participants

<i>Participant Name</i>	<i>Gender</i>	<i>Age</i>	<i>Graduation Year</i>
P1	Woman	48	History
P2	Man	39	Classroom Teaching
P3	Man	29	Others
P4	Woman	26	History
P5	Woman	29	Others
P6	Woman	25	History
P7	Man	26	Geography
P8	Man	46	History
P9	Woman	36	Geography
P10	Man	45	Classroom Teaching
P11	Man	53	Others
P12	Man	51	Classroom Teaching
P13	Woman	45	Geography
P14	Woman	40	Geography
P15	Woman	53	Geography
P16	Man	41	History
P17	Woman	44	Geography
P18	Man	46	Classroom Teaching
P19	Man	49	Others
P20	Man	42	History
P21	Woman	26	Geography
P22	Man	35	Others
P23	Woman	47	History
P24	Man	45	History

Data collection tool

In the data collection stage of this research, the structured interview form prepared by the researchers based on the literature and expert opinions was used. Structured interviews provide the opportunity to receive complete information and give instant feedback in addition to determine the parallelism and difference between the information provided by individuals and to make comparisons accordingly (Yıldırım & Şimşek, 2013). Validity in qualitative research can be described as stating the topic objectively in the frame of the main problem (Yıldırım & Şimşek, 2013). At this point, four main strategies, i.e., dependability, credibility, transferability and confirmability as trustworthiness criteria ensure the rigour of qualitative findings (Lincoln & Guba, 2000). In this study, there are eight questions in the structured interview form. Accordingly, participants answered questions about the place of out-of-field teaching in the functioning of a qualified education system, the attitudes of the school administration towards out-of-field teachers, the situation of out-

of-teachers from different discipline, their reasons for choosing social sciences as a out-of-field teacher, the difficulties you encountered during your time as an out-of-field teacher, how to improve the social studies teaching program as an out-of-field teacher, what acquisitions social studies teaching provided for you and whether they would recommend or not social studies teaching to the teachers who will come after them. While creating the questions, firstly, the literature on the subject was examined. The selection of participants followed a criteria-based rationale while all stages of the research have been stated clearly, thus confirming the existence of a transferability strategy. Regarding the credibility strategy, the research was shared with an expert who has conducted similar studies in the finalization stage of the research; this expert also examined the research with regard to all its contexts. The expert mentioned that there was logical credibility across the literature review, method, findings, results and research problem. Besides, the expert was asked about the confirmability of themes and sub-themes determined as a result of raw data findings and researchers' analysis, as well as confirmability the themes and sub-themes obtained in light of participants' opinions. Considering these processes, questions were conveyed to field experts. According to the feedback from the field expert, some changes were made on some questions. The draft form was finally sent to a linguist to be examined within the framework of spelling and spelling rules, and the interview form was made ready after corrections were made.

Data Collection

While the data were planned to be collected with the participants in a face-to-face semi-structured interview form during the planning stage of the research, it was decided to collect it through the structured interview form prepared through Google Forms, taking into account the social distancing rules with the declaration of a pandemic of covid-19 virus that has started in the world. In addition, the participant teachers were contacted for precautionary problems that may arise during the implementation process and the necessary feedback was given to them immediately.

Data Analysis

Within the framework of the responses to eight open-ended questions in the structured interview form, the data were subjected to content analysis. The basic process in content analysis is to gather similar data within the framework of certain concepts and themes and to interpret them in a way that the reader can understand (Yıldırım & Şimşek, 2013: 259). In order to avoid any confusion in the opinions of the participants, symbolic names starting from P1 to P24 were given to each of the 24 participants. In addition, the data in the study were coded separately by two researchers. Reliability = Consensus / Consensus + Disagreement x100 formula was applied (Miles & Huberman, 1994). The percentage of compatibility between the two encoders was calculated as 87%. Since it was deemed sufficient that the research questions could be used if the complity percentage was 70% or higher, reliability was ensured in terms of data analysis (Şencan, 2005).

Findings

In this study, the data were categorized under eight themes.

Findings regarding the place of out-of-field education in the functioning of a qualified education system: Out-of-field social studies teachers were asked the question 'How do you evaluate out-of-field education in the functioning of a qualified education system?', and themes, sub-themes and codes are determined based on the answers given. In addition, the opinions of the participants supporting the relevant opinions are included below the table.

Table 2. Findings regarding the place of out-of-field education in the functioning of a qualified education system

Theme	Sub-theme	f	Codes
	Negative Impact	10	Out-of-field (7), mistakes (6), fit the goal (2), different system (2), scope (2), time (2), extra preparation (3),

The effect of out-of-field education on the education system	Constructive Impact	9	self-improvement (3), useful (3) , individual effort (2), equipment (3), quality (3), characteristic (2), positive (2), change (2), research (2), interdisciplinary (2), unsuitable (2), expertise (2), closeness to the course (3), needs should be met (2), extra preparation (2), history (1), geography (1), citizenship (1), interest (2), infrastructure (2)
	Teacher qualification that matters	5	

When Table 2 is examined, as a result of the analysis of the participant teachers' views on the effect of out-of-field teaching on the education system, three sub-themes were identified: Negative Impact, Constructive Impact, and Teacher qualification that matters. While ten of the participating teachers expressed the negative impact of out-of-field teaching on the education system, nine of them drew attention to the constructive effect of out-of-field teaching on the education system. According to five of the participants, it is important to increase the quality of education out of the field. Highlights from teacher opinions that support this data:

"My field is history, but I attend the social studies course. Social studies is a very comprehensive course. I do not need to prepare extra while explaining the history subjects in social studies. However, I have extra preparations for topics such as geography and citizenship. These are not cons for me. On the contrary, I am improving myself in other areas" (P4).

"As a versatile and well-equipped individual, significant contributions can be made to the formation of a qualified education system" (P8).

"I think it is a wrong practice, it is not very efficient to work in an field that you don't master" (P5).

"I don't think that the out-of-field education is very effective in the functioning of a qualified education system" (P18).

"The teacher's enthusiasm in the professional field affects the performance of the teacher, the result of a purely individual effort will answer this question" (P7).

Findings regarding the attitudes of the school administration towards out-of-field teachers: Participants were asked the question 'What are your observations about the school administration's attitudes towards out-of-field teachers?', and themes, sub-themes and codes are determined based on the answers given. In addition, the opinions of the participants supporting the relevant opinions are included below the table.

Table 3. Findings regarding the attitudes of the school administration towards out-of-field teachers

Theme	Sub-theme	f	Codes
The attitude of the school administration	Positive	14	Observation (7), difference (6), attitude (2), administration (2), out-of-field (2), time (2), extra preparation (3), self-improvement (3), useful (3), individual effort (2), equipment (3), quality (3), characteristic (2), positive (2), change (2), research (2), interdisciplinary (2), unsuitable (2), expertise (2)
	Negative	5	, closeness to the course(3), needs should be met (2), extra preparation (2), history (1), geography (1), citizenship (1), interest (2), infrastructure (2)
	Uncertain	5	

When Table 3 is examined, as a result of the analysis of the participant teachers' views on the attitudes of the school administration towards out-of-field teachers, three sub-themes were identified: Positive attitude, Negative attitude and Uncertain. Fourteen of the participating teachers stated that the school administration's attitudes towards out-of-field teachers were positive, five of them stated that the school administration

showed a negative attitude towards out-of-field teachers, and five participants stated that they were uncertain about the attitudes of the school administration. Highlights from teacher opinions that support this data:

“At my school, the administration assists us under all circumstances. They don’t make us feel like we are out-of-field teachers” (P4).

“In the institutions I have worked for throughout my professional life i, I have not witnessed any negative or discriminatory attitude towards myself or colleagues” (P16).

“They are taking a prejudicial stance that monitoring the process” (P8).

“School administrations do not trust out-of-field teachers as much as they trust field teachers” (P18).

“I didn’t make such an observation in our school” (P1).

Findings regarding the out-of-fields teachers teaching in a different field: Participants were asked the question 'As an out-of-field teacher, how do you perceive a teacher teaching outside their graduation field?' and themes, sub-themes and codes are determined based on the answers given. In addition, the opinions of the participants supporting the relevant opinions are included below the table.

Table 4. Opinions of the out-of-field teachers about teaching in a different field

<i>Theme</i>	<i>Sub-theme</i>	<i>f</i>	<i>Codes</i>
Perceptions of out-of-field teachers towards their own teaching process	A difficult process	11	Out of field (5), social studies, difficult process (5), purpose and content, knowledge, equipment, opposite field, wrong (6), minor (2), I do not recommend (4), different experience (3), communication, ideal, positive (2), history, geography, neutral (4)
	There is no difference	8	
	Gaining new experiences	5	

When Table 4 is examined, as a result of the analysis of the participant teachers' views on the perceptions of out-of-field teachers towards their own teaching process, three sub-themes were identified: Teaching in a different branch from out of their field is a difficult process, they don't experience any differences, and it offers the opportunity to gain new experiences. While eleven of the participating teachers stated that teaching outside the field requires preparation for a new field, it was a difficult process, eight of them stated that they did not think that teaching outside the field brought any difficulties or differences. Five of the participating teachers stated that working outside the field and teaching in a different branch brought new experiences. Highlights from teacher opinions that support this data:

“Naturally it’s a difficult process. However, over time, we try adapting to the studies carried out in accordance with the objectives and contents of the course” (P2).

“It’s hard to come from a different field and teach in a course that wasn’t in the field, to be honest. If their knowledge and qualifications are insufficient, it will be hard to eliminate the deficiencies” (P3).

“I do not recommend doing it unless it is absolutely necessary and I do not find it healthy” (P6).

“Having started my career as a classroom teacher as a graduate of history teaching and continuing as a social studies teacher enabled me to gain interesting experiences. I can state numerous experiences are a plus when the managerial role is included” (P8).

“Positive results can be obtained if the necessary preliminary preparations can be made and more information can be obtained in the field.” (P12).

"I can say it was ideal for me. I have a social personality. I enjoy this field. Of course, It's a plus for me that I've pursued my bachelor's degree in this field. I believe I am more productive with my experience in dialogue with students and classroom management"(P11).

"Undoubtedly not ideal, but I don't regard it as a negative situation in all circumstances" (P16).

"No problem for social studies" (P13).

Findings regarding the reasons for choosing social sciences as an out-of-field teacher: Participants were asked the question 'As an out-of-field teacher, could you explain why you chose to teach social studies?' and themes, sub-themes and codes are determined based on the answers given. In addition, the opinions of the participants supporting the relevant opinions are included below the table.

Table 5. Opinions on the reasons for choosing social studies as an out-of-field teacher

Theme	Sub-theme	f	Codes
Reasons for choosing social sciences	Related to my field	10	History (3), society, social sciences, field relation (8), geography (2), teacher, preference, field conjunction
	The thought that I can be appointed	5	(2), appointment (5), interest (3), personal characteristics (1), necessity (3)) branch, quota, entertainment (1), conditions (1), license, social studies, system (1)
	Interest	4	
	Necessity	5	

When Table 5 is examined, as a result of the analysis of the participant teachers' views on the reasons for choosing social sciences as an out-of-field teacher, four sub-themes were identified: Being relevant to their field, the thought that I can be appointed, Interest and Necessity. While ten of the participating teachers highlighted the relevance their field or the minor branch factor among the reasons for choosing social sciences as an out-of-field teacher, five participating teachers for each sub-theme stated that they chose the social studies branch to get appointed or because of necessity. It was stated by four other teachers that the personal interests were prominent in choosing the social studies branch. Highlights from teacher opinions that support this data:

"The most relevant one to my field was Social Studies teaching. I like Social Studies course because it is very comprehensive and part of life" (P4).

"It felt close to me because I studied history and it is a field I love" (P6).

"Because it is much closer to my own personality traits, because I have confidence in my communication skills, because I can get along better with children of this age group, and most importantly because I believe I can more productive and I love it" (P11).

"I did not choose, unfortunately, this was my appointment decree" (P13).

"Since no geography teacher was appointed in the field of geography, which is my graduation field, in 2000, we were given a social studies teacher certificate at the time of our graduation and we were appointed according to our DGS result. In other words, it was a process beyond our own preference" (P14).

"In my first appointment process, since the ministry did not open a quota from my graduation field, I chose this field to be appointed out of necessity under the conditions of that day" (P16).

"Although I had a history license in 2000, no teachers were hired in the field of history during the appointment period. However, there was a system that allowed me to choose the field of social studies" (P20).

Findings regarding the challenges you faced during the period when you started teaching social studies:

Participants were asked the question 'As an out-of-field teacher, what challenges did you face when you started teaching social studies?' and themes, sub-themes and codes are determined based on the answers given. In addition, the opinions of the participants supporting the relevant opinions are included below the table.

Table 6. Opinions on the challenges faced by out-of-field social studies teachers

<i>Theme</i>	<i>Sub-theme</i>	<i>f</i>	<i>Codes</i>
The challenges faced by out-of-field social studies teachers	Didn't encounter any challenges	12	Challenge (12), lack of field knowledge (5), extra research (2), exercise (2), preparation, principle, adaptation (2), communication, method, curriculum (1), motivation, equipment, out of field, classroom management
	Field Knowledge	8	
	Adaptation	4	

When Table 6 is examined, as a result of the analysis of the participant teachers' views on the challenges faced by out-of-field social studies teachers, three sub-themes were identified: Didn't encounter any challenges, Field Knowledge and Adaptation. Twelve of the participating teachers stated that they did not encounter any difficulties. Eight of them stated that they encountered difficulties due to the lack of field knowledge, while four participating teachers stated that they had problems in the adaptation process. Highlights from teacher opinions that support this data:

"I did not have any difficulties, the school administration and the group leader helped with this" (P7).

"I had no problem other than getting used to the teachers' room" P (6).

"I had difficulties in lowering the tone to student level in the preparation stage and while lecturing" P (9).

"I had to read more because the field was extensive. In addition, I had to use different methods in classroom management because of the older age of the students" (P12).

"I worked on learning the curriculum and how to teach more effectively" (P14).

"I did not have any difficulties" (P15).

"I did not encounter any problems because my motivation and knowledge was high" (P17).

"Since I had just started teaching, I had exactly the same problems that a new teacher experienced at that time (especially in pedagogy)" (P20).

Findings on how to improve the social studies curriculum as an out-of-field teacher:

Participants were asked the question 'As an out-of-field teacher, how do you think the social studies curriculum can be improved? Please, write down your thoughts' and themes, sub-themes and codes are determined based on the answers given. In addition, the opinions of the participants supporting the relevant opinions are included below the table.

Table 7. Opinions on how to improve the social studies curriculum as an out-of-field teacher

<i>Theme</i>	<i>Sub-theme</i>	<i>f</i>	<i>Codes</i>
How to improve the social studies curriculum	Simplification of textbooks and teaching curriculum	16	Textbooks (5), content (4), achievement (3), curriculum (3), modest (3), visuals, examples, positive, abstract concepts, learning by experiencing (2), subject, activity, practice (2), content, insufficient, permanent learning (2), observation, age level (1), program (3), information error, adaptation, lesson time, update (2)
	It should be suitable for the readiness level of the students	5	
	It should be concentrated on the practice	3	

When Table 7 is examined, as a result of the analysis of the participant teachers' views on how to improve the social studies curriculum as an out-of-field teacher, three sub-themes were identified: Simplification of textbooks and teaching curriculum, It should be suitable for the readiness level of the students, and It should be concentrated on the practice. Sixteen of the participating teachers stated as an out-of-field teacher that the simplification of the textbooks and the teaching curriculum would be important in the development of the social studies curriculum, while five of them stated the curriculum should be suitable for the readiness level of the students. In addition, three (3) of the participating teachers stated it would be important to make the curriculum more practice-oriented than theoretical. Highlights from teacher opinions that support this data:

“The opinions of field teachers on this issue are important. The achievements and course contents should be reviewed and re-prepared by considering the characteristics of the student” (P2).

“In addition to the course materials, the lesson should be supported with presentations or visuals from the smart board. Otherwise, things told can be up in the air. I am happy with the book we use for the course material, because the information is lesser and examples and pictures are in the majority. It is easier for a piece of information to be kept in memories by explaining it through examples” (P4).

“If the textbooks of the Ministry of National Education, especially the 6th grade and 8th grade subjects of the Reform courses, are simplified, it will be more efficient, and also for students to learn abstract concepts by experience learning method, Meb should send circulars to schools and allocate funds for them to make trips especially for students to see historical places and natural beauties in person and ask schools to make a trip every month. If this happens, if the student goes to the place where a historical event took place and examines it concretely, that subject will be more productive than the lecture, I think that the student will never forget the place where the historical event took place or a place of natural beauty throughout his life” (P10).

“More practice can be included” (P12).

“While preparing the curriculum, according to the age levels of the children, the achievements should be reduced and regulated, and the time should be increased for the current achievements and supported with the activities related to the outcomes” (P18).

“Topics sometimes are disconnected, for example, books can be edited so that the topics are in a meaningful order. For example, when studying Turkey’s climate, they are moving to another topic in the book, and after that the topic of earth climate studied in the book. This kind of order is disconnected. It would have been more appropriate to study the earth climate after Turkey’s climate.” (P21).

Findings regarding the gains of social studies teaching for you: Participants were asked the question 'As an out-of-field teacher, have you had any gains in social studies teaching? Please, tell us about it' and themes, sub-themes and codes are determined based on the answers given. In addition, the opinions of the participants supporting the relevant opinions are included below the table.

Table 8. Opinions on the gains of social studies teaching for you

<i>Theme</i>	<i>Sub-theme</i>	<i>f</i>	<i>Codes</i>
The gains of social studies teaching	New knowledge outside of their field	11	Gain (2), inquiry (5), research (4), current, learning (4), experience (3), experience (2) different (2),
	Developing a different perspective	8	activity, fun, perspective (6), out of field, analysis (2), review (3), depth of knowledge (2), thinking (2),
	Gaining experience	5	related field, new knowledge (3), disciplines (1)

When Table 8 is examined, as a result of the analysis of the participant teachers' views on the gains of social studies teaching, three sub-themes were identified: New knowledge outside of their field, Developing a different perspective and Gaining experience. Eleven of the participating teachers emphasized that teaching social studies contributed to gaining new knowledge outside their field, while eight of them stated that it can contribute to developing different perspectives. Five participant teachers stated that it would contribute to the teachers' experience. Highlights from teacher opinions that support this data:

"Yes. There have been gains like looking at the events in different perspectives, questioning, research etc." (P2).

"I am doing research for my students. I get information while researching. This field has brought me a lot" (P4).

"Of course it has. First of all, you are changing the perspective of students who are older than primary school students age group. You are trying to teach them to look at things from different angles and this makes you enjoy it" (P10).

"A lot indeed. My ability to think in a versatile way has increased. I learned once again to ask why questions, the importance of communicating with people, how we have gone through difficult processes as we come to these days, and that there is no limit to learning" (P11).

"Of course. As someone who tends to see social sciences as a whole, I can say that those who are equipped in fields such as history, geography, sociology, social psychology, law will strengthen the basis of perceiving history as a mere series of events and will move it beyond the teaching" (P20).

Findings regarding the situation of recommending teaching social studies to future teachers: Participants were asked the question 'As an out-of-field teacher, please explain to teachers in different fields whether or not you recommend the social studies branch' and themes, sub-themes and codes are determined based on the answers given. In addition, the opinions of the participants supporting the relevant opinions are included below the table.

Table 9. Opinions on recommending teaching social studies to future teachers

<i>Theme</i>	<i>Sub-theme</i>	<i>f</i>	<i>Codes</i>
Recommending teaching social studies to future teachers	I recommend	12	History (2), social, own field (5), advice (5), different (2), social studies (3), branch, preference, need, course load, geography, devaluation, interest (2), communication, different age groups, problem, general culture (2), curriculum (2), trust, ideal, current, verbal, participation (2), ability, education (2), learning (3)
	I don't recommend	12	

When Table 9 is examined, as a result of the analysis of the participant teachers' views on recommending teaching social studies to future teachers, two sub-themes were identified: I recommend and do not recommend. Twelve of the participating teachers recommend teaching social studies from outside the field, while the other twelve (12) participants do not recommend teaching social studies from outside the field. Highlights from teacher opinions that support this data:

"Everyone should work in their field. I would not recommend" (P3).

"I think everyone should work in their own branch" (P5).

"The reason I don't recommend it is that I find it right for everyone to work in their own branch. Unless it is out of necessity, I do not find it appropriate to prefer another field" (P6).

"Thinking about issues such as need, course load, importance in exams, I don't recommend it" (P8).

"I have always recommended it. As a justification, I can say that social studies is life itself" (P10).

“If you are interested, if you really like it, if you have education on the subject too, If you also trust your communication skills, If you have the ability to think in a versatile way, I highly recommend it” (P11).

“I would recommend. It opens up your horizon. You would have also some contribution in informing the public” (P12).

“I would recommend because the topics are current and from life. You will study these topics with children while enjoying. There’s more participation in the class. At the same time, social studies improve the cultural knowledge of a person. We learn our own history better” (P17).

Conclusion and Discussion

This study aims to investigate the thoughts of social studies teachers from outside the field and their life experiences as out-of-field social studies teachers.

In the study, the place of the out-of-teaching teaching in the functioning of a qualified education system was asked to the participants, and three sub-themes became prominent under the title of negative impact of out-of-field teaching on qualified education, constructive impact, teacher qualification that matters. Teaching in an outside field has a relationship with the concept of profession and deprofessionalizing (Ingersoll, 2001b). Obtaining undergraduate level education in the core academic field can traditionally be seen as a reality accepted in the context of professionalism. When taken in the context of being qualified and unqualified, there may be criticism of the teacher's academic background, such as incomplete academic learning of out-of-field teaching for a qualified education system. The meaning of out-of-field teaching, which can be discussed on issues of teaching and teacher quality, can be considered multifaceted for a qualified education system. In the Turkish sample, it is not common to change branches in the teaching profession or to direct careers depending on professional development, which can be considered as “mid-career”. The concept of mid-career can refer to the period in which field change takes place by obtaining a certificate or diploma from alternative programs after becoming a teacher (Ingersoll, 1998). In the processes of employment and career development, out-of-field education, which is strict and permeability-limiting and often handled as a placement problem, is need to be addressed in the context of quality and professional development.

Participants were asked about the attitude of the school administration towards out-of-field teachers and three sub-themes were stated as positive attitude, negative attitude and uncertain. Çinkır & Kurum (2015) found that there are approving and non-approving views on the employment of out-of-field teachers in their research. The main arguments of approving opinions are lack of teachers and field knowledge, and the main argument of non-approving views have been identified as lack of field knowledge, experience of teaching, as well as professional specialization. Attitudes towards out-of-field teachers may vary depending on the leadership styles, or management styles of school administrators (du Plessis et al., 2017). In the study, which evaluated that inexperienced teachers were preferred during employment process because they were less burdening on the budget, instructional leadership and transformative leadership styles were also compared in terms of leadership style. It is expected that out-of-field teachers will be supported and mentored by education administrators who adopt instructional leadership and transformative leadership roles. However, it cannot be stated that out-of-field teachers are fully aware of teaching positions and life experiences of teachers (du Plessis et al., 2017). In this regard, while there is no study in the field of social studies in the Turkish sample, there are studies in the field of classroom teaching.

Hobbs (2013) identified the factors that enable teachers to consider/accept themselves as out-of-field teachers in three categories: Context (geographical region, school size, administrative structure, etc.), support mechanisms and personal resources. The question of in which schools and how out-of-field are employed was investigated especially by Ingersoll (2003) in the USA in the late 1990s and early 2000s. In his research on out-of-field education and teacher employment policies, discussions especially focused on the employment

themes. The prevalence of out-of-field teachers varies according to the school sector and school size. Interestingly, there is less out-of-field teacher employment in large schools (where the student population is over 300). The reflection of out-of-field teaching on schools was discussed over teacher quality. For Turkey, especially social studies branch, the field is closed to appointment of out-of-field teachers for many years. The department, which started to receive its first students in the 1998-1999 academic year, started to give its first graduates in 2002. Since 2002, approximately 20000 social studies teachers have been appointed. Out-of-field teacher assignments were experienced intermittently along with periodic policy transitions.

As an out-of-field teacher, the reasons for choosing social knowledge were asked to the participants, four sub-themes were identified as being relevant to their field, the probability of my appointment is higher than the previous branch, personal interest and having no choice and it is being substantially necessity. It is known that the problems faced by out-of-field teachers are commitment, job satisfaction and motivation, field knowledge and adaptation to the profession with teaching (Çinkır & Kurum, 2015). There may be situations related to commitment, feeling belonging to the teaching profession, internalizing the profession, and not accepting teaching as a priority. Although the employment of out-of-field teachers is generally unapproved, there may be situations such as teacher employment, unemployment and approaching education from different perspectives, considered to be advantageous (Çinkır & Kurum, 2015). There are criticisms of the professional identity development of out-of-field teachers. There are factors affecting the professional identities of teachers like personal characteristics, professional requirements, institution, perspective, professional stakeholders, conditions, society and values (Soydaş, 2020). In the context of professional identity perception and professional identity factors, it is significant how out-of-field teachers are affected.

Acquiring teaching skills related to a different curriculum in the learning of out-of-field teaching in professional development can resemble to relive a second "re-novicing" (Kenny et al., 2020). The fundamental conditions that determine the employment of out-of-field teachers may be related to the budget (du Plessis et al., 2017). The daily routines and actions of an out-of-field teacher and their life experiences can be different. Whether out-of-field teachers teach in an area suitable for their current positions and qualifications can expand their experience. When considering the career process of out-of-field teachers in terms of role-congruence, phase-congruence, In Sharplin's (2014) research with out-of-field teachers working in rural areas of Western Australia, teachers feel safe and highly self-sufficient if their skills and competencies and the teaching grade are suitable. If the role and phase-displacement are experienced, it is stated that they experience alienation, lack of autonomy, lowly professional status and lack of opportunity. Assigning or employing teachers in areas where they experience skills and proficiency mismatch can adversely affect feelings of job satisfaction, quality of work life, well-being (Sharplin, 2014).

The lack of teaching knowledge in terms of pedagogical field knowledge and content knowledge can complicate the teaching process. Teachers from outside the field may need to be empowered by colleagues in terms of teaching knowledge, support, and motivation (Kenny et al., 2020). A supportive school environment can contribute to the professional development of teachers. Social studies teachers whose academic background is in history or secondary school education can relate their knowledge in their field to the social studies (Fitchett & Heafner, 2018).

Recommendations

According to the results obtained from the research, it may be recommended that out-of-field teachers can try to approach to the Social Research field and engage in professional development activities that will enrich their knowledge of the pedagogical field. In the context of colleague learning, pedagogical field knowledge and content knowledge can be ensured to be up-to-date. Researchers can conduct studies using a wide range of qualitative, quantitative, or mixed methods that will specifically link out-of-field teaching to student success. Policy makers can identify pre-service and during-service needs for teacher employment and

ensure consistency between elements of the system. Activities for the professional development of the out-of-field teachers within the service can be organized.

Ethical Text

“In this article, journal writing rules, publishing principles, research and publishing ethics rules, journal ethics rules are followed. The author is responsible for any violations that may arise in the article.”

Author (s) Contribution Rate: The author’s contribution to this article is to 100%.

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Analysis of the Postgraduate Theses Completed in the Field of Teacher Education Programs

Research Article

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ABSTRACT

Although there are many variables in teacher training process, the most important components are teachers, prospective teachers, teacher educators and teacher education programs. Many articles and thesis studies are done on teacher education programs among these components. This study aims to analyze the postgraduate theses completed on the subject of teacher education programs. Descriptive research design was used in the study. 310 postgraduate theses on teacher education programs which were completed between 1988 and 2020 and are open access on the database of National Thesis Center were included in the study. In the analysis of the postgraduate theses determined, document analysis was used. The distribution of the theses according to universities, institutes, departments, subjects, research methods, research designs, samples, and data collection tools was examined and the relevant findings were presented in tables. Based on the findings, it was determined that the theses on teacher education programs were generally completed in METU, institutes of educational sciences and department of educational sciences. It was found that the subject mostly studied was teacher qualifications or prospective teacher qualifications. Qualitative and quantitative research methods were used equally in the theses. In addition, it was determined that survey model was used at the most as research design and prospective teachers were included mostly as sample in the theses. Interview forms were mostly preferred as data collection tool in the theses.

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Keywords:

Teacher education program, Teacher education, Postgraduate, Theses.

Introduction

Change is inevitable in many areas ranging from science to art, technology, and education. The period of change through which individuals, societies and the world have gone for a while now requires that basic systems such as health, economics, politics, and education should constantly improve themselves. This change

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in the education system takes place on the teacher, student and curriculum triangle (Yılmaz, 2006, p. 21). Correspondingly, the regulations also made on our education system are related to teacher education or curricula. It was seen that regulations on the structural context of teacher education were made especially after teacher training was placed under the responsibility of universities on the 20th July of 1982 (Yüksel, 2011, p. 53). One of these regulations was initiated in 1997 and significant decisions on restructuring teacher education programs were made (CoHE, 1998). However, the negative evaluations on the changes made it necessary to work on teacher education programs again in 2006. A more flexible approach to the curriculum was adopted in the scope of the new teacher education programs started to be implemented in the academic year 2006-2007. As a result, faculties were authorized to determine the courses at the rate of approximately 25% of the total credits required in a curriculum. With this restructuring, it was aimed to adopt the understanding of training teachers who have the ability of problem solving and teach how to learn (CoHE, 2007). Teacher education programs were maintained in the current state for about twelve years to train teachers. In 2008, teacher education programs were rearranged and it was aimed to develop a core curriculum in teacher education programs by determining the rates of professional teaching knowledge, general culture and field training courses included in the curriculum (CoHE, 2018). Nearly two years after this arrangement, on August 18, 2020, the Council of Higher Education (CoHE) announced that it authorized the universities. Accordingly, it was stated that higher education institutions were responsible for preparing their own teacher education programs by taking into account the Turkish Qualifications Framework and Teaching Profession General Qualifications (CoHE, 2020). When all these reforms are considered, the importance of teacher education programs for training qualified teachers and in the field of teacher education reveals. One of the important issues is how to strengthen teacher education programs in order to ensure the future teachers gain more experience in the aspects of knowledge, skill and practice (Darling-Hammond, 2000; 2006; Yıldırım, 2013). The way to strengthen teacher education is through strengthening teacher education programs. For this reason, there is a need to examine the researches on teacher education programs in detail. Among these researches, especially postgraduate theses have an important place in terms of presenting comprehensive findings. The views of many teachers, students and academics can be reached with master's and doctoral theses on teacher education programs. At the same time, it is necessary to evaluate the studies conducted on teacher education programs together in order to evaluate the effects of the program changes made in 1998, 2006 and 2018 on pre-service teachers and teachers. A comprehensive study that evaluates research on teacher education programs together has not been found yet. For this reason, it is seen that there is a need for studies that address the studies on teacher education programs and reveal together what methods and how these studies reach their findings. In this context, the main objective of this research is to evaluate the studies conducted for teacher education programs together and to present a general perspective regarding these studies. In order to achieve this objective, 310 postgraduate theses that were done on teacher education programs (TEPs) and are open to access on the National Thesis Center database were analyzed. The distribution of the postgraduate theses done in the field of TEPs according to universities, institutes, departments, subjects, research methods, research designs, samples, and data collection tools was examined and interpreted in detail.

Method

Research Model

Descriptive research design was used in this study since the aim is to identify the postgraduate theses completed in the subject of teacher education programs (TEPs) that still exist today elaborately (Büyüköztürk, Kılıç Çakmak, Akgün, Karadeniz & Demirel, 2012, p. 22; Sönmez & Alacapınar, 2013, p. 48). The research also shows the characteristics of qualitative research since document analysis was used in the analysis of the postgraduate theses on teacher education programs in the scope of this study. Qualitative research is defined

as a research method that uses qualitative data collection tools such as observation, interview, and document analysis, and reveals events and phenomena realistically and holistically (Yıldırım & Şimşek, 2013, p. 45).

Sample

The research sample consisted of a total of 310 master's theses and dissertations on teacher education programs that were completed between 1988 and 2020 and are open to access on the National Thesis Center database. For this reason, sampling was not carried out and the whole population was included in the study. Key words used in the selection of theses in the research: faculty of education undergraduate programs, pre-service teacher improvement programs, faculty of education programs, teacher education programs, pre-service teacher education programs and teacher training programs. Searching with these keywords revealed that the first thesis was made in 1988. For this reason, theses that were open to access between 1988-2020 formed the sample of the research. The distribution of the postgraduate theses in the study according to their levels was presented in Table 1.

Table 1. Distribution of theses according to levels

Years	Thesis Level		Total
	Master's Thesis	Dissertation	
1988		1	1
1991		1	1
1994	3		3
1996		1	1
1999	1		1
2000		1	1
2001	1	1	2
2002		1	1
2003	2	1	3
2004	5	3	8
2005	2	1	3
2006	7		7
2007	2	4	6
2008	11	4	15
2009	4	3	7
2010	9	4	13
2011	5	3	8
2012	13	4	17
2013	3	7	10
2014	11	5	16
2015	15	10	25
2016	13	21	34
2017	17	19	36
2018	12	16	28
2019	37	14	51
2020	7	5	12
Total	180	130	310

Table 1 shows that 180 master's theses and 130 dissertations were included in the study. When the distribution of the theses according to their levels was examined, it was found that the most theses were completed in 2019. Only one thesis was done in 1988, 1991, 1996, 1999, 2000 and 2002.

The distribution of the postgraduate theses in the study according to gender was shown in Table 2.

Table 2. Distribution of theses according to gender

Years	Gender		Total
	Female	Male	
1988		1	1
1991		1	1
1994	2	1	3
1996	1		1
1999		1	1
2000	1		1
2001		2	2
2002		1	1
2003	1	2	3
2004	4	4	8
2005	3		3
2006	5	2	7
2007	4	2	6
2008	8	7	15
2009	5	2	7
2010	8	5	13
2011	5	3	8
2012	10	7	17
2013	6	4	10
2014	8	8	16
2015	12	13	25
2016	20	14	34
2017	19	17	36
2018	18	10	28
2019	39	12	51
2020	9	3	12
Total	188	122	310

Table 2 shows that 188 of the postgraduate theses in the study were completed by female researchers and 122 postgraduate theses were completed by male researchers.

Data Collection Tool

The table of specifications that was prepared by the researcher was used in order to collect the postgraduate theses as the data in the study. The prepared table of specifications was two-dimensional. In one dimension of the table, the keywords used while searching for theses were included and the year when the thesis was completed was given in the other dimension. The keywords used in the search for theses were six in total: “faculty of education undergraduate programs” (5 theses), “pre-service teacher improvement programs” (3 theses), “faculty of education programs” (7 theses), “teacher education programs” (70 theses), “pre-service teacher education programs” (2 theses), and “teacher training programs” (241 theses). A total of 328 theses were reached by using these keywords. Since 18 of these studies were duplicated in the search categories, it gives the final sample of 310 theses to include in this study. All of the searches on the National Thesis Center database that were made via the keywords were carried out in “all” option. With this option, the keywords were searched in all fields from the title of thesis to the author, supervisor, subject, index, and abstract.

Data Collection

The postgraduate theses included in the study were collected by the researcher through direct access from the official website of the National Thesis Center. Theses accessed with the keywords used in the data collection process were filed and saved separately by the researcher without any intervention. In order to check the accuracy of the theses and to ensure the reliability of the data collection process, an expert in educational sciences, not included in the study, was asked opinion. The table of specifications prepared with the keywords used in the search for thesis was presented to the field expert and it was requested to carry out a new search on the National Thesis Center database. The theses accessed by the expert were compared and the postgraduate theses included in the research were confirmed (Creswell, 2017, p. 289).

Data Analysis

Document analysis was used in order to analyze the postgraduate theses done on teacher education programs that were included in the study. The process of document analysis is realized in five steps as accessing the documents, checking the authenticity of the documents, consideration about the documents, analyzing the data and using the data (Forster, 1995 as cited in Yıldırım & Şimşek, 2013, p. 223).

The steps followed accordingly in the research are listed below.

- Accessing the documents: The theses were directly accessed from the official website of the National Thesis Center. In order to access the theses, search was carried out with the keywords determined and 310 open access theses were included in the research.
- Checking the authenticity: A separate search was carried out by an expert in educational sciences who was not included in the study with the same keywords at a different time. Theses accessed by the field expert and the researcher were compared and the authenticity of theses was checked.
- Consideration about the documents: Theses were searched by the researcher by using different keywords and the theses for each year were separately saved. The relevance of the keywords used in the thesis search in this process to the objective of the research was checked by two experts in assessment and evaluation. In addition, two experts in assessment and evaluation were asked opinion for the content validity regarding the table of specifications used in the research.
- Analyzing the data: Descriptive analysis was used in the analysis of theses. While conducting descriptive analysis, firstly, the theses were examined and the themes were determined. The determined themes were university, institute, department, subject, research method, research design, sample, and data collection tool. Prior to the analysis of theses, two experts in educational sciences and one expert in assessment and evaluation were asked for opinion about the relevance of these themes that would be used in descriptive analysis to the research.
- Using the data: Findings obtained as a result of descriptive analysis were presented in tables and interpreted.

Validity and Reliability

Expert opinion was sought in each stage of the research process in order to ensure the validity and reliability of the study. Experts in educational sciences and in assessment and evaluation were asked for opinion while preparing the table of specifications, using keywords, checking authenticity of theses, and analyzing theses. In addition, each stage of the research was reported in detail for both the readers and researchers (Yıldırım & Şimşek, 2013, pp. 291-296). In the process of ensuring the reliability of the research; the purpose of the research was clearly stated, the documents used in the research were checked, and it was checked by the field expert that the findings showed a meaningful parallelism with the documents. In order to ensure the validity of this qualitative research, how the documents constituting the sample of the research were determined, how the documents were accessed and which data collection tool was used in the documents were reported in detail (Miles & Huberman, 2015, pp. 278-279).

Findings

Findings obtained in the research were presented in tables and interpreted in this section.

Distribution of Theses According to Universities

The distribution of the postgraduate theses completed in the field of teacher education programs (TEPs) according to universities was presented in Table 3.

Table 3. Distribution of theses according to universities

Years	Universities											
	Ankara	METU	Hacettepe	Gazi	Firat	Anadolu	Çukurova	Istanbul	Karadeniz Teknik	Çanakkale 18 Mart	Marmara	Other
1988	1											
1991		1										
1994	2		1									
1996					1							
1999					1							
2000		1										
2001	1											1
2002	1											
2003		2										1
2004		1		1		2	1					3
2005			1			1						1
2006				1		1		1				4
2007						2	1		1			2
2008	2	2		2	1	1				1	2	4
2009	1	1	2				1					2
2010	2	1		1				2	1		1	5
2011	1	1		1					2	1		2
2012		6										11
2013	1	3			1			2		1		2
2014		2	2	2	2	1	1		2		1	3
2015	2	1	1	2	1		1		2		2	13
2016	2	8	2	4	3				1	4		10
2017	4	2	4	5		1	2	2			1	15
2018	1	4	2	3	1	2		1			1	13
2019		3	7	7	1	3	1			2	1	26
2020		1	1	1			1		1			7
Total	21	40	23	30	12	14	9	8	10	9	9	125

While preparing Table 3, universities with 8 or more postgraduate theses were listed with their names in the table. Universities with less than 8 theses were given in the 'other' category of the table. The reason for this is that there are many universities that produce thesis in the range of 1-7. Since it would be difficult to show all universities on the table, the other category was prepared. It was determined that the master's theses and dissertations on teacher education programs were mostly studied in METU, Gazi, Hacettepe, and Ankara universities, respectively. In addition, Anadolu, Firat, Karadeniz Teknik, Çukurova, Çanakkale 18 Mart,

Marmara, and Istanbul universities also included postgraduate thesis studies in their academic programs for teacher education. Universities included in the other category were, respectively, Balıkesir, Dicle, and Yeditepe universities (6 theses), Bursa Uludağ, Yıldız Teknik, Erciyes, and Mersin universities (5 theses), Dokuz Eylül, Boğaziçi, Pamukkale, Sakarya, İnönü, and Ege universities (4 theses), Dumlupınar, Bolu Abant İzzet Baysal, Atatürk, İhsan Doğramacı Bilkent, Eskişehir Osmangazi, Bahçeşehir, Niğde, and Kırıkkale universities (3 theses), Aydın Adnan Menderes, Necmettin Erbakan, Kahramanmaraş Sütçü İmam, Cumhuriyet, Kastamonu, Akdeniz, Muğla Sıtkı Koçman, Çığ, Van 100. Yıl, Mehmet Akif Ersoy, and Zonguldak Bülent Ecevit universities (2 theses), and Selçuk, Celal Bayar, Düzce, Ufuk, Sinop, 19 Mayıs, İstanbul Aydın, Recep Tayyip Erdoğan, Kafkas, Mevlana, Fatih, Zirve, Maltepe, Afyon Kocatepe, Gaziantep, Trakya, and Mustafa Kemal universities (1 thesis).

Distribution of Theses According to Institutes

The distribution of the postgraduate theses completed in the field of teacher education programs (TEPs) according to institutes was presented in Table 4.

Table 4. Distribution of theses according to institutes

Years	Institutes						
	Educational Sciences	Social Sciences	Sciences	Health Sciences	Ataturk's Principles and History of Turkish Revolution	Forensic Sciences	Postgraduate Education
1988		1					
1991		1					
1994		3					
1996		1					
1999		1					
2000		1					
2001	1	1					
2002		1					
2003		2	1				
2004	3	5					
2005	1	2					
2006	2	5					
2007	1	2	3				
2008	6	9					
2009	1	5	1				
2010	4	6	3				
2011	3	5					
2012	6	9	2				
2013	3	7					
2014	12	3	1				
2015	16	6	2		1		
2016	24	9	1				
2017	28	5	2			1	
2018	15	10	1	1			1
2019	34	12	3	2			
2020	4	8					
Total	164	120	20	3	1	1	1

Table 4 shows that the postgraduate theses on the TEPs were generally done in the institutes of educational sciences and social sciences. In addition, the institutes of science also included teacher education programs. The institutes that produced the least number of theses in the field of TEPs were health sciences,

Ataturk's principles and history of Turkish revolution, forensic sciences, and postgraduate education institutes. Since the departments and divisions in the faculties of education that implement teacher education programs and train teachers were mostly affiliated to the institutes of educational sciences and to the institutes of social sciences in the universities in which the institute of educational sciences did not exist, it was considered that the number of thesis was high in these two institutes.

Distribution of Theses According to Departments

The distribution of the postgraduate theses completed in the field of TEPs according to departments was presented in Table 5.

Table 5. Distribution of theses according to departments

Years	Departments										
	CI	ES	EDAS	FLE	ELT/ELI	PE	PRIM/BE	PEST	CEIT	SSMT	Other
1988	1										
1991		1									
1994	3										
1996		1									
1999		1									
2000		1									
2001	1										1
2002											1
2003		1							1		1
2004		3			2	1	1	1			
2005		1		1	1						
2006	1	3	1		1		1				
2007	1				1		1			1	2
2008	1	4	1	1			2	1	1	1	3
2009	1	3			1					1	1
2010	2	3		2	1			1		2	2
2011	1						2		1	1	3
2012	3	4		1	2		3		1	1	2
2013	1	4		1					1		3
2014	2	1		2	4		3		1	3	
2015		2	2	3	1		4	1	1	2	9
2016	2	8	2		7	2	7	1	1	1	3
2017	5	10	1	4	5	2	3			2	4
2018	4	5		4	2		7	1		2	3
2019	6	13	2	5	4	2	7	3		3	6
2020	2	3		3	3	1					
Total	37	72	9	27	35	8	41	9	8	20	44

(CI: Curriculum and Instruction, ES: Educational Science, EDAS: Educational Administration and Supervision, FLE: Foreign Language Education, ELT: English Language Teaching, ELI: English Language Instruction, PE: Private Education, PRIM: Primary, BE: Basic Education, PEST: Physical Education and Sports Teaching, CEIT: Computer Education and Instructional Technology, SSMT: Secondary Science and Mathematics Teaching.)

While preparing Table 5, departments with 8 or more postgraduate theses were listed with their names in the table. Departments with less than 8 theses were given in the 'other' category of the table. Departments in which the master's theses and dissertations on teacher education programs were mostly done were,

respectively, Educational Sciences, Primary/Basic Education, Curriculum and Instruction, English Language Teaching/English Language Instruction, Foreign Language Education, and Secondary Science and Mathematics Teaching Department. In addition, it was determined that teacher education programs were also studied in the Departments of Educational Administration and Supervision, Physical Education and Sports Teaching, Private Education, and Computer Education and Instructional Technology. Departments included in the other category were, respectively, Fine Arts Education (6 theses), Primary Science and Mathematics Teaching (5 theses), Philosophy and Religious Sciences (4 theses), Secondary Social Studies Education and Pre-school Education (3 theses), Classroom Education, Linguistics, and Cultural Foundations of Education (2 theses), Turkish Language Education and Teaching, Distance Education, Chemistry, Psychological Services in Education, Eastern Languages and Literature, Primary Science Teaching, Assessment and Evaluation, Music Education, Picture-Job Training, Political Science and Public Administration, Instructional Design and Evaluation, Environmental Sciences, Social Sciences, Educational Technology, Physics, Atatürk's Principles and History of Turkish Revolution, Primary Mathematics Teaching, and Turkish and Social Sciences Education Department (1 thesis).

The distribution of the postgraduate theses on the TEPs according to the institutes was found to be closely related to the distribution of theses according to the departments. The finding that the theses were generally done in the institutes of educational sciences and institutes of social sciences was consistent with the finding that the theses were mostly done in the departments of Educational Sciences, Primary/Basic Education, Curriculum and Instruction, English Language Teaching/English Language Instruction, Foreign Language Education, and Secondary Science and Mathematics Teaching. Based on this, it can be stated that teacher education programs was a research subject mainly related to the field of educational sciences.

Distribution of Theses According to Subjects

The distribution of the postgraduate theses completed in the field of TEPs according to subjects was presented in Table 6.

Table 6. Distribution of theses according to subjects

Years	Subjects														
	TTS	SPT	PE/CE	PD/MD	AC	TC/PTC	ACC/QS	LTP	CEP	PCK	PFE	TP/TB	PTT	ISTP	CFbT
1988	1														
1991		1													
1994			1		1			1							
1996			1												
1999			1												
2000					1										
2001			1				1								
2002						1									
2003			1					2							
2004			3	1		1			1				1		1
2005			1				1	1							
2006			2			2		1		1		1			
2007			1			3		1				1			
2008	3					4	1	3	3			1			
2009			2		1		1	1				1		1	
2010			2		1	2		1	3	1	1		1	1	

2011	1		2			2		1		1		1			
2012			3			4		2	2	1		1	1	2	1
2013			2			5	1	2							
2014	2			2		5		2	1	3		1			
2015	4		1			7		6	2	2	1	1			1
2016	2		9	1	1	8	2	6	1	2		2			
2017	1		4	5	3	7		6	2			5	2	1	
2018	1		5	2	1	6	1	1	2	1		4	1	3	
2019	1	1	13	2	2	11		15	2					1	3
2020			3	1		2		4				2			
Total	16	2	58	14	11	70	8	56	19	12	2	21	6	9	6

(TTS: Teacher training system, SPT: Selection of prospective teachers, PE: Program evaluation, CE: Course evaluation, PD: Program development, MD: Model development, AC: Academician competence, TC: Teacher competence, PTC: Prospective teacher competence, ACC: Accreditation, QS: Quality standards, LTP: Learning and teaching process, CEP: Comparison of education programs, PCK: Pedagogical content knowledge, PFE: Pedagogical formation education, TP: Teacher profile, TB: Teacher behavior, PTT: Prospective teacher training, ISTP: In-service training program, CFbT: Challenges faced by teachers.)

Table 6 shows that different subjects related to teacher education programs were studied in thesis studies done in the field of TEPs. Teacher competence/prospective teacher competence, program evaluation/course evaluation, and learning and teaching process were respectively the subjects mostly preferred. Considering the theses related to teacher competence / prospective teacher competence, it was determined that theses on the TEPs were generally done concerning professional competencies of teachers and/or prospective teachers, their attitudes, perceptions and readiness levels towards a subject or situation. In the theses related to program evaluation/course evaluation, it was found that programs belonging to the departments that train teachers in different fields or a course included in these programs (professional knowledge course, general knowledge course, and field knowledge course) were usually evaluated. One of the subjects that were frequently studied as related to the TEPs was learning and teaching process. Regarding the learning and teaching process, teacher education programs were generally studied in the theses in terms of the efficiency of method or techniques, micro education, in-class activities, learning styles, and technology.

Apart from these subjects, teacher profile/teacher behaviors, comparison of education programs, teacher training system, program development/model development, pedagogical content knowledge, academician competencies, in-service training program, accreditation/ quality standards, prospective teacher training, challenges faced by teachers, selection of prospective teachers, and pedagogical formation education were among the preferred subjects in the theses done on the TEPs. Based on this, it can be stated that teacher education programs were evaluated in the theses in relation to different subjects.

Distribution of Theses According to Research Methods

The distribution of the postgraduate theses completed in the field of TEPs according to research methods was presented in Table 7.

Table 7. Distribution of theses according to research methods

Years	Research Methods		
	Quantitative	Qualitative	Mixed-Methods
1988		1	

1991	1		
1994	3		
1996	1		
1999	1		
2000	1		
2001	1	1	
2002	1		
2003	1	2	
2004	3	5	
2005	1	2	
2006	6	1	
2007	4	2	
2008	8	5	2
2009	4	2	1
2010	5	8	
2011	3	4	1
2012	6	8	3
2013	4	2	4
2014	5	8	3
2015	9	13	3
2016	14	16	4
2017	14	8	14
2018	8	9	11
2019	19	25	7
2020	2	3	7
Total	125	125	60

Table 7 shows that quantitative and qualitative research methods were used at equal rates in the postgraduate theses on the TEPs. In addition, the least preferred research method in these thesis studies was mixed-methods. The preference of mixed-methods research for teacher education programs was firstly seen in the theses conducted in 2008. As of the year 2008, mixed-methods were generally preferred in thesis studies and frequently used especially in 2017 and 2018.

Distribution of Theses According to Research Designs

The distribution of the postgraduate theses completed in the field of TEPs according to research designs was presented in Table 8.

Table 8. Distribution of theses according to research designs

Years	Research Designs				
	Survey	Case Study	Descriptive	Phenomenology	Experimental

1988	1					
1991						1
1994	1		1			1
1996					1	
1999	1					
2000			1			
2001	1		1			
2002	1					
2003	1		1		1	
2004	2	3	3			
2005			2		1	
2006	7					
2007	3	2			1	
2008	7	3			5	
2009	4		1		2	
2010	5	4	3	1		
2011	3	1	3	1		
2012	6	6	3	1	1	
2013	3	2	2	2	1	
2014	6	4	3	2	1	
2015	7	8	4	5		1
2016	14	7	5	7	1	
2017	9	8	6	3	10	
2018	10	9	4	2	2	1
2019	15	15	6	8	4	3
2020	2	4	3		3	
Total	109	76	52	32	34	7

Table 8 shows that research designs used in the thesis studies conducted on teacher education programs were survey, case study, descriptive, experimental, and phenomenology designs, respectively. In addition, some research designs that were preferred less in the postgraduate theses were included in the other category of the table. Action research (3 theses), exemplary case (2 theses), Delphi technique, and ethnography (1 thesis) were the research designs included in the other category.

The most preferred research designs in the theses completed on the TEPs are closely related to that quantitative and qualitative methods were equally used in the theses. Especially, the frequent use of survey research design in the theses is related to the fact that the mentioned research design can be carried out by both quantitative and qualitative methods. In addition, it can be stated that case study is generally preferred in qualitative methods and descriptive and experimental designs are usually preferred in quantitative methods.

Distribution of Theses According to Samples

The distribution of the postgraduate theses completed in the field of TEPs according to samples was presented in Table 9.

Table 9. Distribution of theses according to samples

Years	Samples						
	Prospective Teacher	Teacher	Academician	Document	Student	Administrator	Other

1988			1	1					
1991	1								
1994	2				2				
1996	1	1							
1999	1								
2000	1	1							
2001	1			1					
2002	1	1							
2003		1		2					
2004	3		2	3				1	
2005	1		1	1				1	
2006	2	3		1		2			
2007	2	3	3		1				
2008	5	3	3	7		1	2	2	
2009	4	2	2	1		1			
2010	3	2	6	6	3		1		
2011	3	2	4	1	2				
2012	5	6	9	2	1	1		2	
2013	4	5	6	1	1		2		
2014	2	4	8	4	4	1	2		
2015	7	6	12	5	7		1		
2016	7	11	15	5	9	1		1	
2017	13	11	20	3	5	2	8	3	
2018	7	14	17	5	3	1	1		
2019	12	13	25	8	6		3	2	
2020	4	6	9	2	1			1	
Total	92	95	143	59	45	10	20	11	2

Table 10 shows that the data collection tools mostly used in the process of collecting the data of the postgraduate theses done on the TEPs were interview, scale, questionnaire, document analysis, and observation forms, respectively. In addition, test, diary, inventory and reflection forms were also used as data collection tools in the theses. Interview forms used in the theses were mostly prepared by the researcher. On the other hand, scale forms to determine attitude, perception, competence, performance, thinking dispositions, belief, intelligence, and self-efficacy were often used in the scales in the theses. Personality, skill gain, literacy, and achievement test forms were widely used in the theses. In the inventory forms preferred in the theses, learning style and problem solving inventories were mostly used.

Conclusion and Discussion

A study in which theses on teacher education programs are evaluated together has not been found in the literature yet. Evaluating the completed scientific researches on teacher education programs together is important in order to show what research needs to be done on this subject. At the same time, it is possible to correlate and compare studies completed on teacher education programs with such studies that deal with many studies together. With this aspect, it is aimed that this research will contribute to new researches and researchers in terms of presenting holistic data about existing studies on teacher education programs.

310 theses were examined in this study in which the postgraduate theses completed in the field of teacher education programs. Firstly, it was determined in which universities and institutes the theses were conducted. Thus, the leading universities in respect to teacher education programs were determined. When the distribution of the theses according to universities was considered, it was found that the most theses in the field of the TEPs were completed in the METU. In addition, the leading universities in Turkey such as Gazi,

Ankara and Hacettepe universities considerably included the postgraduate thesis studies in teacher education programs. 310 theses analyzed in the field of the TEPs were conducted in 49 universities. Concerning this, it can be stated that teacher education programs are regarded as one of the postgraduate research subjects in many universities in Turkey. When the distribution of the theses according to universities was examined by years, it was found that the number of theses in the field of the TEPs in universities increased especially as of 2008. This situation can be explained by the program change which was implemented in 2006-2007 academic year by the Council of Higher Education (CoHE, 2007). It is thought that the number of theses on teacher education programs increased as of the year 2008 in order to evaluate the amendments made in new programs and to compare these with the previous programs.

Institutes of educational sciences were at the forefront when considering in which institutes of these universities the theses in the field of the TEPs were done. The 52.9% of the postgraduate theses were completed in the institutes of educational sciences and 38.7% of the theses were completed in the institutes of social sciences. In addition, the institutes of science, health sciences, Atatürk's principles and history of Turkish revolution, forensic sciences, and postgraduate education also produced theses in teacher education programs. When it was compared to the universities at the forefront in the field of the TEPs, it was determined that universities which produced the most theses also had educational sciences or social sciences institutes. Based on this, it can be stated that the Institute of Social Studies of METU and the Institutes of Educational Sciences of Gazi, Hacettepe, and Ankara universities are appropriate for conducting more theses with the numbers of postgraduate programs, students, and instructors which they have (Ankara University Institute of Educational Sciences, 2020; Gazi University Institute of Educational Sciences, 2020; Hacettepe University Institute of Educational Sciences, 2020; Middle East Technical University Institute of Social Sciences, 2020). According to the 2019-2020 Academic Year Higher Education Statistics, the number of graduate students studying at the institutes is 2994 in Gazi Institute of Educational Sciences, 2298 in METU Social Sciences Institute, 1127 in Hacettepe Institute of Educational Sciences, 979 in Ankara Student Educational Sciences Institute. It was stated that the student was present (CoHE, 2021). When the distribution of the postgraduate theses according to departments was considered, it was found that teacher education programs were generally studied in the Department of Educational Sciences (23.2%). In addition, theses on teacher education programs were often included in the departments of Primary/Basic Education, Curriculum and Instruction, English Language Teaching/English Language Instruction.

When the subjects that were studied in the postgraduate theses done in the field of the TEPs were examined, it was found that the subjects studied for teacher education programs in the theses were collected under 15 titles. These subjects were determined as teacher training system, selection of prospective teachers, program evaluation/course evaluation, program development/model development, academician competence, teacher competence/prospective teacher competence, accreditation/quality standards, learning and teaching process, comparison of education programs, pedagogical content knowledge, pedagogical formation education, teacher profile/teacher behaviors, prospective teacher training, in-service training program, and challenges faced by teachers. Among these subjects, the most theses on the TEPs were related to teacher competence/prospective teacher competence (22.6%). Studies for determining professional competence, attitude, perception, and readiness levels were usually conducted in the theses handled in this title. For instance, theses on teacher education programs were carried out in different aspects such as English teachers' perception of competence, analysis of professional teaching competency, prospective chemistry teachers' attitudes towards teaching profession, prospective teachers' technology self-efficacy, and prospective teachers' perception on multicultural education. The other subject mostly studied in the field of the TEPs was program evaluation/course evaluation. When the theses on this subject were considered, it was found that evaluation studies were conducted in different programs or courses such as the evaluation of professional teaching knowledge courses, analysis of the teacher education programs, evaluation of teaching practice

courses, evaluation of school experience courses, evaluation of classroom teaching undergraduate programs, evaluation of geography education, evaluation of preschool teacher training programs, and evaluation of gender education. This finding is similar to the results of the study conducted by Kozikoğlu and Senemoğlu (2015). In this study, the content analysis of dissertations completed in the field of Curriculum and Instruction was conducted and it was stated that the evaluation of formal education curricula and evaluation of teacher education curricula were among the mostly preferred topics in the dissertations (Kozikoğlu & Senemoğlu, 2015).

When the findings related to the methods of the postgraduate theses analyzed in the field of the TEPs were examined, it was concluded that quantitative (40.3%) and qualitative methods (40.3%) were equally used, but mixed-methods (19.4%) was preferred less in the theses. Considering research designs with which these research methods preferred in the theses were used together, it was determined that survey (35.2%), case study (24.5%) and descriptive (16.8) designs were often preferred. Regarding this finding, Kurt and Erdoğan (2015) also stated that survey research design was mostly preferred in studies for program evaluation. In terms of the distribution of the theses done in the field of the TEPs according to the samples used, it was found that prospective teachers (55.8%) were mostly included. In other words, more than half of the postgraduate theses in the field of teacher education programs included prospective teachers in their samples. It was also determined that teachers, documents, and academicians were often included in the samples of theses. On the other hand, the total number of the samples in theses was found higher than the number of theses analyzed. This finding shows that there were more than one sample group in the thesis studies done in the field of the TEPs. For instance, in some theses, while opinions of teachers and prospective teachers were obtained, document analysis was also used. In some other theses, data were collected from prospective teachers, teachers and academicians at the same time. It was found that the obtained findings were also supported by similar research results (Hazır Bıkmaz, Aksoy, Tatar & Atak Altınyüzük, 2013; Kozikoğlu & Senemoğlu, 2015; Kurt & Erdoğan, 2015). Finally, when the findings about the data collection tools used in the theses completed in the field of the TEPs were evaluated, it was determined that interview, scale and questionnaire forms were mostly used in the theses. Scales for competence, self-efficacy, attitude, perception, performance, thinking dispositions, belief, and intelligence were frequently used especially in the theses done on teacher competence/prospective teacher competence. In addition, questionnaires were used in quantitative studies in order to determine teachers' and prospective teachers' opinions, and interview forms in qualitative studies.

In consideration of the findings obtained in this study in which the postgraduate theses completed in the field of the TEPs were analyzed, the subjects mainly studied in research conducted for teacher education programs were revealed. Based on the subjects studied in theses, it may be suggested to focus more on subjects such as in-service training programs, prospective teacher training, accreditation/quality standards, selection of prospective teachers, and academician competencies in new research to be done on teacher education programs. The repetition of similar subjects in the 310 theses examined in this study shows that there is a need for detailed research on these few subjects. It is understood that there is a need for comprehensive research on the accreditation of teacher education programs, quality studies in teacher education, and the pre-service, in-service and post-service development of teachers. The quality of teacher education programs is also related to the quality of teacher candidates and teaching staff. For this reason, the selection of teacher candidates and the competencies of teacher candidates should be revealed in new researches on teacher education programs. Similarly, there is a need for research on the qualifications of instructors in teacher education programs. Additionally, it is recommended that mixed-methods research be preferred more for future studies. Based on the results of the research, it is seen that studies on teacher education programs generally focus on samples consisting of teacher candidates. It may be advisable to include samples of field experts such as curriculum development, assessment and evaluation, educational sociology and educational psychology for teacher education programs in new researches. Incorporating the views of different stakeholders involved in the

preparation, implementation and evaluation of teacher education programs will contribute to the development of teacher education programs.

A study in which theses on teacher education programs are evaluated together has not been found in the literature yet. Evaluating the completed scientific researches on teacher education programs together is important in order to show what research needs to be done on this subject. At the same time, it is possible to correlate and compare studies completed on teacher education programs with such studies that deal with many studies together. With this aspect, it is aimed that this research will contribute to new researches and researchers in terms of presenting holistic data about existing studies on teacher education programs.

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The Relationship between Social Emotional Learning Competencies and Life Satisfaction in Adolescents: Mediating Role of Academic Resilience

Research Article

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ABSTRACT

Social-emotional learning (SEL) competencies has been the subject of many studies. The purpose of this study was to examine the mediating role of academic resilience in the relationship between adolescents' social-emotional learning competencies and life satisfaction. The study group was composed of 371 adolescents. Self-report measurement tools were used in the study. Structural equation modeling was used to investigate the mediating role of academic resilience in the relationship between social-emotional learning and life satisfaction. As a result of the study, it was concluded that social-emotional learning competencies predicted life satisfaction and academic resilience. Also, academic resilience predicted life satisfaction. As a result of this study, it has been concluded that academic resilience has a mediating effect on the relationship between social-emotional learning competencies and life satisfaction. It is suggested that include academic resilience activities in SEL programs to be developed to increase the quality of life, happiness, well-being and life satisfaction.

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Keywords:

Social-emotional learning competencies, life satisfaction, academic resilience, mediation, adolescence

Introduction

Adolescence has been considered as one of the life periods in which most developmental difficulties are experienced individually. Adolescents may experience problems in many different areas (social, emotional, psychological, and vocational). Adolescence is considered as an important and sensitive period in emotional development (Woodard & Pollak, 2020) to be a period of life spanning 10 to 19 years of age (WHO, 2006). The management and regulation of emotions are seen so important in maintaining adaptive psychosocial functionality in adolescence period. Individuals obtain valuable information about their environment,

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themselves, and their relationships with the environment through emotions (Zeman et al., 2006). It is stated that there are relationships between adolescents' emotions and stress levels, risky behaviors, even psychopathology (Gilbert, 2012). In this context, it can be thought that emotional experiences can contribute to the well-being of adolescents.

Emotional intelligence is the basis of social-emotional learning competencies (Antoñanzas et al., 2014) and it is defined as *“the ability to monitor one’s own and others’ feelings and emotions, to discriminate among them and to use this information to guide one’s thinking and actions”* (Salovey & Mayer, 1990, p.189). Emotional intelligence and emotions (such as the long-term effects of expressing emotions) have been determined to predict the positive social behavior and academic competence of children at risk (Izard et al., 2001). Besides, it has been concluded that emotional intelligence (emotional abilities) predicts social and academic adaptation to school in adolescents (Mestre et al., 2006).

Emotional intelligence also can contribute to healthy personal development and increasing life satisfaction (Salovey & Mayer, 1990). For instance, adolescents' emotional intelligence can be considered as a protective factor that reduces negative symptoms related to problematic internet and smartphone use (Arrivillaga et al., 2020). Social-emotional learning competencies, which is based on emotional intelligence, is becoming increasingly widespread. Interventions and teaching activities based on social-emotional learning are carried out around multiple cultures.

Social-Emotional Learning

The relationship between emotional intelligence and education is getting more evidence-based day by day. Emotional intelligence plays an important role in the education and training process. Education practices related to emotional intelligence are now considered in a social-emotional context (Antoñanzas et al., 2014). Social-emotional learning competencies means that individuals acquire knowledge and skills that will enable them to better manage their emotions and empathize. Social-emotional learning competencies is associated with coping strategies, critical thinking, and responsible decision making (Cahill & Dadvand, 2020; Frydenberg, 2010).

Social-emotional learning competencies is generally addressed in three interrelated skill sets. Cognitive processes, emotional processes, and interpersonal skills are skill sets categorized under Social-emotional learning competencies (Jones & Bouffard, 2012). Cognitive processes refer to students' positive attitudes to learning and learning abilities, functional and attention skills. Emotional processes include regulation of emotion and empathy. Interpersonal skills include the ability to develop peer and teacher relationships depending on students to become aware of social cues and having positive social interactions (Jones & Bouffard, 2012). The Collaborative on Social-Emotional Learning (CASEL) organization defines five social-emotional core competencies; 1-self-awareness, 2-self-management, 3-responsible decision-making, 4-relationship skills, and 5-social awareness (Weissberg et al., 2015). Researchers also have different views about social-emotional learning competencies. For instance, Corcoran & Tormey (2013) stated that social-emotional competence comprises two areas as ability and performance.

Life Satisfaction

The pursuit of happiness has been a subject of interest to people of all ages (Proctor et al., 2009). Happiness has been considered as the most basic indicator of the good life that people want to achieve. In the field of psychology, the concept of happiness is considered a subjective well-being concept (Diener et al., 2003). Life satisfaction is considered as an *“important positive indicator”* of individual's subjective well-being (Liu et al., 2013).

Life satisfaction can be conceptualized as a cognitive evaluation of the individual's satisfaction overall with his life (Diener et al., 2003; Lucas et al., 1996; Turan & İskender, 2020). Life satisfaction has been the subject of many studies because it is closely related to well-being and psychopathology (Proctor et al., 2009; Savci et al., 2020). The main purpose of many psychological interventions is to increase life satisfaction (Chang et al., 2003; Kwok et al., 2016).

Academic Resilience

The concept of resilience has subjective, cognitive, and physiological properties. Resilience is explained by the metaphor of cast iron and wrought iron. The fact that wrought iron is flexible and more difficult to break (resilient) compared to cast iron (brittle). This metaphor is similar to the process of individuals with resilience to bounce back in the face of adversity and traumas (Tugade & Fredrickson, 2004). Resilience is a multidimensional concept defined as the ability to adapt positively to negative life events (Gartland et al., 2011). Resilience also has been expressed as the “process of adapting well to trauma, tragedy, and threats” and “resilience involves bouncing back from difficult experiences, and it can involve profound personal growth” by American Psychological Association (APA, 2020, para. 4). Resilience is related to effective functioning in life (Klohn, 1996), finding positive meaning in negative circumstances (Tugade & Fredrickson, 2004), mental health (Davydov et al., 2010), and self-esteem (Benetti & Kambouropoulos, 2006).

Academic resilience is a concept that expresses the level of individuals' ability to overcome academic stress. It was stated that the affective factor of academic resilience predominated (Mwangi et al., 2015). Academic resilience refers to the coping level of an individual who experiences negative academic events. Academic resilience is a psychological construct that contributes to individuals' academic success. It is known that academic achievement and school performance of resilient students do not decrease even during stressful situations (Martin & Marsh, 2006).

Academic Resilience as a Mediator in Relationship between Social-Emotional Learning Competencies and Life Satisfaction

Social-emotional development can foster life satisfaction. For instance, it was found that positive social-emotional relationships and social support affect life satisfaction in adolescents positively (Proctor et al., 2009). This situation indicates that social-emotional learning competencies can increase life satisfaction. Social-emotional learning competencies also is effective in increasing well-being. Social-emotional learning competencies can reduce the depression, distress, and anxiety levels of students (Durlak et al. 2011; Stockings et al. 2016; Wang et al. 2016). Social-emotional learning competencies is related to reducing risk-taking behaviors and improving well-being (Cahill & Dadvand, 2020).

Resilience can enable positive emotions to be used effectively. Positive emotions and emotion regulation can be considered as important factors associated with resilience (Tugade & Fredrickson, 2004). Social-emotional learning competencies can increase resilience (Hromek & Roffey 2009). Schools are important institutions for the positive development of students. Positive experiences at school (psychological, social, and emotional) can help students develop positive feelings towards school and reduce academic stress (Abolghasemi & Varaniyab, 2010). In this direction, it can be thought that social-emotional-based learning activities carried out in schools and social-emotional learning competencies can increase the academic resilience of students.

Resilience also can increase life satisfaction (Cohn et al., 2009). Abolghasemi & Varaniyab (2010) found that resilience predicted life satisfaction in the students of success and failure. Haddadi & Besharat (2010) found that resilience is related to psychological well-being. As a result, it can be said that resilience can have a positive effect on life satisfaction. Grades also predict life satisfaction in children (Chang et al., 2003). In this direction, it can be thought that academic resilience can increase life satisfaction.

There are many studies show that personality traits are predictors of life satisfaction (Diener et al., 2003; Steel et al., 2008). Emotional intelligence, which forms the theoretical basis of social-emotional learning competencies (Antoñanzas et al., 2014), and academic resilience (Tamannaefar & Shahmirzaei, 2019) is considered as concepts closely related to personality traits. Accordingly, it can be expected that social-emotional learning competencies and academic resilience predict life satisfaction. Cohn et al. (2009) found that resilience plays a mediating role in the relationship between positive emotions and life satisfaction. Besides, Tugade & Fredrickson (2004) reported that positive emotions are related to positive meaning in difficult life conditions of high resilient individuals. All these findings point out the mediating role of academic resilience in the relationship between social-emotional learning competencies and life satisfaction.

Academic resilience has been considered as a mediating variable in many conceptual relationships. For instance, Choo & Prihadi (2019) found that academic resilience plays a mediating role in the relationship between multidimensional perfectionism and academic performance. Secer & Ulas (2020) found that academic resilience has a mediating role in the relationship between anxiety sensitivity, social and adaptive functioning, school refusal, and school attachment. Social-emotional learning competencies is closely related to life satisfaction, resilience, and academic success (Cahill & Dadvand, 2020). When the relationship of social-emotional learning with both academic success (Durlak et al. 2011) and resilience (Smith, 2012) is generally evaluated, it is thought that academic resilience may have a mediating role in the relationship between social-emotional learning competencies and life satisfaction.

Therefore, I proposed the following hypotheses (see figure 1):

Hypothesis 1: Social-emotional learning competencies is related to life satisfaction.

Hypothesis 2: Social-emotional learning competencies is related to academic resilience.

Hypothesis 3: Academic resilience is related to life satisfaction.

Hypothesis 4: Academic resilience has a mediating effect on the relationship between social-emotional learning competencies and life satisfaction.

Method

Participants

393 high school students participated in the study. The data of 10 students who filled the scales incompletely were not included in the study. 12 multivariate outliers data ($p < .001$) that did not meet the normality and linearity assumptions were also not included in the study. The last study group consists of 371 high school students. The ages of the study participants ranged from 14 to 19. The average age of the participants in the study is 16.04. Permission was obtained from the ethics committee of the author's university for the study. The study was conducted at all by using the Declaration of Helsinki ethical guidelines. All students participating in the study participated in the study voluntarily. The time for completing the scales for the participants of the study took between 10 and 30 minutes. The study included 6 individuals at the age of 14, 118 individuals at the age of 15, 129 individuals at the age of 16, 96 individuals at the age of 17, 18 individuals at the age of 18, and 4 individuals at the age of 19. Findings regarding other demographic characteristics of the study group are presented in Table 1.

Table 1. Sample characteristics

Variable	Frequency (<i>n</i>)	%
Gender		
Female	192	51.8
Male	179	48.2
Grade		
9	142	38.3
10	121	32.6
11	86	23.2
12	22	5.9
Financial status		
National minimum wage and below	202	54.4
National minimum wage above	169	45.6
Grade (out of 100)		
70 and above	133	35.8
50 between 70	197	53.1
50 and below	41	11.1

Measurement Tools

Adolescents' Social and Emotional Learning Scale. Adolescents' Social and Emotional Learning Scale was developed by Totan (2018). The scale consists of 23 items. It is a 5-point Likert-type scale. High scores from the scale indicate that social and emotional learning competencies is high levels. The minimum score that can be obtained from the scale is 23 and the maximum score is 115. The internal consistency reliability coefficient of the scale was found to be .88 in this study.

Satisfaction with Life Scale. The scale was developed by Diener et al. (1985). The adaptation study of the scale was conducted by Köker (1991). The scale consists of 5 items. It is a 7-point Likert-type scale. High scores from the scale indicate a high level of life satisfaction. The minimum score that can be obtained from the scale is 5 and the maximum score is 35. In this study, the internal consistency reliability coefficient of the scale was found to be .85.

Academic Resilience Scale. The Academic Resilience Scale was developed by Martin & Marsh (2006). The adaptation study of the scale was conducted by Kapıkıran (2012). The scale consists of 6 items. It is a 6-point Likert-type scale. High scores on the scale indicate a high level of academic resilience. The minimum score that can be obtained from the scale is 6 and the maximum score is 42. In this study, the internal consistency reliability coefficient of the scale was found to be .81.

Data analysis

Confirmatory factor analysis (CFA) and structural equation modeling (SEM) were implemented using SPSS Amos v21 software. Since the data provides normal distribution, the maximum likelihood method was used. In the measurement model, it was determined that there were a total of 21 parameters, 9 regression, 3 covariances, and 9 variances in the study, in line with 10 participant rules for each parameter. In line with the rule that the number of participants should be 10 for each parameter, it was calculated that the sufficient number of participants for the study was 210. In this direction, it was determined that the number of participants required for each parameter in this study was higher than 10 (371 participants). To test the hypotheses of this study, SEM was applied by the item parcelling method (Bandalos, 2002). It was found that the coefficients of skewness and kurtosis ranged between -1.5 and +1.5 (Tabachnick & Fidell, 2013). The binary correlation coefficients were found to be less than .85. It was also found that VIF values are less than 10. These

results show that there is no multicollinearity problem. The values of fit goodness of the model were calculated with chi-square /degrees of freedom, RMSEA, SRMR, GFI, NFI, CFI, and IFI values.

Results

Descriptive statistics and binary correlations of the variables of the study are presented in Table 2. Findings indicated that social-emotional learning competencies is positively associated with life satisfaction (ranging $r = .14$ to $.30$) and academic resilience (ranging $r = .20$ to $.30$). It was also found that life satisfaction and academic resilience (ranging $r = .28$ to $.33$) have a positive relationship. It was concluded that all the variables of the study are correlated.

Table 2. Descriptive Statistics and Binary Correlations among Study Variables

Variable	Descriptive Statistics				Correlations								
	M	SD	Skewness	Kurtosis	1	2	3	4	5	6	7	8	9
1.SEL-Par1	13,80	3,49	-.32	-.22	-	.44**	.52**	.49**	.47**	.30**	.22**	.28**	27**
2.SEL-Par2	14,62	3,36	-.40	.02		-	.62**	.57**	.47**	.14**	.15**	.26**	26**
3.SEL-Par3	18,46	3,87	-.50	.45			-	.65**	.57**	.24**	.25**	.26**	30**
4.SEL-Par4	18,47	3,78	-.51	.29				-	.60**	.18**	.17**	.23**	20**
5.SEL-Par5	17,38	3,97	-.48	.60					-	.19**	.20**	.27**	30**
6.LS-Par1	7,98	3,77	-.11	-1.13						-	.76**	.33**	29**
7.LS-Par2	10,86	5,10	.27	.70							-	.28**	31**
8.AR-Par1	14,03	4,32	-.29	-.33								-	67**
9.AR-Par2	13,34	4,91	-.34	-.61									-

Note. SEL-Par = parcels of social and emotional learning; LS-Par = parcels of life satisfaction; AR-Par = parcels of academic resilience. ** $p < .01$

Measurement Model

The measurement model of this study, which includes social emotional learning competencies, satisfaction with life and academic resilience variables, was found to fit the data well. Confirmatory factor analysis results ($\chi^2/df = 1.83, p < .001, RMSEA = .047, SRMR = .033, GFI = .96, NFI = .97, CFI = 0.99, \text{ and } IFI = 0.99$) provided evidence of good fit. Standardized and unstandardized coefficients for CFA are presented in Table 3.

Table 3. Standardized and Unstandardized Coefficients for CFA

Observed variable	Latent construct	β	B	SE
SEL-Parcel1	SEL	0.64	1.00	
SEL-Parcel2		0.72	1.08	0.10
SEL-Parcel3		0.83	1.43	0.11
SEL-Parcel4		0.79	1.33	0.11
SEL-Parcel5		0.71	1.27	0.11
LS- Parcel1	LS	0.89	1.00	
LS- Parcel2		0.85	1.29	0.13
AR- Parcel1	AR	0.82	1.00	
AR- Parcel2		0.81	1.13	0.12

Note. SEL = social and emotional learning, LS = life satisfaction, AR = academic resilience. SEL-Par = parcels of social and emotional learning; LS-Par = parcels of life satisfaction; AR-Par = parcels of academic resilience.

For convergent validity and reliability, also average variance explained value and composite reliability values were examined. The accepted composite reliability value is above .70 (Carmines & Zeller,1988), and the average variance explained value is above .50 (Fornell & Larcker 1981). In the present study, composite reliability varied from .80 to .87. Average variance explained value varied from .55 to .76. These results indicated convergent validity and good reliability.

Structural Model

Path analysis with structural equation modeling was carried out to analyze whether the hypotheses were supported. To examine the hypotheses of the study, two models were proposed in line with the structural equation modeling. In the first model, the predictive status of social emotional learning competencies on life satisfaction (hypothesis 1) was examined. In the second model, the predictive status of social-emotional learning competencies on academic resilience (hypothesis 2) and predictive status of academic resilience on life satisfaction (hypothesis 3) was examined. Besides, the mediating role of academic resilience in the relationship between social-emotional learning competencies and life satisfaction (hypothesis 4) was also examined. Model 1 and Model 2 are shown in Figure 1.

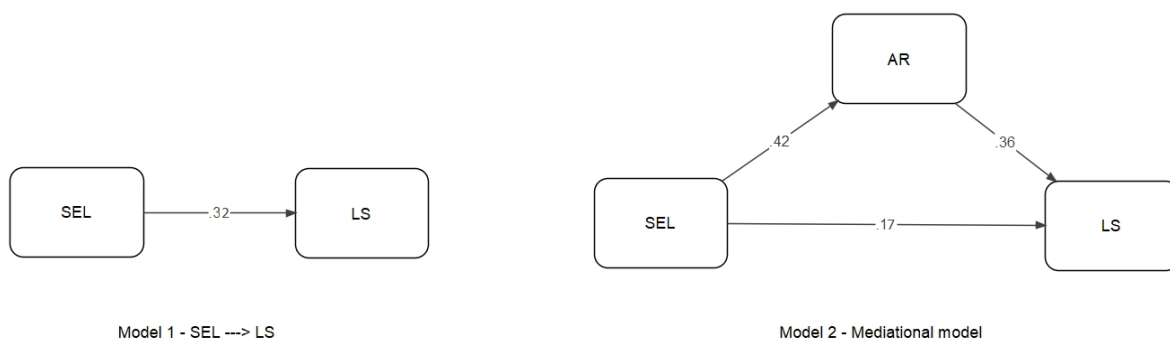


Figure 1. Models of the study

Note. SEL = social and emotional learning, LS = life satisfaction, AR = academic resilience.

The results demonstrated that the model 1 provided a good fit to the data: $\chi^2/df = 2.12, p < .001$, RMSEA = .055, SRMR = .034, GFI = .98, NFI = .98, CFI = 0.99, and IFI = .99. Also, results indicated that social emotional learning competencies had statistically significant positive effects on life satisfaction ($\beta = .32, t = 4.89, p < .001$), supporting hypothesis 1. Likewise, model 2 provided a good fit to the data: $\chi^2/df = 1.85, p < .001$, RMSEA = .048, SRMR = .034, GFI = .97, NFI = .97, CFI = .99, and IFI = .99. The social emotional learning competencies had statistically significant positive effects on academic resilience ($\beta = .42, t = 6.33, p < .001$), supporting hypothesis 2. In addition, academic resilience was found to have statistically significant positive effects on life satisfaction ($\beta = .36, t = 4.98, p < .01$), supporting hypothesis 3. CFA results of models are presented in Table 4. Positive effects of social emotional learning competencies on life satisfaction had decreased ($\beta = .17, t = 2.42, p < .01$) in model 2.

Table 4. Summary of Fit Indices for Models Tested

Model	χ^2/df	GFI	RMSEA	SRMR	NFI	CFI	IFI
Model 1 - SEL→LS	2.12	.98	.055	.034	.98	.99	.99
Model 2- Mediation model	1.85	.97	.048	.034	.97	.99	.99

Note. SEL = social and emotional learning, LS = life satisfaction. GFI = Goodness-of-fit index; RMSEA = root mean square error of approximation; SRMR = standardized root mean square residual; NFI = normed fit index; CFI = comparative fit index; IFI = incremental fit index.

Mediating Effect of Academic Resilience

The two models (Model 1 and Model 2) were checked against the test of the mediating role of academic resilience in the relationship between social-emotional learning competencies and life satisfaction. Baron & Kenny (1986) indicated that if the power of the relationship between a dependent variable and an independent variable is significantly statistically reduced after the inclusion of the mediation variable, the result demonstrates partial mediation. As a result, it can be said that academic resilience partially mediated the association between social-emotional learning competencies and life satisfaction.

Bootstrapping

Besides, the significance of the mediating role of academic resilience in the relationship between social-emotional learning competencies and life satisfaction was tested through the bootstrapping procedure. Table 5 shows direct and indirect effects with 95% confidence interval. It is seen that the indirect effect of social-emotional learning competencies on life satisfaction through academic resilience is significant (bootstrap estimate = .15, 95% CI [.089, .237]).

Table 5. Direct, Indirect Effects, and 95 % Confidence Intervals for the Mediation Model

Model Pathways	Estimated	95% CI	
		Lower	Upper
Direct Effect			
SEL→LS	.17	.044	.316
SEL→AR	.42	.265	.552
AR→LS	.36	.232	.501
Indirect Effect			
SEL→AR→LS	.15	.089	.237

Note. SEL = social and emotional learning, LS = life satisfaction, AR = academic resilience.

Discussion

Emotional intelligence theorized by Salovey & Mayer (1990) states that recognizing, understanding, using, and managing emotions in different areas in life manifests itself and contributes to the life adaptation

of the individuals. Social-emotional learning competencies can be considered within the scope of emotional intelligence. Therefore, emotional intelligence theorized by Salovey & Mayer (1990) is closely related to well-being.

The prediction of social-emotional learning competencies on life satisfaction expressed in Hypothesis 1 is one of the results of this study (see model 1). The idea that social-emotional learning competencies will increase the well-being of adolescents is also supported by the data of this study. Social-emotional learning competencies for adolescents also are considered as a strategy that supports adolescents' well-being. Social-emotional learning competencies can enable adolescents to develop skills that increase well-being and support positive relationships (Elbertson et al. 2010). This finding is consistent with the assumption that social-emotional learning competencies is related with the life satisfaction.

Previous studies have found a relationship between a decrease in substance use and an increase in life satisfaction. Social-emotional learning competencies is also effective in reducing substance abuse (Midford et al. 2014; 2018) and suicidal ideation (Gravesteyn et al. 2011). The fact that social-emotional learning competencies reduces substance abuse is consistent with the finding that social-emotional learning competencies has an effect on life satisfaction obtained as a result of this study. In this context, it can be argued that the development of social-emotional learning competencies can be effective in both increasing life satisfaction, promoting the quality of life, and combating substance addiction.

Life satisfaction is seen as the "key indicator" of subjective well-being. The concepts of well-being and happiness have been used as synonyms in some studies (Proctor et al., 2009). The concept of well-being and happiness were used as synonyms in some studies (Proctor et al., 2009). In terms of positive psychology, happiness is seen as the main goal to be reached. It has been stated that happy individuals are healthier and more successful when compared to unhappy individuals (Seligman et al., 2005). Emotional intelligence has been evaluated as a multidimensional concept consisting of "*perceiving emotions*", "*using emotions*", "*understanding emotions*" and "*managing emotions*" (Salovey et al., 2008; p.188), and social-emotional learning competencies is based on emotional intelligence (Cohen, 1999; Salovey et al., 2008). Ciarrochi et al. (2000) found that there are relationships between emotional intelligence and life satisfaction in line with the findings of this study.

Social-emotional learning competencies' prediction of life satisfaction may be related to empathy. The relationship of emotional intelligence and empathy has been demonstrated in many studies (Castillo et al., 2013; Fernández-Abascal & Martín-Díaz, 2019). Studies show that empathy is related to life satisfaction (Guasp Coll et al., 2020; Marilaf Caro et al., 2017). When the relationships between emotional intelligence, empathy, and life satisfaction are examined, it can be thought that there is a connection between empathy and the mechanism in the predictive relationship between social-emotional learning competencies and life satisfaction.

The second hypothesis of this study is that social-emotional learning competencies is related to academic resilience. As a result of this study, it was concluded that social-emotional learning competencies predicted academic resilience. This finding is consistent with previous researches. In the studies, it was concluded that social-emotional learning competencies is related to academic achievement (Corcoran et al, 2018) and academic resilience (Wills & Hofmeyr, 2019).

In addition, social-emotional learning competencies was found to be effective in dealing with bullying. SEL is one of the strategies used in bullying-related interventions in terms of content. It can increase the communication skills of adolescents that are effective in coping with bullying (Garrard & Lipsey 2007; Wilson & Lipsey 2007). Coping with bullying is a concept closely related to resilience (Ran, et al., 2020).

The third hypothesis that academic resilience is related to life satisfaction is also consistent with previous studies (Abolghasemi & Varaniyab, 2010; Liu et al., 2012; Liu et al., 2013). The relationship between

school success and life satisfaction has been shown in previous studies (Kim & Jeong, 2017; Ng et al., 2015). Academic resilience is a concept associated with school success. It has been found that individuals with high academic resilience have higher school grades (Hwang & Shin, 2018). Therefore, the relation of academic resilience and life satisfaction may be due to the relationships between academic achievement, resilience, and life satisfaction.

The fourth and final hypothesis of this study is that academic resilience has a mediating effect on the relationship between social-emotional learning competencies and life satisfaction, and this hypothesis was confirmed. Academic resilience is a special type of resilience (Martin & Marsh, 2006). There are research findings on the mediating role of academic resilience (e.g. Choo & Prihadi, 2019) and resilience (e.g. Tugade & Fredrickson, 2004). The reason why academic resilience has a mediator role may be due to the relationship between school success and life satisfaction.

School success is a concept closely related to both emotional intelligence (Zandi, 2012) and resilience (Van Hoek et al., 2019). Therefore, the relationships between school success and life satisfaction, emotional intelligence may contribute to the mediating role of academic resilience. Besides, Ciarrochi et al. (2000) argued that IQ is an important factor in analyzing emotional processes. IQ is a concept that closely relates to academic success. Academic success can improve academic resilience. The relationship between IQ and emotional processes may contribute to the mediating role of academic resilience in the relationship between social-emotional learning competencies and life satisfaction.

Tugade & Fredrickson (2004) also found that positive emotions have a mediating role in the relationship between resilience and finding positive meaning. The mediating role of academic resilience may be due to its relation to emotions and finding meaning in life. Finding meaning in life is a concept closely related to life satisfaction. On the other hand, emotions are considered as the main source of social-emotional learning competencies in many sources.

Schools are institutions on which the socialization process of children and young people is based, as well as academic teaching (Gillies, 2003). It is thought that this process has existed from the beginning of formal education and stated that schools play a role in teaching social, emotional, and ethical issues. For example, the phrase "Know Thyself" in Ancient Greece is a phrase associated with social-emotional learning (Cohen, 2006). Social-emotional learning competencies can be considered as one of the goals of education from past to present. The mediator role of academic resilience in the relationship between social-emotional learning competencies and life satisfaction indicates that more attention should be paid to the academic aspect of resilience.

It has been stated that conceptualizing and measuring social-emotional learning is complex in previous studies (Corcoran et al., 2020). In this direction, this study can be repeated with measurement tools with different theoretical backgrounds and different social-emotional learning competencies. In addition, the data of this study were collected using self-report measurement tools in parallel with many studies in the social-emotional learning literature. The data of this study can be repeated by measuring the performance evaluation of social-emotional learning. In addition, repeating the study data with qualitative methods such as observation and interview may contribute to the generalizability of the study data.

Conclusion

In this study, it is concluded that social-emotional learning competencies predict life satisfaction. In addition, the results that social-emotional learning competencies predict academic resilience and academic resilience predict life satisfaction, are also among the findings of the study. Mediation analysis is a technique used to determine the structures that indirectly contribute to causation in examining cause and effect mechanisms among variables. Mediation explains the causality between variables or structures (MacKinnon

et al., 2007). Accordingly, it is concluded that academic resilience has a partial mediating effect on the relationship between social-emotional learning competencies and life satisfaction. SEL programs are increasingly common today. Interest in SEL programs is increasing day by day in many countries (Cahill & Dadvand, 2020).

As a result of this study, it was concluded that the academic resilience component is so important in the effectiveness of -social-emotional learning competencies predicting life satisfaction-. Life satisfaction is considered as one of the components of quality of life and psychological well-being (Proctor et al., 2009). It is thought that giving more attention to academic resilience activities while planning social-emotional learning activities. In conclusion, this research has indicated evidence on the relationships between social-emotional learning competencies, academic resilience, and life satisfaction.

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Examination of the Relationship Between Pre-service Teachers' Attitudes Towards Learning and Sustainable Learning Levels

Research Article

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ABSTRACT

In this study, relationship between pre-service teachers' attitudes towards learning and sustainable learning levels are examined. Sample of the study consists of 428 pre-service teachers studying at Tekirdag Namik Kemal University. Scale for Attitudes Towards Learning and Scale for Sustainable Learning were used throughout the study. Data obtained during the study were analyzed by arithmetic average, standard deviation, correlation analysis and regression analysis. According to findings, it is determined that pre-service teachers' attitudes towards learning and sustainable learning levels are at high levels. At the end of conducted regression analysis, it is found that scores obtained by means of scale for pre-service teachers' attitudes towards learning predict scores belonging to both cognitive and behavioral sub-scales of sustainable learning scale at a remarkable accuracy. Obtained findings are discussed in accord with relevant literature and suggestions were presented.

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Keywords:

Learning, Attitude, Sustainable Learning, Pre-Service Teacher

Introduction

In today's world, where current knowledge accumulation is increasing very rapidly in parallel with developments in technology, any information produced in any place can spread to all parts of the world in a very short time due to globalization. This situation forces a modern person to constantly improve himself/herself. Otherwise, it is inevitable that people, who do not improve or update themselves shall be negatively affected both in their daily lives and in their professional careers. In order not to encounter such a

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situation, it is important that individuals should always be open to learning, in other words, they should adopt a sustainable understanding of learning.

Learning has an important place in human life. In a globalized world, students are expected to learn a lot of knowledge under scope of formal education, starting from early childhood education to higher education (Dash & Mohan, 2017). In the literature on learning concepts, which occupies such an important place in human life, there are not any comprehensive definitions of learning that researchers agree on. It is believed that learning is a multidimensional concept and that there are many factors that affect learning. When we consider different definitions made in the literature about learning; it is possible to briefly define learning as the exposure of behaviours to permanent changes as a result of environmental factors and experiences (Domjan 2004, p. 6). In other words, learning, as a phenomenon that continues throughout a person's entire life (Senemoglu, 2012), can be called as the sum of activities that people conduct. These activities are reflecting, feeling, thinking and doing; and it is believed that people develop special preferences and abilities to perform these activities (Kolb, 1981).

One of the elements that are effective in learning process is the attitudes of individuals towards learning. Attitudes are expressed as psychological processes involving positive or negative evaluations that individuals develop towards life happening around them (Chang & Chang, 2013). Realization of successful educational practices in an education system depends on determining students' attitudes towards learning and designing educational environments for these attitudes (Pashler, McDaniel, Rohrer & Bjork, 2008). According to these conclusions, it can be said that it is very difficult to train teachers, who shall educate people from the era of technology and the global era through traditional transfer of knowledge (Pehlivan, 2010). Especially in today's modern understanding of education, educators began to accept individual differences between students and turned out to be guides leading students in their journey towards knowledge, rather than offering knowledge to those, who are studying. From this point of view, individuals' attitudes towards learning became gradually important in accessing knowledge. Because positive attitudes to be developed for learning shall ensure that students are constantly open to learning and shall positively affect behavioural trends in this direction (Çetin & Çetin, 2019). Studies conducted in this area indicate that attitude towards learning is affected (Yang & Farn, 2005, s. 921) by many factors such as learners' perception of self efficacy (Salami, 2010), motivation (Marton & Saljo, 1997) and burnout conditions (Orhan & Komşu, 2016) and at the same time it affects many conditions such as job satisfaction (Orhan & Komşu, 2016), academic success (Kazazoğlu, 2013) participation in learning (Anghelache, 2013) and constancy in learning (Samuelsson & Park, 2017; Zhu, Zhang, Au & Yates, 2020).

Sustainability is one of the concepts that became important in the last century and there are many studies often conducted on this topic (Johnston et. taken., 2007). Although sustainability was a concept that mainly included issues such as environmental protection, economic and social development when it was first introduced (Kuşat, 2012), it is now a concept that is often used in almost every field. In the most general sense, sustainability can be defined as an innovation's or application's being long term and corporate (Balci, 2010). From a learning perspective, the concept of sustainability can be explained as the continuation of learning activity throughout a person's life, its not being interrupted, and person's realization of efficient learning by using what he/she has learned in different ways when necessary. Because in the last century, which is full of developments in science and technology that are hard to be followed, it is hardly possible to say that the information that individuals acquire in school may be sufficient to keep up with this rapid change. Therefore, this situation shall make sustainable learners successful in their profession and happy in their lives in the future. In this context, a person, who improves his ability to learn at every opportunity, gains a sustainable learning ability (Çetin & Çetin, 2019; Eskici, 2019).

Sustainable development cannot be achieved only by technological solutions, political arrangements or financial instruments. This requires a consciousness for sustainable development in layers and in terms of all

social contexts and an education that has the ability to gain said consciousness (UNESCO, 2020). The ability of societies to provide comprehensive and qualified educational opportunities for individuals means that educational activities can be the most familiar and powerful tool for sustainable development. Although sustainability is considered important only from the point of view of development, when we take into account well-developed and developing societies, it can be seen that they invest the most in education and training teachers during educational processes. Understanding of Sustainable Education that has a very important task in guidance towards a sustainable society is accepted all around the world, placed as an action plan in educational policies of countries and, in many cultures, is directly put in the process of being implemented (Öztürk, 2017). In this way, individuals are ensured to acquire a sustainable learning understanding during their studentship years. But in order to gain this understanding to students, first of all, teachers who shall educate them must have an understanding of sustainable learning and be in a constant excitement of learning. It is thought that this may undoubtedly be related to teachers' attitudes towards learning. When we investigate studies conducted on this topic, we do not meet any studies, where these two concepts were studied together in the same place. Therefore, it is thought that being aware of levels of sustainable learning and attitudes of pre-service teachers attitudes towards learning during their educational journey, thus increasing their awareness and positive attitudes for these concepts shall be beneficial both for themselves for their professional lives and also for their students. Based on these considerations, this study was performed in order to examine whether there is a meaningful relationship between attitudes of pre-service teachers studying in higher education institutions towards learning and towards sustainable learning levels.

Purpose of the Study

The purpose of this study is to examine the relationship between pre-service teachers' attitudes towards learning and sustainable learning levels. For this purpose, answers to the following questions were sought:

- 1) How are pre-service teachers' attitudes towards learning and sustainable learning levels?
- 2) Is there a meaningful relationship between pre-service teachers' attitudes towards learning and sustainable learning levels?
- 3) Do attitudes of pre-service teachers towards learning significantly predict sustainable learning levels?

Method

Research Model

This study, which examines the relationship between pre-service teachers' attitudes towards learning and sustainable learning levels, is designed in a correlational survey model from quantitative research models. In the correlational survey model, it is tried to determine whether there is covariance between two or more variables and the degree of covariance (Karasar, 2005).

Population and Sample

The population of the study consists of 950 pre-service teachers studying at Tekirdag Namik Kemal University during academic year 2020-2021. Samples examined under scope of the study were 428 pre-service teachers, who were chosen by simple random sampling method from above-mentioned population. According to Krejcie and Morgan (1970), this number is sufficient to represent the population with an error ratio of 5%. 253 (59%) of pre-service teachers, who constitute the sampling group, are females whilst remaining 168 (41%) are males.

Data Collection Tools

During the study, Sustainable Learning Scale developed by Eskici (2019) and Scale for Attitudes Towards Learning developed by Çetin and Çetin (2019) were used. Psychometric characteristics of data collection tools are presented below.

Scale for Attitudes Towards Learning: Scale for Attitudes Towards Learning that is used for measuring attitude levels of pre-service teachers is a likert type scale with five options constituting of 34 Items and 3 sub-dimensions. Goodness of fit values obtained as a result of confirmatory factor analysis regarding three-factor structure of the scale are as follows: RMSEA, .068; $\chi^2/df=1.9$; SRMR=.076; NFI=.94; NNFI=.97; IFI=.97; CFI=.97; RFI=.94. Cronbach Alpha Internal Consistency Coefficients calculated for the whole and sub-dimensions of the scale are .94 for the overall scale; .92 for the sub-dimension titled "Effort Towards Learning"; .86 for sub-dimension titled "Caring"; .84 for sub-dimension titled "Refusal of Learning".

Sustainable Learning Scale: Sustainable Learning Scale, which aims to measure sustainable learning levels of individuals, is a likert type scale with five options constituting of two sub-scales. Behavioral sub-scale of sustainable learning scale consists of 15 items and 3 sub-dimensions whilst cognitive sub-scale consists of 12 items and 2 sub-dimensions. Goodness fit values obtained as a result of confirmatory factor analysis regarding three-factor structure of cognitive sub-scale are as follows: $\chi^2/df= 3.37$, TLI= .920, CFI= .933 and RMSEA= .056. Cronbach Alpha Value for "broad and deep learning" sub-dimension of behavioral sub-scale is .85; for sub-dimension titled "learning by adaption", Cronbach Alpha Value is .88; for sub-dimension titled "learning by updates", Cronbach Alpha Value is .90; for behavioral learning sub-scale total, Cronbach Alpha Value is .89. Goodness fit values obtained as a result of confirmatory factor analysis regarding two-factor structure of cognitive sub-scale are as follows: $\chi^2/df= 4.70$, TLI= .905, CFI= .925 ve RMSEA= .071. Cronbach Alpha Value for sub-dimension titled "Learning for Improvement" of cognitive sub-scale is .88; for sub-dimension titled "learning for exams", Cronbach Alpha Value is .86; for cognitive learning sub-scale total, Cronbach Alpha Value is .91.

Procedures and Data Analysis

Data collection tools (Online surveys created on Google Forms Platform) are delivered to e-mails of participators (436 pre-service teachers, who participated in the study on volunteer basis) by the researchers. 428 scales completed by participants were included in the analysis. Data collected from 428 pre-service teachers were analyzed using SPSS 22.0 Software. First, it was examined whether data meet normality assumptions. For this purpose, the skewness and kurtosis values of data set and Q-Q Charts were examined. It is concluded that scores for attitude towards learning (-.50 to 0.20), sustainable learning (cognitive sub-scale) (-.75 to .24) and sustainable learning (behavioral sub-scale) (-.34 to .38) fall in normal distribution limits. George and Mallery (2003) and Kunnan (1998) point out that in case skewness and kurtosis coefficients are in the range of ± 2 , data shall present normal distribution characteristics. Moreover, it is determined that data are distributed on a linear base, which was expected in Q-Q Charts and realized value of which has a slope of approximately 45 degrees. Therefore, this has shown that data distributions shall be considered normal (Can, 2014). In interpretation of arithmetic average values: 1.00-1.79 range is considered as "very low", 1.80-2.59 range is considered as "low", 2.60-3.39 range is considered as "middle", 3.40-4.19 range is considered as "high" and 4.20-5.00 range is considered as "very high". Descriptive statistics, correlation and regression analysis were used while analyzing the data. Obtained data is analyzed in SPSS 22.0 within computer environment. Significance levels were tested at .05 level; other significance levels were also specified and findings are presented in the form of a table in accord with the purpose of this study. While correlation analyse results were being interpreted: .00-.30 range is considered as "low level relationship", .31-.70 range is considered as "moderate level relationship" and .71-1.00 range is considered as "high level relationship".

Findings

Relations between arithmetic average, standard deviation and skewness and kurtosis values and scale scores that were used in the study are presented in Table 1.

Table 1. Descriptive statistics of variables and results of correlation analysis

Variable	Skewness	Kurtosis	\bar{X}	Sd	1	2	3
Attitudes Towards Learning (1)	-.50	.20	4.16	0.42	1		
Sustainable Learning (Behavioral) (2)	-.34	.38	3.99	0.49	.65**	1	
Sustainable Learning (Cognitive) (3)	-.75	.24	4.40	0.41	.66**	.54**	1

* $p < .05$, ** $p < .01$; N=428

When we examine Table 1, we can see that pre-service teachers' attitudes towards learning ($\bar{X}=4.16$) and sustainable learning (behavioral) levels ($\bar{X}=3.99$) are at a high levels, while sustainable learning (cognitive) levels ($\bar{X}=4.40$) are at very high levels. At the end of correlation analyses, it is observed that there is a positive directioned, moderate level and a meaningful relationship ($r=.65$; $p < .01$) between pre-service teachers' attitudes towards learning and sustainable learning (behavioral) levels; and there is a moderate level and meaningful relationship ($r=.66$; $p < .01$) between their attitudes towards learning and their sustainable learning levels (cognitive). At the end of correlation analyses, it is observed that there is a positive directioned, moderate level and a meaningful relationship ($r=.65$; $p < .01$) between pre-service teachers' attitudes towards learning and sustainable learning (behavioral) levels; and there is a moderate level and meaningful relationship ($r=.66$; $p < .01$) between their attitudes towards learning and their sustainable learning levels (Cognitive). These findings show that as pre-service teachers' attitudes towards learning increase, sustainable learning levels also increase.

After these procedures, in accordance with the main purpose of the study, regression calculations were carried out in order to determine whether score of the scale for attitude towards learning significantly predicts sustainable learning cognitive and behavioral sub-scale scores; and, obtained results are presented in tables below.

Table 2. Regression analysis results between attitude scale towards learning and sustainable learning behavioral sub-scale

Model	B	SE	β	t	p	R	R ²	F	p
1. (constant)	.78	.18		4.26	.000				
Sustainable Learning (Behavioral)	.77	.04	.65	17.83	.000	.65	.43	317.86	.000

As shown in Table 2, after completion of regression analysis that were carried out in order to determine whether score of the scale for attitude towards learning significantly predicts sustainable learning behavioral sub-scale scores, it is observed that scale for attitude towards learning is a significant predictor of sustainable learning behavioral sub-scale score ($F_{(1,426)}=317.86$, $p < 0.001$). It is determined that scale for attitude towards learning meaningfully and statistically explains 43% ($R^2=.43$; $p < 0.001$) of the score variant of sustainable learning behavioral sub-scale. When we examine results of t-test regarding meaningfulness of ($B=.64$) coefficient of the predictor variant in Regression Formula, it is seen that scale for attitude towards learning is a meaningful predictor of sustainable learning behavioral sub-scale ($p < 0.001$).

According to regression analysis results, the equation, which predicts the behavioral sub-scale of sustainable learning, is as follows:

$$\text{Sustainable learning (behavioral)} = (.77 \times \text{attitude towards learning}) + .78$$

Table 3. Regression analysis results between attitude scale towards learning and sustainable learning cognitive sub-scale

Model	B	SE	β	t	p	R	R ²	F	p
1. (constant)	1.74	.15		11.67	.000				
Sustainable Learning (Cognitive)	.64	.04	.65	17.91	.000	.66	.43	320.87	.000

As shown in Table 2, after completion of regression analysis that were carried out in order to determine whether score of the scale for attitude towards learning significantly predicts sustainable learning cognitive and cognitive sub-scale scores, it is observed that scale for attitude towards learning is a significant predictor of sustainable learning cognitive sub-scale score ($F_{(1-426)}=320.87, p<0.001$). It is determined that scale for attitude towards learning meaningfully and statistically explains 43% ($R^2=.43; p<0.001$) of the score variant of sustainable learning cognitive sub-scale. When we examine results of t-test regarding meaningfulness of ($B=.64$) coefficient of the predictor variant in regression formula, it is seen that scale for attitude towards learning is a meaningful predictor of sustainable learning cognitive sub-scale ($p<0.001$).

According to regression analysis results, the equation, which predicts the cognitive sub-scale of sustainable learning, is as follows:

$$\text{Sustainable learning (cognitive)} = (.64 \times \text{attitude towards learning}) + 1.74$$

Discussion, Conclusions and Suggestions

In this study, the relationship between the attitudes towards learning and sustainable learning levels of 428 pre-service teachers studying at Tekirdag Namik Kemal University in 2020-2021 academic year was examined.

Study findings indicate that pre-service teachers' attitudes towards learning are high. In his study Adigüzel (2014), found that pre-service teachers' attitude towards learning levels were quite high. Similarly, results obtained in the end of studies conducted by Erdamar (2010), Karasakaloğlu (2012) and Aydın (2016) on pre-service teachers support this finding. Being a teacher has a very close relationship with teaching-learning process in a professional sense. Therefore, high attitude of pre-service teachers towards learning can undoubtedly be considered as a positive factor.

Another finding of the study is that pre-service teachers have high level of sustainable learning behavioral sub-scale scores and very high level of sustainable learning cognitive sub-scale scores. In his study on high school students, Eskici (2019) found that students' scores on both sub-scales were at high levels. Although studies on sustainable learning is limited, results of similar studies (Charungkaittikul & Henschke, 2014; Graham, Berman & Bellert, 2015) support this finding. It is promising that pre-service teachers have high sustainable learning scores, because teachers are members of the professional group that trains future generations of societies, and as professionals who do the job of teaching, their constant effort to learn is valuable in terms of being able to constantly update their knowledge.

The study found that pre-service teachers' attitudes towards learning had a positive, moderately significant relationship between both behavioral sub-scale of sustainable learning scale and the cognitive sub-scale of sustainable learning scale. Linear regression analyses found that pre-service teachers' attitudes towards learning predicts sustainable learning levels (behavioral and cognitive) at a significant level. Such a finding obtained in the end of a study is quite meaningful. As a matter of fact, in order for pre-service teachers to adopt a sustainable learning approach, it is expected that their attitude to learning is high and that these attitudes shall have an impact on their sustainable learning levels. Although there is no study published in the literature examining the relationship between these two concepts, results from similar studies support this finding. For example, Adigüzel (2014) found that there was a significant relationship between knowledge, literacy skills of pre-service teachers and their attitudes towards learning. Similarly, Prokop, Leskova, Kubiato and Diran (2007) found that there is a significant positive relationship between people's attitudes and knowledge levels.

As a result; (i) Pre-service teachers' attitudes towards learning and their sustainable learning levels are at high levels; (ii) there is a positively directioned, moderate level relationship between pre-service teachers' attitudes towards learning and their sustainable learning levels; (iii) Pre-service teachers' attitudes towards learning significantly predicts their sustainable learning levels (behavioral and cognitive).

This research has some limitations. Study is carried out in a state university in Turkey. Similar studies might be carried out on pre-service teachers studying in different universities and obtained results can be compared. Scales, that are often used as data collection tools in quantitative researches, are used throughout the study. Therefore, obtained data is based on replies of participators to scales and also based on capacity of measuring tools. It is thought that it shall be beneficial to use data collection tools such as observations and interviews that are often used in qualitative researches in future studies together with data collection tools that are often used in quantitative studies by taking limits of this present study into account.

Considering the results obtained in the end of this study, researchers are advised as follows: (i) similar studies might be carried out in different educational stages (primary schools, secondary schools, high schools); (ii) studies, where similar variants are used on academicians or educators such as teachers, not only on pre-service teachers, might be carried out; (iii) further information can be obtained by using qualitative or mixed research methods. Moreover, considering obtained results, these suggestions can be presented to the attention of Implementers: (i) Trainings that aim to improve learning passion of pre-service teachers might be provided in order to boost pre-service teachers' sustainable learning levels and attitudes towards learning; (ii) professional support can be provided to academicians, who shall raise the teachers of the future.

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Analysis of Internet Addiction Levels of Primary School, Secondary School and High School Senior Students

Research Article

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ABSTRACT

In this study, Internet addiction status of primary, secondary, and high school senior students studying in Yeşilyurt district of Malatya province were analyzed according to various variables. The population of the study consisted of 11,868 students from state schools in Yeşilyurt District of Malatya Province, and the study sample was composed of 2,611 students. The research has the relational screening model. In the study, "Internet Addiction Scale" developed by Günüç (2009) was used to determine the Internet addiction levels of students. This scale consists of the sub-dimensions of "deprivation", "control difficulty", "impairment in functionality" and "social isolation." In the analysis of the data obtained, t-test, k-means cluster analysis, one-way analysis of variance (One-Way ANOVA) test were used. "LSD", one of the "post-hoc" techniques, was applied to determine which group or groups the difference originated from in cases where there was significant differentiation as a result of the "ANOVA" test. In summary, the following findings were reached in the study: Of the 2,611 students, 397 (15.2%) were in the addicted group, 1,016 (38.9%) in the risk group, and 1,198 (45.9%) in the non-addicted group. When these results are taken into consideration, it is seen that most of the students that made up the sample were in the "non-addicted group" (45.9%). A significant difference was found in favor of male students between students' mean scores for Internet addiction according to their gender. A significant difference in favor of senior high school students was found between the levels of the schools where the students' studies and their Internet addiction mean scores. There was no significant difference between the mean Internet addiction scores of the students according to their mother's education level, father's education level, mother and father's profession, and the monthly income of the family.

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Keywords:

Addiction, Internet addiction, Primary school, Secondary school, High school

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Introduction

The Internet, which has been developing and changing globally since its inception, has affected our lives on a large scale and paved the way for advances in many areas. The Internet has become an indispensable situation in today's world by strongly making its presence felt in many areas such as economy, education, art, science, and daily life. The benefits of the Internet and its reflections on our daily lives are countless. However, Internet technology has also led to the development of some negative behaviors. Internet addiction is the leading one among these problems.

In general, addiction and substance use are thought to fulfill the function of helping the individual overcome the difficulties in daily life. (Flores, 2004, s. 1). Addiction, which often refers to behavioral routines to obtain chemicals and sometimes without purpose, is a psychiatric disorder in which the individual exhibits recurring obsessions or behaviors based on the feeling of obligation (Marks, 1990, s. 1389). Although addiction is traditionally seen as a phenomenon caused by only stimulant substances that affect human behavior such as alcohol or cocaine, studies conducted in the last 30 years have shown that individuals can also be harmed by behaviors and habits that show signs of addiction. Binge eating, gambling, shopping, sex and Internet use can also create problems similar to stimulant substances (Padwa & Cunningham, 2010, p. 1). Therefore, the concept of addiction has been increasingly used to explain many human behaviors as well (Netherland, 2012, p.11).

Technology addiction, which is defined as a type of non-chemical addiction involving human and machine interaction when computers are used extensively, was first mentioned by Griffiths (1995, p. 14,15). With the spread of the Internet around the world since the mid-1990s, Internet addiction has been defined as an important legal psychological disorder affecting the cognitive, emotional, and social development of individuals (Price, 2011, p. 7). As early as 1998, it was determined that 6% of online users faced this problem in the United States (Brenner, 2000, p. 452). However, unlike chemical addiction, excessive Internet use has come to the fore with some technological benefits it provides to society, rather than being criticized for being addictive (Young, 2009, p.217). When the first symptoms of Internet addiction emerged, it caused controversy among clinicians and academics. Excessive Internet use has been accepted by some as pathological and addictive, and a type of technological addiction (Widyanto & Griffiths, 2006, p.31).

Internet use, which is one of the realities of the information age, has affected almost every aspect of life as well as the education and school system and the structure of education planning. The Internet not only has made access to information cheaper and easier, but also rendered information independent of time and place. As a natural consequence of this, access to information seems to be no longer a problem (Aydemir et al., 2013, p. 1073). The proper definition of the concept of Internet addiction has varied according to different perspectives. It has been characterized by impulses or behaviors related to computer and Internet use that generally cause uncontrollable engagement as well as disruption and distress (Shaw and Black, 2008, p. 353). Some researchers have associated Internet addiction with addictions involving alcohol and substance use (Griffiths, 1999, p. 246), while others have affiliated it with the individual's recurrent obsessions or compulsive control disorders (Belsare, Gaffney, and Black, 1997). Terms such as pathological Internet use (Davis, 2001, p. 187), and problematic Internet use (Caplan, 2003, p. 625) have also been used to define this problem.

The concept of Internet addiction, which is one of the last links in the chain of technology addiction, was first addressed by Ivan Goldberg (Suler, 1999). Internet addiction is a process that cannot be controlled, takes a significant amount of time, and results in problematic social or professional difficulties (Shapira et al., 2000, p. 268). According to Young (2004), Internet addiction as a rapidly growing phenomenon is a concept that includes a wide range of behaviors and impulse control problems associated with gambling addiction (p. 402). Griffiths (1999) stated that the Internet may not be addictive for most of the extreme users, and that it can also be a means of satisfying other addictions.

The number of Internet users worldwide, which was 360 million in 2000 (Internet World Status [IWS], 2017) exceeded 4.02 billion individuals in 2018. (Bayrak, 2018). According to data from 2020, in Turkey, the rate of Internet use for individuals in the 16-74 age group was 79% (Turkey Statistics Institute [TUIK], 2020). The number of users in all age groups has been recorded as approximately 70 million people (IWS, 2020). With the increase in the place of the Internet in daily life in this way, the relationship between Internet addiction and many variables, especially psychological factors, has been investigated. In these studies, it has been determined that there is a relationship between problematic Internet use and attention deficit and hyperactivity disorder (Dalbudak and Evren, 2013; Ko, 2009; Öztürk et al., 2013; Yen et al., 2007) , depression (Choi et al., 2014; Koronczi et al., 2013; Şahin et al., 2013; Şenormancı et al., 2014; Yang et al., 2014), loneliness (Yao and Zhong, 2014), neurotic personality (Tsai et al., 2009; Wang et al., 2011), low self-esteem (Armstrong, Phillips, and Saling, 2000; Aydın and Sarı, 2011; Sariyska et al., 2014), low self-control (Özdemir, Kuzucu, and Ak , 2014), academic failure (Stavropoulos, Alexandraki, and Stefanidi 2013), feelings of hostility (Koç, 2011), and sleep problems (Anderson, 2001; Lam, 2014).

With this study, it was aimed to reveal the Internet addiction status of students through the relevant literature and feedback received from students, and to contribute to the field by determining the relationships between Internet addiction and some demographic variables such as gender, school level, parents' education level, parents' occupation and family monthly income.

Method

Screening model was used in the study. Since Internet addiction was examined according to various variables, it was determined to have a relational screening model. Screening models are the screening work performed on the whole of the universe or on a group, or a sample to be taken from it in order to make a general judgment about the universe in large-scale studies. (Karasar, 2011; p. 110).

Population and Sample

The universe of the study was composed of a total of 11,868 students receiving education in state schools located in Yeşilyurt District of Malatya Province, and 4,199 of them were senior students from 60 primary schools, 4,227 senior students from 56 secondary schools and 3,442 senior students from 37 high schools. The sample of the study was chosen randomly among the schools in the universe, and it consisted of a total of 2,986 students, including 1,326 senior students from 35 primary schools, 859 senior students from 24 secondary schools, and 799 senior students from 17 high schools. Out of the 2,986 students reached, 2611 were evaluated.

Information on the distribution of students according to their demographic characteristics is given in Table 1 as frequency and percentage.

Table 1. Demographic Characteristics of the Students

Variable	Options	Frequency (f)	Percentage (%)
Gender	Female	1,324	50.7
	Male	1,287	49.3
	Total	2,611	100
School	Primary school	1,216	46.6
	Secondary School	789	30.2
	High School	606	23.2
	Total	2,611	100
Education Status of the Mother	Literate	199	7.6
	Primary school	679	26.0
	Secondary School	596	22.8
	High School	691	26.5

	University	446	17.1
	Total	2,611	100
Father's Level of Education	Literate	65	2.5
	Primary school	344	13.2
	Secondary School	501	19.2
	High School	931	35.7
	University	768	29.4
	Total	2,611	100
Mother's Occupation	Civil Servant	316	12.1
	Worker	382	14.6
	Housewife	1,913	73.3
	Total	2,611	100
Father's Occupation	Civil Servant	791	30.3
	Retired	201	7.7
	Worker	619	23.7
	Craftsman	466	17.8
	Farmer	534	20.5
	Total	2,611	100
Family's Monthly Income	0-1,500 TL	729	27.9
	1,501-3,000 TL	1,045	40.0
	3,001-4,500 TL	488	18.7
	4,501 TL and above	349	13.4
	Total	2,611	100

Data Collection Tool

In the study, "Internet Addiction Scale" developed by Günüç (2009) was used in order to determine the Internet addiction levels of the students. The scale is a 35-item scale consisting of the subdimensions of "deprivation", "difficulty in control", "impairment in functionality" and "social isolation." The scale is a 5-point Likert type scale, and all items in the scale are related to addiction. The internal consistency coefficient of the scale was calculated as (α) .944. Cronbach's alpha reliability coefficients of the 4 subdimensions (α) were found to be .877 for the 11-item deprivation subdimension, .855 for the 10-item difficulty in control subdimension, .827 for the 7-item impairment in functionality subdimension, and .791 for the 7-item social isolation subdimension. The item discrimination levels for the subdimensions were found as between .477-.681, .471-.606, .520-.618, and .463-.615 for the first, second, third and fourth subdimensions, respectively.

Data Analysis

In the study, the data obtained from the participants were analyzed using the licensed SPSS (The Statistical Package for Social Sciences) 22.0 package program. After the data obtained from the scales were transferred to the computer environment, normality test was performed to determine whether the data complied with normal distribution. In a statistical study, the distribution should be normal or close to normal in order to perform many tests (Kalaycı, 2006). Although many features in the universe show a normal distribution, there will be deviations from the normal distribution if the measurements of a feature that is tried to be determined are obtained from a small group ($n < 30$). As the size of the group increases, the distribution will approach normality (Ravid, 1994, as cited in Büyüköztürk, 2011; p. 63). Tabachnick and Fidell (2007) consider the distribution as the normal distribution when the skewness and kurtosis values are between +1.500 and -1.500. As a result of the normality test applied, since the skewness (.762) and kurtosis (.074) values of the scale items were found to be between +1.500 and -1.500, it can be said that the distribution was normal.

Descriptive statistics were used in the analysis of the data obtained in the study. Frequency distributions, k-means cluster analysis, t-test, and One-Way ANOVA were used for the analysis of the sub-problems of the study. In the case of determination of a significant difference as a result of one-way analysis of variance, LSD test was used to determine which groups caused the difference, if the variances were equal. In the analysis of the data, the significance value was accepted as ($p < .05$).

The "cluster analysis" technique, one of the sampling classification techniques, was applied in order to obtain more detailed results about the addiction status of individuals by determining the group with or without Internet addiction. The general purpose of cluster analysis is to reveal the similarities of units according to their specific characteristics, and to classify them in correct categories based on these similarities (Çokluk et al., 2014, p.139). With cluster analysis, it was aimed to reveal some extreme individuals who were latent in the sample (Günüç and Kayri, 2009, p. 171), and thus to classify the addiction levels of individuals in a healthier way. Many algorithms have been proposed for cluster analysis in the literature. However, it is possible to group them under two main headings. These are 'hierarchical clustering methods' and 'non-hierarchical clustering methods' (Çokluk et al., 2014, p.139). Hierarchical clustering methods are particularly suitable for small samples (generally $n < 250$) (Hair et al., 2006). Non-hierarchical clustering methods are used when the number of clusters has been determined. In other words, it is recommended to be used in cases where the researcher has prior knowledge about the number of clusters or when the number of clusters has been determined (Özdamar, 2010).

The K-Means Cluster Analysis, one of the non-hierarchical clustering methods, was employed to obtain a more detailed analysis of individuals' Internet addiction. Accordingly, as seen in Table 2, the first cluster includes the "addicted group", the second cluster consists of the "group with risk of addiction", and the third cluster includes the "non-addicted group." The thesis written by Günüç (2009) was taken as an example in naming the clusters.

Findings

Findings Related to the Students' Internet Addiction Status

The frequency and percentage distributions regarding the Internet addiction levels of primary, secondary, and high school senior students according to the scores obtained from the total scale are given in Table 2.

Table 2. Frequency and Percentage Values Regarding the Students' Internet Addiction Status

	Clustering (k-means)	F	Total (%)
Primary School	1 (Addicted Group)	185	15.3
	2 (Risk Group)	452	37.1
	3 (Non-Addicted Group)	578	47.6
	Total	1,216	100
Secondary School	1 (Addicted Group)	102	12.9
	2 (Risk Group)	300	38.0
	3 (Non-Addicted Group)	386	49.1
	Total	789	100
High School	1 (Addicted Group)	85	14.1
	2 (Risk Group)	258	42.6
	3 (Non-Addicted Group)	262	43.3
	Total	606	100
General	1 (Addicted Group)	397	15.2
	2 (Risk Group)	1,016	38.9
	3 (Non-Addicted Group)	1,198	45.9
	Total	2,611	100

When Table 2 is examined, it is seen that out of 2,611 students, 397 (15.2%) were in the addicted group, 1,016 (38.9%) were in the risk group, and 1,198 (45.9%) were in the non-addicted group. It is seen that most of the students in the sample were in the "non-addicted group" (45.9%).

Findings Regarding Gender

The results of the t-test conducted to determine whether there was a significant difference between the Internet addiction scores of the students in terms of their gender are shown in Table 3.

Table 3. T-test Findings Regarding the Students' Internet Addiction in Terms of Gender

Subdimensions	Gender	N	\bar{X}	Sd	t	p
Deprivation	Female	1,324	2.48	0.97	1.88	.00*
	Male	1,287	2.65	1.02		
Difficulty in Control	Female	1,324	2.02	0.89	3.45	.00*
	Male	1,287	2.16	0.95		
Impairment in Functionality	Female	1,324	1.97	0.95	2.83	.00*
	Male	1,287	2.09	0.98		
Social Isolation	Female	1,324	1.92	0.96	0.06	.01*
	Male	1,287	2.01	0.95		
Internet Addiction Scale (Total)	Female	1,324	2.13	0.82	2.48	.00*
	Male	1,287	2.27	0.85		

N=2611

When Table 3 is examined, it is seen that there were significant differences in favor of male students in terms of gender in the total scale and in all sub-dimensions of the Internet addiction scale ($p < 0.05$).

Findings Regarding the School Level

The results of one-way analysis of variance regarding the Internet addiction scores of the students according to their school levels are shown in Table 4.

Table 4. One-Way Anova Results Regarding the Students' Internet Addiction Scores According to Their School Level

Subdimensions	Grade	Sum of Squares	Sd	Mean Square	F	p*	Significant Difference (LSD)
Deprivation	Intergroup	3.41	2	1.70	1.69	.18	
	Intragroup	2630.72	2607	1.00			
	Total	2634.13	2609				
Difficulty in Control	Intergroup	30.32	2	15.16	17.86	.00*	High School - 2.28
	Intragroup	2213.60	2608	0.84			
	Total	2243.93	2610				
Impairment in Functionality	Intergroup	35.19	2	17.59	18.96	.00*	High School - 2.24
	Intragroup	2417.63	252	0.92			
	Total	2452.82	2608				
Social Isolation	Intergroup	76.61	2	38.30	42.55	.00*	High School - 2.27
	Intragroup	2347.65	2608	0.90			
	Total	2424.27	2610				
Internet Addiction Scale (Total)	Intergroup	20.55	2	10.27	14.63	.00*	High School - 2.36
	Intragroup	1829.01	2605	0.70			
	Total	1849.56	2607				

When Table 4 is analyzed, it is seen that there was a significant difference according to the school levels of the students. As a result of the LSD test, a significant difference was observed in favor of high school senior students. When the subdimensions of the Internet addiction scale were examined, a significant difference was observed in favor of high school senior students in the subdimensions "difficulty in control", "impaired functionality" and "social isolation" ($p < 0.05$).

Findings Regarding the Education Status of the Mothers

The results of one-way analysis of variance regarding the Internet addiction scores of the students according to the education levels of the mothers are shown in Table 5.

Table 5. One-Way Anova Results Regarding the Students' Internet Addiction Scores According to the Education Status of the Mothers

Subdimensions	Education Status of the		Sum of Squares	Sd	Mean Square	F	p
	Mother						
Deprivation	Intergroup		24.53	4	4.09		
	Intragroup		2609.59	2603	1.00	4.07	.06
	Total		2634.13	2607			
Difficulty in Control	Intergroup		13.80	4	2.30		
	Intragroup		2230.12	2602	0.85	2.68	.13
	Total		2243.93	2606			
Impairment in Functionality	Intergroup		10.31	4	1.71		
	Intragroup		2442.50	2602	0.93	1.83	.89
	Total		2452.82	2606			
Social Isolation	Intergroup		15.05	4	0.14		
	Intragroup		2409.21	2604	0.43	0.32	.85
	Total		2424.27	2608			
Internet Addiction Scale (Total)	Intergroup		15.06	4	2.51		
	Intragroup		1834.50	2601	0.70	3.55	.07
	Total		1849.56	2605			

According to Table 5, no significant difference was observed in the Internet addiction total scale and in all its subdimensions according to the education status of the students' mothers.

Findings Regarding the Education Status of the Fathers

The results of one-way analysis of variance regarding the Internet addiction scores of the students according to the education level of the fathers are shown in Table 6.

Table 6. One-Way Anova Results Regarding the Students' Internet Addiction Scores According to the Education Status of the Fathers

Subdimensions	Education Status of the		Sum of Squares	Sd	Mean Square	F	p
	Father						
Deprivation	Intergroup		23.53	4	3.92		
	Intragroup		2609.82	2604	1.00	3.91	.10
	Total		2633.35	2608			
Difficulty in Control	Intergroup		6.90	4	1.15		
	Intragroup		2236.78	2605	0.85	1.33	.23
	Total		2243.69	2609			
Impairment in Functionality	Intergroup		7.79	4	1.29		
	Intragroup		2444.87	2603	0.94	1.38	.21
	Total		2452.66	2607			
	Intergroup		10.05	4	1.67		

Social Isolation	Intragroup		2414.06	2602	0.92		
	Total		2424.11	2606		1.80	.09
Internet Addiction Scale (Total)	Intergroup		10.23	4	1.70		
	Intragroup		1839.31	2602	0.70	2.41	.25
	Total		1849.54	2606			

When Table 6 is examined, it is seen that there was no significant difference in terms of fathers' education status of students in total scale and subdimensions of the Internet addiction scale.

Findings Regarding the Mothers' Occupations

The results of one-way analysis of variance regarding the Internet addiction scores of the students according to the mothers' occupations are shown in Table 7.

Table 7. One-Way Anova Results Regarding the Students' Internet Addiction Scores According to the Mothers' Occupations

Subdimensions	Mother's Occupation	Sum of Squares	Sd	Mean Square	F	p
Deprivation	Intergroup	2.31	2	0.33		
	Intragroup	2631.82	2607	1.01	0.32	.94
	Total	2634.13	2609			
Difficulty in Control	Intergroup	3.75	2	0.53		
	Intragroup	2240.17	2608	0.86	1.62	.73
	Total	2243.93	2610			
Impairment in Functionality	Intergroup	7.74	2	1.10		
	Intragroup	2445.07	2606	0.94	1.17	.31
	Total	2452.82	2608			
Social Isolation	Intergroup	11.16	2	1.59		
	Intragroup	2413.11	2608	0.92	1.72	.10
	Total	2424.27	2610			
Internet Addiction Scale (Total)	Intergroup	3.09	2	0.44		
	Intragroup	1846.47	2605	0.71	0.62	.73
	Total	1849.56	2607			

As can be seen in Table 7, no significant difference was observed in the total Internet addiction scale and its subdimensions in terms of the students' mothers' occupations.

Findings Regarding the Fathers' Occupations

The results of one-way analysis of variance regarding the Internet addiction scores of the students according to the fathers' occupations are shown in Table 8.

Table 8. One-Way Anova Results Regarding the Students' Internet Addiction Scores According to the Fathers' Occupations

Subdimensions	Education Status of the Fathers	Sum of Squares	Sd	Mean Square	F	p
Deprivation	Intergroup	9.20	4	1.31		
	Intragroup	2624.93	2605	1.00	1.30	.24
	Total	2634.13	2609			
Difficulty in Control	Intergroup	4.14	4	1.92		
	Intragroup	2239.52	2606	0.93	0.73	.64
	Total	2243.93	2610			
Impairment in Functionality	Intergroup	13.49	4	1.92		
	Intragroup	2439.32	2604	0.93	2.05	.45

		Total	2452.82	2608		
Social Isolation	Intergroup		10.02	4	1.43	
	Intragroup		2414.25	2606	0.92	1.54 0.14
	Total		2424.27	2610		
Internet Addiction Scale (Total)	Intergroup		5.40	4	0.77	
	Intragroup		1844.15	2603	0.70	1.08 36
	Total		1849.56	2607		

When Table 8 is examined, it is seen that there was no significant difference for the total Internet addiction scale and its subdimensions according to the occupations of the students' fathers.

Findings Regarding Family Monthly Income

The results of one-way analysis of variance for Internet addiction scores according to the family monthly income of the students are shown in Table 9.

Table 9. One-Way Anova Results of Internet Addiction Scores of Students According to Family Monthly Income

Subdimensions	Income Level	Sum of Squares	Sd	Mean Square	F	p
Deprivation	Intergroup	32.91	3	3.65		
	Intragroup	2601.21	2606	1.00	3.65	.06
	Total	2634.13	2609			
Difficulty in Control	Intergroup	15.66	3	1.74		
	Intragroup	2228.27	2607	0.85	2.03	.48
	Total	2243.93	2610			
Impairment in Functionality	Intergroup	7.79	3	0.86		
	Intragroup	2445.02	2605	0.94	2.85	.50
	Total	2452.82	2608			
Social Isolation	Intergroup	23.72	3	2.63		
	Intragroup	2400.54	2607	0.92	2.85	.08
	Total	2424.27	2610			
Internet Addiction Scale (Total)	Intergroup	17.09	3	1.89		
	Intragroup	1832.47	2604	0.70	2.69	.22
	Total	1849.56	2607			

In Table 9, no significant difference was observed in the total Internet addiction scale and its subdimensions according to the income level of the students' families.

Discussion, Conclusion and Recommendations

Discussion

In this study, it was aimed to determine the Internet addiction status of students and to identify its relationships with some demographic variables such as gender, school level, parents' education status, parents' occupations and family monthly income. Different Internet addiction levels were determined in studies. Özdemir (2016) found this level as 1.5%, İşleyen (2013) as 7%, Günüş (2009) as 10.1%, Inan (2010) as 0.4%, Çalışgan (2013) as 0.2%, Balcı and Gülnar (2009) as 23.2%, Durualp and Çiçekçiođlu (2013) as 17%, Yücelten (2016) and Döner (2011) as 0%. In some other studies, these rates were found as 4% (Wang et al.2011), as 1.1%(Bayraktar, 2001) , as 3.1% (Kaltiala-Heino, Lintonen, and Rimpela, 2004), as 2% (Johansson and Götestam, 2004), as 20.7% (Yen et al., 2007), as 2.4% (Cao and Su, 2007) , as 8% (Elizabeth and Tee, 2007), as 4.3% (Jang, Hwang, and Choi, 2008) (as cited in Günüş, 2009, p.89) .

The literature review showed that in Özdemir's (2016) study, 14% of the sample were Internet users in the risk group, while 9% displayed Internet addiction symptoms in Inan (2010) 's study. Balcı and Gülnar

(2009) determined Internet users at risk as 28.4%, Günüç (2009) as 29%, Şahin (2011) as 14%, İşleyen (2013) as 23%, Durualp and Çiçekçioğlu (2013) as 66%, and Yücelten (2016) as 11%. In the study of Döner (2011), 9% of the sample showed limited symptoms.

Considering the data on the gender variable, it can be said that male students are at a higher risk of Internet addiction in comparison to female students. There are many studies that support this situation. Scherer (1997) analyzed 531 Internet user students and found that the majority (71%) of the students identified as Internet addicts were male students. Usta (2016) found that males displayed more Internet addiction behaviors compared to females. Ayaroğlu (2002) reported that males spent more time on Internet surfing and file transfer compared to males, while Gencer (2017) and Döner (2011) stated that male students exhibited Internet addiction behavior more than female students. Similarly, Morahan-Martin and Schumacher (2000), Chou and Hsiao (2000), Bayraktar (2001), Koch and Pratarelli (2004), Aktaş (2005), Yang and Tung (2007), Balta and Horzum (2008), Ögel and Cömert (2009), Günüç (2009), Kelleci et al. (2009), Tsai et al. (2009), Esen (2010), Gürcan (2010), Yıldız (2010), Taçyıldız (2010), Döner (2011), Gencer (2011), Liberatore et al. (2011), Carli et al. (2012), Gökçearsan and Günbatar (2012), Yılmaz (2013), Zorbaz (2013), Türkoğlu (2013), Azher et al. (2014), Waldo (2014), Ceyhan E. (2016), İşsever (2016), and Ünsal (2016) also stated that male students had higher Internet addiction levels than female students in terms of gender variable. These findings support the data obtained in the research in terms of gender variable. However, there are also studies revealing that there was no significant relationship between Internet addiction and gender. Brenner (2000), Batıgün and Kılıç (2011), Kaya (2011), Jelenhick et al. (2012), Hawii (2012), Çalışgan (2013), Andreou and Svoli (2013), Dikme (2014), Dalgacı (2016), and Yücelten (2016) also found that gender had no effect on Internet addiction. In a small number of studies, it was observed that Internet addiction was in favor of female students (Griffiths, 1995; Griffiths, 2000, Beşaltı, 2016). The difference between the gender variable and Internet addiction may be due to the measurement method of Internet addiction level in research or regional and cultural differences (Balta and Horzum, 2008, pp. 187-205). In addition, factors such as gender inequality in the society, the advantage of males in accessing opportunities, and the fact that males go to the Internet and online game rooms more than females can be listed (Taşpınar and Gümüş, 2005, p. 80; Çavuş and Gökdaş, 2006, p. 57). On the other hand, female students may be deprived of technological opportunities (Çavuş and Gökdaş, 2006), their free time can be little due to their responsibilities at home, or their freedom areas may be narrowed through intervention (as cited in Yılmaz, 2013, p.75). Due to the patriarchal family structure of the Turkish society, males can be more easy-going and freer than females. In addition, the emergence of these results in the province of Malatya, where the patriarchal structure has been observed despite immigration it has received in recent years, is a typical situation that represents the country in general.

According to the findings of the school level in the study, high school senior students had a tendency to use the Internet more than primary and secondary school senior students. It was found that primary and secondary school senior students used Internet less than high school senior students. Therefore, their Internet addiction levels were found to be lower. Based on this result, the fact that high school senior students have more individual freedom than primary and secondary school senior students, and that they may have found more space in the family independent of their parents are thought to have increased their Internet addiction. Besides, the fact that the development characteristics of high school senior students in different areas are more complicated than primary and secondary school students indicates that these students may have more intense interest and engagement on the Internet. Accordingly, high school students may have spent more time on the Internet and become more Internet addicted than primary and secondary school students. No study was found in the literature that aimed to find a relationship between Internet addiction and the school level. However, in most of the studies, it was seen that the relationship between Internet addiction and the level of education was investigated. In this regard, while Bayraktar (2001) and Günüç (2009) found a significant difference in Internet addiction levels between secondary school grade levels, Wu and Tsai (2006) found that students' grade levels

were important in terms of their attitudes towards the Internet. Inan (2010) reached the conclusion that Internet addiction levels of primary and secondary school students differed according to their grade levels. Doğan (2008) found that the Internet addiction status of the students differed significantly according to their grade level. Contrasting findings have also been reached. DiNicola (2004) stated that there was no significant difference between Internet addiction and the year of study levels of university students. Ceyhan (2008) applied the problematic Internet use scale he developed to university students and found that the Internet use levels of the students did not show a significant difference according to their year of study. Kaya (2011) and Şahin (2011) also did not find a significant relationship between students' grade levels and Internet addiction. Looking at the studies conducted, there is a significant difference between the studies conducted on primary and secondary school students and the studies conducted on university students. While studies on primary and secondary school students generally found a significant difference between Internet addiction level and grade level, there was no significant difference in the studies conducted on university students in terms of year of study.

There are a limited number of studies in the literature which aimed to find a relationship between Internet addiction and parents' education level. In most of the studies accessed, the education level of parents was examined. Gencer (2017), Saatçioğlu (2016), İşsever (2016), Dalgacı (2016), Türkoğlu (2013), Zorbaz (2013), Doğan (2013), and Şahin (2011) could not determine a significant relationship between students' Internet addiction and their mother's education level. On the other hand, Gencer (2017), Saatçioğlu (2016), İşsever (2016), Daltalı (2016), Doğrusever (2015), Ayas and Horzum (2013), Doğan A. (2013), Tanrıverdi (2012), and Üneri and Tanı (2011) concluded that there was no significant relationship between the education level of the fathers of students and their Internet addiction behaviors. However, Demetrovics et al. (2008) found that Internet addiction decreased as the education level of family increased, and that as the education level of the individual increased, the tendency to Internet addiction decreased. Batıgün and Kılıç (2011), Koyuncu et al. (2012), İnan (2010) determined that the education levels of the mothers of primary and secondary school students and their Internet addiction status differed positively.

Regarding the parents' occupation, in the study conducted by Günüç (2009), while there was no significant relationship between the parents' occupations and Internet addiction, the addiction levels of individuals whose parents were "teacher-academician-engineer" and "soldier-police" were found to be higher. Tanrıverdi (2012) did not detect a significant difference between the Internet addiction levels of secondary school students and their father's occupations. The fact that there was no significant difference between Internet addiction and income levels of families can be attributed to the availability of the Internet for those at different socio-economic levels. This finding coincides with the studies conducted in the literature in terms of the family income level variable. Bakken et al. (2009), Balta and Horzum (2008) and Song (2003) revealed that there was no relationship between Internet addiction and socioeconomic level. Esen (2010), İnan (2010), Gençer (2011), Beşaltı (2016), Ceyhan (2016) and Daltalı (2016) also reached similar findings. There are also studies contrary to the findings obtained in the literature. Yılmaz (2013) stated that students with a high economic level were more addicted to the Internet than students with a medium economic level, while Şahin (2011) reported that as the family income level of students increased, they would be more prone to Internet addiction. Similarly, Bayraktar (2001), Batıgün and Kılıç (2011), and Sevindik (2011) also found a positive and significant difference between the economic level and Internet addiction. Kayri and Günüç (2016) also concluded that the children of families with high socioeconomic levels were more likely to become Internet addicts.

Conclusion

As a result of the clustering analysis conducted to examine the Internet addiction levels of primary, secondary, and high school senior students, 15% of the students were determined to be in the addicted group, 39% in the addiction risk group, and 46% in the non-addicted group. Internet addiction levels of male students

were found to be significantly higher. A significant difference was found between the scores the students obtained on the total Internet addiction scale and the types of schools where they studied. This difference was found in favor of high school students. The mean scores of the high school senior students were higher than the mean scores of the primary and secondary school senior students. Students' parents were determined to be mostly high school graduates. There was no significant relationship between Internet addiction scale mean scores and parents' education level. The mothers of the students were mostly housewives, and their fathers were mostly civil servants. In addition, there was no significant relationship found between the students' parents' educational status and Internet addiction scale mean scores. It was observed that the family income levels of the students were predominantly in the range of 1,501-3,000 TL, and no significant relationship was found between the Internet addiction scale mean scores.

Recommendations

Considering that 39% of the students were found to be in the risk group, students should be informed about Internet addiction both in informatics courses and other related courses, and a certain amount of content related to Internet addiction should be incorporated to these courses. Considering the relationship between gender and Internet addiction scale scores, it was observed that male students had higher mean scores than female students. Similar results were obtained in the literature review, and it was observed that males were comfortable in terms of accessing the Internet. In order to lower males' addiction levels, parents need to have more control and follow-up on male students. When it is considered that Internet addiction has an important place like other substance addictions and the developing technological opportunities are taken into consideration, it is necessary to inform families and young people about this situation through various channels (conferences, seminars, etc.). Various studies in collaboration with different institutions and organizations can be carried out for students who are found to exhibit Internet addiction behavior in schools. The "Internet Addiction Polyclinic", which has been opened in Istanbul Bakırköy Mental Diseases Hospital for the diagnosis and treatment of Internet addiction, can also be opened in other provinces and hospitals, and individuals can be provided with help in terms of controlling their Internet use. This study was carried out with primary, secondary and high school senior students studying in Yeşilyurt district of Malatya province, and similar comparative studies can be conducted in other regions with a wider population and sample.

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The Reflections of Pre-service Music Teachers' Creative Thinking Skills on their Instrumental Improvisation Ability*

Research Article

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ABSTRACT

Through the development of the individual's musical and creative potential, the individual can express himself musically. Directing these potentials effectively depends on the musical knowledge and skills of the music teachers. Therefore, it is important for music teachers to develop their creative potential and improvisational playing ability during their studies. In this context, the aim of this research is to determine the level of preservice music teachers' creative thinking skills and their improvisation skills through the piano. In this study, mixed-method, convergence model was used. The research group consisted of 4th-grade students (n= 31) studying at Dokuz Eylül University Buca Education Faculty Fine Arts Education Department Music Education Department. Data were obtained through "Sounds and Creative Thinking with Words, the "Sounds and Images IIA" form developed by Torrance and Cunnington, adapted to Turkish by Kaya and Bilen, The Creative Thinking Test "Verbal A" form developed by Torrance, adapted to Turkish by Gifted Education Center. And "Improvisation Skills with Piano Observation Form and Scoring Guideline", "Creativity Based Learning Environment Assessment Scale" and "Semi-Structured Interview Form for Improvisation" were used. According to the findings, the pre-service music teachers' creative thinking levels are below the intermediate level and improvisation skill levels with the piano are low. The correlation between the creative thinking levels and improvisation skill levels with the piano is positive, low, and statistically not significant between the means of the scores obtained. In piano lessons, a learning environment that supports creativity at an average level is provided. They stated that being able to improvise on the piano will provide gains in instrument mastery and accompaniment playing and will contribute to the profession of teaching, musical expression, and free-thinking.

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Keywords:

Pre-service music teachers, creativity, creative thinking skills, musical creativity, improvisation.

* This study was based on doctoral dissertation of the first author.

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Introduction

Today's expectations and the necessity of individuals to have qualities that enable them to have a critical approach, come up with alternatives in the face of problems and solve them, gradually increase. Meeting these expectations, on the other hand, is associated with the improvement of critical thinking skills.

In creativity, there is a matter of considering synonyms and antonyms along with each other, organizing the data wisely, solving the problem with flexible approaches, and presenting a decent product. Creativity is generally defined as "being sensitive to problems, disorders, lack of knowledge, missing factors, and disharmony, acknowledging the difficulty, seeking for a solution, making predictions or developing hypotheses regarding deficiencies, changing or retesting these hypotheses and presenting the result afterwards." (Torrance, 1974, as cited in Sungur, 1992, p.20).

According to Wegerif (2007, pp. 152-156), creative thinking is a free, dynamic, and productive process. Creative thinking skills enable children to create new thoughts and present ideas, come up with a hypothesis, use their imagination, and seek alternative, innovative results. According to Landau (1969), creativity is the ability to correlate new connections that have not been made before, and by this way, to present new experiences, new and unique ideas, and products in a new cast of mind (As cited in San, 1993, p. 72).

Although the ability to produce creative products is related to many fields, it can be said that art and music are the most favorable fields for it. Creativity in art, according to Conrard, is the creative search, research, and finding process, which includes concepts, emotions, and imaginations, creating a beginning for the birth process of an effective metaphor associated with sensations and emotions emerged from senses (As cited in San, 1977: 15). Without creative elements, imagination is no different from purposeless fantasy or even delusion. Each artwork contains one or more images (San, 2004, p. 27). The artistic creativity process deals with thinking with images. As a natural requirement of human perceptions, these images occur in the artist's mind through the external world (San, 1985, p. 18). Musical creativity, on the other hand, is a skill where individuals can express their personal relationships through the sound field and use their mind, body, and spiritual skills. It takes part in every activity related to musical performance, such as listening, playing, improvisation, directing, arranging, and composing (Padula, 2009, p. 609).

Wigram (2005, p. 25) states that the freer and more flexible way of producing music than any style and playing through hearing is improvisation. Wigram also states that music improvisation occurs by developing and applying the harmonic, melodic, and rhythmic structure that constitutes the music within the framework of the beginning and ending, and the performance of different combinations of sounds created by adhering to these structures in a simple or complex degree, and Volz (2005), on the other hand, express that giving students time to explore their own sounds or the sounds of their instruments, regardless of age or skill level, is the first step to help them become successful on improvisation. Therefore, individuals can easily express themselves creatively through improvisation, which is one of the most natural ways of making music and is open to improvement.

Gordon states that the creative process can be analyzed, and regardless of the subject of the research (technical, scientific, aesthetic), the creative process always activates the same mechanisms, and the creation processes show similarity in individuals and groups (As cited in Rouquette, 1992, p. 68). Guilford can note that creativity and qualities specific to creative individuals should be examined, that creative abilities determine whether an individual can produce significant creativity, and that ability to create a creative product depends on the motivation and temperamental characteristics of the creative individual, and lists the skill characteristics that characterize creativity as the ability to see problems, fluency of thought, the flexibility of thought, originality, redefining and processing (Yavuzer, 1989, pp. 14- 15).

Wilson, Guilford, and Christensen (As cited in Tarman, 2006, p. 116) specifies the following criteria to evaluate the quality of a creative product: An answer is original to the extent that it is uncommon in the target audience, to the extent that it is more skillful than the group of judges, and to the extent that it can bring together the most distant elements of knowledge and experience. Lowenfeld et al., who set the criteria for creativity (1962), state that creative features in art fields consist of flexibility, fluency, originality, sensitivity to problems, redefinition and arrangement, analysis, synthesis, and organization (As cited in Yavuzer, 1989, p. 35). Original thinking is the most noticeable, easily perceived, and reflected dimension of creativity, among other dimensions (Orhon, 2014, p. 34).

It is important for teachers, one of the essential factors of educations, to have the creative qualities for individuals to express themselves through music and improve their potentials for creativity. Teachers can create a learning environment to guide students towards creativity and its improvement if they have the quality of creativeness; in other words, the skill of flexible, smooth, and genuine thinking. (Yenilmez & Yolcu, 2007, pp. 97- 98) Training music teachers who have creative thinking skills can be supported and improved through the skill of improvisation, which can be improved by playing instruments along with the vocational training they receive. Therefore, teachers who were educated in this direction and improved their improvisation skills can improve students' creative thinking skills by widening their horizons. Nevertheless, the level of improvisation and creative thinking skills of the teachers and the description of the reflection of those to each other is important.

In this context, answers to these questions were sought in this study, which aims to determine the reflections of pre-service music teachers' creative thinking skills on their instrumental improvisation ability:

Do the creative thinking skill levels of pre-service music teachers differ according to gender, secondary education institution they graduated from, or the period they received piano training?

Do the improvisation skill levels of pre-service music teachers on piano differ according to sex, secondary education institution they graduated from, or the period they received piano training?

What is the statistical level of the connection between the pre-service music teachers' creative thinking skills and levels of improvisation skills on the piano?

How is the creative learning environment of pre-service music teachers in piano lessons?

What are the opinions of pre-service music teachers on instrumental improvisation?

Method

Research Model

In this study mixed-method, convergence model was used. A mixed-method study is one in which the researcher incorporates both qualitative and quantitative methods of data collection and analysis in a single study. In the convergence model, the researcher collects both qualitative and quantitative data and then examines both data to determine the findings of a study (Creswel, 1999, p.455, 463).

"Correlational survey model" of quantitative research methods and "interview" method of qualitative research methods were used in the study. Relational analyses were obtained through correlational-type relations. In correlation-type relationship searches, it is tried to determine whether the variables overlap with each other (Karasar, 2006, p. 82). The interview method, which is one of the qualitative research techniques, is "a mutual and interactive communication process based on a predetermined and serious purpose, questioning and answering style" (Steward and Cash, 1985, as cited in Yıldırım and Şimşek, 2016, p. 129).

Research Group

The research group consists of a total of 31 4th grade students studying in Dokuz Eylül University Buca Faculty of Education, Department of Fine Arts, Music Education Department (DEU BFE, DFA MED) in the 2015-2016 academic year, 18 of which are women and 13 men. The improvisation skill levels of pre-service music teachers were limited to the piano in the study.

27 of the students from the research group were graduated from fine arts high school, 4 from other high schools. 4 of these students stated that they have been playing piano for four years, 22 of them for eight years and, 5 of them for more than eight years.

Data Collection Tools

Sounds and Images IIA form, Verbal A form, observation form, and creativity based learning environment scale were used to collect qualitative data and a semi-structured interview form for improvisation was used for quantitative data. The data collection tools are shown in figure 1 were used respectively.

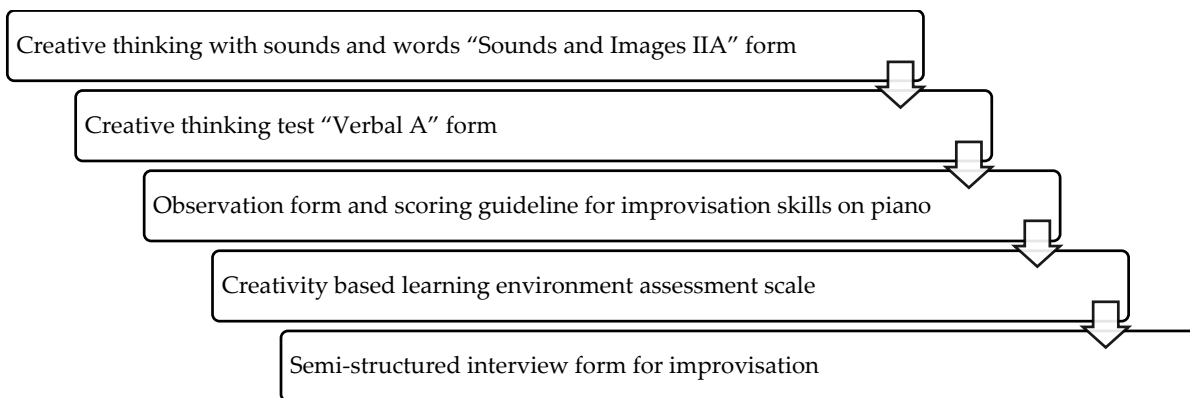


Figure 1. Data collection tools

Creative thinking with sounds and words "Sounds and Images IIA" form. The form consists of two independent tests: "Sounds and Images" and "Onomatopoeic (reflective) Words and Images," in which the degree of creativity is evaluated by the responses to auditory stimuli. Sounds and Images were developed by Torrance and Cunnington. The test is a useful and functional measurement tool that measures the original thinking potential of children, teenagers, and adults (Khatena ve Torrance, 1998, p. I).

In the reliability-validity study of the Turkish form conducted by Kaya and Bilen (2017). Language validity study was conducted in the academic year 2014-2015 by Dokuz Eylül University Buca Education Faculty Department of Foreign Language Education and Literature Faculty Department of Translation and Interpreting 4. Grade students (n=55). For the reliability and validity study, the Sounds and Images IIA Turkish form was conducted in the academic year 2014-2015 by Dokuz Eylül University, Adnan Menderes University, Muğla Sıtkı Koçman University Education Faculty Department of music Education 1.-4. Grade students (n=276). The Cronbach's Alpha coefficient was found to be .61. According to the confirmatory factor analysis results, the ratio between chi-square and degrees of freedom (χ^2/df) was found to be 1.73. The fit index values are RMSEA: .05, NFI: .97, NNFI: .96, CFI: .99, GFI: .99 and AGFI: .97.

Creative thinking test "Verbal A" form. The form is a highly reliable and widely used test developed by Torrance in 1966. The verbal form, which can be used in a wide range of levels from 1st grade of primary school to adulthood (6 to 18 years old) (TTCT, <http://www.ststesting.com/ngifted.html>).

The Turkish language equivalence, reliability, and validity studies of the test were carried out by Aslan (2001). Primary school group means scores of the Verbal Form were obtained for the lowest originality (n =

144), the highest fluency (n = 144) dimensions. High school group mean scores were obtained for the lowest flexibility (n = 116) and the highest fluency (n = 116) dimensions. University group mean scores were obtained for the lowest flexibility (n = 248) and the highest fluency (n = 248) dimensions. According to Spearman-Brown, Guttman, and Cronbach Alpha internal consistency analyses, correlation coefficients were valued between .38 and .89. It is stated that the test is reliable for all age groups and all score types and that the subtests measure the expected dimensions of creative thinking as a result of the item total, item exclusion, and item discrimination analyzes conducted for the validity studies of the test (Aslan, 2001, pp. 26-30).

Observation form and scoring guideline for improvisation skills on the piano. The form was developed to reveal pre-service music teachers' improvisation skill levels on piano. While creating the Scoring Guideline for Improvisation Skills on Piano, the item pool was formed by scanning the literature, and a form draft was made. The form was rearranged after expert opinions were consulted. The pilot scheme of the guideline was conducted with randomly selected five students who were 3rd-grade students at the DEU BFE, DFA MED. In accordance with the expert opinions obtained after the pilot scheme, the guideline took its final form.

Observation guideline is developed and used for observation and in order to make the recording (digitizing) of the data easier if required (Borg, 1963, as cited in Karasar, 2006, p. 159). Observation guidelines may differ according to the topic and purpose of the observation. Guidelines can be made in such a way that the unit to be observed, the presence or absence is marked, the repetition or amount of the different symptoms of what is observed will be written, or the symptoms will be evaluated according to a graded scale (Karasar, 2006, p. 159).

Scoring guideline consists of instructions and observation form. Improvisation Skill Observation Form (ISOF) was made for grading the feedback given the instructions. The Piano Improvisation Instruction Form consists of eight different instructions that lead to improvisation based on some ideas, such as creating melodic answer sentences to the given rhythmic and melodic questions, playing scales musically, creating variations from the given themes.

For the ISOF, a scoring scheme with a score rating from 0 to 3, including separate features for each category, has been stipulated taking the feedback given for each of the eight instructions in the instructions form into consideration in terms of rhythm, dynamic, measure, and tempo, tonality, and harmony, melody categories. While 0 points represent the feedback that can be considered ordinary in the scoring, 3 points represent the feedback with original quality.

After the scoring is done in line with the categories of the rhythm, dynamic, measure, and tempo, tonality and harmony, melody for each instruction, the highest score of improvisation ability that can be achieved with the ISOF was calculated as 105.

For the reliability studies of the forms developed in order to observe the improvisation skills on piano, a video recording of the application was made, and the improvisation performances were observed and evaluated by three observers in accordance with the scoring guideline. Kendall's W analysis was done for the reliability of the scoring. Kendall's coefficient of concordance results for the ISOF and categories of rhythm, dynamic, measure, and tempo, tonality and harmony, melody in the form are in table 1.

Table 1. Kendall's W coefficient of concordance results

Categories	n	W	χ^2	sd	p
Rhythm	3	.79**	71.48	30	.00
Dynamic	3	.61**	54.42	30	.00
Meter and tempo	3	.62**	55.59	30	.00
Tonality and harmony	3	.73**	65.75	30	.00

Melody	3	.70**	63.27	30	.00
General improvisation skill	3	.86**	77.29	30	.00

**p<.01

Kendall’s W takes a value between 0 and 1, and the closer it is to 1, the higher the concordance is. According to table 1, there is a statistically significant concordance between the evaluations by three different evaluators based on categories and the general ISOF [$p<.01$]. Cronbach’s Alpha Reliability Coefficient of the ISOF, on the other hand, was calculated as .92 [$.60 \leq \alpha < .90$]. In line with Kendall’s W and Cronbach’s Alpha Reliability form, it can be said that ISOF is a valid and reliable measurement tool.

Creativity based learning environment assessment scale. The scale was developed by Kaya and Bilen (2016), for the description of the creative learning environment of instrument lessons given at Education Faculties of Music education departments. The scale was developed as 5 points Likert scale and was applied to 528 students who were studying in the Faculty of Education, Fine Arts Education, Music Education Department in several universities during the 2012–2013 academic year. The scale’s Cronbach Alpha reliability coefficient is .928. Confirmatory factor analysis showed that the scale has an acceptable level of fit index in general [χ^2/sd : 4.0; RMSEA: .07; NNFI: .98; CFI: .98; GFI: .94]. The scale includes factors of supporting a positive learning environment and creativity. The scale was used in order to reveal whether or not the students had creative learning environments for piano lessons.

Semi-structured interview form for improvisation. The form was made in order to understand the opinions of students about improvisation. The aim of the interview is to determine the parallelism and difference between the opinions of the interviewed individuals and to make comparisons accordingly (Brannigan, 1985, as cited in Yildirim and Simsek, 2016, p. 130). “Semi-structured interviews combine both fixed-alternative answering and ability to go deep in the relevant field.” (Büyüköztürk et al., 2014, p. 152).

Analysis of the Data

In the analysis of the quantitative data of the study, frequency, percentage, mean, standard deviation, Cronbach Alpha reliability coefficient, Kolmogorov-Smirnov normality test, the point biserial correlation, and simple linear correlation (pearson moment product correlation) analysis were used. Statistical Package for the Social Science 22.0 statistical analysis program was used for these processes. Content analysis was made in the analysis of the qualitative data of the research.

Findings

Creative Thinking Sounds and Images IIA Form Findings

The result of the Kolmogorov-Smirnov normality test, which was applied to test whether the data obtained from the Sounds and Images IIA form show normal distribution, was calculated as .11, and the p-value was calculated as .20. It can be said that the scores of the students on the Sounds and Images IIA form are normally distributed [$p>.05$]. Cronbach Alpha reliability coefficient of the scores was calculated as .60. This result shows that the measurement is reliable [$.60 \leq \alpha < .90$].

The distribution of the scores of the students according to their gender, the high school they graduated from, and the duration of piano education is given in the crosstab in table 2. The highest score that can be obtained with the Sounds and Images IIA form is 48. The scores obtained by the students were transformed into categorical variables with 0-9, 10-18, 19-27, 28-36, 37-48 points for the crosstab. The crosstab gives the frequency and percentage distribution of the participants in the study, according to two or more categorical variables (Büyüköztürk, 2009, p. 27).

Table 2. Distribution of Sounds and Images IIA form scores by gender, graduated high school, and period of piano training

	0-9		10-18		19-27		28-36		37-48		Total	
	Points		Points		Points		Points		Points			
Gender	n	%	n	%	n	%	n	%	n	%	n	%
Women	1	3.2	7	22.6	5	16.1	5	16.1	0	0	18	58
Men	3	9.7	6	19.4	3	9.7	1	3.2	0	0	13	42
Total	4	12.9	13	41.9	8	25.8	6	19.4	0	0	31	100
High school	n	%	n	%	n	%	n	%	n	%	n	%
Fine arts	3	9.7	12	38.7	7	22.6	5	16.1	0	0	27	87.1
Others	1	3.2	1	3.2	1	3.2	1	3.2	0	0	4	12.9
Total	4	12.9	13	41.9	8	25.8	6	19.4	0	0	31	100
Period of piano training	n	%	n	%	n	%	n	%	n	%	n	%
4 years	1	3.2	1	3.2	1	3.2	1	3.2	0	0	4	12.9
8 years and more	3	9.7	12	38.7	7	22.6	5	16.1	0	0	27	87.1
Total	4	12.9	13	41.9	8	25.8	6	19.4	0	0	31	100

According to the data in table 2, 1 of the 4 people from the research group who scored between 0 and 9 were women, 3 men. 3 of them graduates of fine arts high schools, 1 of them other high schools. 1 of them has been playing the piano for four years, 3 of them eight years and more. The 13 people who score between 10-18, 7 are women and, 6 are men, 12 graduates of fine arts high schools, 1 of them other high schools. 1 of them has been playing the piano for four years, 12 of them eight years and more. The 8 people who score between 19-27, 5 are women, and 3 are men, 7 graduates from fine arts high schools and, 1 from other high schools. 1 of these students has been playing the piano for four years, 7 for eight years. The 6 people who score between 28-36, 5 are women, 1 man, 5 graduates of fine arts high schools, 1 from other high schools. 1 of them has been playing the piano for four years, 5 of them eight years and more. There are no students with scores between 37-48.

Correlation analysis was conducted to test the significance of the correlation between the scores of the students on the Sounds and Images IIA form and their genders, the high schools they graduated from, and the periods of piano training.

The strength of a correlation is described through the amount of correlation between the variables. While a strong correlation requires a consistent or close Y value depending on the X value, the Y value, which does not correspond to or is close to the X value, indicates the weakness of the correlation. Therefore, the variability of Y scores corresponding to each X increases, and the correlation coefficient approaches zero (Elifson, Runyon, and Haber, 1990 and Heiman, 1996, as cited in Çokluk et al., 2012, p. 52). The point biserial correlation is the value of Pearson's product moment correlation when one of the variables is dichotomous and the other variable is metric (Kornbrot, 2005, p. 1553).

The results of the point biserial correlation analysis conducted to reveal whether there is a correlation between the students' Sounds and Images IIA form and their genders, high schools, and the periods of piano training are included in table 3.

Table 3. Correlation results of Sounds and Images IIA form scores

	n	r	P
Gender	31	-.27	.07
High school	31	.09	.32
Period of piano training	31	-.09	.31

According to the correlation analysis data in table 3, there is a negative and low level of correlation between the Sounds and Images IIA form scores and gender. This correlation is not statically significant [$r = -.27$; $p > .01$]. The positive, low-level correlation between the "Sounds and Images IIA" form scores and the high school graduated from is not statistically significant [$r = .09$; $p > .01$]. The correlation between the Sounds and Images IIA form scores and the period of piano training is negative, low, and not statistically significant [$r = -.15$; $p > .01$].

This result can be interpreted as the research group revealed that there was no correlation between gender, high school and period of piano training, and creative thinking levels in the context of "Sounds and Images IIA" form scores.

Findings of the Creative Thinking Test Verbal A Form

The result of the Kolmogorov-Smirnov normality test, which was applied to test whether the data obtained with the Verbal A Form show normal distribution, is given in table 4.

	Kolmogorov-Smirnov	sd	p
Fluency	.12	31	.20
Flexibility	.13	31	.17
Originality	.10	31	.20
General	.07	31	.20

$p > .05$

According to the data in table 4, it can be said that the scores the students got with the Verbal A form show the normal distribution in terms of fluency, flexibility, originality dimensions, and general form [$p > .05$].

The Cronbach Alpha reliability coefficient for the Verbal A form was calculated as .84. This result shows that the measurement is quite reliable [$.60 \leq \alpha < .90$].

The distribution of the scores of the students in terms of gender, the high school they graduated from, and the period of piano training are given in the crosstab in table 5. The highest score that can be obtained with the Verbal A form is 200. Therefore, the scores obtained by the students were transformed into categorical variables with 0-40, 41-80, 81-120, 121-160, and 161-200 score intervals for the crosstab.

Table 5. Distribution of Verbal A form scores by gender, graduated high school, and period of piano training

	0-40		41-80		81-120		121-160		161-200		Total	
	n	%	n	%	n	%	n	%	n	%	n	%
Gender												
Women	0	0	12	38.7	6	19.4	0	0	0	0	18	58
Men	0	0	4	12.9	8	25.8	1	3.2	0	0	13	42
Total	0	0	16	51.6	14	45.2	1	3.2	0	0	31	100
High school	n	%	n	%	n	%	n	%	n	%	n	%
Fine arts	0	0	15	48.4	12	38.7	0	0	0	0	27	87.1
Others	0	0	1	3.2	2	6.5	1	3.2	0	0	4	12.9
Total	0	0	16	51.6	14	45.2	1	3.2	0	0	31	100
Period of piano training	n	%	n	%	n	%	n	%	n	%	n	%

4 years	0	0	1	3.2	2	6.5	1	3.2	0	0	4	12.9
8 years and more	0	0	15	48.4	12	38.7	0	0	0	0	27	87.1
Total	0	0	16	51.6	14	45.2	1	3.2	0	0	31	100

According to the data in table 5, the scores of the research group range between 41 and 160 of the 16 people scoring between 41 and 80, 12 are women, and 4 are men, 15 graduates from fine arts high schools, and 1 from other high schools. 1 of these students has been playing the piano for four years, and 15 eight years and more. Of the 14 people scoring between 81 and 120, 6 are women, and 8 are men, 12 of them are graduates of fine arts high schools, and 2 of other high schools. 2 of these students have been playing the piano for four years, and 12 eight years and more. The person who scored between 121 and 160 is a men student who is a graduate of other high schools and has been playing the piano for four years.

The results of the simple linear correlation analysis performed to reveal whether there is a correlation between the students' Verbal A form scores and their gender, high school, and period of piano training are included in table 6.

Table 6. Correlation results of Verbal A form scores

	n	r	p
Gender	31	.03	.44
High school	31	.33*	.04
Period of piano training	31	-.30*	.05

*p<.05.

According to the correlation analysis data in table 6, there is a positive and statistically significant correlation between the scores of the Verbal A form and the high school graduated from [$r = .33$; $p < .05$], negative and statistically significant correlation between the scores of the Verbal A form and the period of piano training [$r = -.30$; $p > .05$]. The positive and low-level correlation between Verbal A form scores and gender is not statistically significant [$r = .03$; $p > .05$].

Findings of the ISOF

The Cronbach Alpha reliability coefficient of the ISOF, which was developed to determine the skill levels of pre-service music teachers by revealing the creative side of their improvisation skills on the piano, was calculated as .92. This result shows that the measurement is quite reliable [$.60 \leq \alpha < .90$].

The distribution of the scores obtained by the students with the ISOF in terms of gender, the high school they graduated from, and the period of piano training are given in the crosstab in table 7. The highest score that can be obtained with the ISOF is 105. The scores obtained by the students were transformed into categorical variables with a range of 0-21, 22-42, 43-63, 64-84, 85-105 for the crosstab.

Table 7. Distribution of improvisation skills observation form scores by gender, graduated high school, and period of piano training

	0-21		22-42		43-63		64-84		85-105		Total	
	n	%	n	%	n	%	n	%	n	%	n	%
Gender												
Women	0	0	12	38.7	6	19.4	0	0	0	0	18	58
Men	0	0	4	12.9	8	25.8	1	3.2	0	0	13	42
Total	0	0	16	51.6	14	45.2	1	3.2	0	0	31	100
High school	n	%	n	%	n	%	n	%	n	%	n	%
Fine arts	0	0	15	48.4	12	38.7	0	0	0	0	27	87.1
Others	0	0	1	3.2	2	6.5	1	3.2	0	0	4	12.9
Total	0	0	16	51.6	14	45.2	1	3.2	0	0	31	100

Period of piano training												
training	n	%	n	%	n	%	n	%	n	%	n	%
4 years	0	0	1	3.2	2	6.5	1	3.2	0	0	4	12.9
8 years and more	0	0	15	48.4	12	38.7	0	0	0	0	27	87.1
Total	0	0	16	51.6	14	45.2	1	3.2	0	0	31	100

The scores are listed according to the data in table 7 range between 22 and 84. of the 16 people from the research group, who scored between 22 and 42, 12 are women, and 4 are men, 15 are graduates from fine arts high schools, 1 from other high schools. 1 of these students has been playing the piano for four years, 15 for eight years, and more. 14 people from the research group, who got between 43 and 63 points, 6 are women, and 8 are men, 12 were graduates of fine arts high schools, 2 from other high schools. 2 of these students have been playing piano for four years, 12 for eight years, and more. The men student who scored between 64-84 is another high schools graduate and has been playing the piano for four years.

According to the scores obtained by the students with the ISOF, the significance of the correlation in the context of gender, graduation from high school, and duration of piano education was calculated by correlation analysis. However, since the ISOF data did not show a normal distribution by showing excessively positive skewness (skewness coefficient = 3.73), correlation analysis was performed after the logarithmic transformation in this data set.

In case the scores show excessive deviation from the normal, if the researcher wants to use statistics that require normality, he/she can redefine the data with a different unit by converting the scores into a new distribution. If there is an excessive positive skewness that is not suitable for the normal, the points are converted to a new distribution by logarithmic transformation (Büyüköztürk, 2009, p. 42- 43). After the logarithmic transformation, the result of the Kolmogorov-Smirnov normality test, which was applied to test whether the data set showed normal distribution, was calculated as .09, and the p-value was calculated as .20. Therefore, the new data set has a normal distribution [p>.05].

The results of the simple linear correlation analysis performed to reveal whether there is a correlation between the ISOF and the gender of the students, the high school they graduated from, and their period of piano training are included in table 8.

Table 8. Correlation results of ISOF scores

	n	r	p
Gender	31	.01	.48
High school	31	.36*	.02
Period of piano training	31	-.30*	.05

*p<.05

According to the correlation analysis data in table 8, there is a positive and significant correlation between improvisation skill and graduated high school [r= .36; p<.05] There is a negative and significant correlation between improvisation skills and the period of piano training [r= -.30; p<.05]. The correlation between improvisation skills and gender is not statistically significant [r= .01; p>.05].

Correlation Findings of Improvisation Skills Observation Form, Sounds and Images IIA Form and Verbal A Form Scores

According to the scores of the students, the significance test of the correlation between the ISOF and the Sounds and Images IIA and Verbal A forms was performed with Pearson product-moment correlation analysis. The results of the analysis are included in table 9.

Table 9. Correlation results of ISOF scores

	n	r	p
Sounds and Images IIA	31	.14	.46
Verbal A	31	.14	.46

According to the data in table 9, the correlation coefficient between the ISOF and Sounds and Images IIA form scores was found as .14. Therefore, the correlation between the means of the students' scores is positive, low, and not statistically significant [$p > .01$]. The correlation coefficient between the Improvisation Skill and the Verbal A form scores was found as .14. The correlation between the means of the students' scores is positive, low, and not statistically significant [$p > .01$].

Findings of the Creativity Based Learning Environment Assessment Scale

The Kolmogorov-Smirnov normality test p-value of the data obtained from the answers given by the research group in the context of the piano lesson to the Creativity Based Learning Environment Assessment Scale is .20. This value shows that the data have an ideal normal distribution [$p > .05$]. The Cronbach's Alpha reliability coefficient of the students' answers was found to be .87. This result shows that the measurement is very reliable [$.60 \leq \alpha < .90$].

The distribution of the answers given to the scale according to the positive learning environment, the dimensions of supporting creativity, and the general scale averages are given in table 10.

Table 10. Distribution of the answers given to the creativity based learning environment assessment scale

Gender	Positive Learning Environment			Supporting Creativity		General	
	n	\bar{x}	%	\bar{x}	%	\bar{x}	%
Women	18	3.18	63.6	2.42	48.4	2.73	54.6
Men	13	3.74	74.8	3.02	60.4	3.32	66.4
Total	31	3.41	68.2	2.67	53.4	2.98	59.6

According to the data in Table 10, it is seen that in piano lessons, a positive learning environment is provided at a rate of 68%, support for creativity at a rate of 53.4%, and a learning environment that supports creativity at a rate of 59.6%.

Findings of Semi-Structured Interview Form for Improvisation

All of the students interviewed ($n = 31$) have not participated in an improvisation activity on the piano before.

Findings regarding the questions "In which courses are the activities on improvisation included? (Can you speak of the activities if they are included?)" are in table 11.

Table 11. Distributions of answers given to the question "In which courses are the activities on improvisation included?"

Categories	f	%	Examples of expressions
Special teaching methods course	26	44.8	We were doing improvisation on a pentatonic scale or rhythmically.
Harmony-counterpoint accompaniment course	2	3.4	We learned how to accompany variations while accompanying school songs.
Solo instrument course	4	6.9	While my teacher performs chord transitions in the guitar lesson, I make melodic transitions remaining in tone.
Accompaniment Course	5	8.6	We would accompany by composing chords suitable for the given piece.
Electronic organ course	5	8.6	We gained insight into chords, different tones.

Educational music repertoire course	3	5.2	We did rhythmic improvisations.
Play, dance, and music course	2	3.4	We did improvisational dances.
Not included in any class.	11	19	We did really not do improvisation activities.
Total	58	100	

According to the distribution of answers of students given to the question “In which courses are the activities on improvisation included?” it is seen that activities on improvisation are mostly used in the Special Teaching Methods course (f=26). On the other hand, it is stated that no activities on improvisation were included in any lesson (f=11).

Findings regarding the question “Do you do activities on improvisation in piano lessons? (If so, what are those studies?) are in table 12.

Table 12. Distribution of answers given to the question “Do you do activities on improvisation in piano lessons?”

Categories	f	%	Statement examples
No	30	96.8	We generally work depending on the note.
Partly	1	3.2	Not specifically on improvisation, but I play my practices.
Total	31	100	

According to findings regarding the question “Did you do activities on improvisation in piano lessons? (If so, what are those activities?) are in table 12 it is stated that improvisation activities were not included in piano lessons, that activities were studied depending on notes, that generally works were studied (f=30), and along with that, that there were individual attempts on improvisation (f=1).

The findings regarding the question "What kind of gains do you think being able to improvisation on the piano will provide?" are given in table 13.

Table 13. Distribution of answers given to the question "What kind of gains do you think being able to improvisation on the piano will provide?"

Categories	f	%	Statement examples
Musical expression	10	11.4	It allowed me to render the work I am performing.
Audience (hearing)	3	3.4	Since improvisation is also connected to hearing, it contributed to my hearing.
Instrument control and accompaniment	30	34.1	My control over the instrument increases. It also improves accompaniment playing.
Other courses	2	2.3	If I were able to improvise, I would have been doing what I desired, and that would have affected my other courses.
The profession of teaching	12	13.6	I would have taught my lessons more efficiently when I became a teacher.
Quality of the course and students	7	8	My students would have attended classes more actively.
Happiness	7	8	I would have felt better since it also provides self-confidence.
Creativity	6	6.8	I think improvisation is the first step in terms of creativity.
Freedom	10	11.4	Being able to play without depending on notes would be a good communion.
Fast thinking	1	1.1	Improvisation is just like talking, and that provides fast thinking.
Total	88	100	

According to the findings regarding the question "What kind of gains do you think being able to improvisation on the piano will provide?" in table 13, it was stated that the most gain would be in instrument control and accompaniment (f=30). Besides, it was also stated that it would contribute to the profession of teaching (f=12), expressing oneself musically (f=10), and thinking fast (f=10).

Conclusion and Discussions

The results of the research on the reflection levels of the creative thinking skill levels of pre-service music teachers on their instruments (piano) and improvisation skills are considered:

The first result of the study is that the creative thinking levels of the pre-service music teachers are below the intermediate level. This result may have resulted from the fact that the research group was not adequately equipped with creativity, or the education they received was insufficient to support their creativity. Çevik's study (2004) also shows parallelism with this opinion. In this research carried out by Çevik regarding the competencies required for music teaching in the Undergraduate Program of the Department of Music Teaching, which came into force in 1998; it is stated that instructors, teachers, and students wanted and needed to make more use of technology in music education and to enrich their creativity in developing written, and/or visual teaching materials. Besides, he/she mentions that programs, including lessons for creativity, should be prepared.

The second result of the study is that there is a low level of correlation between the creative thinking levels of pre-service music teachers and gender, graduated high school, and the period of piano training. This result revealed that gender, graduated high school, and period of piano training did not affect the creative thinking skills of the research group within the scope of this study. Özben and Argun's study (2002) partially supports this result. While a significant correlation was found between the fluency and flexibility dimensions of creativity and gender in Özben and Argun's study, no significant correlation was found between the originality dimension and gender. The study of Batıbay and Piji (2006) supports the conclusion that there is no correlation between the level of creativity and the graduated high school. In the study of Batıbay and Piji, the creativity scores of pre-service teachers did not differ according to the type of high school they graduated from. These results constitute the opinion that studies for the development of creativity in fine arts high schools are not sufficiently included.

The third result of the study is that the improvisation skills of the pre-service music teachers are low. According to this result, it can be said that the research group was not sufficiently equipped in improvisation, the education they received was insufficient to support their creativity, or they did not have sufficient self-confidence to improvisation. The opinions of the research group on improvisation also support this view about the reasons for this result.

Pre-service music teachers stated, for improvisation, that piano lessons do not include studies on improvisation, that works are generally studied in lessons and practices based on notes are carried out, besides, there is not much work on improvisation in lessons other than Special Teaching Methods. They stated that being able to improvise on the piano will provide gains in instrument mastery and accompaniment playing and will contribute to the profession of teaching, musical expression, and free-thinking. In addition, they stated that they felt inadequate in improvisation.

The studies of Otacıoğlu (2006) and Çevik (2011) also support this view that the research group was not confident enough about improvisation. Otacıoğlu determined in his/her study, which examined the connection between musical perception and self-confidence of pre-service teachers who receive music education in institutions that train music teachers, and their schools and instrumental success levels, that self-confidence affected instrumental success. Çevik included in his/her study presenting pre-service music teachers' views on accompaniment playing lesson and their suggestions on the issues they had difficulty in the lesson. It is stated that students have difficulty in accompaniment composing to a school song and, as a solution suggestion, that teachers should apply teaching methods where students will gain self-confidence with activities for developing creativity and be able to compose improvisation.

The fourth result of the study is that there is a low level of correlation between improvisation skill levels of pre-service music teachers and gender, graduated high school, and period of piano training. This result revealed that gender, graduated high school, and the period of piano training did not affect the improvisation skills of the research group within the scope of this study. Considering the period of piano training of students who graduated from Fine Arts High school, and other high schools, the fact that their improvisation levels are low and that the graduated high school does not create a significant correlation with improvisation skills creates the idea that the education provided in Fine Arts High Schools does not support musical creativity.

The fifth result of the study revealed that there is a positive, low level, and statistically insignificant correlation between the creative thinking levels of the pre-service music teachers and their improvisation skill levels on the piano. This result may have resulted from the fact that the research group was insufficient in creativity and improvisation.

The reason for the research group's insufficiency in creativity and improvisation can be interpreted as that the education they received could not sufficiently support them in terms of creativity and improvisation. Studies of Kalkanoglu (2007, 13), Kalyoncu (2005), Görsev (2006), and Küpana (2013) state that courses taken can be effective in the development of creativity and improvisation skills.

Kalkanoğlu (2007: 13) states that the ability to improvisation accompaniment to a given melody is one of the most important features that a music teacher should have and that music teachers should have certain knowledge to be able to improvisational accompaniment. In his study, Kalyoncu (2005) dealt with the music teaching undergraduate programs changed within the scope of revising teacher training programs in education faculties within the scope of the National Education Development Project in 1998; He states that the courses aimed at teaching musical behaviors tend to be concentrated in the direction of making music (playing, singing, etc.), and that lessons for students to discover and develop their musical creativity should also be offered. It is also stated that since there is no course that allows improvisation in itself, improvisation activities within the scope of the Educational Music Composition and Accompaniment course can only encourage the development of musical creativity to a limited extent. Görsev (2006), in his/her study examining the relations between piano training, music theory and audition training and accompaniment lessons, and students' ability to create an improvised accompaniment to school songs, determined that students' academic success in these lessons and their ability to create an improvised accompaniment to school songs were at a moderate level in theoretical and practical dimensions. He/ she stated that the stand of the courses that affect the development of students' improvisation skills should be evaluated, and arrangements should be made. In his/her study examining the approaches that develop musical creativity, Küpana (2013) stated that the basic dimensions of musical creativity are composition and improvisation, and creativity is required to gain rendering skills in an instrument and vocal education. He/she stated that musical creativity requires proficiency in terms of melodic, rhythmic, and formal aspects, and therefore, efforts to develop a rich knowledge base in music education will be important in developing musical creativity.

The sixth result of the study is that pre-service music teachers are provided with a learning environment that supports creativity at an average level (providing a positive learning environment, supporting creativity) in piano lessons. It can be said that the low level of creative thinking and improvisation skill levels of the research group despite this result leads to the conclusion that they were inadequate in demonstrating or using these skills.

Another result of the study, for pre-service music teachers, is that the special teaching methods for improvisation and creative activities in play, dance, and music lessons are not enough to express themselves creatively; they only gain an idea about creativity in these lessons and have difficulty in transferring their limited experiences to other instruments or fields.

The study of Batibay and Piji (2006), which examined the correlation between the success of pre-service music teachers in music lessons and their musical creativity, revealed that students could not fully reflect their musical creativity to their success in music lessons.

The studies of Azzara (1992), Özer (2014), Kandemir (2009), Wright & Kanellopolos (2010), and Güleç (2017) reveal that one can be adequately equipped on this subject with the training given on improvisation and that this education can support creativity.

Azzara (1992) revealed that the improvisation program and improvisation studies applied to examine the effects of improvisation techniques based on audition on the musical achievement of primary school instrument students increased the musical success of students. Özer (2014) revealed that the analysis level in piano training, sight-reading, and improvisation is developed with the 10-week training he/she created to determine the effect of analysis (harmony/form elements) supported regular exercises in piano lessons to sight-reading and improvisation skills of functional piano skills. Kandemir (2009), in her study on the effect of improvisation studies on the musical creativity process with the Orff Approach, revealed that after 6 weeks of music lessons based on improvisation activities, the level of musical creativity of students increased. Wright and Kanellopolos (2010), in their study where they examined the effects of free improvisation course on the perceptions of pre-service teachers, revealed that teachers are important in developing teaching approaches in developing students' musical creativity and behaviors such as taking responsibility in music education. Güleç (2017) concluded that the 12-week planned improvisation activities, which were created to reveal the effects of improvisation practices in playing violin on students' musical creativity and violin performance, had positive effects on violin playing performance and improved the level of musical creativity.

Suggestions

Creativity can be defined as the individual generating new unique solutions by recognizing and questioning problems. Therefore, creativity is an action that has no boundaries and can be developed, and it can occur to different extents, in different areas and dimensions in each individual.

Creative individuals who are open, independent, more aware of their own inner world, who can develop new perspectives and judgments, explain the world in unique ways, who have developed in physical, psycho-social, and cognitive aspects and have acquired a positive identity will be able to affect the environment, society and culture, and therefore the country they live in positively.

Organizing creative learning environments in all areas of education will be an important factor in bringing up happy, independent, innovative, and creative individuals. In this regard, it is important for music teachers who are to guide through music education, which is one of the most suitable areas for the development of creative potential, to have creative education in the center of their training.

It can be said that instrument training in institutions that train music teachers mostly aims at improving technical and performance skills. However, it can be suggested that these lessons be organized in a way to train teachers who can use their instruments creatively and more effectively with various improvisations in music classes.

Considering the proficiency of music teaching, it is important that they are competent enough to fulfill the role and responsibilities expected from them, and therefore to reflect the pedagogical and creative transformations to the learning process.

Improvisation activities should be created that will enable the pre-service music teachers to reveal their creative potential and support their creativity and enable them to express themselves freely in a musical way and develop them in this sense. Improvisation studies will also contribute to music teacher candidates' aesthetic sensibility and their internalization of music by improving their musical skills. Creating activities on

improvisation, including movement improvisations as well as instrumental improvisations, will support pre-service music teachers to express themselves freely and creatively. Therefore, it can be suggested for university-level education to create or popularize course content in which creativity is supported in all courses, and pre-service teachers can transfer their creative potentials to various fields.

It can be suggested that this study should be re-conducted after the implementation of the activities or lessons planned for developing the creative potential of students and improvisation, and the reflection of creativity levels of students on their improvisation abilities should be re-examined. In addition, it can be suggested that this descriptive study conducted at the university level should be done with other instruments and different age groups.

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Prediction of Social Anxiety in Adolescence in the Context of Parental Attitudes and Emotion Regulation

Research Article

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ABSTRACT

This study was conducted to examine the relationships between high school students' social anxiety level and emotion regulation strategies and parental attitudes. 323 students studying at different types of high schools in Diyarbakır in the 2019-2020 academic years participated in the present study using the relational screening model. In the research, "Social Anxiety Scale for Adolescents", "Child Rearing Attitudes Scale", "Adolescent Emotion Regulation Questionnaire (AERQ)" and a personal information form prepared by the researcher were used. Descriptive statistics were explained in the analysis of the data, and the Pearson product-moments correlation coefficient and hierarchical regression analysis were used. According to the results, the model formed by the strict supervision / control attitude of the parents and the internal dysfunctional emotion regulation strategies used by adolescents predicts social anxiety, and the related variables can be risk factors for social anxiety in adolescence.

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Keywords:

Adolescence, Social Anxiety, Emotion Regulation, Parental Attitudes

Introduction

For many people in daily life, communicating with others or being in environments where social skills are prominent might cause anxiety and fear. Most people are disturbed by social environments in which they assume they are watched or when they do not know the nature of the gaze directed at them, these people avoid such environments or tolerate this situation with intense distress (Furmark, 2002). In environments where there is social interaction, the possibility of a person being evaluated negatively by another may cause fear and anxiety. According to Teachman and Allen (2007), social anxiety is defined as feeling uncomfortable

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being in areas with social interaction or being in conditions requiring performance. Feelings of avoiding this situation cause fear of being observed and evaluated by others. People with high social anxiety avoid social interaction areas because of the possibility of the person being rejected. People with social anxiety disorder may show some physical and emotional symptoms such as facial redness, sweating, tremors, heart palpitations, focusing problems, embarrassment, humiliation, and disapproval (Stein & Stein, 2008). The fear of being stigmatized and ridiculed like a stupid person causes a decrease in the person's social skills with a high and harsh self-criticism; it can also lead to alienation from situations such as making friendships or expressing opinions in a group (Cox, Fleet & Stein, 2004). It is accepted that social anxiety symptoms begin to occur in childhood, pre-adolescence, and late adolescence, when social interaction is considered intense and essential in the early stages (Rapee & Spence, 2004; Chavira & Stein 2005; Hofmann, Gutner & Fang, 2012). It is stated that early social anxiety symptoms are among the factors that can cause a decrease in functionality and a decrease in life satisfaction in family, peer relationships, academic achievement, work and other social interaction environments (Aderka, Hofmann, Nickerson, Hermesh, Gilboa-Schechtman, Marom, 2012; Kessler, 2003). It is stated that social anxiety is felt more intensely in interaction with other people, in situations that require physical performance, and it occurs commonly during developmental period transitions or environmental changes (Schmidt, 2008). Social anxiety symptoms in early childhood are associated with shyness (Hayward et al., 2008; Tsui, Lahat & Schmidt, 2016). It is known that shy boys have less trouble regulating negative emotions than girls who are shy (Theall-Honey & Schmidt, 2006). Johnson and Glass (1989) stated in their study that boys with high social anxiety had more difficulties in their relationships with girls than boys with normal social anxiety in terms of social skills, attention-grabbing, and ability to continue their conversation. On the emergence of social anxiety disorder, there might be multiple factors influential such as genetic factors, the timid temperament of the person, cognitive distortions related to the situation, stressful life events, exposure to peer bullying, neglect experience, lack of social skills or knowledge, the effect of learning mechanisms, the society being an individualist or collectivist culture, parenting styles, attachment (Stein & Stein, 2008; Wong & Rapee, 2016). Social anxiety experienced during adolescence is considered as a normal situation considering the importance given to the social environment of the adolescent, and it is stated that the social anxiety disorder starts at the age of 13 (Kessler et al., 2005) and the age at which it is felt most intensively is 15 years (Teachman & Allen, 2007; Kessler et al., 2012). In adolescence, when appearance is extremely important, the person's exposure to situations that may increase the level of social anxiety, may cause social anxiety to continue existing and increase its violence (Mash & Wolfe, 2002). While the mother and father represent the authority in the child's life, they also have a primary and supportive role in terms of the child's survival and social cohesion. The lack of reassuring parent roles can cause the child to activate the defense mechanisms and think they are threatened while with others (Türkçapar, 1999). In the early childhood period, there is a child that the parent tries to shape and a parenting structure that is tried to be formed (Maccoby, 1980). Considering that parental attitudes affect the child's physical, social, cognitive development and language development (Erdogan & Uçukoğlu, 2011), its importance becomes even more evident.

Baumrind (1996) discussed parental attitudes in three groups: authoritative/explanatory (authoritative), authoritarian and permissive. The authoritative family typology provides a democratic family environment. This environment does not damage the family's communication network and family relations due to different styles and opinions. Family can discuss different views and are not forced to agree on the same idea. After adolescence, when conflicts are more intense, family relationships can be restored, and it becomes easier and more moderate to meet at common points. Adolescents may experience conflicts with their parents from time to time, even while growing up in a democratic family environment. Still, when they give their parents emotional reactions, they react in a more balanced and controlled manner compared to adolescents who grow up in other family environments (Ersoy, 2013). Even if having a strict approach at times, the warm attitude of the parents helps the child fulfil reasonable and realistic expectations. It is known that parents who are

sensitive to the child's interests and skills and who are role models feed the social adaptation of their children (Bandura, 1977). On the other hand, parents with authoritarian attitudes aim to create a disciplined environment with harder and stricter attitudes while raising their children. In an authoritarian parenting style, the child is always expected to obey and meet expectations while responding with strict discipline and a cold approach. Controls, strict rules, prohibitions, and punishments can cause fear, anxiety, and low self-esteem in the child (Weiss, Dodge, Bates & Pettit, 1992; Chen, Dong & Zhou, 1997). Parental attitude, in which parents' influence on children is not evident, and the boundaries are not drawn, is defined as permissive parental attitude. There is a profile of accepting and warm parents who have a wide range of flexibility in the permissive attitude, who avoid punishing their children, whose behaviours are approved. It is also known that parents have fewer expectations and are reasonable for the child (Maccoby & Martin, 1983). Parenting styles were included in a study by Steinberg, Dornbusch and Brown (1992) with the dimensions of warmth, controlling and democracy according to adolescent development. Warmth is explained as being aware of the adolescent's emotional needs and responding to them. Control is explained by the way behaviours are supervised and shaped. Democracy is explained by respecting the feelings and thoughts of the adolescent and directing them to psychological autonomy. While warmth, control, and democracy can be seen at high levels in the authoritative parenting style, all three dimensions are seen at low levels in the uninvolved parenting style (Kerr, Stattin, & Özdemir, 2012). Takako (1994) states that the parents of people with social anxiety have high control, being disciplined, overprotection and emotional neglect. Overprotective parental attitude can cause parents to treat their children as if they are babies in need of care. Parents who want to be with their children at all times can make them selfish, irresponsible and spoiled. According to Carothers and Parfitt (2017), these children with overprotective parents may experience not being able to make their own decisions and lagging in social skills. It is claimed that the problems experienced in the context of relationships with parents, peers, and romantic relationships during adolescence and various difficulties in school life lay the groundwork for anxiety disorders and depression (Lee et al., 2014; Young, Sandman & Craske, 2019). With the adolescence period, changes occur in emotion regulation. Although there is a decrease in the sense of trust in parental support in emotion regulation, it is stated that problems may occur in internal functional emotion regulation strategies, and the use of dysfunctional strategies might decrease in the forthcoming periods (Zimmermann & Iwanski, 2014).

One of the variables examined in the current research is the concept of emotion regulation. Hofman (2007) states that social phobia is associated with difficulties in emotion regulation. The dimension of emotion regulation, which starts with the first stages of life and continues throughout life, turns into a state that begins to be shaped according to the self with the adolescence period and is structured by cognitive skills (Compas et al., 2017). The emotion that occurs with situational premises or an event requiring attention that has an internal or external trigger is experienced as a result of the person's implicit or explicit evaluation of whether it serves the purpose or not and leads to the occurrence of situational behavior (Jazaieri et al., 2013). Emotion regulation has been conceptualized as a set of efforts related to how and in which situations the existing emotions or newly emerged emotions of the person are experienced and expressed (Gross, 1998). Emotion regulation enables people to be aware of the changes in the situation caused by themselves or externally, adapt, manage, and analyze the process, and make changes when necessary (Bridges, Denham & Ganiban, 2004). The emotion regulation process, which is accepted as a pioneer on the individual's subjective well-being and functionality, is divided into two as functional or non-functional strategies within its context-specific context. If the emotion's type and intensity show a wrong course when it occurs, it can be in a confusing role and turn into a harmful state. The key role is to interpret emotions beneficially about the situation and develop the ability to cope with the situation. (Aldao & Nolen-Hoeksema, 2012). Gross (1998) mentions two strategies in the emotion regulation process as "premise-focused" and "response-oriented". Prediction-oriented strategies (e.g., re-evaluation) are used before the emotion emerges or while it is just about to emerge. In contrast,

response-oriented strategies (e.g., suppression of emotion expression) are used after the emotion has emerged. Although these strategies show that the emotion regulation strategy applied according to the target behavior is not functional or functional, they can be evaluated as positive or negative in terms of psychological health (Gross & John, 2003). Suppose the emotion is appropriate to the context of the message given to the person and provides the process of accepting and sustaining the emotion. In that case, it turns into a target-oriented and functional strategy (Power & Dalgleish, 1997). Otherwise, the person may tend to barricade with their emotions, suppress or reject their expression. This shows that a dysfunctional strategy was used. According to Nolen-Hoeksema and Aldao (2011), emotion regulation strategy, which is functional under normal conditions, may cease to be functional if it does not appear appropriate to the context (e.g., problem-solving strategy is a functional strategy when it is a solvable problem). In cases of social contact, the person can respond to stimuli in the outside world with cognitive, psychological or behavioral outputs while controlling potential stress factors with emotion regulation strategies (Garnefski, Kraaij & Spinhoven 2001). It is known that stress factors controlled by functional or non-functional strategies also include internal and external emotion regulation strategies. Using personal, internal resources while emotion regulation is done is called internal strategies whereas using environmental and external resources are called external emotion regulation strategies (Phillips & Power, 2007). While internal processes are at the forefront for adults, it is known that external strategies are mostly used in development processes (Gross & Thompson, 2007; Calkins & Hill, 2007).

According to Gross (2008), emotion regulation is related to one's emotions, the way one experiences emotions, the time it emerges and during the process of expressing the emotion. It is observed that dysfunctional strategies of emotion regulation are more prominent during and after adolescence. Inability to regulate negative emotions adequately can lead to the use of dysfunctional strategies and mental health problems (Gullone, Hughes, King & Tonge, 2009). It is known that re-evaluation, which is among the compatible strategies of emotion regulation, is associated with more positive mental health benefits for adolescents (Bonanno, Papa, Lalande, Westphal, Coifman, 2004). The suppression strategy, which is among the dysfunctional strategies of emotion regulation, causes negative mental health effects as it does not allow emotion expression (Gullone & Taffe, 2012). Inability to regulate emotions can increase adolescents' emotional and behavioral problems and their tendency to depression, aggression or substance abuse (Stein et al., 2006).

Many studies stated that people with high social anxiety levels define their parents as overprotective, apathetic, and rejecting (Hudson & Rapee, 2000). Therefore, considering the social functions of perceived parental attitude and emotion regulation skills in adolescence regarding the bases of social anxiety, this study aims to examine the relations of social anxiety, parental attitudes and emotion regulation strategies. In line with this general purpose, the following questions were sought:

1. Is there a significant relationship between high school students' social anxiety levels, emotion regulation strategies and parental attitudes?
2. Do parental attitudes and emotion regulation strategies used by adolescents significantly predict the level of social anxiety in adolescents?

Method

Research Model

The research is designed in a relational screening model. The relational screening model aims to determine the presence and degree of co-change between two or more variables (Karasar, 2012). In this context, the study's main purpose is to examine the relationships between high school students' social anxiety levels, emotion regulation strategies, and parental attitudes. Students' social anxiety levels as predicted variable, emotion regulation strategies and parental attitudes were examined as predictor variables.

Study Group

The current study was carried out with preparatory class, 9th, 10th, 11th, and 12th-grade students studying in 4 different high schools in Diyarbakır in the 2019-2020 academic year. The research universe is high school students living in Diyarbakır and studying at schools in Diyarbakır city centre districts in the 2019-2020 academic year. The study sample is 323 high school students. The schools where the scales are applied consist of schools that provide education in public and private schools and differ in terms of factors such as academic success levels and socio-economic characteristics of students. A total of 323 students, 181 females (56%) and 142 males (44%) participated in the study. The ages of the participants are between 14-19; the average age is 15.8. 66.3% of the students study in public school and 33.7% in private school. Individuals participating in the study were selected by a simple random sampling method, and volunteering was used for participation in the study.

Data Collection Tools

The data of the present study were collected using "Personal Information Form", "Social Anxiety Scale for Adolescents", "Child Rearing Attitudes Scale" and "Emotion Regulation Scale for Adolescents".

Personal Information Form

The Personal Information Form was created in order to obtain various demographic data about the students participating in the research. The related form includes questions about age, gender, grade level, and school type.

Social Anxiety Scale for Adolescents

The social anxiety scale for children was developed by LaGreca, Dandes, Wick, Shaw and Stone (1988) and the scale was adapted for adolescents by LaGreca and Lopez (1998). It contains three subscales: Fear of Negative Evaluation (FNE), Social Avoidance and Distress-New (SAD-New) and Social Avoidance and Distress-General (SAD-Gen). The adaptation study of the scale into Turkish was carried out by Aydın & Tekinsav-Sütçü (2007). The Cronbach Alpha internal consistency of the scale was found to be .83 for the (FNE), .68 for the SAD-Gen, .71 for the SAD-New, and .88 for the whole scale. In the present study, the internal consistency for the whole scale was .82; The internal consistency of the sub-dimensions was determined as .79 for "fear of negative evaluation", .63 for "social avoidance and distress in general situations", and .64 for "social avoidance and distress in new situations".

Child Rearing Attitudes Scale

The Child-Rearing Attitudes Scale was developed by Maccoby and Martin (1983) as a result of the studies of Steinberg et al. (1992). The adaptation study of the scale into Turkish was done by Sümer and Güngör (1999). The Cronbach Alpha internal consistency coefficient for the mother subscale of the scale is .75, while the acceptance/care/affection sub-dimension Cronbach Alpha reliability coefficient is .90. The strict supervision/control sub-dimension of the scale was found to be .78. Father subscale explains 60.2% of the total variance and consists of five factors. The Cronbach Alpha internal consistency coefficient of the father subscale, made with 21 items, is .82. Cronbach Alpha reliability coefficients of acceptance / care / love and strict supervision / control sub-dimensions are .91 and .80, respectively. In this study, the internal consistency coefficient was .72 for the whole mother subscale, .87 for the acceptance/care/affection sub-dimension, and .78 for the strict supervision/control sub-dimension. The internal consistency coefficient for the entire father subscale was .80, .88 for the acceptance/care/affection sub-dimension, and .83 for the strict supervision/control sub-dimension.

Adolescent Emotion Regulation Questionnaire (AERQ)

Adolescent Emotion Regulation Questionnaire (AERQ) was developed by Phillips and Power (2007), and an adaptation study of the scale into Turkish was done by Duy and Yıldız (2014). Internal consistency reliability coefficients were .53 for the internal-functional emotion regulation sub-dimension, .56 for the external-dysfunctional emotion regulation sub-dimension, .36 for the internal dysfunctional emotion regulation sub-dimension, and .44 for the external-functional emotion regulation sub-dimension. In this study, the internal consistency coefficient for the whole of AERQ was .67; 80 for internal functional emotion regulation, .56 for external functional emotion regulation, .71 for internal dysfunctional emotion regulation, and .74 for external dysfunctional emotion regulation has been found.

Data Analysis

The analysis of the data obtained within the study's scope was made using the IBM SPSS-24 (Statistical Package for Social Sciences) package program. The data were first examined in terms of univariate and multivariate normality assumptions. For this purpose, the skewness - kurtosis values of the data were calculated within the scope of the univariate normality assumption. It has been determined that the relevant values are between -1.5 and +1.5. In order to verify the normality assumptions, the kurtosis-skewness values of the data should be between -1.5 and +1.5 (Tabachnick & Fidell, 2007). In this context, it is seen that the available research data show a normal distribution. In order to test multivariate normality assumptions, the Durbin-Watson coefficient and VIF values were calculated. Whether there is an autocorrelation problem among the study variables was tested by calculating the Durbin-Watson coefficient. The Durbin-Watson coefficient calculated for the study's independent variables, parental attitudes and emotion regulation strategies, and the dependent variable, social anxiety, was found to be $d = 1.808$. The Durbin-Watson coefficient, which takes a value between 1.5-2.5, according to Kalaycı (2008), indicates that there is no autocorrelation problem between the variables. The variance inflation factor (VIF) and tolerance values were examined to test the multicollinearity problem among the independent variables discussed in the study. VIF values for independent variables are between 1.10 and 1.64; It has been determined that the tolerance values are between 0.6 and 0.9, the VIF value less than 10 and the tolerance values greater than 0.2 show that there is no multiple connection problem regarding the independent variables (Field, 2005). Thus, it is seen that the present study provides the necessary conditions for regression analysis. Pearson correlation coefficient was calculated to determine the relationships between variables. Hierarchical linear multiple regression analysis was used to determine the predictive power of emotion regulation skills and parental attitudes towards social anxiety.

Findings

In this section, the analysis results made to determine the relationship between the emotion regulation skills of adolescents and parental attitudes with their social anxiety levels are included. In Table 1, values showing descriptive statistics regarding the variables of the research are presented.

Table 1. Descriptive Statistics Regarding the Variables of the Study

Variable	<i>N</i>	<i>Min</i>	<i>Max</i>	\bar{X}	<i>Sd</i>	<i>Skewness</i>	<i>Kurtosis</i>
Fear of Negative Evaluation	323	1.00	5.00	2.13	.86100	.945	.697
Social Avoidance and Distress-General	323	1.00	5.00	1.93	.75015	1.112	1.379
Social Avoidance and Distress-New	323	1.00	5.00	2.50	.78303	.372	.062

Mother acceptance/care / affection	323	1.00	5.00	3.72	.80717	-.725	.134
Mother Strict supervision/control	323	1.18	5.00	2.98	.73736	.062	-.063
Father Acceptance/care/ affection	323	1.00	5.00	3.44	.87613	-.389	-.335
Father strict supervision/control	323	1.00	5.00	2.89	.82911	.170	-.265
Internal Functional Emotion Regulation	323	1.00	5.00	3.80	.85841	-.751	.362
Internal Dysfunctional Emotion Regulation	323	1.00	5.00	2.94	.91081	.182	-.562
External Functional Emotion Regulation	323	1.00	5.00	2.99	.88342	-.103	-.365
External Dysfunctional Emotion Regulation	323	1.00	5.00	2.25	.87770	.784	.270

Table 2. The Relationships Between Students' Social Anxiety Levels, Emotion Regulation Strategies and Parental Attitudes

Variables	1	2	3	4	5	6	7	8	9	10	11
1. Fear of Negative Evaluation	1										
2. Social Avoidance and Distress-General	.591**	1									
3. Social Avoidance and Distress-New	.568**	.537**	1								
4. Mother acceptance/care / affection	-.096	-.132*	-.079	1							
5.Mother strict supervision/control	.177**	.156**	.192**	-.162**	1						
6.Father acceptance/care/affection	-.167**	-.192**	-.138*	.464**	-.035	1					

7. Father strict supervision/control	.170**	.117**	.128*	.075	.547**	-.053	1				
8. Internal Functional Emotion Regulation	-.033	-.055	-.072	.259**	.187**	.154**	.107	1			
9. Internal dysfunctional Emotion Regulation	.328**	.284**	.276**	-.278**	.376**	-.296**	.146**	.031	1		
10. External Functional Emotion Regulation	-.018	-.029	-.078	.337**	.045	.289**	.015	.301**	-.076	1	
11. External dysfunctional Emotion Regulation	.075	-.017	-.044	-.090	.137*	-.046	.104	-.155**	.331**	.027	1

Note: * $p < .05$; ** $p < .01$

Considering the Pearson correlation coefficients related to the fear of negative evaluation, which is one of the sub-dimensions of social anxiety, in Table 2, the fear of negative evaluation and the strict supervision / control attitude of the mother ($r = .177$; $p < .01$), the strict supervision / control attitude of the father ($r = .170$; $p < .01$) and internal dysfunctional emotion regulation ($r = .328$; $p < .01$) have positive correlation; and there is a negative correlation between father acceptance / care / affection attitude ($r = -.167$; $p < .01$). There is a significant negative correlation between social avoidance and distress and mother acceptance / care / affection attitude ($r = -.132$; $p < .05$) and father acceptance / care / affection attitude ($r = -.192$; $p < .$). However, there is a positive correlation between social avoidance and distress in general situations and the strict supervision / control attitude of the mother ($r = .156$; $p < .01$) and the strict supervision / control attitude of the father ($r = .117$; $p < .01$). In addition, there is a positive significant relationship between social avoidance and distress and internal dysfunctional emotion regulation ($r = .284$; $p < .01$) in general situations.

It is observed that there is a negative correlation between social avoidance and distress in new situations, which is the sub dimension of social anxiety and father acceptance/care/affection ($r = -.138$; $p < .05$). It is seen that there is a positive correlation between social avoidance and distress in new situations, mother strict supervision/control attitude ($r = .192$; $p < .01$), father strict supervision/control attitude ($r = .128$; $p < .01$) and internal dysfunctional emotion regulation ($r = .276$; $p < .01$).

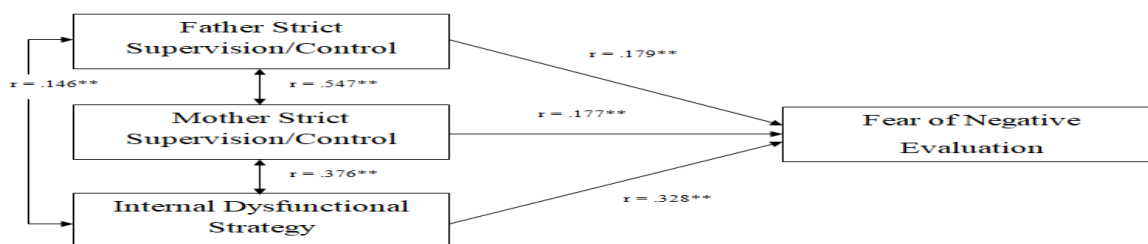


Figure 1. The model obtained on the relationship between fear of negative evaluation and father strict supervision / control, mother strict supervision / control, and internal dysfunctional strategy

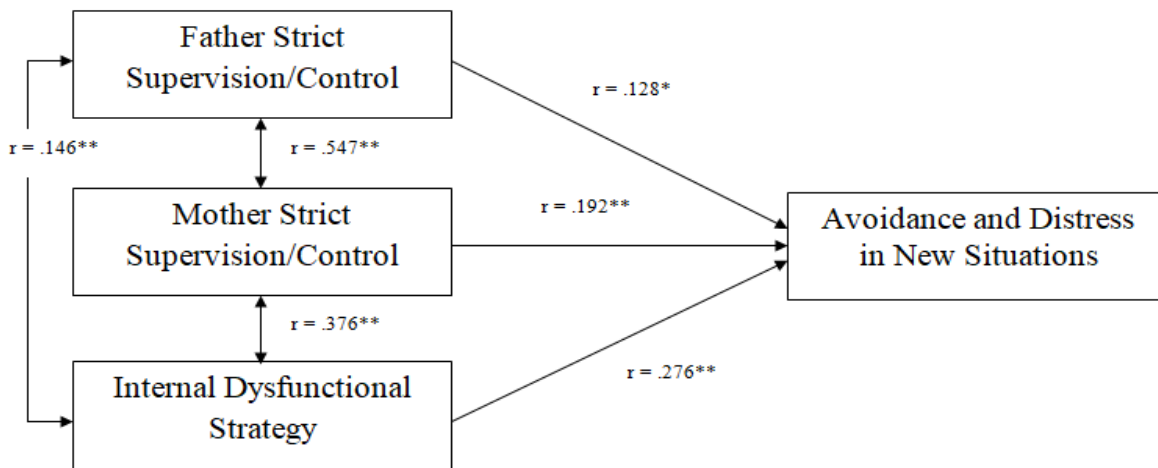


Figure 2. The model obtained on the relationship between social avoidance and distress in new situations and father strict supervision / control, mother strict supervision / control, and internal dysfunctional strategy

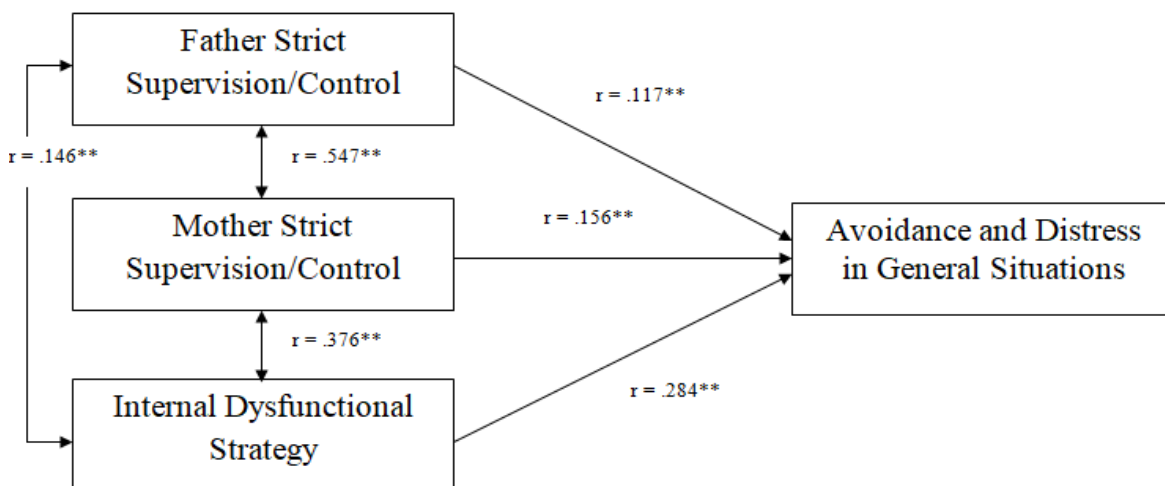


Figure 3. The model obtained on the relationship between social avoidance and distress in general situations and father strict supervision / control, mother strict supervision / control and internal dysfunctional strategies

Table 3. Hierarchical Regression Analysis Results depicting Prediction of Social Avoidance and Distress in General Situations, regarding Students' Emotion Regulation Strategies and Parental Attitudes

Model	R	R ²	R ² (Adj)	Std.Err.	F	P
FSSC	.117	.014	.011	.74619	4.426	.036
FSSC/ MSSC	.160	.026	.020	.74277	4.216	.016
FSSC/ MSSC/ IDERS	.295	.087	.078	.72024	10.099	.000

FSSC: *Father Strict Supervision / Control*
 MSSC: *Mother Strict Supervision / Control*
 IDERS: *Internal Dysfunctional Emotion Regulation strategies*
 Dependent Variable: *Social Avoidance and Distress in General Situations*

When Table 3 is examined, it is determined that in the first model, strict supervision / control attitude of the father significantly predicts the level of social avoidance and distress in general situations ($p < .05$) and explains the total variance by 1.4%. The mother strict supervision / control attitude added to the model in the second step contributed significantly to the model ($p < .05$) and explained the total variance by 2.6%. In the third and last step, when the internal dysfunctional emotion regulation strategy was added to the model, it was determined that the model was significant ($p < .05$) and explained the total variance by 8.7%.

Table 4. Hierarchical Regression Analysis Results Depicting the Prediction of Social Avoidance and Distress in New Situations, Sub-Dimensions of Social Anxiety, regarding Students' Emotion Regulation Strategies and Parental Attitudes

<i>Model</i>	<i>R</i>	<i>R</i> ²	<i>R</i> ² (<i>Adj</i>)	<i>Std.Err.</i>	<i>F</i>	<i>P</i>
FSSC	.128	.016	.013	.77780	5.344	.021
FSSC/ MSSC	.194	.037	.031	.77063	6.226	.002
FSSC/ MSSC/ IDERS	.296	.087	.079	.75157	10.175	.000

FSSC: *Father Strict Supervision / Control*
 MSSC: *Mother Strict Supervision / Control*
 IDERS: *Internal Dysfunctional Emotion Regulation strategies*
 Dependent Variable: *Social Avoidance and Distress in New Situations*

As seen in Table 4, in the first model, it was determined that the strict supervision/control attitude of the father significantly predicted the level of social avoidance and anxiety in new situations ($p < .05$) and explained the total variance by 1.6%. In the second step, the mother, strict supervision / control attitude, added to the model contributed significantly to the model ($p < .05$) and explained the total variance by 3.7%. In the last step, by adding the internal dysfunctional emotion regulation strategy to the model, it was determined that the model was significant ($p < .05$) and explained the total variance by 8.7%.

Table 5. Hierarchical Regression Analysis Results Regarding the Prediction of Negative Evaluation Dimension, One of the Sub-Dimensions of Social Anxiety, by Students' Emotion Regulation Strategies and Parental Attitudes

<i>Model</i>	<i>R</i>	<i>R</i> ²	<i>R</i> ² (<i>Adj</i>)	<i>Std.Err.</i>	<i>F</i>	<i>P</i>
FSSC	.170	.029	.026	.84980	9.544	.002
FSSC/ MSSC	.198	.039	.033	.84667	6.496	.002
FSSC/ MSSC/ IDERS	.350	.123	.115	.81019	14.885	.000

FSSC: *Father Strict Supervision / Control*

MSSC: *Mother Strict Supervision / Control*

IDERS: *Internal Dysfunctional Emotion Regulation strategies*

Dependent Variable: Fear of Negative Evaluation

When Table 5 is examined, it is determined that in the first model, strict supervision / control attitude of the father significantly predicts the fear of being evaluated negatively ($p < .05$) and explains the total variance by 2.9%. In the second step, mother strict supervision / control attitude was added to the model. It is determined that the model is significant ($p < .05$) and explains the total variance by 3.9%. With the internal dysfunctional emotion regulation strategy added to the model in the third and last step, it is seen that the model is significant ($p < .05$) and explains the total variance by 12.3%.

Discussion, Conclusion and Recommendations

The present study aimed to examine the relationships between high school students' social anxiety level and parental attitudes and emotion regulation strategies. According to the research results, it was concluded that there is a relationship between social anxiety, child-rearing attitudes and emotion regulation strategies. The first finding obtained within the study's scope is that between the fear of negative evaluation, which is one of the sub-dimensions of social anxiety, and the father's accepting, caring and loving attitude; There is a positive and significant relationship between parent strict supervision and control attitude. The findings of the study are similar to the studies in the related literature. In a study conducted by Chen, Liu and Li (2000) with a group of children from 12 to 14 years of age, it was concluded that fathers' warm and tolerant attitudes significantly predicted children's social adaptation and academic success. In an accepting, caring, and loving family environment, the children who are old enough to take care of themselves and their parents continue to spend time and share together, allowing the child to maintain functionality and emotional ties in the family despite his advanced age (Kağıtçıbaşı, 1982). When the current research results are considered, it is found that in a relationship where the parents offer acceptance, care and love, the adolescent develops higher self-esteem and less fear of negative evaluation. From another point of view, when the related literature is examined, it is observed that the lack of social skills and the need for external control increase in adolescents who are brought up with a pronounced parental control; It is suggested that this situation is also related to the fear of negative evaluation (Lieb et. al., 2000; Rubin, Cheah & Fox, 2001; Coplan, Prakash, O'Neil, & Armer 2004; Cankardaş, 2019). It is discussed that the family environment, which is the starting point of social relations, giving the adolescent personal space, being away from judgmental attitude and rather having supportive attitude, is an essential factor in the individual's self-expression. It is thought that the adolescent's concerns that his feelings and thoughts will be evaluated negatively through being judged, criticized and supervised have increased. In the study conducted by Allaman, Joyce and Crandall (1972), it is stated that children who are raised with a strict parenting style experience more intense approval anxiety. Similarly, in a study conducted by Koydemir-Özden and Demir (2009), it was determined that the fear of negative evaluation mediates the relationship between the harsh and controlling attitudes of the parents and the fear of rejection and shyness. It is stated that children who grow up in family environments where the democratic parental attitude is dominant, which is known as the opposite of strict and authoritarian parental attitude, are able to express their opinions better and have less fear of rejection (Kelley, Brownell, & Campbell, 2000). Considered in this context, it is thought that the adolescent experiences the fear of negative evaluation, which manifests itself with symptoms such as anxiety of being approved and criticized, and difficulty in expressing himself in interpersonal and social relations, in the face of the strict and strict controlling attitude of the parents.

According to another result obtained from the present study, social avoidance and distress in general situations are negatively affected by the parents' accepting interest and love attitude; and positively affected

by Parents' strict supervision attitude. The strict disciplinary practices of their parents and their attitude towards low emotional support increase individuals' social anxiety symptoms (Takako, 1994; Hudson & Rapee, 2000). In this context, it is evaluated that avoiding social situations and feeling distress is related to parental control and restrictions. It is thought that adolescents who grow up under supervision and pressure generally experience a general avoidance in social situations, with the generalization that concerns such as approval and criticism developing in the family can be seen in other social relationships.

Social anxiety avoiding new situations and discomfort dimensions were negatively affected by the father's accepting, caring and loving attitude; It is observed that there is a positive relationship between the strict supervision and control attitude of the mother and father. It is known that the physical, cognitive and emotional changes experienced during adolescence are new and challenging and affect the relationship the adolescent establishes with his social environment. In this context, the concept of "imaginary audience" emerges as an essential factor. The imaginary spectator, which is seen in adolescents and expresses his belief that his environment is watching the adolescent, is defined as the adolescent who has directed the focus of attention to himself, the adolescent who is constantly watching him, interested in his behavior, observing his appearance always, and presenting his performance to the audience in his mind (Elkind, 1967. Galanaki, 2012). Considering that ego development during adolescence is shaped in the context of egocentrism (Elkind, 1967), it is stated that the adolescent tends to maintain his social and interpersonal relationships with the belief of "imaginary follower" (Lapsley, 1993; Frankenberger, 2000). In this context, it is considered that the adolescent's behavior of avoiding new situations in social environments increases when being watched frequently by his / her parents who have a strict supervision and controlling attitude and having the anxiety of being criticized is combined with the imaginary audience belief.

According to another result obtained from the present study, there is a positive relationship between internal dysfunctional emotion regulation and social anxiety sub-dimensions. This finding overlaps with many studies in the relevant literature (Kashdan & Breen, 2008; McLean, Miller & Hope, 2007; Perini, Abbott & Rapee, 2006; Brozovich & Heimberg, 2008). One of the internal dysfunctional emotion regulation strategies, suppression, manifests itself as inhibition of emotion expression. Ignoring or avoiding one's emotions or focusing on negative thoughts repeatedly refer to dysfunctional emotion regulation strategies. In a study conducted by Sackl-Pammer et al. (2019), it is stated that adolescents with high social anxiety levels use suppression and rumination, among dysfunctional emotion regulation strategies, more than adolescents with low social anxiety levels. Considering the results obtained in the present study, it is evaluated that social anxiety level increases as the adolescent uses strategies that lead to negative emotions such as suppression and avoidance rather than re-evaluation, interpretation, and problem-solving face of a situation. Similar to the research results, it is observed that there is a negative relationship between the intense use of dysfunctional emotion regulation strategies such as suppression and avoidance and social anxiety symptoms (Aldao, Nolen-Hoeksema, & Schweizer 2010; Aldao, Jazaieri, Goldin, & Gross, 2014).

In the present study, it was concluded that the strict supervision-control attitude of the father, the strict supervision-control attitude of the mother, and the internal dysfunctional emotion regulation strategies together significantly predicted the sub-dimensions of social anxiety. The model created in the regression analysis shows that the mother's strict supervision-control attitude is more powerful than the father's strict supervision-control attitude to predict social anxiety in adolescents. However, the related model shows that if the mothers of the adolescents who were raised with the strict supervision-control attitude of the father have a similar strict supervision and control attitude, the level of social anxiety in adolescents is explained at a higher rate. There are studies showing that the mother's strict supervision and control attitude is a predictor of social anxiety in adolescents (Akyıl, 2000; Festa & Ginsburg, 2011; Rork & Morris, 2009). Parental control prevents the child from discovering new environments and the development of coping skills with the

problems he/she encounters and causes him to be more anxious (Barlow, 2002). Bögels and Brechman-Toussaint (2006) states that parents' negligent and intrusive attitudes cause inhibition of emotional expression and an increase in social anxiety levels of adolescents. Considering the relevant results, in one of the studies conducted in our country (Sümer & Güngör, 1999), when the acceptance/care and strict supervision/control dimensions for mothers and fathers were considered, it was observed that fathers were considered to be more supervising and controlling parents than mothers. Similarly, it is observed that fathers stay behind mothers in showing affection and care, and adolescents perceive them as a parent who punishes and supervises more (Yörükoğlu, 1992). In another study examining the relationship between parental attitudes and social anxiety, it was emphasized that fathers set less limits on their children than mothers; they tend to control less and offer more freedom to children (Bögels & Phares, 2008). In addition, high anxiety levels of parents cause them to develop an overprotective attitude, which causes an increase in children's anxiety levels (Woodruff-Borden, 2002; Van der Bruggen, Stams, & Bögels, 2008). When our country's traditional family structure is considered, the relationship between father and child is considered to be more distant than the mother. However, mothers are less involved in business life, taking a more active role in raising children than fathers, enabling mothers to spend more time with their children. It is thought that the intimacy of the relationship between the mother and the adolescent and the attitude of the parents are the factors that determine the social anxiety level of the adolescent. In this context, the fact that adolescents spend more time with their mothers than their fathers enable them to receive more feedback from their mothers on issues such as school, social life, and friendship relations. Considering the related findings, it is possible to say that the autonomous behavior potential of adolescents who are faced with a similar attitude of the mother in cases where the father's strict control and control attitude is dominant may be damaged. However, it is thought that the adolescent who experiences emotions such as being controlled and criticized very frequently may be using avoidance as a defense mechanism. Thus, the behavior of avoiding meeting with other people in social settings and the fear of being evaluated negatively arises. It is thought that adolescents who grow up with a strict control and control attitude may have an increased level of self-defect or inadequate perception and social anxiety symptoms. However, in the last step of the model created within the scope of regression analysis, it was found that the use of internal dysfunctional emotion regulation strategies together with the strict control and control attitude of the father and mother predicted the level of social anxiety at a higher level. Each-individual uses some emotion regulation strategies that may differ according to the situation or emotional reactions to regulate his emotions in the face of various situations (Gross, 1998). Cole, Michel, and O'Donnell (1994) stated that functional emotion regulation strategies enable the individual to behave more flexibly in the face of new experiences and situations gained in social environments (p.76). However, emotion regulation turns into internal functions with the advancing age and serves psychosocial development; many studies are showing that dysfunctional emotion regulation strategies or emotion regulation difficulties are associated with depression and anxiety (Turk, Heimberg, Luterek, Mennin, & Fresco, 2005; McLaughlin, Hatzenbuehler & Hilt 2009; Compas et al., 2017; Schafer, Naumann, Holmes, Tuschen-Caffier & Samson, 2017). Although it is difficult for adolescents with high social anxiety to be in a social environment, the feeling of inadequacy they feel causes a significant emotional burden and enables them to live in a self-focused manner (Clark & McManus 2002). Studies are showing that dysfunctional emotion regulation strategies such as suppression and avoidance are associated with anxiety (Aldao, Nolen-Hoeksema, & Schweizer, 2010; Kring & Sloan, 2010). Similarly, it is known that individuals with high social anxiety levels prefer to avoid environments and situations where negative emotions may arise (Jazaieri, Morrison, Goldin, & Gross, 2015). Within the framework of the current research findings, it is thought that the increase in social anxiety levels, as well as the fact that the emotion regulation strategies used by adolescents who grow up with strict supervision and control attitude in the face of a negative situation, consist of dysfunctional strategies such as suppression and avoidance, may be caused by various factors. Adolescents who were raised with parental attitudes such as being supervised and criticized had low autonomy, low self-esteem, and negative self-perceptions and the

inability to express their emotional and social experiences. With the use of dysfunctional emotion regulation strategies such as avoiding and suppression, their social anxiety levels also increased. However, in addition to the intense criticism, supervision, and frustration attitudes from their parents, it is evaluated that the adolescent's use of internal dysfunctional emotion regulation strategies more intensely causes him to avoid seeking social support and to avoid experiencing negative attitudes that he frequently encounters in the family environment. When the results obtained from the present study are considered in this context, it is concluded that adolescents who grow up with strict supervision and control attitudes of parents resort to internal dysfunctional emotion regulation strategies more frequently, causing high social anxiety, the adolescent's fear of being negatively evaluated more frequently and avoiding social situations.

The importance of parental attitude and emotion regulation strategies, which are among the variables that may be related to adolescents' social anxiety level, came to the fore again with this study. It is thought that psychoeducational studies on social anxiety and functional emotion regulation strategies are necessary for adolescents who continue their education in secondary schools & high schools and their parents. The sample of this study is limited to some high schools in Diyarbakır. It is thought that studies to be conducted with more comprehensive and different samples may provide more extensive and clearer findings for the literature on the relevant subject.

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Informal Relationships as a Predictor of Organizational Commitment in Schools of Turkey as a Collectivist Society

Research Article

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ABSTRACT

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In schools, as formal organizations, formal relationships defined by formal rules for employees exist, and informal relationships (natural, intimate) as a form of social relations are experienced as well. Intimate, face-to-face, and natural relations experienced at a national level are reflected in the organizational relationships in Turkey, where a collectivist culture structure is dominant. With their loose structure, schools are among the organizations in which such relationships are experienced intensely. It is expected that natural, informal relationships between school employees will increase teachers' organizational commitment. The purpose of the research, for which the survey method is employed, is to explore informal relationships in primary schools and organizational commitment levels of school employees in administrators' and teachers' views and to determine whether they are correlational. The sample of the study consists of 465 administrators and teachers who work primary schools in Diyarbakir provincial and district centers. The research concludes that Schools have moderate and positive informal relationships. Informal relationships are not advanced outside of school and employees do not establish personal communication outside of work. There is a moderate level of organizational commitment in schools. Employees' commitment to the organization they work for is higher in terms of the adaptability dimension in which more importance is given to financial benefits and obligations rather than identification or internalization. The research concludes that there is a positive, moderate correlation between informal relationships and organizational commitment levels of school employees and intra-and-extra organizational informal relationships among teachers significantly predict their school commitment.

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Keywords:

informal relationships, organizational commitment, school, collectivist society

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Introduction

Communication is the main factor underlying all social interactions. If man is deprived of socializing effect of communication, it means he is merely a biological entity (Bilgiç, 2006). Organizations in modern societies are mostly shaped by formal relationship network as they are managed through bureaucratic understanding. However, human beings, as psycho-social creatures, cannot do only with inflexible, predefined formal relationships, but also build informal ones in time (Yılmaz, 2007). The Hawthorne studies, conducted by Mayo and et.al, observed that employees formed informal groups and developed friendships. Those studies showed some psycho-social motives in individual motivation such as communication, involvement in decision making and human relations were more influential than economic ones; thus, natural (informal) groups were more influential than formal groups in organizational goal attainment (Sabuncuoğlu, 1984; Varol, 1993: 29).

While playing their social roles, man, as a social being, may develop a multidimensional, complicated relations network with those who have different status and roles in society (Eserpek, 1981; Türkkahraman, 2009). Groups formed by individuals in interaction are quite diverse. The theory of Charles Cooley (1909/1962), which distinguishes groups as primary and secondary based on the forms of interpersonal social relationships, is of significance in the literature of sociology. However, Ferdinand Tönnies (1877/1957) made a distinction between social groups and members in the context of the character of the relationships with *Gemeinschaft* (community) and *Gesellschaft* (society), while Emile Durkheim (1893/1960) did so with the typology of "mechanical-organic solidarity". In these approaches, primary groups, community, and social structures with mechanical solidarity are quite similar in terms of cultural characteristics. Likewise, the classifications of secondary groups, community, and organic solidarity are very similar. The characteristics of social groups and dominant human relations are given in a comparative manner in Table 1.

Table 1. Comparison of characteristics of social groups

Informal-Community Type-Primary Groups	Formal-Society Type-Secondary Groups
Affective, intimate, face-to-face	Pragmatic, hierarchical
Personalities-real	Status quoist-Corporate
Spontaneous-affective behaviors	Behaviors by rules
Life-sustaining, natural togetherness	Goal oriented (Role-Status) togetherness
Overwhelming We-feeling	Overwhelming I-feeling
Oral communication	Generally written communication
Family, friendship, citizenship, neighborhood	Governmental Agency
Converging interests	Conflicting interests
Abstentious individual	Competitive and ambitious individual
Agriculture-based economy	Industry-science-and-technology-based economy
Limited social change	Rapid social change
Voluntary relationships	Contractual relationships
Ascribed social status	Achieved specialization-required status
Religions, customs, and traditions	Written norms such as laws and contracts

As it is clear from the table 1, primary, intimate, natural informal relationships are seen in community type social groups, whereas hierarchical, status quoist and goal oriented relationships are highlighted in society type formal structures where secondary relationships are dominant. In informal (natural) groups, with a strong feeling of solidarity, sympathy, antipathy, love and hate are simultaneously felt (Aslan, 1997, 81-84; Eren, 1989, 91; Fichter, 2004: 71; Tezcan,1995: 63). Such informal or natural relationships which are spontaneously developed between employees who spend most of the day in the workplace, beyond hierarchical order defined by formal rules are a social reality (Sabuncuoğlu, 1984). However, the form and intensity of informal relationships varies from culture to culture.

In his book titled "Culture's consequences: National differences in thinking and organizing" published in 1980, Hofstede proposed six dimensions that reveal cultural differences by separating societies into cultural clusters. Among these dimensions, the dimension of individualism/collectivism is the most discussed cultural differentiation dimension in theoretical and empirical organizational studies (Hofstede, 1980).

The majority of the world population consists of people who prefer group relations to individual relationships. Children growing up in such societies defined as collectivists involuntarily become a part of the web of relationships in which they are at the center of the understanding of "we". Group loyalty is very important. Thus, a mutually dependent relationship develops between the individual and the group both in daily life and psychologically (Hofstede et al., 2010, 90-91). A minority of the world population are individualist societies that prefer the interests of the individual to the interests of the community. In such societies, children are born into a family structure with parents and possibly children. Relations with relatives are rather shallow and weak. In individuals raised in families defined as nuclei in terms of their structure, the consciousness of "I" forms the personality character and identities. To be a healthy individual in this type of society, there is no need for any group consciousness that requires psychological or physical support (Hofstede, 2001, 227; Hofstede et al., 2010, 91). In such individualistic societies, both business relations and relationships in social life are at a distant level with certain norms to protect the private sphere. However, close relatives, fellow citizenship and friendly relations that prevail in collectivist societies are also reflected in business life, which is structurally formal, and can overshadow the essential formal communication when it is not controlled administratively.

Turkey is a Eurasian country undergoing a process of social change between modern and secular targets with its multicultural social structure and agricultural-religious tradition. Particularly during the last quarter of the century, the rapid development and integration into the global impact on science and technology, and notably on economy, seem to have accelerated the cultural change in Turkey in a highly versatile and surprising way (Saylık, 2017). Depending on this rapid change, Turkey owns a collectivist structure which is culturally evolving into individualism.

According to Hofstede (1980b) study, Turkey is ranked among the group of the Middle East, Latin American, African, and Asian countries with 37 points taken in individualism scale, revealing a relatively collectivist cultural structure (Hofstede, 1984b). In this respect, Turkey is a country that highlights the close interpersonal relationships (İmamoğlu, 1987; Kağıtçıbaşı, 1984) and where culture of acting together is relatively more dominant (Sargut, 2015, 185). Therefore, even in organizations which are distinct with their formal structure, family, friend groups, relatives, and fellow citizenship, and unionism relationships become evident, albeit in informal ways (Saylık, 2017; Saylık, 2020). Therefore, the relationship and communication styles at the social level are also reflected in formal organizations.

In both individualist and collectivist societies, informal relationships emerge in almost every formal organization, albeit at different intensities, and with positive and negative effects on the atmosphere of the organization.

Formal Relationships

The form and limits of formal relationships that emerge in official institutions can be defined as relationships that are far from personality and emotionality and determined by formal rules, regulations, and laws. Hierarchy is inevitable in bureaucratic structures. In such a corporate structure, it is expected that the operation will be processed professionally, away from individuality and emotionality or the personalities and world views of the employees. In such professionalism, the position or status of the people is essential (Yılmaz, 2007: 31). Bureaucratic hierarchy determines the boundaries of the relationship and communication between employees. Written communication takes priority. The protocol rules, which are official etiquette with such

institutions, draw the boundaries of the forms and behaviors that managers and all employees have to obey and apply. But in bureaucratic organizations, the formal structure does not mean everything. In practice, the informal structure formed by the attitudes, behaviors, understandings, and traditions that employees develop among themselves can substitute for or turn into a form that complements the formal structure, especially in collectivist societies.

Informal Relationships

This type of relationship, which is determined by factors including common habits, beliefs, thoughts, emotions, value structures, traditions and customs, race, gender, age, language, religion, professional affiliations, entertainment, sports, special days, and citizenship which, apart from the written and formal rules, often affect the individual and direct the behavior of the resources that are developed among themselves, is generally established face-to-face (Sabuncuoğlu, 1984: 32). Relationships that occur in informal groups, also called primary groups, cause strong emotional reactions. While it typically occurs in the form of love, affection, and friendship, it can sometimes appear in the form of hate. Individuals who can develop informal relationships gain information about the whole of each other's personalities and the relationships that develop with everyone else become personal (Dönmezer, 1982: 207).

Advantages and Disadvantages of Formal and Informal Relationships

According to Lundberg, Schrag & Larsen, (1970: 113), it should not be accepted in advance that primary relationships have detrimental effects on social or institutional structures. For, the primary groups, which are the miniature of society, serve to ensure the sociality of the individual. If this situation is evaluated correctly, it can be beneficial for secondary structures. The primary relationships provided by the primary groups can also provide a supportive power to secondary structures, which are formal organizations, by revealing feelings of unity and togetherness and sympathy. 'If a special relationship such as friendship, kinship, affection, or other in-group emotion prevails in the group, members of that group are more likely to cooperate if they do not know or love each other. For example, a working group whose members are friends outside of work will probably cooperate at work "(Cited in: Yılmaz, 2007).

Informal relationships provide additional communication channels for the formal organization. Studies show that gossip and rumor, which are thought to be destructive in the traditional management approach, disseminate more news than the formal communication network. Another positive function of informal relationships and communication is the direct or indirect involvement of stakeholders and collective decisions, which can play an important role in building a sense of belonging and trust.

Groups dominated by informal relationships can sometimes harm the formal organization in which they emerge. Informal relationships can turn into clicks, and clicks can turn into discipline problems. Similarly, if relationships based on elements such as regionalism, fellowship, and unionism are kept at an excessive level in the institution, it can create a negative situation by preventing the basic goals of the institution (Dönmezer, 1982: 209-210). In collectivist Eastern societies, the intensity of informal relationships can override the formal structure. This can turn into a problem that needs attention in management processes.

Informal relationships increase the flow and transfer of emotions between group members, so that love, understanding, unity, integrity, and solidarity can dominate the organization. This situation partially provides the group members with an environment to act freely, and thanks to these relations, they have the opportunity to alleviate the pressure of the rigid bureaucratic structure of the organization (Yılmaz, 2007).

Since individuals are the input and output of educational organizations, communication, type and quality of human relations are much more important in these organizations than others (Bolat, 1996). Various studies showed that there was a correlation between type and quality of relationships between employees in

educational organizations and their motivation, performance, job satisfaction and organizational commitment (Bolat, 1996; Celep, 1992; Çubukçu & Dündar, 2003; Özan, 2006).

Organizational Commitment

Allen & Meyer (1990) stated that organizational commitment is a psychological approach that reflects the relationship between the employee and the organization, serving the decision to continue membership in the organization. Organizational commitment means people's beliefs in job participation, loyalty and organizational values as well as their psychological ties with organizations (Çetin, 2004: 90). Those who are adaptable to their organizations in terms of attitudes and behaviors and have soundly built primary relationships with coworkers, thus a strong feeling of job satisfaction, are expected to be loyal to organizations. One of the main goals of organizations is to increase organizational commitment of employees. According to research, employees with high organizational commitment show greater performance and participation in organizations and organizational goals than those who lack commitment. They also build more intimate, better relationships with others, so have higher job satisfaction levels (Budak, 2009). Accordingly, commitment to colleagues is an important factor that fosters organizational commitment.

Commitment to colleagues refers to the identification of the individual with and loyalty to other employees. It can be a tool and sometimes a purpose in the direction of interests that break commitment to friends. A study conducted on this issue reveals that the employees prefer to communicate with their own group members rather than with others. Commitment to colleagues helps to overcome any related assets. With this awareness, employees get closer to each other, contributing to the emergence and development of the sense of solidarity. For these reasons, it is suggested that commitment to friends will lead individuals to a stronger professional and organizational commitment (Balay, 2000).

In schools, as formal organizations, formal relationships defined by formal rules for employees exist, and informal relationships (natural, intimate) as a form of social relations are experienced as well. Both intimate, informal relationships between employees in schools and out-of-job social sharing strengthen feelings of collaboration and solidarity and team spirit. As a result, they are expected to increase performance, job satisfaction and school organizational commitment. The research examines the correlation between informal relationships between school employees and their organizational commitment.

Research Goal

The aim of this study is to explore informal relationships in primary schools and organizational commitment levels of school employees in administrators' and teachers' views. The study also examined whether there was a correlation between intra and extra organizational informal relationships and organizational commitment of employees. The questions of the research are as follows:

1. To what extent the level of informal relations in schools?
2. To what extent the level of organizational commitment in schools?
3. Do the opinions of administrators and teachers on informal relationships and organizational commitment in schools differ significantly according to seniority, title and school size (total number of teachers and total number of students)?
4. Is there a relationship between intra-school and extra-school informal relationships in primary schools and organizational commitment according to the opinions of administrators and teachers?
5. Do informal relationships at schools predict teachers' organizational commitment?

Method

This part of the study includes the purpose, model, sample, information about the participants, data collection tools used in the research, and data analysis techniques adopted in the research.

Research Model

This research is a descriptive study in which "causal-comparative research" and "correlational research" designs are used together. Correlational research was used to describe the relationship between two or more variables within the conditions of the researched subject (Fraenkel & Wallen, 2003). Accordingly, the informal relationship level and organizational commitment levels among teachers working in public primary schools were described and the relationship between them was examined. In the causal-comparative research design, on the other hand, the relationships between the variables are investigated and estimations are made regarding possible causes through intergroup comparisons (Balci, 2013, p. 260).

Sample and Data Collection

The population of the research, for which the survey method was employed, consisted of primary school administrators and teachers in Diyarbakır province which located south of Turkey. The sample of the study consisted of 465 primary school administrators and teachers in the chosen seven districts, four of which were central (Kayapınar, Sur, Yenişehir, Bağlar, Bismil, Çınar, Kocaköy). Socio-economic development level was the main criterion to choose from the districts off the center. Stratified sampling, one of the random sampling methods, was taken as the basis for sampling. Stratified sampling is a sampling method that aims to determine the subgroups in the population and to sample them with their ratios in the population size. In this method, the population is divided into substrata and a sample is selected from each stratum in proportion to its weight (Büyüköztürk, 2010, 85). The ratio of the number of teachers working in the seven district units included in the sample to the total number of teachers was found and the number of teachers in the schools where the research would be conducted was determined according to these ratios. Teacher selection was made in a random way.

The percentage and frequency information regarding the distribution of teachers participating in the study according to independent variables (title, seniority, number of teachers, number of students) are given in Table 2.

Table 2. Personal information regarding the sample group

Variable	Level	n	%
Title	Administrator	76	16.3
	Teacher	389	83.7
Seniority	1-5 years	121	26.0
	6-10	126	27.1
	11-15	106	22.8
	16 and over	112	24.1
Number of Teachers	30 and under	102	21.9
	31-60	145	31.2
	61-90	179	38.5
	91 and over	39	8.4
Number of Students	900 and under	105	22.6
	901-1800	181	38.9
	1801-2700	141	30.3
	2701 and over	38	8.2
Total		465	100.0

The data in Table 2 reveal that 389 of the sample group are teachers and 76 are administrators. The distribution of the participants in the seniority groups is close to each other. Half of the participants work in small schools with less than 60 teachers in terms of school size and half of them work in large schools with more than 60 teachers.

Research instrument

The data gathering instrument incorporated the *Organizational Commitment Scale*, developed by Balay (2000) and the *Informal Relations Scale at Schools*, developed by the authors (Memduhoğlu & Saylık, 2012). Item total correlations of the *Organizational Commitment Scale*, consisting of three factors (adaptability-8 items, identification-8 items and internalization-11 items), were ranging from .38 to .68 for the first factor, from .33 to .75 for the second, and from .53 to .83 for the third. The Cronbach Alpha value was found as .79 for the first factor, .89 for the second, and .93 for the third. The reliability coefficients obtained in this study were calculated as .80 for conformity, .89 for identification, .91 for internalization, and .91 for the composite scale. High scale scores represented high organizational commitment, while low scale scores represented low organizational commitment.

The *Informal Relations Scale* consisted of two factors; intra (10 items) and extra (7 items) organizational informal relationships. Some sample items for intra schools dimension are as follows: "There are friendly and warm relations between colleagues", "Employees are seen as members of the family". Some sample items for extra schools dimension are as follows: "employees arrange home visits to each other", "employees attend each other's special days (marriage, engagement, condolence, sick visit, etc.)". Item factor loadings were ranging from .52 to .83. Item total correlations were ranging from .48 to .68 for the first factor, and from .49 to .58 for the second. The proportion of variance explained by the first factor was found 41.09% and the proportion of variance explained by the second factor was found 14,36%. The total variance explained by the both factors was 55.46%. The Cronbach Alpha value was found .94 for the first factor, .86 for the second, and .90 for composite scale. The Cronbach alpha values obtained in this study were calculated as .90 for informal relations within the organization, as .86 for informal relations outside the organization, and as .91 for the overall scale. The high score on the scale shows that there is a high level of sincere and natural relations among employees in schools (Memduhoğlu & Saylık, 2012). Both were five-point Likert type scales.

Analyzing of Data

A number of criteria were considered in deciding which of the parametric or non-parametric test methods to use in the analysis of the data. The fact that the research sample is 50 or more is the first factor that enables the use of parametric test methods (Kilmen, 2015). According to Randolph and Myers (2013, 49), one of the elements that show the normality of a distribution is skewness and kurtosis statistics. As a result of the analyzes made in this study, whose sample consisted of 465 (N>50) people, the mean, median, and mode values were generally close to each other in all dimensions; the points were gathered close to the 45-degree line on the Q-Q graph, and; the skewness coefficients ranged between -1.5 and +1.5. When the Levene test results were examined according to the independent variables for the homogeneity of the data, it was seen that the p value was greater than .05 in all dimensions along with compared groups such as male and female (p>.05). In the light of all these results, the researcher decided to use parametric test methods in the analysis of the research data.

Descriptive statistics (percentage, frequency, arithmetic mean, standard deviation) were used for data analysis, the t-test and ANOVA were used for difference analyses, and correlation and multiple regression analysis were used to determine the correlation between informal relationships and organizational commitment.

Findings

In this section, the findings obtained as a result of the analysis of the data collected from teachers with data collection tools via the descriptive and inferential statistical techniques and analyzes described in the method section, are tabulated and interpreted in accordance with the purpose and sub-objectives of the study.

Findings regarding the level of informal relationships in schools

Arithmetic means and standard deviation values of the participants' views about the Informal Relations Scale factors, grand and total averages were listed in Table 3.

Table 3. Arithmetic mean values of informal relationship views according to factors

Factors	\bar{X}	sd
Intra-school	3.07 /30.7	8.25
Extra-school	2.53 /17.7	5.66
Composite scale average	2.85 /48.5	12.05

As it is clear from Table 3, the participants thought *moderate* ($\bar{X}=3,07$) intra organizational informal relationships existed between staff in their primary schools, while extra organizational informal relationships were *below moderate level* ($\bar{X}=2,53$). Accordingly, it can be argued that teachers and administrators have natural and sincere relations within the school. On the other hand, it can be said that the employees in schools have limited contact outside working hours.

Findings regarding the level of organizational commitment in schools

Arithmetic means and standard deviation values of the participants' views about the Organizational Commitment Scale factors, grand and total averages were listed in Table 4.

Table 4. Arithmetic mean values of organizational commitment views according to factors

Factors	\bar{X}	sd
Adaptability	3.92 /31.43	6.54
Identification	2.70 /21.61	7.63
Internalization	3.38 /37.27	9.22
Composite scale average	3.34 /90.31	17.90

As it is clear from Table 4, the participant primary school administrators and teachers stated that they had "moderate" ($\bar{X}=3.34$) organizational commitment levels according to the grand scale average. When factor means are considered, it is obvious that the participants were "largely" ($\bar{X}=3.92$) adaptable to their organizations, but "moderately" ($\bar{X}=2.70$) identified themselves with their organizations and internalized their organizations ($\bar{X}=3.34$).

Findings Regarding Personal Variables

The findings obtained from the t-test to determine whether the participants' opinions on their informal relationships and organizational commitment differ according to the title variable were given in Table 5.

Table 5. T-test results according to title variables

	Variable	Level	n	\bar{X}	ss	Sd	T	p
Title	Informal	Administrator	76	52.02	8.93	462	3.469	.001
	Relationships	Teacher	388	47.84	12.47			
			Administrator	76	93.94	15.35	463	1.939

Organizational Commitment	Teacher	388	89.6	18.28
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The table 5 reveals that there is a significant difference between the title and informal relationships [t (139) = 3,469; p < .05]. Accordingly, administrators have higher perception about informal relationship at school they work when compared to teachers. There is no significant relationship between the title and organizational commitment. The findings of the ANOVA test conducted to determine whether the opinions of teachers on informal relationships and organizational commitment differ according to the variables of their seniority and the number of teachers and students in their schools were given in Table 6.

Table 6. ANOVA test results according to the variables of seniority, number of teachers and number of students

Variable	Level	n	\bar{X}	ss	Sum of squares	sd	Mean square	F	P	Difference (Scheffe)	
Seniority	Informal Relationships	1-5 years	121	48.75	12.71	461.19	3	153.73	1.058	.367	
		6-10	126	48.642	12.02	66844.325	460	145.314			
		11-15	106	46.877	12.31	67305.515	463				
		16 and over	112	49.741	11.20						
	Organizational commitment	1-5 years	121	86.388	17.44	6593.333	3	2197.778	7.135	.000	4-1, 4-2
		6-10	126	89.833	18.71	142007.6	461	308.042			4-3
		11-15	106	88.735	16.27	148600.9	464				
		16 and over	112	96.607	17.50						
Number of teachers	Informal Relationships	30 and under	102	52.607	14.16	2278.071	3	759.357	5,372	.001	1-2, 1-3
		31-60	145	47.924	10.24	65027.444	460	141.364			1-4
		61-90	179	47.213	11.53	67305.515	463				
		91 and over	39	46.153	12.70						
	Organizational commitment	30 and under	102	93.352	16.42	1452.661	3	484.22	1,517	.209	
		31-60	145	88.689	18.41	147148.2	461	319.194			
		61-90	179	89.659	18.87	148600.9	464				
		91 and over	39	91.461	14.24						
Number of students	Informal Relationships	900 and under	105	53.209	13.89	3059.284	3	1019.761	7,301	.000	1-2, 1-3
		901-1800	181	47.375	10.71	64246.231	460	139.666			1-4
		1801-2700	141	47.285	11.29	67305.515	463				
		2701 and over	38	45.71	12.56						
	Organizational commitment	900 and under	105	92.952	17.13	1266.446	3	422.149	1,321	.267	
		901-1800	181	88.685	17.65	147334.4	461	319.598			
		1801-2700	141	90.141	19.47	148600.9	464				
		2701 and over	38	91.473	14.43						

The organizational commitment levels of the participants differ according to their seniority [F (3-460) = 5,372; p < .05]. Accordingly, administrators and teachers who have seniority of 16 years or more have a higher sense of organizational commitment than administrators and teachers have less than 16 years seniority. The opinions of the administrators and teachers participating in the study on informal relationships in schools change depending on the seniority. Likewise, the organizational commitment levels do not differ according to the total number of teachers and students in their schools.

As seen in Table 6, participants' opinions on informal relationships differ according to the number of teachers [F (3-460) = 5,372; p < .05] and the number of students [F (3-460) = 7.301; p < .05] that shows the school size. Accordingly, informal relationships in schools with 30 or less teachers are at a higher level than in all other schools with a higher number of teachers. A similar result emerges when the number of students in schools is taken into account, considering the assumption that there is an average of 30 students per teacher. Informal relationships in schools with a student number of 900 and below are at a higher level than in all other

school groups with a higher number of students. On the other hand, the opinions on the organizational commitment do not differ according to the number of teachers [$F(3-460) = 5,372; p > .05$] and students [$F(3-460) = 5,372; p > .05$] that shows the school size.

Findings Regarding the Correlation between Informal Relationships and Organizational Commitment

Findings of the participants' views about the correlation between informal relationships in schools and organizational commitment are listed in Table 7.

Table 7. Correlation values between informal relationships in schools and organizational commitment

		Organizational Commitment	Adaptability	Identification	Internalization
Informal Relationships	r	.583**	.252**	.609**	.449**
	p	.000	.000	.000	.000
Intra organizational	r	.591**	.305**	.582**	.449**
	p	.000	.000	.000	.000
Extra organizational	r	.379**	.093*	.447**	.300**
	p	.000	.046	.000	.000

* $p < 0.01$ ** $p < 0.05$

As it is clear from Table 7, there was a "positive, moderate correlation" ($r=0.583, p<.05$) between informal relationships in schools and organizational commitment. Accordingly, it might be suggested that the more informal relationships in schools exist, the more the organizational commitment increases. When the correlation between the factors is considered, it is seen that there is a positive, but slight correlation between intra and extra organizational informal relationships and organizational adaptability and there is a positive, moderate correlation between intra and extra organizational informal relationships and identification and internalization. It is also obvious that particularly the correlation between informal relationships and organizational commitment according to identification is ultimately moderate, very close to a strong correlation.

Predictive power of intra-and-extra organizational informal relationships on organizational commitment scores was examined with regression analysis and the results are shown in Table 8.

Table 8. Multiple regression analysis results on the prediction of organizational commitment by intra-and-extra organizational sub-dimensions of informal relationships

Model	Predictive Variables	B	Standard Error	Beta	t	p
	(Constant)	47.94	2.76		17.32	.00
(stepwise method)	Intra-organizational	1.15	.09	.53**	12.51	.00
	Extra Organizational	.38	.13	.12**	2.89	.00

Dependent variable: Organizational commitment

R^2 change = .361 * $p < .05$, ** $p < .01$

In the multiple regression analysis, it was determined that after the sub-dimensions of informal relationships were added to the model (via stepwise), intra organizational ($\beta = .53$ **, $p < 0.01$) and extra organizational ($\beta = .12$ **, $p < 0.01$) sub-dimensions of informal relationships predicted organizational commitment significantly. Each 1-unit increase of intra organizational and extra organizational informal relationship contributed a 1.15 unit and a .38 unit of increase in organizational commitment respectively. 34.9%

of the total variance in organizational commitment is explained by intra organizational informal relationships ($\Delta R^2 = .349$; $p < 0.01$) while 1.2% of the total variance is explained by extra organizational informal relationships ($\Delta R^2 = .012$; $p < 0.01$). Therefore, 36.1% of the variance in organizational commitment is explained by these two sub-dimensions ($\Delta R^2 = .361$; $p < 0.01$). As intra-and-extra organizational informal relationships increase, the organizational commitment of the teacher increases. The intra organizational sub-dimension has more predictive power than the extra organizational sub-dimension on organizational commitment.

Discussion

With its collectivist culture structure, Turkey has a network of social relationships in which social relationships and communication are experienced in a friendly, intimate, and face-to-face manner. Schools are organizations where these types of relationships experienced this social structure are reflected. These close informal relationships affect teachers' commitment to the school.

The research concluded that informal (natural, informal) relationships and interactions in schools were at a moderate level. According to the factors, it was found there were moderate intra organizational informal relationships between primary school staff, whereas extra organizational informal relationships were low. Accordingly, it might be suggested that the participant primary school administrators and teachers did not have high level intimate face to face relationships in schools and rarely met out of school. The employees barely spend time with or visit each other after school. This finding is parallel to some research findings (Akbaş, 2008; Çankaya, 2019; Doğan, 2017; Sabău ve Bibu, 2012; Şimşek, 2003), yet conflicts with some others (Deniz ve Uğurlu, 2016; Gürses, 2006; Şahin, 2007). Sabău and Bibu (2012) attribute the high level of informal relationship and communication to the prevalence of open door management approach in schools, and therefore to the ability of teachers to use formal communication channels easily.

However, going over the limits in intimate relationships between employees or between employees and administrators bears the risk of work abuse and chaos (Benkhoff, 1997). When informal relationships in organizations are uncontrollable, there might be resistance to change, which might be counted as a factor that hinders organizational development. For this reason, especially administrators need to keep formal and informal relationships balanced, turn to intimate, friendly relationships seasonably within proper limits and develop situational strategies for this matter (Katz and Kahn, 1977:357-359; Mclurg, 1999).

In our study, it was determined that intra organizational informal relationships among school employees are at a moderate level. Accordingly, professional solidarity among employees at schools, intimate and warm relationships among employees and between administrators and employees, and bonds of friendship are at a moderate level. Weak informal relationships and dominant formal relationships can negatively affect the job satisfaction of the employees, teamwork, and voluntary participation in activities. The fact that informal relationships and intimacy are more intense than formal relationships may strengthen the sense of unity and team spirit among employees, On the other hand, when these relationships are exaggerated, they may cause a status quo that prevents organizational development and conflicts with formal organizational norms. This situation may hamper the job of the administrators as well as the control within the organization, and thus a chaotic climate dominated by chaos and unrest in the organization may occur.

It may be misleading to think that informal relationships and the norms developed as a result of these relationships are always negative and preventive for formal organizational relationships and goals. Although administrators have traditionally found informal relationships dangerous in terms of formal functioning and management norms, an effective management and leadership approach may turn this danger into a high efficiency and quality service for the organization. Administrators who provide such efficiency and quality can make a healthy transfer of authority and thus spend their time on more important and vital issues. However, this research has shown that even though administrators display an approach that supports the

informal relationships of the employees and provide an appropriate environment, they cannot avoid reflecting the formal relationships in the eyes of teachers. This negativity can be eliminated by a set of informal activities in which administrators are more effective. For example, this can be turned into a tradition by giving a meal to the teachers at the end of the meetings held three times at the beginning of each academic year, at the beginning of the term, and at the end of the term.

It was found that relationships among employees outside of school are below the moderate level. Accordingly, it cannot be said that those working in schools meet much outside of working hours. According to the findings, it is important to find that employees rarely meet outside of school for activities such as spending time together outside of school, organizing home visits, and giving dinner invitations.

The research concluded that the participant primary school administrators and teachers felt “moderate” organizational commitment; they were greatly adaptable to schools according to the commitment factors, but moderately internalized their organizations and identified themselves with their organizations. Accordingly, organizational commitment felt by the participant primary school administrators and teachers was found high in adaptability, where personal benefits and rules were the main factors, rather than identification and internalization. This could be a negatively considered finding as adaptability shows superficial organizational commitment. This factor represents award winning or going unpunished rather than shared beliefs and obligatory formal togetherness of employees. Employees do what they do in organizations because they are obliged to, not because they would love to. Identification expresses employees’ respect to organizational values, being proud of organizational membership, creating shared values and building a friendly working place atmosphere (Balcı, 2003, 28–29; Başaran, 2000, 233; Erdem, 2008; Polatcan ve Saylık, 2015).

Another striking finding in the study is that administrators and teachers have developed some informal relationships with each other, but they keep this limited to themselves, so they prefer to keep other family members such as spouse and children away from this interaction. In addition, it is observed that the participants prefer to come together in a more cultural and traditional social sharing such as condolences, weddings, and patient visits rather than coming together on religious and national holidays. This situation is also a reflection of the general form of social relations in Turkey.

The relationship between organizational commitment and individual characteristics has been the subject of many studies as in this study. For example, it was found that the commitment of the employee who spends many years in the organization is higher than the new ones. This result coincides with Benkhoff’s (1997, 114) work.

Informal relationships between organizational staff bring some potential benefits for organizations. Intimate, friendly relationships in organizations are expected to strengthen team spirit and feelings of solidarity and collaboration between employees (Alotaibi, 2001; Özkalp and Kirel, 2011: 206-207). The research concluded that there was a positive, moderate correlation between informal relationships between school employees and organizational commitment. Accordingly, it might be suggested that the more informal relationships in schools exist, the more the organizational commitment increases at a moderate level. When the correlation between the factors is considered, it is seen that there is a slight correlation between intra and extra organizational informal relationships and organizational commitment according to adaptability, a moderate correlation between intra and extra organizational informal relationships and internalization, and finally, a very close to high correlation between intra and extra organizational informal relationships and identification. Thus, it could be concluded that informal relationships in organizations affect adopted and internalized organizational commitment more than adaptability, which reflects superficial organizational commitment of employees. In this context, it might be suggested that building well managed, proper, balanced informal (intimate) relationships in organizations will bring benefits for both organizations and employees.

The fact that informal relationships significantly predict organizational commitment was yet another result obtained in the study. Accordingly, 34% of the variance in organizational commitment is explained by intra-and-extra organizational informal relationships between teachers in schools. In other words, the increase in 1-unit informal relationship contributes to a .58-unit increase in organizational commitment. The intra organizational sub-dimension has more predictive power than the extra organizational sub-dimension on organizational commitment.

The modern society extends and enforces organizations in work life where there is a complicated work sharing system and hierarchical order. On the other hand, again contemporary organizations notice the importance of informal groups and gradually need informal (natural, intimate) relationships. As a matter of fact, today, human beings mostly need natural forms of relations based on love, friendship and fellowship more than ever. Therefore, people always tend to form groups where they may build intimate relationships and to develop pretty informal/intimate relationships in organizations, presumably because they have a natural tendency to do so. Informal relationships are getting more and more important since they meet some psycho-social needs such as togetherness and feelings of belonging. In this context, all employees in educational organizations should benefit from their natural communication skills beyond written formal rules. Such relationships create an organizational climate apt to solve organizational issues, increase organizational commitment and provide organizational effectiveness.

Conclusion

The following results were obtained in the study aiming to determine the opinions of teachers and administrators on the relationship between informal relationships and organizational commitment in primary schools. According to the participants:

- Schools have moderate and positive informal relationships.
- Informal relationships are not advanced outside of school and employees do not establish personal communication outside of work.
- There is a moderate level of organizational commitment in schools.
- Organizational commitment does not differ according to the size of the school and the title.
- As the term of employment (seniority) increases in schools, commitment also increases.
- Informal relationships are higher in schools with fewer students and teachers.
- Employees' commitment to the organization they work for is higher in terms of the adaptability dimension in which more importance is given to financial benefits and obligations rather than identification or internalization.
- There is a moderate and positive relationship between informal relationships and commitment.
- Intra-and-extra organizational informal relationships among teachers significantly predict their school commitment.

Recommendations

The following recommendations have been given in line with the results of the research:

- Informal relationships that serve the purposes of the formal organization should be supported and encouraged to ensure intra-organizational functionality.
- Activities including common social activities, dinner meetings, tea chats etc. within the school via administrators should be traditionalized. In this way, intra-organizational assessment meetings should be held

at regular intervals. It should not be forgotten that this will contribute positively to the image of the organization.

- Administrators should delegate more power when it is ensured that informal relationships will help administration. It should not be forgotten that a healthy transfer of authority will ease the burden of the administration.

- It should not be forgotten that informal relationships and communication will provide additional communication channels to the organization.

- It should not be forgotten that administrators' shortcomings can be overcome by informal relationships.

- It should be taken into consideration that when informal relationships are not controlled, they can resist change and thus have a function that prevents organizational development.

- It should not be forgotten that informal relationships will serve employees with a team spirit and thus will be functional in providing satisfaction.

Limitations

This research is limited with the data collected with the assumption that 465 teachers working in public schools in Diyarbakır province gave sincere responses to the items in the scale form. This is a correlational study, thus, a longitudinal design may be more useful.

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The Effect of Digital Storytelling on Digital Literacy Skills of The 7th Graders at Secondary School*

Research Article

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ABSTRACT

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The purpose of this study was to seek into the effect of digital storytelling on digital literacy in the 7th graders at secondary school. The quasi-experimental design among quantitative methods was employed and two groups were designed through simple random sampling. The study group was composed of 35 students in Grade 7 at a private secondary school in the Central District of Kars. Before starting the research, permissions of the ethics committee and governorship were obtained for the scale to be used in the research. Digital Literacy Scale and personal information form were used as data collection tools. Mann Whitney U-Test for intergroup analysis and Wilcoxon signed-rank test for intragroup analysis among non-parametrical statistics were used. As a result of analysis; it was found that there is a significant difference in favour of the experiment group in terms of post-test scores of digital literacy among the groups after the experiment. At the same time; it was found that there is a significant difference in favour of the post-test between the pre-test and post-test scores of the experimental group. These findings revealed that the digital storytelling creation process contributed to the development of students' digital literacy skills. Accordingly, it is suggested that digital storytelling can be included in curriculums and the effects of digital storytelling can be evaluated with different methods and techniques.

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Keywords:

Digital storytelling; digital literacy; secondary school students; quantitative method.

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Introduction

Today, with technological developments, there are obvious changes in most areas of human life. Education is one of the areas where these changes manifest themselves. It is seen that the qualifications of the teachers who carry out education, the skills expected from the students, the educational environments, and the tools used in education are reshaped with technological developments. For example, in a study conducted by MEB Education Research and Development Department (2011), "21. Century Student Profile?" among the answers given to the question is "should know technology". Another example is that the new Turkish Lesson Curriculum (Grades 1-8) emphasizes the effective use of technology in lessons compared to the old Turkish Course Curriculum (Grades 6-8) more, and the new one emphasizes the ability of students to adapt to technological developments and to acquire these skills more (MEB, 2018; MEB, 2006). In the competencies section of this curriculum, students at both national and international level; digital competence (p. 3-4) is mentioned among the skills they will need in their personal, social, academic, and business life (MEB, 2018). In the teaching-learning approach part of this curriculum, it has been mentioned that digital resources can be used for the applications and activities in the lessons. In the themes and topic suggestions section of this curriculum, there are "information literacy, multiple literacies, digital literacy, e-book, critical literacy, z-book, z-library, etc." under the heading of reading culture (MEB, 2018; p.14). It has been noticed that technology is included in the curriculum as a source of information in the acquisitions for grades 3-8, "Evaluates the media texts. It is ensured that the messages given by the internet, cinema and television are evaluated." Parallel to this, "questions the reliability of information sources. a) It is ensured that the reliability of internet / written (magazine, book, brochure, newspaper, etc.) sources are questioned. b) It is emphasized that the websites with "edu" and "gov" extensions are mainly used in scientific studies." (MEB, 2018; p. 40-44-48) have emphasized that middle school students acquire the skills to question the reliability of the source while using the internet as a source of information. Although it seems difficult to provide 100% security in the computer and internet environment, a high level of security can be achieved by taking some measures (BTK, 2018). One of the ways to ensure security in the internet environment is digital literacy. Digital literacy is a skill that is among the 21st-century skills and is also included in the curriculum (Günay & Şişman, 2018).

Technological developments have brought new nomenclatures in the field of literacy: media literacy, digital literacy, technology literacy, global literacy... It is seen that the storytelling we use in daily life or education and training is shaped and named in parallel with technological developments: digital storytelling. Digital storytelling is the result of the combination of story text and various multimedia tools such as painting, photography, sound, music, effects, and video (Alexandar, 2011; Foley, 2013; Frazel, 2010; Lambert, 2010; Lammers, 2012; Robin, 2006). Thanks to digital storytelling, students can improve their digital literacy skills outside of the information technology course, as well as learn different information and have fun (Alexandar, 2011; Ayvaz Tunç, 2016; Balaman Uçar, 2016; Brown, Bryan, & Brown, 2005; Chung, 2006; Churchill, 2016; Davis, 2004; Demirer, 2013; Dogan, 2007; Foley, 2013; Frazel, 2010; Heo, 2009; Hett, 2012; Jakes & Brennan, 2005; Kajder, 2004; Lambert, 2010; Lammers, 2012; Robin, 2006, Robin, 2008; Sadik, 2008; Sharp, Garofalo, & Thompson, 2004; Wang & Zhan, 2010). It has been a matter of curiosity whether digital stories affect the digital literacy skills of students who take the secondary school Turkish course, as it is mentioned in the curriculum that they can acquire digital literacy skills, which is among the skills expected from 21st-century children, outside of technology lessons.

Parallel to the developing technology, it is expected that the children of the 21st century keep up with the times in the 21st century. These children are asked to use developing technology correctly and efficiently. It is expected to do this not in a single lesson or in a single area but using multi-field skills. In other words, the new system states that a student should not be content with only reading, writing, and grammar in Turkish lessons. Since digital storytelling contributes to students' traditional story-writing skills, as well as their ability to use technology, it serves some of the achievements that new

curriculums expect students to acquire. Therefore, it has aimed to investigate the effect of digital stories on the digital literacy skills of students who took the secondary school 7th-grade Turkish course.

Is it important to use digital storytelling in Turkish lessons or mother tongue teaching lessons or language teaching? Yes, it does. Because the basis of digital storytelling is based on the traditional story writing process. The traditional stories are available in all grades 1-8 in the Turkish lesson program. Writing stories is one of the ways students express themselves. However, digital storytelling is important because students who have difficulties in writing can express themselves with photographs, pictures, music, and voices in addition to text (Foley; 2013; Vasudevan, Schultz, & Bateman, 2010). What keeps this study updated is that there is no study directly examining the relationship between digital literacy skills expected of 21st-century children and digital storytelling that contributes to this skill in the curriculum organized in parallel with developing technology. Therefore, this study is expected to both fill the academic gap in the field and to ensure that digital story applications, whose history does not date back very far, progress systematically and by the requirements of the age. It is hoped that the results obtained from this study will make an academic contribution to the history of digital storytelling, be included in the curriculum as an activity, and be applied in lessons.

Story

A story is a verbal or written narration of an event, a type of prose that tells about real or designed events (Doğan, 2005; TDK, tdk.gov.tr). It is a genre of literature that tells people's own experiences (Simmons, 2008), and events already experienced or possible to be experienced (Akbayır, 2007; Göçer, 2014; Kavcar, Oğuzkan & Aksoy, 2003) without giving details, by pointing out place, time and person (Babacan, 2008). If children need to be taught something, stories are one of the best ways because children become convinced of learning the targeted topic by being influenced by well-built stories (Eroğlu, 2020a). However, the stories should not just be composed of a random series of events. Since stories require a certain order and discipline, it is necessary to analyse each part of the story first and then to obtain a meaningful, consistent and logical whole from these parts (Temizkan, 2014). Because stories contribute to the development of children's interpretation, inference, organization, remembering, vocabulary, which develops their comprehension and expression skills (Akyol, 2006; Göçer, 2014; Temizyürek, 2003; Walsh & Blewitt, 2006) and develop children's creativity (Taşkaya, 2017, Ed. A. Akkaya). Today, stories are recognized as an effective, meaningful, fun, and creative way to teach and improve learning. (Wang & Zhan, 2010). The current version of this is digital storytelling.

Digital storytelling

Digital storytelling was first created by Joe Lambert and Dana Atchley as a non-profit arts organization in Berkeley, California, in the late 1980s. In the early 1990s, the Digital Media Center was opened in San Francisco with the participation of Nina Mullen to these two names, and then the name of this institution was changed to Digital Storytelling Center (Center For Digital Storytelling-CDS) in Berkeley in 1998 (StoryCenter; Chung, 2007; Robin, 2008; Karakoyun, 2014; Yamaç, 2015; Baki, 2015).

Although there are different definitions of digital stories, definitions are generally gathered around the idea of combining the art of storytelling with multimedia elements such as painting, sound, and video (Robin, 2006). Thanks to digital storytelling, students can use music, sound effects, video, and more to create multimedia presentations that improve their creativity, collaborative learning, and technology use skills (Frazel, 2010). The new generation of storytelling starts with digital storytelling, and these digital stories are created on a computer using pictures, sometimes adding music and sound files (Hett, 2012).

According to Robin (2006), there are many different types of digital storytelling; however, it is possible to categorize them into three large groups: 1. Personal narrations, 2. Historic documentaries (stories expressing the dramatic events and helping us understand the past), 3. Stories are composed to inform the audience about a special concept or application or to teach that.

The following seven elements are cited as a useful starting point for getting started with digital storytelling:

1. Point of View: What is the writer's point of view about the topic?
2. A Dramatic Question: A question to be answered at the end of the story.
3. Emotional Content: Serious issues that come alive in a personal and powerful way.
4. The Gift of Your Voice: A way to personalize the story to help the audience to understand the context.
5. The Power of the Soundtrack: Music or other sounds that support and embellish the story.
6. Economy: Using enough content to tell the story without overloading the viewer.
7. Pacing: it is associated with the economy but especially with how slowly or quickly the story progresses (Robin, 2006).

The following six steps are suggested in the process of creating digital storytelling:

1. Writing the story/script: The story is written, the scripts are revised according to the suggestions, and then finalized.
2. The student records the story with her/his own voice.
3. Images related to the story are searched and found from various sources.
4. Sound and visuals are combined.
5. Transition effects and background music can be added.
6. Once digital storytelling is created, it is presented or shared (Barrett, 2009).

In the digital storytelling creation process, if the above elements are considered, the process is efficient and fun. In this study, these elements and this process have been paid attention to. Also, the digital storytelling in this study is meant to add visual, music, sound, and effects related to the story text to the process that starts with creating a story text in a Turkish lesson and combining them.

Digital storytelling creation tools and software

Equipment to help create digital storytelling in a lesson are desktops/laptops/tablet computers, audio, and video recorders, headphones, speakers, external (flash) memories, scanners, and projection devices (Baki, 2015; Demirer, 2013; Karakoyun, 2014; Qiongli, 2009, Ed. J. Hartley & K. McWilliam; Robin, 2006). Main software to be applied in digital storytelling composition is PhotoStory3, Microsoft PowerPoint, Microsoft Windows Live Movie Maker, iMovie, Pinnacle Studio, Adobe Premiere Elements, Ulead VideoStudio, (Baki, 2015; Brenner, 2014; Bull & Kajder, 2005; Dogan, 2007; Karakoyun, 2014; Robin, 2006; Robin & McNeil, 2012).

Factors preventing digital storytelling creation

Examining the barriers to digital storytelling creation, it is whether students have the chance to access the technology required to create digital stories. Since this is the most basic problem, students must have access to technology. Another problem of digital storytelling creation is time. Learning technology takes time, but any education already takes time due to the nature of learning and teaching (Lammers, 2012). Another problem is the lack of knowledge of teachers and students in using technology. If the teacher does not have sufficient and necessary knowledge about using technology, the students will naturally be inadequately trained in using technology correctly and efficiently. Another obstacle to digital storytelling creation is the copyright issue. While creating digital stories for students, it can be tempting to use images and music they find online.

Using digital storytelling in education

Taking notice of the use of digital storytelling in educational life, it is realized that the digital stories created by the teacher can be used to enrich the existing lessons in a wider unit as a way to make abstract or conceptual content more understandable to facilitate discussion on a topic (Robin, 2006). Assigning homework suitable for digital story creation stages or applying this process in the course creates interest, attention, and motivation for students, and students' story writing, video creation, and editing skills are provided (Matthews, 2014; Sadik, 2008; Smeda, Dakich, & Sharda, 2012; Stewart and Gachago,

2016). In this process, when students start researching and tell their stories, their creativity skills also improve as they learn to use the library and the internet while analyzing and synthesizing a wide range of content (Frazel, 2010; Robin, 2006). Students participating in the digital storytelling process learn to organize their ideas, ask questions, and express their thoughts and form a comprehensive communication skill (Brown, Bryan, & Brown, 2005; Hathorn, 2005; Lammers, 2012; Robin, 2006; Robin, 2008; Sadik, 2008). At the same time, since the digital storytelling creation process is an entertaining process that attracts the attention of students, it also increases student motivation, increases their academic success and increases digital literacy levels (Brown, Bryan, & Brown, 2005; Çetin, 2021; Lammers, 2012; Özüdoğru & Çakır, 2020; Saritepeci, 2021).

Using digital storytelling in Turkish courses

Digital storytelling can be used very easily in Turkish, social studies, life studies, painting, music, mathematics, science and technology, literature, geography lessons, or interdisciplinary studies (Demirer, 2013; Hett, 2012; Karakoyun, 2014). When we look into the use of digital storytelling in language lessons, it has been found that students' listening skills (Çiğerci, 2015; Türe Köse, 2019; Verdugo & Belmonte, 2007), speaking skills (Shrosbree, 2008; Soler Pardo, 2014; Razmi, Pourali, & Nozad, 2014), reading skills (Çiftci, 2019; Şentürk Leylek, 2018) and writing skills (Çıralı, 2014; Dayan, 2017; Gündüz, 2019; Soler Pardo, 2014; Stojke, 2009; Uslu, 2019; Yamaç, 2015) are improved. Digital storytelling, which is easy to use for both writing and speaking practice, can be a good tool to motivate students to use language effectively and efficiently both inside and outside the classroom (Reinders, 2011). The effect of digital storytelling on students' story writing skills, writing anxiety, writing self-efficacy and writing attitudes in the 6th-grade Turkish course (Baki, 2015), the effect of using digital storytelling in Turkish course on academic achievement, motivation and permanence (Özerbaş & Öztürk, 2017), the effect of 4th graders' writing skills in Turkish course (Dayan & Girmen, 2018), the effect on students' literacy skills and viewpoints in learning Turkish (Yılmaz, Üstündağ, Güneş, & Çalışkan, 2017), Turkish teacher candidates' metaphorical perceptions towards digital storytelling (Eroğlu, 2020b), the effect of attitude towards story writing (Eroğlu & Okur 2020) have been investigated, and positive results have been obtained.

Digital Literacy

Students need essential skills to share their ideas on digital media, to communicate with others and access digital texts, or to represent certain ideas in digital media (Frazel, 2010; Ohler, 2006). One of these skills is digital literacy skill. This skill plays an important role in students' primary school, secondary school, and university education (Koltay, 2011). Digital literacy is the awareness, attitude, and ability of individuals to use digital tools appropriately (Lankshear & Knobel, 2008; Martin & Grudziecki, 2006). Digital literacy is the ability to understand and integrate information in many formats that the computer can present (Pool, 1997). On the other hand, Eshet (2002) emphasized that digital literacy is a special way of thinking and how the information obtained should be evaluated beyond obtaining information on the internet requires the ability to choose between useful and useless information. Since digital literacy is seen as a prerequisite for creativity, innovation, and entrepreneurship, it is thought that individuals cannot fully participate in society without digital literacy and will not be able to acquire the knowledge and skills required to live in the 21st century (European Commission, 2003). In the 21st-century when online learning is important, Polizzi (2020) has searched that digital literacy entails and how to promote it across the national curriculum for England. One of the ways that contribute to the development of students' digital literacy skills is to enable students to create digital stories. Studies have revealed that the digital storytelling creation process improves the technology literacy of students and they can use technology and the internet more effectively (Davis, 2004; Demirer, 2013; Dogan, 2007; Foley, 2013; Frazel, 2010, Gyabak & Godina, 2011; Hett, 2012; Heo, 2009; Kajder, 2004; Keleş, 2018; Ranker, 2008; Robin, 2006; Robin, 2008; Sadik, 2008; Skinner & Hagood, 2008; Wang & Zhan, 2010). Also, digital literacy in this study means that students' skills and awareness of using digital tools with the digital storytelling created in the Turkish course.

Research questions

The problem statement of this research has been determined as follows: "How does it explain the effect of digital storytelling on the 7th graders' digital literacy?"

The subproblems are as follows;

- a) Is there a significant difference between pre-test and post-test scores of the students' digital literacy in the experimental group in which digital storytelling was applied?
- b) Is there a significant difference between post-test scores of the students' digital literacy in the experimental group in which digital storytelling was applied and the ones in the control group in which it was not applied?

Method

The quantitative research method was used in this study in which the effect of digital storytelling on the digital literacy of 7th graders at secondary school was investigated. A quasi-experimental design, which purposes to determine the cause-effect relationship between variables, was used as a research design. In the quasi-experimental paired design, two of the ready groups are aimed to be matched over certain variables, and the matched groups are randomly assigned to the operation groups (Büyüköztürk, Çakmak, Akgün, Karadeniz & Demirel, 2012). Accordingly, the groups in this study were determined by simple random, and each study group was given an equal probability of being selected. Since the pre-test was to be used before the experiment, the study continued with the pre-test / post-test paired control group pattern, and the data were collected.

Study Group

The study group occurs 35 7th graders (12-14 years old) from a private secondary school affiliated with the Central District of Kars. The research was realized in the 7th-grade Turkish course (mother tongue) in the spring semester of the academic year 2018-2019. Before the study was started, the permission of the Ethics Committee and Governorship was obtained for the scales to be used in the research, and the aim and process of the study were explained to the school administration, Turkish language teacher, and Technology and design course teacher (Robotic Coding). Class 7-A (18 students) of a private school affiliated to the Central District of Kars province became the experimental group while Class 7-B (17 students) became the control group. The gender distribution of the groups is demonstrated in Table 1. The reason why 7th graders at secondary school got included in the study is that students have fully acquired the ability to create a story script consistency with the Turkish course curriculum and also a certain technology literacy that allows them to use the photoStory3 program in line with the informatics course curriculum.

Table 1. Gender distribution of the students in both control and experimental groups

Gender	Experimental Group		Control Group	
	n	Percentage (%)	n	Percentage (%)
Female	9	50.0	9	52.90
Male	9	50.0	8	47.10
Total	18	100	17	100

As indicated in Table 1, there are 9 girls (50%) and 9 boys (50%) in the experimental group while there are 9 girls (52.90%) and 8 boys (47.10%) in the control group. It is significant for the objectivity of the study that the group and gender distribution ratios are approximate to each other. It is shown in Table 2 whether the students in the experimental and control groups have an internet connection and a computer in their houses.

Table 2. Status of having an internet connection and a computer of the experimental and control group students

	Experimental Group				Control Group			
	Internet		Computer		Internet		Computer	
	Percentage(%)	n	Percentage(%)	n	Percentage(%)	n	Percentage(%)	n
Yes	100	18	100	18	100	17	100	17
No	0	0	0	0	0	0	0	0
Total	100	18	100	18	100	17	100	17

As indicated in Table 2, it is seen that all of the experimental and control group students have internet connections and computers at home. Likewise, the students added the information that all of them had smartphones in their houses in their personal information form. Since the research was conducted in a private (paid) school it is thought that all of them have an internet connection, smart mobile phones, and computers in their houses.

The pre-test scores of the experimental and control group students are as follows. In the examination of a normal distribution, it was determined that the scale scores did not prove a normal distribution. Accordingly, the Mann Whitney U test, one of the nonparametric tests, was used for pre-test scores. Table 3 indicates the results of the Mann-Whitney U test conducted to determine whether the difference between pre-test score averages of the experimental and control groups' digital literacy skills is significant or not.

Table 3. Pre-test scores of experimental and control groups' digital literacy skills

	Group	n	Median (Min-Maks)	Mann-Whitney U	p
Scale	Experimental	18	3.76 (1.18-4.76)	130.5	0.463
	Control	17	3.35 (1.47-4.65)		
Attitude	Experimental	18	3.42 (1.00-4.43)	138.5	0.631
	Control	17	3.28 (1.71-4.57)		
Technical	Experimental	18	3.92 (1.50-5.00)	125.5	0.362
	Control	17	3.50 (1.33-5.00)		
Cognitive	Experimental	18	3.75 (1.00-5.00)	130.5	0.448
	Control	17	3.00 (1.00-5.00)		
Social	Experimental	18	3.50 (1.00-5.00)	144.5	0.774
	Control	17	3.00 (1.00-5.00)		

Upon examination of Table 3, it is seen that there is no statistically significant difference between the pre-test scores of digital literacy skills and its sub-factors belonging to the experimental and control groups ($p > 0.05$). Therefore, it is possible to say that the experimental and control group students are two identical groups in terms of pre-test results based on digital storytelling and that the education planned to be provided will objectively reveal the expected differences in the experimental group.

Data collection tool

In this study, a Digital Literacy Scale and a personal information form were used.

Digital Literacy Scale was developed by Ng (2012). It consisted of 17 items and 4 sub-factors (attitude, technical, cognitive, social). It was studied with teacher candidates studying at a university in

Australia in the original version of the scale, but Hamutoğlu, Güngören, Kaya-Uyanık, and Gür-Erdoğan (2017) studied with students from different departments of Sakarya University Faculty of Education in the adaptation to Turkish. As a result of the adaptation study, a 4-factor structure that explained 65.78% of the total variance and overlapped with the items in the original form was obtained and the internal consistency coefficient was found as .93 for the whole scale. The measurement invariance of the scale was examined Eroğlu et al. (2019). Multi-group confirmatory factor analysis was performed with measurement invariance. With the findings obtained, it was investigated whether the Digital Literacy Scale developed for adult groups showed sufficient adaptation in the group consisting of secondary school students. Accordingly, the study was carried out in the fall semester of the 2018-19 academic year of two state secondary schools in the central district of Kars province. 451 students studying in grades 6-7-8 participated in the study. Since the linguistic equivalence and construct validity study of the scale was conducted, multiple group confirmatory factor analysis was performed by Eroğlu et al. (2019) for only measurement invariance. The relationship between items and factors could be tested in four stages with multi-group factor analysis (Meredith & Teresi, 2006; Vandenberg & Lance, 2000). Gregorich (2006) named these stages as formal, metric, scalar, and solid invariance (as cited in Uyar & Kaya-Uyanık, 2019). It is not possible to provide solid invariance without providing metric and metric invariance without providing scalar and scalar invariance in this process. With their study, Eroğlu et al. (2019). have determined that the Digital Literacy Scale provides sufficient psychometric features and can be used for secondary school students.

The personal information form was composed by the researchers. It is a form that includes information such as the gender of the experimental and control group students and whether they have a computer, smart mobile phone, and the internet at home. The statement explaining that the personal information of the students will not be shared with anyone, and the information they are asked to write will only be used for this study is available in the instructions in the first part of the form. An e-mail address is also written for students who are curious about the result of the study. The instruction was also read out to the students. Students who wanted to ask questions were given the right to speak. Also The digital stories of the students were collected with the photostory 3 program.

Collection and analysis of the data

The data were obtained from the Digital Literacy Scale. The scale was applied to the experimental and control groups before the experimental procedure, and to two groups after that. Thus, the data were obtained. The data obtained were first recorded in the excel program and then in the SPSS 20.0 package program. Since the study group consisted of 35 students in total (18 students in the experimental group, 17 students in the control group), it was first analysed whether the data proved a normal distribution or not. When analysing quantitative data, parametric statistics are used for data with a normal distribution, and nonparametric statistics are used for data that do not prove a normal distribution. Since the study group of this research consisted of 35 students, the data did not indicate a normal distribution. In parallel with that, nonparametric statistics were used in this study. Mann Whitney U-Test, one of the non-parametric statistics, was used to analyse whether there was a difference between the pre-test scores of the experimental and control group students and whether there was a difference between the post-test scores of the experimental and control group students. Mann Whitney U-Test is used when the distribution of scores does not meet the assumption of normality in experimental studies with few subjects where unrelated measurements are present (Büyüköztürk, 2014). Mann Whitney U-Test is accepted as the equivalent of t-test in nonparametric analyses (Büyüköztürk, 2014; Can, 2014; Çepni, 2014; Taşpınar, 2017). To analyse whether there is a significant difference between the pre-test and post-test scores of the experimental group students, the Wilcoxon signed-rank test, one of the non-parametric statistics, was used. The Wilcoxon signed-rank test is used in social sciences in-group studies with few subjects (Büyüköztürk, 2014; Can, 2014; Çepni, 2014). Moreover, since the scale scores do not prove normal distribution in this study, the median (minimum-maximum) is provided instead of the arithmetic mean.

Experimental process

After the decree of the Ethics Committee and the permissions of the Governorship were received, the implementation process started in the spring term of the academic year 2018-2019. The study was conducted in a private secondary school affiliated with the Central District of Kars. It has been an essential criterion that the school should have the technological tools and equipment required to create a digital story. In the first week, the school principal was interviewed, and the aim and application process of the research was explained to her in detail. In the second week, the researchers met the teachers and explained the study. In the third week, classrooms and computer laboratories of 7th graders were examined. It was noted that the smart boards worked, the teachers' and students' computers in the laboratory operated, and there were headsets in the school. Since there was no PhotoStory3 program on computers, the program was installed on the computers with the help of the robotic coding course teacher. In the fourth week, the Digital Literacy Scale was applied to the experimental and control group students simultaneously on Wednesday. During the practice hours overlapping with Turkish and Mathematics lessons, the relevant teachers helped the researchers. The control group was not intervened during this period. The relevant teacher conducted Turkish lessons by the current curriculum (2018) until the end of the process. In the fifth week, a seminar on digital storytelling and the PhotoStory3 program was given to the experimental group students by the researcher. The students watched a sample digital story in the classroom. The students were asked to bring a flash / USB memory the following week. In the sixth week, they were asked to create a text to write a story about a place they visited or wondered about among the places they learned in the scope of the lesson. This text was to consist of a maximum of 400 words. While the students were creating their texts, the researcher uploaded the presentations about digital storytelling and the PhotoStory3 program to their memory sticks. Thus, the students were able to re-watch the presentations at home. The texts of the students who started to create texts in the classroom were assessed in the classroom, and they had the chance to make corrections thanks to the feedback. In the seventh week, they were required to collect visuals about their stories. They were taken to the computer laboratories to do that. Photographs and pictures related to their stories were collected from the websites that provide free usage. They were asked to save the collected photographs and pictures in the files they created on the computer and to upload them to their own flash memory. This, therefore, helped them back up the visuals. They were told that they could also draw pictures regarding their stories and collect images through their personal or parents' mobile phones, and cameras. However, none of the students preferred that. All of them preferred to collect the visuals on the internet. In the eighth week, a flow chart was distributed to the students. They were asked to note in this flowchart which visuals they would use on which slide in their stories, what they would dub on which slide, what effects, and music they would like to use. They were reminded that they had to create their stories in a 3-5 minute length, and they needed to calculate how many seconds each slide should pause for. During the creation of the flow charts, the researcher constantly checked the students walking around them and helped the students who asked for help. They were requested to bring their flow charts the following week. In the ninth week, the students were asked to open PhotoStory3 on their computers in the computer lab. Headsets were distributed to the students. It was ensured that they started to create their digital stories by what was there on the first page of their flow charts, which means the sentence/s, visuals, effects they wanted to add on the first slide. The students were reminded that they could dub the texts on the slides, change the font sizes and colours, make changes on the visuals, use the effects they like, and finally create the music in the instruments and tones they wanted. They were enabled to save the story they created. In the tenth week, it was provided that they could complete the missing parts of their digital stories and make the necessary corrections as they wished and finalize their digital stories. In the eleventh week, the students were encouraged to share their own digital stories in the classroom. Digital stories were watched starting with the volunteering students. The Turkish teacher also joined that. The students who wanted to speak about the digital stories were encouraged to share their opinions. In the twelfth week, the Digital Literacy Scale was applied to the experimental and control group students simultaneously on Wednesday. Teachers of the relevant lesson, whose lessons overlapped with the application time, helped the researchers. Furthermore, the students were enabled to create their digital

stories in consideration of the six-stage story-making process suggested by Robin (2006) in the introduction. Again, they were enabled to create their digital stories according to the seven elements suggested by Barrett (2009) in the introduction.

PhotoStory3 program used during the application process

PhotoStory3 is one of the most preferred programs used to create digital stories (Sadik, 2008). It is a free-of-charge program for Windows users. Through this program, you can add photos and write over a text about a picture, make formal changes on the text, use filters for photos, add transition effects, dub the text of each slide before moving on to the next slide, and finally, the ready music can be uploaded or the person can create his own music. One of the reasons why this program is preferred is that it is free, and the other is that it contains all the elements that will be used to create a digital story. Thus, it is easier to create a digital story with a single program, and it is thought that students' anxiety will decrease, and they will not find the process difficult.

Findings

In this section, the findings of the collected and analysed data are given in tables. The findings are ranked according to the research sub-problems.

Findings regarding the first sub-problem: Is there a significant difference between pre-test and post-test scores of the students' digital literacy in the experimental group in which digital storytelling was applied?

The results of the Wilcoxon signed-ranks test showing whether there is a significant difference between pre-test and post-test scores of the experimental group's digital literacy skills are indicated in Table 4.

Table 4. Findings of the differences between pre test and post test scores of digital literacy scale of the experimental group students digital literacy skills and its sub-factors

	Pre-test	Post-test	Wilcoxon	p
Scale	3.76 (1.18-4.76)	4.35 (3.71-4.76)	3.593	0.000**
Attitude	3.42 (1-4.43)	4.28 (3.86-4.71)	3.638	0.000**
Technical	3.91 (1.5-5)	4.5 (3.5-5)	3.209	0.003*
Cognitive	3.75 (1-5)	4 (4-5)	2.517	0.009*
Social	3.5 (1-5)	4 (3-5)	2.610	0.006*

On examination of Table 4, it is seen that there is a significant difference between the pre-test and post-test scores of the digital literacy scale of the experimental group students digital literacy skills ($p < 0.01$). At the same time, there are significant differences between pre-test and post-test scores in all sub-factors of the experimental group's digital literacy skills ($p < 0.05$). When the median values of the test results are examined, it is seen that the post-test scores of the experimental group in all sub-factors of digital literacy significantly changed. It is observed that the digital literacy scores of the experimental group students increased after the experimental procedure.

Findings regarding the secondary sub-problem: Is there a significant difference between post-test scores of the students' digital literacy in the experimental group in which digital storytelling was applied and the ones in the control group in which it was not applied?

After the experimental procedure, the Mann-Whitney U test was implemented to see the comparative state of the post-test scores of the experimental group and the control group, that is, whether there is a difference between the post-test scores between the groups. The Mann-Whitney U test results showing whether there is a significant difference between the post-test scores of the digital literacy scale of the experimental and control groups towards digital literacy skills are indicated in Table 5.

Table 5. Findings of the differences between groups in the post-test scores of the digital literacy skills

	Group	Post-test	Mann-Whitney U	p
Scale	Experimental	4.35 (3.71-4.76)	47.5	0.000**
	Control	3.76 (1.24-4.53)		
Attitude	Experimental	4.28 (3.86-4.71)	75.5	0.010*
	Control	3.85 (1-4.71)		
Technical	Experimental	4.5 (3.5-5)	38	0.000**
	Control	3.5 (1.33-4.5)		
Cognitive	Experimental	4 (4-5)	58.5	0.001**
	Control	3 (1-5)		
Social	Experimental	4 (3-5)	78	0.011*
	Control	4 (1-5)		

When Table 5 is examined, it is seen that there is a significant difference between the post-test scores of the experimental and control groups' digital literacy skills ($p < 0.01$). It is apparent that the post-test scores of the experimental group are higher than the post-test scores of the control group in terms of the overall scale and sub-factors. It is seen that the digital literacy scores of the experimental group students are significantly higher than the digital literacy scores of the control group students. It can be said that digital storytelling contributes to the digital literacy skills of students.

Results and Discussion

The conclusion regarding the digital literacy skills of the 7th graders at middle school gained thanks to digital storytelling has been mentioned in this section of the study. These results were compared to similar and relevant studies in the literature. Concerning the conclusion obtained from this study, primary suggestions have been made. However, the discussion has been made by establishing a connection with the results of studies considered to have similarities with digital storytelling and digital literacy skill since no study was encountered to make a one-to-one comparison even though several studies related to the subject of this research were reached.

The first sub-problem of the research is: "Is there a significant difference between pre-test and post-test results of digital literacy of the students in the experimental group where digital storytelling was applied?" A significant difference between pre-test and post-test results of digital storytelling of the students in the experimental group where digital storytelling was applied has been discovered on behalf of post-test. This result points out that digital storytelling has a significant positive effect on digital literacy and improved students' digital literacy skills. The second sub-problem of the research is: "Is there a significant difference between the post-test results of the students in the experimental group where digital storytelling was applied and the ones in the control group where digital storytelling was not applied?". These results are parallel to the studies (Alexander, 2011; Ayvaz Tunç, 2016; Balaman Uçar, 2016; Churchill, 2016; Davis, 2004; Dogan, 2007; Foley, 2013; Frazel, 2010; Gyabak and Godina, 2011; Hett, 2012; Heo, 2009; Kajder, 2004; Karakoyun, 2014; Keleş, 2018; Morgan, 2014; Polater, 2019; Ranker, 2008; Robin, 2006; Robin, 2008; Robin, 2016; Robin, and McNeil, 2012; Sadik, 2008; Skinner and Hagood, 2008; Wang and Zhan, 2010; Yamaç, 2015; Yılmaz, 2019) dealing with different dimensions of 21st-century skills of digital storytelling in the literature. Vasudevan, Schultz, and Bateman (2010) realized in their study that formation of digital storytelling process is a process where students become aware of the fact that they could take photos with cameras, record their voices through voice recorders

and use basic presentation software, and it was not as scary as they thought and helped the students improve their skills to use technology. In the studies with pre-service teachers, it has been found that digital literacy levels of pre-service teachers differ significantly after the digital story creation process (Çetin, 2021; Özüdoğru & Çakır, 2020).

Considering the reasons why digital storytelling has a significant effect on digital literacy, it is likely to say that it is related to the fact that the students have realized they can create the videos they have watched. This is associated with their capability to become active producers rather than passive consumers of multimedia thanks to their digital storytelling experience (Ohler, 2006).

Another reason why digital storytelling has a significant effect on digital literacy is the fact that the students have realized their digital stories can be more than a text and exist in a concrete form on the screen as a result of the formation process of digital storytelling. The students wanted to apply their digital literacy skills most efficiently and effectively in order to deliver them to the screen. The studies conducted also indicate that the students were able to blend their stories with multimedia elements and create their digital stories successfully (Dogan, 2007; Foley, 2013; Sylvester and Greenidge, 2009; Vasudevan, Schultz and Bateman, 2010; Yamaç, 2015).

It is possible to say that collecting visuals during the formation process of digital storytelling, dubbing, and processes of assembling the text, visuals, audio, music, and effects can be among the reasons why digital literacy levels of the students in the experimental group were higher. During the digitalization of the stories, both 21st-century skills (digital-technology-media-visual literacy) and perceptions and viewpoints of the students have been developed. Primary studies have also suggested that the formation process of digital storytelling has improved students' technology and internet literacy and enhanced their competence regarding technological tools (Davis, 2004; Demirer, 2013; Dogan, 2007; Foley, 2013; Heo, 2009; Kajder, 2004; Keleş, 2018; Ranker, 2008; Wang and Zhan, 2010). Therefore, the students have become aware of the fact that they could do a fun, educational, and instructional activity on the computer apart from playing computer games, doing tests, and preparing a homework file. Chan, Churchill, and Chiu (2017) have found in their study with three participants whose average age was twenty that digital storytelling contributed to the students' digital literacy. Chan et. al. have realized that digital storytelling has also contributed to the development of students' digital competence and adaptation to digital use and transformation as a result of their study. Yuksel, Robin, and McNeil, (2011) have emphasized that students can improve their digital literacy effectively by using technological tools such as cameras, microphones, and video editing software during the formation process of digital storytelling. The fact that multimedia elements are available during the digital storytelling formation process encourages students to use technology more effectively and improve their digital literacy necessarily (Barber, 2016; Clark, Coudry, MacDonald, & Stephansen, 2015; Xu, Park, & Baek, 2011).

In line with these results, considering multi-literacy skills expected from 21st-century students, it is seen that the application of digital storytelling in lessons will contribute to the development of these skills. This study was conducted at a school where families with a specific socio-economic level send their children. All the students participating in this study have internet, smartphones, and computers at home. However, the fact that there will be a difference in the development of digital literacy skills between those students and the ones with a variety of socio-economic levels should not be ignored. The studies conducted also suggest that there is a difference between the children from lower socioeconomic levels and the ones from upper socio-economic levels in terms of digital literacy (Cooper, 2004; Duveskog, Tedre, Sedano and Sutinen, 2012; Forzani ve Leu, 2012; Gyabak and Godina, 2011; Henry, 2007; Leu, Everett-Cacopardo, Zawilinski, McVerry, and O'Byrne, 2011).

Another reason why the students in the experimental group have improved their digital literacy skills more is filling in the flow chart during the formation process of digital storytelling. The flow chart is a draft scenario plan which shows how digital stories are assembled with such components as text, visual, audio, music, and effect. Kearney (2011) also suggests that it is a cognitive organizational system explaining how these components can be assembled. Even though the formation of the flow chart is

considered as an extra stage by the students, it is actually an essential stage where students can check what is missing, modify the stories for the last time, and see them as a whole before composition, which saves their time while using the program because it allows the students to know what to do, where and when to do it, and to gain self-confidence during the process. Namely, the formation of the flow chart is a stage where the students can revise their stories for the last time (Jakes and Brennan, 2005; Kajder, 2004; Kearney, 2011; Ohler, 2006; Robin, 2006; Robin, 2008; Sadik, 2008). Formation of the flow chart stage of the digital storytelling enables the students to revise their stories one more time, which makes the stories better; therefore, it helps them develop a positive attitude towards storytelling (Eroğlu & Eroğlu, 2020) and creates a positive effect on their digital literacy thanks to the self-confidence they have gained about what to do on which slide when they open the program to be used for digital storytelling.

Also, this study was conducted by researchers from the beginning to the end of the process. It has been noted that the study should include Barrett's (2009) suggestion of a six-phase digital storytelling composition process and Robin (2006)'s seven elements in digital stories should exist in the students' digital stories. Although some students had difficulty in the last phase, phasing, and in calculating how many seconds each slide would be, it was noticed while the formation of the flow chart. Efforts to overcome this problem were made by the researchers' amendments during the formation of the flow chart. It was seen that no significant difference based on gender was found in the analyses of the data obtained. Similarly, since all of the students both in the experimental and control groups have internet, computers, and smartphones at home, no significant finding was discovered in such terms.

Conclusions

It was found that there is a significant difference in favour of the experiment group in terms of post-test scores of digital literacy among the groups after the experiment. At the same time; it was found that there is a significant difference in favour of the post-test between the pre-test and post-test scores of the experimental group. This result points out that digital storytelling has a significant positive effect on digital literacy and improved students' digital literacy skills.

Briefly, it is revealed in this study that the digital storytelling process has contributed to the development of students' digital literacy skills.

Suggestions

Suggestions based on the study conclusion are listed below.

1. This study was conducted with 7th graders at middle school, and it was revealed that digital storytelling has a significant effect on their digital literacy skills. It is suggested that the effects of digital storytelling on digital literacy skills should be examined in different grades of education in order to reach more comprehensive results of this subject and compare the outputs in a multidimensional way.

2. It has been found in this study that digital storytelling has a significant effect on the digital literacy skills of the students taking Turkish lessons at middle school. It is suggested to examine whether similar results will be obtained in different lessons.

3. It has been found in this study that digital storytelling has a significant effect on digital literacy skills through the quantitative method. It is suggested to conduct more detailed or generalizable researches using different methods and techniques.

4. It has been found in this study that digital stories composed have a significant effect on digital literacy skills. It is suggested to examine the effect of digital storytelling on 21st-century skills, media-technology-visual literacy, and compare the results to its significant effect on digital literacy.

Ethics Committee Approval

Ethics committee approval for this study is available with the decision of the Sakarya University Rectorate Ethics Committee meeting 08, decision 09, on 01.01.2019.

Declaration of competing interest

None.

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Gender Role Perception, Empathic Tendency, and Resilience in Predicting Life Satisfaction among Turkish University Students

Research Article

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ABSTRACT

This study aimed to investigate whether gender role perception, empathic tendency, and resilience of Turkish university students are indicators of their life satisfaction in terms of their genders. Using the Satisfaction with Life Scale, the Gender Socialization Scale, the Empathic Tendency Scale, and the Adult Psychological Resilience Scale, we collected data from 336 female and 123 male students. Data analysis revealed that males had significantly higher traditional gender perceptions than females, whereas females had significantly higher empathic tendency, resilience, and life satisfaction levels. We concluded that, resilience, empathic tendency, and traditional gender perception explained life satisfaction scores of the students. The order of importance of predictive variables on life satisfaction was resilience, empathic tendency, and traditional gender perception. The multiple regression analysis showed that three variables significantly contributed to life satisfaction in general. The order of relative importance of predictive variables for life satisfaction was resilience, empathic tendency, and traditional gender role perception.

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Keywords:

Social gender, life satisfaction, resilience, empathic tendency, university student.

Introduction

University life is an important stage in many peoples' lives, in which a series of complex, sensitive, personal, emotional, social, and professional changes arise. At college, they must adapt not only to the universal sociocultural environment of the university such as personality, interpersonal relationships, professional identity, working skills, adaptation to values, beliefs and a new perspective of life, but also to universal socio-cultural environment (Cabras and Mondo 2018; Park and Adler 2003; Mudhowozi 2012). Students generally delay joining university in Turkey due to a variety of reasons, such as an obligation to

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work, the struggle to make a living, gender, and gender roles. These conditions can lead to pressure, stress, and low life satisfaction (Melman, Little and Akin-Little, 2007; Ünsal-Barlas, Karaca, Onan and Işıl, 2010). While this situation results in a different difficulty and stress for students, adaptation process after starting the university might also affect their stress levels, psychological well-being, and life satisfaction. Studies conducted in this field have emphasized that there might be differences in the adaptation to the environment in terms of gender characteristics, but traditional gender attitudes might lead to more negative situations (Moradi and Subich 2002; Martin, Swartz, Kulstad and Maldson 1999). Males can adapt to university life more quickly than females. The environment in which girls and boys were raised, and the attributes of gender might affect adaptation to the new environment (Yau and Chang 2014). Individuals who were raised with traditional gender roles and the ones who were raised with egalitarian gender roles are different in terms of their coping skills, ability to adapt, and psychological well-being (Keith 2007; Quimby and O'Brien 2006). The traditional gender roles of the society in which an individual grew up might also affect their potential for coping with problems (Myers and Mobley 2004; Schuetze and Slowey 2002). When students first step into university life, they might start with high stress and low motivation, and they have to fulfill the academic demands of the university. Being able to overcome the problems depends on the students' systematic use of coping strategies, and this can increase their academic stress levels and life satisfactions (Skinner and Zimmer-Gembeck 2007). In addition, individuals who were raised with traditional gender roles may feel confusion when presented with the egalitarian gender role attitudes common in university environments. Previous studies have shown that life satisfaction levels may decrease when experiencing a role conflict while performing egalitarian gender role behaviors although they have ideal and traditional role expectations (Gui 2019; Perrewe and Hochwarter 2001; Grant-Vallone and Donaldson 2001). Traditional gender roles are directly correlated with the psychological well-being levels of individuals. When the relationship between life satisfaction, which is a predictor of psychological well-being, and gender roles are considered, traditional gender roles between females and males reveal the discrimination and this reduces the life satisfaction levels of individuals (van de Vijver 2007). Buchanan and Selmon (2008) investigated the differences between traditional and egalitarian gender roles of university undergraduates, and they concluded that there is a positive relationship between self-efficacy/life satisfaction and an egalitarian attitude. Popham, Hunt, Benzeval, Bhaskar and Sweeting (2014) expressed that psychological stress was particularly higher among males who had more traditional gender role attitudes.

Empathic tendency is one of the factors related to life. Empathy is described as feeling and sharing the emotions that are being experienced by another person. Empathic skills are an important factor, especially in socializing, and individuals with empathic strength have higher motivation levels and a higher willingness to socialize and communicate with others. All of these positively influence their life satisfaction levels (Terri and Chan 2014). Empathy is an important personality trait that reflects emotional and social functioning. Understanding others' emotions and being able to build cognitive empathy are considered important in finding out the reasons for others' actions (Jolliffe and Farrington 2006; Errasti, Vázquez, Villadangos and Moris 2018). In addition to being a source of psychological well-being, empathy is effective in increasing life satisfaction. People with high empathic tendency experience less anxiety, worry, and negative feelings about problems (Barnard and Curry 2012; Neff 2009). When theoretical research about empathy is considered, it is expressed that human beings have an innate empathic tendency, and this kind of tendency constitutes the environment that is really important in human development and empathy makes the society more tactful (De la Fuente-Anuncibay, Gonza'lezBarbadillo, Gonza'lez-Bernal, Cubo and PizarroRuiz 2019; Spreng, McKinnon, Mar and Levine 2009). Empathic tendency is investigated by researchers in relation to many psychological variables. It is indicated that individuals who have ideas, such as empathy, about themselves and showing compassion to themselves by understanding emotionally are at a positive level in terms of psychological health (Neff, Kirkpatrick and Rude 2007; Allen, Goldwasser and Leary 2012; Wasylikiw,

MacKinnon and MacLellan 2012). Moreover, it is supported that empathy has a positive relationship with psychological structures, such as life satisfaction, happiness, optimism, and emotional flexibility (Neff, Hsieh and DeJittera 2005; Leary, Tate, Adams, Allen and Hancock 2007).

Resilience, also known as “stress resistant attitude,” is defined as the ability to adapt to and cope with stressful and difficult situations (Liu, Reed and Girard 2017; Jenkins 2016). Furthermore, studies state that life satisfaction correlates with many psychological characteristics, and there is an essential relationship between resilience and life satisfaction (Redersstorff, Buchanan and Settles 2007; Tepeli-Temiz and Tari-Cömert 2018). Resilience refers to an individual's ability to fight against difficulties and improve (Luthar, Cicchetti and Becker 2000; Connor and Davidson 2003). Resilience of an individual is also connected with physical and mental health. An individual who has high psychological resilience is able cope with trauma following stress better (Connor and Davidson 2003; Bonanno 2004). Resilience, which is considered a positive psychological structure, is believed to play an important role in increasing life satisfaction (Gable and Haidt 2005). Life satisfaction refers to the cognitive evaluation of individuals being happy with their lives (Diener, Oishi and Lucas 2003). Numerous studies have shown that psychological resilience is related to a high level of life satisfaction (Cohn, Fredrickson, Brown, Mikels and Conway 2009; Hu, Zhang and Wang 2015; Mak, Ng and Wong 2011).

While previous studies have evaluated the relationship between one or two of the variables included in this research, we have found no studies investigating these variables together. This study aims to investigate the role of egalitarian and traditional gender perception, empathic tendency, and psychological resilience on the life satisfaction of Turkish university students. For the present research, This study has been formulated the following research questions:

- Does the relationship between life satisfaction of university students and their gender role perception, empathic tendency, and resilience differ according to gender?
- Do gender role perception, empathic tendency, and resilience levels of university students predict their life satisfaction levels?
- Do gender role perception, empathic tendency, and resilience levels of university female students predict their life satisfaction levels?
- Do gender role perception, empathic tendency, and resilience levels of university male students predict their life satisfaction levels?

Method

Participants

This study was conducted with students at Çukurova University, located in the province of Adana, in the Mediterranean Region of Turkey. Participants included 336 females (73%) and 123 males (27%). The mean age was 21.07 (SD=2.43) for the females, and 21.37 (SD= 1.60) for the males. The participants were selected randomly and answered the scales voluntarily.

Scales

The Satisfaction with Life Scale (SWLS). We used the SWLS scale to measure the life satisfaction level of the participants. This scale was developed by Diener, Emmons, Larsen and Griffin (1985), and it was translated into Turkish by Köker (1991). The scale uses a 7-point Likert-type scale and it consists of a single dimension and 5 items. The highest score is 5 and the lowest is 35. Higher scores indicate high life satisfaction

levels. The test-retest reliability of the scale was found to be .85, and item test correlations were between .71 and .80.

The Gender Socialization Scale. The scale was developed by Epstein (2008). The original form of the scale consisted of five dimensions (traditional gender roles, egalitarian gender roles, toughness, being nice and pleasant, and body consciousness) and 23 items. The Turkish version of the scale is by Arıcı (2011), and it consists of two sub-dimensions and 19 items. The first dimension is named "Traditional Gender Roles" and the second dimension is named "Egalitarian gender roles." Cronbach's alpha internal consistency coefficient was determined to be .79 for "traditional gender roles" and .63 for "egalitarian gender roles." Test-retest reliability coefficient of the scale was .80 for "traditional gender roles" and .86 for "egalitarian gender roles." The responses are rated on a 4-point Likert-type scale. Moreover, the highest score that can be received from the scale is 15 for the egalitarian roles and 42 for the traditional roles.

The Empathic Tendency Scale (ETS). The scale was developed by Dökmen (1988) to measure the emotional component of empathy and empathy potential of an individual in daily life. Some items of the ETS reflect the characteristics of egocentric communication. The ETS is a Likert-type scale, and there are 20 questions which are scored between 1 and 5. The lowest possible score is 20, and the highest is 100. Higher scores show that empathic tendency is high, and low scores show that empathic tendency is low. Test-retest reliability coefficient of the scale was found to be .82, and split-half test reliability was found to be .86. Cronbach's alpha was determined as .72. Regarding the criterion-related validity study of the ETS, the validity of the relationship between the scores from the "Understanding Feelings" section of Edwards Personal Preference Inventory was found 0.68.(Dökmen 1988).

The Adult Psychological Resilience Scale. The scale was adapted to Turkish by Arslan (2015), to measure the adult psychological resilience. The measurement tool, which has a five-point Likert structure, is ranked between "It completely identifies me (5)" and "It never defines (1)". Besides the scale consists of four sub-dimensions, and the adult resilience measure and its subscales can be used to assess resilience in adults. A high score indicates a high level of psychological resilience. Internal consistency and test-retest values were examined in the scope of reliability study of the adult psychological stability scale. Cronbach's alpha was .94. Test-retest coefficient was calculated as .85. It was found that internal consistency of the scale changed between .82 and .86, and test-retest coefficient changed between .64 and .79. In the scope of the criterion validity of the scale, life satisfaction scale, positive-negative feeling scale, and Rosenberg self-esteem scale were used. Psychological stability has significant relationships with life satisfaction at the level of .50, positive feelings at the level of .40, negative feelings at the level of .33, and self-esteem at the level of .42 (Arslan 2015).

Data Analysis

In order to understand whether the data is distributed normally or not, we checked skewness and kurtosis values of the data. According to the findings, skewness coefficient of the data was determined to be -.68, and the kurtosis coefficient of the data was determined to be -.43. Kline (2011) supports the idea that distributions are considered normal if the skewness coefficient is smaller than |3.0| and kurtosis coefficient is smaller than |10.0|. As the data of the research was distributed normally, parametric tests (MANOVA, Pearson's product-moment correlation analysis, and multiple regression analysis) were used in the following analysis. After obtaining the mean scores of the items in the research, correlation coefficients were checked to determine whether the mean scores show a relationship between the variables. In addition, histogram and normality assumptions of the data were examined, and they were found to be satisfactory. Analysis was carried out with SPSS version 22.0.

Results

Differences in life satisfaction, social gender, empathic tendency, and resilience according to gender;

MANOVA was performed to evaluate the differences in life satisfaction, social gender, empathic tendency, and resilience. The results show that there was a significant difference according to gender. The differences in egalitarian gender perception, traditional gender perception, empathic tendency, resilience, and life satisfaction levels were evaluated through MANOVA. Equality of variance was acceptable based on Box's M (Box's M=17.74; F=1.75, p>.05) MANOVA results of analysis revealed that there were significant differences according to gender in respect to traditional gender perception, emphatic tendency, resilience, and life satisfaction (Wilk's Lambda (Λ)= 0.938, F(1, 457)= 7.55, p < .001).

It shows one-way ANOVA factor results depending on life satisfaction, social gender, empathic tendency, resilience, gender, means, and standard deviations of the variables. As seen in Table 1, males had significantly higher traditional gender perception (F=16.99, p<.001), and females had significantly higher empathic tendencies (F=14.41, p<.001), resilience (F=8.43, p<.001), and life satisfaction levels (F=4.47, p<.05).

Table 1. F results of MANOVA depending on gender

	Gender	n	X	SD	df	F	p																																												
Egalitarian gender perception	M	123	16.32	2.78	1-457	.20	.655																																												
	F	336	16.17	3.30				Traditional gender perception	M	123	37.08	7.61	1-457	16.99	.000**	F	336	33.58	8.21	Empathic tendency	M	123	67.48	8.52	1-457	14.41	.000**	F	336	70.80	8.19	Resilience	M	123	81.47	10.52	1-457	8.43	.004**	F	336	84.67	10.03	Life satisfaction	M	123	22.06	6.44	1-457	4.47	.035*
Traditional gender perception	M	123	37.08	7.61	1-457	16.99	.000**																																												
	F	336	33.58	8.21				Empathic tendency	M	123	67.48	8.52	1-457	14.41	.000**	F	336	70.80	8.19	Resilience	M	123	81.47	10.52	1-457	8.43	.004**	F	336	84.67	10.03	Life satisfaction	M	123	22.06	6.44	1-457	4.47	.035*	F	336	23.38	5.69								
Empathic tendency	M	123	67.48	8.52	1-457	14.41	.000**																																												
	F	336	70.80	8.19				Resilience	M	123	81.47	10.52	1-457	8.43	.004**	F	336	84.67	10.03	Life satisfaction	M	123	22.06	6.44	1-457	4.47	.035*	F	336	23.38	5.69																				
Resilience	M	123	81.47	10.52	1-457	8.43	.004**																																												
	F	336	84.67	10.03				Life satisfaction	M	123	22.06	6.44	1-457	4.47	.035*	F	336	23.38	5.69																																
Life satisfaction	M	123	22.06	6.44	1-457	4.47	.035*																																												
	F	336	23.38	5.69																																															

Note: M: Male, F: Female,* p<.05, **p<.001

The relationship between life satisfaction, social gender, empathic tendency, and resilience

When the bivariate partial correlation between the predictor variables and the dependent variable was considered, it was determined that there was a positive significant relationship between egalitarian gender perception and life satisfaction (r=.12, p<.001), a negative significant relationship between traditional gender perception and life satisfaction (r=-.19, p<.001), a positive significant relationship between empathic tendency and life satisfaction (r=.40, p<.001), and a positive significant relationship between resilience and life satisfaction (r=.43, p<.001). The relationship between female's life satisfaction, gender perceptions, empathic tendency, and resilience When the bivariate partial correlation between the predictor variables and the dependent variable was considered, it was determined that there was a positive significant relationship between empathic tendency and life satisfaction (r=.40, p<.001) , and a positive significant relationship between resilience and life satisfaction (r=.46, p<.001), a positive relationship between egalitarian gender perception and life satisfaction (r=.10, p<.001), a negative significant relationship between traditional gender perception and life satisfaction (r=-.17, p<.001). The relationship between male's life satisfaction, gender perceptions, empathic tendency, and resilience When the bivariate partial correlation between the predictor variables and the dependent variable was considered, it was determined that there was a positive significant relationship between empathic tendency and life satisfaction (r=.35, p<.001), and a positive significant relationship between resilience and life satisfaction (r=.35, p<.001),a positive relationship between egalitarian gender perception and life satisfaction (r=.17, p<.001), a negative significant relationship between traditional gender perception and life satisfaction (r=-.19, p<.001).

Table 2. Correlations of predictor and criterion variables for total sample, female and male

<i>Whole sample</i>	M	SD	1	2	3	4
Predicted Variable						
Life satisfaction	23.0283	5.92431	.118	.397***	.432***	-.187***
Predictor Variables						
1. Egalitarian gender perception	16.2157	3.16905	-	.075	.257***	-.044
2. Empathic tendency	69.9150	8.40796	-	-	.484***	-.183***
3. Resilience	83.8214	10.53724	-	-	-	-.094
4. Traditional gender perception	34.5185	8.19849	-	-	-	-
<i>Female</i>						
Predicted Variable	M	SD	1	2	3	4
Life satisfaction	23.3810	5.69138	.402***	.458***	.105	-.167***
Predictor Variables						
1. Empathic tendency	70.8036	8.19957	-	.477***	.078**	-.128***
2. Resilience	84.6786	10.03238	-	-	.277	-.080
3. Egalitarian gender perception	16.1756	3.30203	-	-	-	-.099
4. Traditional gender perception	33.5804	8.21572	-	-	-	-
<i>Male</i>						
Predicted Variable	M	SD	1	2	3	4
Life satisfaction	22.0650	6.44490	.355***	.355***	.170	-.188
Predictor Variables						
1. Empathic tendency	67.4878	8.52419	-	.461***	.086**	-.232***
2. Resilience	81.4797	11.52855	-	-	.230	-.046
3. Egalitarian gender perception	16.3252	2.78313	-	-	-	.127
4. Traditional gender perception	37.0813	7.61211	-	-	-	-

* p<.05, ** p<.01, *** p<.001

The results of stepwise regression analysis of the research are presented in Table 3. Egalitarian gender perception, traditional gender perception, empathic tendency, and resilience explain the students' life satisfaction scores significantly. This explains 24% of the total variance in the life satisfaction scores together with the given predictors of the research $F(3-56)=29.066$. When considering the results, the relative significance order of the predictors on life satisfaction are resilience ($\beta = .321$, $p < .001$), empathic tendency ($\beta = .284$, $p < .001$), and traditionalist gender perception ($\beta = .126$, $p < .001$), according to the standardized regression coefficients (β) for the whole sample. When considering t-test results about the significance of regression coefficients, resilience ($t = 6.36$, $p < .001$), empathic tendency ($t = 5.85$, $p < .001$), and traditional gender perception ($t = 3.01$, $p < .001$) are significant predictors for life satisfaction.

As presented in Table 3, the results of the multiple regression analysis show that three variables significantly contributed to life satisfaction of females. According to the standardized regression coefficients (β), the relative significance order of the predictors of life satisfaction are resilience ($\beta = .348$, $p < .001$), empathic tendency ($\beta = .224$, $p < .001$), and traditional gender perception ($\beta = -.133$, $p < .05$). When considering t-test results about the significance of regression coefficients, resilience ($t = 6.24$, $p < .001$), empathic tendency ($t = 4.13$, $p < .001$), and traditional gender perception ($t = -2.36$, $p < .001$) are significant predictors for life satisfaction. Predictor variables consisted of 27% of total variance $F(3-56) = 29.96$, $p < .001$. Moreover, the results of a multiple regression analysis showed that four variables significantly not to contributed to life satisfaction of males. The predictor variables constituted 20% of the total variance $F(3-56) = 7.41$, $p < .001$. According to the standardized regression coefficients (β), the relative significance order of the predictors for life satisfaction are resilience ($\beta = .225$, $p > .001$), empathic tendency ($\beta = .207$, $p > .001$) traditional gender role perception ($\beta = -.145$, $p > .001$) and egalitarian gender role perception ($\beta = -.119$, $p > .001$).

Table 3. The results of multiple regression analysis about the prediction of life satisfaction

<i>Whole sample</i>	B	SE_B	Beta	t	p	R²	R²_{change}
Predicted Variable							
Life satisfaction	55.766	4.994	-	.819	.000	-	-
Predictor Variables							
Resilience	.316	.050	.321	6.360	.000	.286	.239
Empathic tendency	.352	.060	.284	5.855	.000	.265	.123
Traditional gender perception	.160	.053	.126	3.010	.003	.140	.260
Egalitarian gender perception	.114	.139	.035	.819	.413	.038	.033
R=0.493	R²=.243	Adjusted R²=.235	F₍₃₋₅₆₎=29.066	p=.000			
Female							
Predicted Variable							
Life satisfaction	-1.122	3.177	-	-.353	.724	-	-
Predictor Variables							
Resilience	.197	.032	.348	6.240	.000	.324	.294
Empathic tendency	.155	.038	.224	4.137	.000	.222	.195
Traditional gender perception	-.078	.033	-.113	-2.361	.019	-.129	-.111
Egalitarian gender perception	-.035	.085	-.020	-.415	.679	-.023	-.020
R=.448	R²=.201	Adjusted R²=.174	F₍₃₋₅₆₎=7.412	p=.000			
Male							
Predicted Variable							
Life satisfaction	1.297	6.172	-	.210	.834	-	-
Predictor Variables							
Resilience	.126	.053	.225	2.370	.019	.213	.195
Empathic tendency	.156	.072	.207	2.167	.32	.196	.178
Traditional gender perception	-.123	.073	-.145	-1.692	.093	-.154	-.139
Egalitarian gender perception	.276	.198	.119	1.393	.166	.127	.115
R=.516	R²=.266	Adjusted R²=.257	F₍₃₋₅₆₎=29.969	p=.000			

* p<.05, **p<.001

Discussion

This study aims to investigate whether life satisfaction, gender perception, empathic tendency, and resilience differ with regards to gender. In the study, it was determined that the traditional gender perception scores of the males were higher than the females in terms of gender while the traditional gender perception scores of the females were lower. Gender is an important predictor variable for gender role perception. Even if it is accepted that the reflections of biological gender characteristics of individuals who act in accordance with traditionally performed gender roles in societies are an indicator of their psychological and mental health, there is a lack of empirical evidence (DiDonato and Berenbaum 2013). In addition, strict adherence to traditional masculine and feminine roles may be a challenge in affirming non-traditional gender roles, which can affect life satisfaction considerably (Parent and Moradi 2010). In this study, low traditional gender role scores of the females may be caused by the pressure imposed by the society in which the girls live. An increase in a families' socio-economic status, the spouses' educational status, females' having a job, a companionate marriage, and females' contribution to the family budget are indicators of a change in gender roles in the direction of egalitarian in the contemporary societies. Such changes are discussed in countries like Turkey, which may be the cause of high egalitarian gender perception scores (İmamoğlu 1994). Traditional female roles in Turkey cause a pressure together with taking away the females' social, economic, and humanitarian rights together constitute an edition. The willingness to acquire some rights due to this pressure may have resulted in a right to have a more egalitarian life. Furthermore, the need to build a balance between these two

situations in a society where family expectations change and different family roles become important with the transition to contemporary family life and the desire of all individuals and especially females in the family create resource for the increase in the egalitarian gender scores (Eken 2006). This study shows differences in the empathic tendency levels of females and males, which is in accordance with findings from previous studies, in which females were shown to have higher empathic levels than males (Preti, Vellante, Baron-Cohen, Zucca, Petretto and Masala 2011; Chen, Feng, LV, LU, 2018). This result of the study may be derived from Turkish parents' raising their children according to traditional gender roles. Families raise their daughters more emotionally and sensitively. In addition, different socialization of females and males, acquisition and development of feminine and masculine roles still continue. Although it seems that there have been some changes in the last few years, society and media still encourage males embody traditional masculinity traits, and for females to have traditional values in general (Dökmen 2012). Therefore, sensitivity, which is one of the traditional gender roles of females, can be effective in high empathic tendency.

Another finding of the study is that resilience scores of the females were higher. Social support network in Turkish society has a wider scope when it is considered from the point of females. Females interact more with units that provide socialization, such as family, relatives, and neighbors. The support that they get from these units can help females cope with pressure and stressors, and have better resilience. Previous literature supports this finding (Caetano, Silva and Vettore 2013; Zhang, Zhang, Zhang, Zhang and Feng 2018). Moreover, the studies express that social support promotes both physical and psychological health and increases the power of endurance (Nickerson and Nagle 2004; Uchino, Cacioppo and Kiecolt-Glaser 1996).

Various studies have shown that social gender is an important variable that predicts life satisfaction (Matud, Bethencourt and Ibáñez 2014; Myers 2000). Previous studies have also shown that males tend to adopt traditional gender roles, and females more often adopt non-traditional gender roles (Kimberly and Mahaffy 2002; Trommsdorff and Iwawaki 1989; Keith and Jacqueline 2002). In this study, the perception of traditional gender roles was found to be an important predictor in males' social gender perceptions. Previous studies that point out the significant differences between females and males in terms of life satisfaction (Glaesmer, Grande, Braehler and Roth 2011; Ng, Loy, Gudmunson and Cheong 2009; Salinas-Jiménez, Artés and Salinas-Jiménez 2013), which is consistent with the findings of the present study. The present study is also consistent with previous findings that males' life satisfaction levels are higher than females' (Jacobsen, Lee, Marquering and Zhang 2014; Goldbeck, Schmitz, Besier, Herschbach and Henrich 2007; Cabras and Mondo 2017). Additionally, previous research states that females' life satisfaction might be higher than males' (Kamphampati, Giusta and Jewel 2011; Oshio 2012). Life satisfaction might be affected by conditions specific to a person's culture, and distinct differences in business life, social life, marriage, and family life might affect psychological changes, life happiness, and self-esteem (Chui and Wong 2016). Traditional pressure still continues for females and males to socialize differently, acquire different skills, and take on different roles. As a consequence, different life satisfaction scores of females and males and high life satisfaction scores of males in this study may be derived from the sustainability of traditional gender roles. Another finding of this study is that females have more empathic tendency than males. Studies about life satisfaction express that empathy has an important role and predictive power on life satisfaction, and there is a positive relationship between two variables (Caro, San-Martín, Delgado-Bolton and Vivanco 2017; Choi, Minote, Sekiya and Watanuki 2016; Bourgault, Lavoie, Paul-Savoie, Grégoire, Michaud, Gosselin and Johnston 2015). Previous studies have shown that empathic tendencies of males are lower than of females (Erçoban 2003; Karakaya 2001; Solak 2011; Duru 2002; Rehber and Atıcı 2009). In this study, the main reason for the difference in the empathic tendency levels in terms of gender can be considered as the girls' being directed to be more understanding, sensitive, and easygoing against the people around them in the context of gender roles. Families teach the boys to be strong, authoritative and tough. Therefore, the boys have more difficulties than the girls in expressing themselves.

These characteristics can be considered as the reason of the girls' having higher empathic tendencies than the boys.

In this research, resilience was found to be an important predictor of life satisfaction. There are some other studies which express that resilience is an important predictor of life satisfaction (Arslan, Çelebioğlu and Tezel 2008; Kılıç, Yıldız and Kavak 2018). Previous studies show that individuals with good life satisfaction also had high resilience. While resilience is based on the explanation of regenerative elements, such as family and school, in society, regenerative factors play an especially important role in raising individuals with high resilience (Benard 1991; Krovetz 1999). In addition to individual characteristics, internal (familial) and external (environmental) factors are involved in the formation of resilience. Positive conditions, close relationships, and supportive attitudes from family members help create a protective effect on resilience (Beardslee and Podoresky 1988; Gordon and Song 1994). Individuals with a strong social support system are good at coping with stressful life events (Callaghan and Morissey 1993; Shonkoff 1984), and they are better able to overcome psychological problems (Lara, Leader and Klein 1998). They also experience less anxiety and fewer behavioral problems (Barrera, Fleming and Khan 2004).

While students prepare for the university exams in Turkey, their families provide important social support. This can be considered an important factor in strengthening psychological health and increasing ability to rise to challenges. This social support might cause good life satisfaction and resilience and skills of the individuals participated in the research. According to previous studies, social support strengthens both life satisfaction and resilience and there was a strong relationship between these two variables (Goldstein and Brooks 2001; Dayıoğlu 2008; Savi- Cakar and Karataş 2010). A strong relationship was found between resilience and life satisfaction. Gender is another important variable for resilience (Saka 2017; Çelikkaleli and Kaya 2016). In accordance with the current study, previous literature shows that resilience of girls is higher than boys (Oktan 2008; Dündar 2016). Such a result may be due to factors protect resilience, such as girls' coping with stressors in life and their ability to solve problems better and tendency to ask for help (Yıldırım, Zorbaz, Ulaş, Kızıldağ and Dinçel 2017).

This study also has some limitations. It was carried out at only one university in Turkey. In order to be able to generalize the results, random selections of other universities in Turkey are needed. Based on the findings of this study, it is highly recommended that programs be designed for families and students to provide social gender mainstreaming and that there be an increase in social gender sensitivity, which should include psychoeducation programs. The designation of psychoeducation programs, especially with male students, can make a significant contribution to achieve gender equality. In addition, the designation of programs that include effective coping skills can play an important role in increasing the resilience level of individuals.

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Teachers' Views Regarding the Usability of Middle School Turkish Textbooks in the Distance Education Process

Research Article

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ABSTRACT

Textbooks are at the top of most important materials for teaching Turkish. Current textbooks have been designed for face-to-face learning. However, in distance education that started with the COVID-19 pandemic, there is a need for materials that have been adapted to technology. The purpose of this study is to examine the Turkish teachers' views on the usability of textbooks in the distance education process. The research is planned as a qualitative case study and its study group consists of 30 Turkish teachers who teach using distance education processes. The data was collected through an interview form and was analyzed using the technique of content analysis. As a result of the study, it was determined that middle school Turkish textbooks are not suitable for distance education in terms of listening/monitoring, speaking, writing, reading, and vocabulary teaching activities and research assignments. Furthermore, it was found out that Turkish teachers usually resort to ready-made activities when the textbooks are insufficient, and they do not/cannot create interactive content using WEB 2.0 tools.

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Keywords:

Distance education, middle school Turkish textbooks, Turkish teaching, z-book.

Introduction

In the information age we live in, the opportunities that arise with the rapid development of technology have also been reflected in the educational settings. As a result of the COVID-19 pandemic, remote education has been utilized in our country which has made it compulsory to integrate technology into learning environments and equipment in Turkish teaching field as well as in all other lessons. This process requires the presence of Turkish teachers who know how to utilize technology, students with access to technological

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opportunities, and textbooks adapted to online learning. As it is known, middle school Turkish textbooks published by the Ministry of National Education and private publishing houses can be accessed in both printed and Portable Document Format (PDF). However, the usability and functionality of the books for the distance education process during the period of pandemic in both formats need to be revealed with regards to maintaining quality Turkish education.

Turkish education ultimately aims at improving students' language skills. This is expressed in the 2019 Turkish Course Curriculum (TCC) as follows:

The Turkish Curriculum has been configured as a whole that includes knowledge, skills and values which aims at helping students acquire the language and cognitive skills related to listening/monitoring, speaking, reading and writing that they can use throughout their lives, develop individually and socially using these skills, communicate effectively, and gain the habit of reading and writing with a love of Turkish language (MEB, 2019, p. 8).

Language skills known as listening/monitoring, speaking, reading, and writing develop through the textbooks prepared according to the Turkish Curriculum under the guidance of the Turkish teachers. However, these textbooks have been designed to be used in the classroom environment where face-to-face education takes place. It should not be overlooked that in distance education, qualified language teaching will take place with the presence of appropriate environments and equipment for online learning.

Distance education is a form of education in which learner and teacher are physically separated from each other (Adıyaman, 2002, p. 92). İşman (2011, p. 1) defines distance education as a model of education system where teachers and students do not have to be in the same place and where educational activities are carried out by means of postal services, and information and communication technologies. Bozkurt (2017, p. 87) has created an interdisciplinary definition for distance education that tries to eliminate the limitations between the learner, teacher, and learning resources, and that uses existing technologies with a pragmatist approach to achieve this. According to Kırık (2014, p. 75), distance education is a hierarchical, stable, complex, nonlinear education system. In another definition, distance education is the execution of educational activities through equipment such as televisions, computers, tablets, and mobile phones without physical interaction (Karakuş, Ucuzsatar, Karacaoğlu, Esendemir & Bayraktar, 2020, p. 222). When the definitions in the literature are analyzed, it is observed that some concepts and characteristics related to distance education stand out such as "the elimination of limitations," "technology," "complex," "stable," "nonlinear," "distance," and "physically different spaces."

Distance education offers benefits such as elimination of time and space limitations, giving the student the right to choose, digital accessibility, reaching a wider audience, being shaped according to the individual needs, providing equal opportunities, being synchronous or the opposite (Arat & Bakan, 2014, Kırık, 2014; Odabaş, 2003; Traxler, 2018). However, distance education also has some limitations. In particular, Turkish lessons' focus on activities, interaction, student-centered learning, and practicality can be considered as the disadvantageous aspects of distance learning in Turkish lessons (Sarıçam, Özdoğan & Topçuoğlu Ünal, 2020). In addition, the materialization of distance education in an environment different from the classroom requires the virtual environment to have certain features for teaching Turkish.

The most frequently used medium for teaching Turkish, especially during the COVID-19 pandemic, have been virtual (WEB 2.0) environments. During this time when the personal interactions are risky, Turkish instruction has been done through Education Information Network (EBA) prepared by the Ministry of National Education (MEB), TRT EBA TV Primary School, TRT EBA TV Middle School and TRT EBA TV high school channels. These environments can be classified as environments that offer ready-made content for distance Turkish teaching, environments that permit content creation for Turkish teaching (Karagöl, 2019, p. 99) and environments that are suitable for remote Turkish teaching. "The Language Learning Portal" at

“eba.gov.tr” offers ready-made content such as applications, support materials and videos for distance Turkish teaching. “The Content Creation System” (CCS) at “ders.eba.gov.tr” is a platform that enables teachers to create course flow and content. In other words, CCS is a content preparation environment for Turkish teaching. “The Live Lesson” tab, also located at the same address, can be considered as a remote live Turkish teaching environment that enables teachers to conduct synchronous lessons with students. Textbooks are at the top of the most important tools of the live course environment, both in face-to-face education and in distance education.

Textbooks are one of the most essential materials in educational settings. All the components that make up the content of the middle school Turkish textbooks are prepared with the aim of improving students’ language skills under the guidance of the Turkish lesson teachers. Textbooks can be in print or in PDF format and what is more there are interactive textbooks [enriched books (Z-books)]. Transition to distance education and technology-based Turkish education during the pandemic have increased the importance of Z-books. Z-books are a resource that the user can use whenever and wherever they want, online or offline, and they can use it for self-learning, trial, practice, and testing and evaluation without the need for outside support (Gündoğdu, 2017, p. 219). Z-books which can be described as interactive electronic books, has a variety of features such as pictures, texts, videos, graphics, tables, sounds, photographs, maps, animations, simulations, and internet connectivity. Because of these features, there is interaction between the students and the Z-books.

Today, there is a need for interactive Turkish textbooks that can be used in the virtual learning environments where Turkish education is conducted remotely. In this regard, middle school Turkish textbooks that were designed with the idea of being used in face-to-face educational settings should be re-evaluated and structured in the wake of distance education (virtual classroom) experiences. During this re-evaluation and structuring process, the experience and opinions of the Turkish language teachers are too significant to be ignored. Along with the significance of their opinions, the integration of Z-books into Turkish distance education is closely related to the concept of “digital competence” referred in TCC 2019. In Qualifications Framework of Turkey (QFT) which was specified in the Turkish Course Curriculum eight key competencies have been identified. One of these competencies is “digital competence”. Digital competence is defined in the program as follows (MEB, 2019, p. 5):

It covers the safe and critical use of information and communication technologies for business, daily life, and communication. This competence is supported by basic skills such as the use of computers to access, and evaluate information, and to store, produce, present and exchange information as well as to access common networks and communicate through the Internet.

In addition to digital competence, the concept of “digital literacy” which is one of the requirements of technology-based education is also related to the Z-books. Z-books which will be used in the classrooms will significantly contribute to the students' acquiring digital literacy. Furthermore, the following qualities of the technology generation labelled as “digital natives” necessitates the digitization of textbooks:

- They want to access information quickly,
- They prefer graphics over texts,
- They prefer reading an article randomly in capsule form rather than reading it linearly from beginning to end,
- They prefer games over serious studying,
- Their cognitive structures are parallel not sequential,
- They want to do multiple tasks simultaneously,
- They want to learn by discovery (Bilgiç, Duman, & Seferoğlu, 2011, p. 276).

Upon considering the above-mentioned characteristics, it is found out that the information required by students should be accessible through side links or add-ons in the textbooks. Moreover, texts should be supported with visuals/animations/simulations/videos; the activities should be converted into games; and exploratory learning activities should be included in textbooks. On the other hand, there has been changes in the concept of text in parallel with the developments of the 21st century, which resulted in the emergence of digital texts, hypertexts and multimedia texts making it crucial for Turkish textbooks to be technology and internet-based.

As a result of the search made in "TR Index", "Council of Higher Education Thesis Center", "DergiPark" and "ERIC" databases with the keywords "distance education," "middle school Turkish coursebooks," "Turkish teachers," "digital listening," "digital reading," "digital speaking," and "digital writing," no results that evaluates the views of Turkish teachers regarding the textbooks during the distance education process has been found. However, the following research which include findings about Turkish courses in distance education process are available in literature:

Ateş, Çerçi & Derman (2015) have analyzed Turkish lesson videos in EBA. Aydın (2020) has evaluated Turkish lessons done on EBA TV during the distance education process according to student views. As a result of this study, it was determined that the students found Turkish lessons on EBA TV useful, but it was also identified that there were negative opinions about it such as insufficient time, lectures being too fast, inability to ask questions, and the lack of the ability to change teachers. Bayburtlu (2020) has intended at revealing the state of Turkish education during the epidemic through the views of Turkish teachers. Karakuş, Ucuşatar, Karacaoğlu, Esendemir & Bayraktar (2020) has done research on the views of Turkish teacher candidates on distance education. In this study, it was concluded that Turkish teacher candidates have not been able to adapt to the distance education process; they think that such skill-based lessons could not be conducted using distance education and that they suggest returning to face-to-face education as soon as possible. Özgül, Ceran & Yıldız (2020) have presented the views of Turkish teachers on how Turkish lessons are carried out through distance education applications. Turkish teachers have expressed their views on distance education lessons in such themes as challenges and contributions, EBA, substantial content, and inadequate assessment and evaluation. Sariçam, Özdoğan & Topçuoğlu Ünal (2020) have researched teachers' views on implementation of Turkish lessons in distance education. They have asked questions to Turkish course teachers regarding "advantages and disadvantages of distance education," "distance education in relation to language skills," "what to do to diversify language skills activities," and "elimination of limitations in language skills teaching." As it can be understood from the above-mentioned studies, there is no study based on the opinions of Turkish teachers regarding the use of middle school Turkish textbooks in distance education. Thus, the aim of the study is to examine the Turkish teachers' views on the usability of textbooks in the distance education process. Based on this research's statement of purpose, the following sub-problems have been determined:

1. What are Turkish lesson teachers' opinions about the functionality of listening/monitoring texts and activities in Turkish textbooks while doing distance (live) teaching during distance education?
2. What are Turkish lesson teachers' opinions regarding the functionality of speaking activities in Turkish textbooks while doing distance (live) teaching during distance education?
3. What are Turkish lesson teachers' opinions about the functionality of reading texts and activities in Turkish textbooks while doing distance (live) teaching during distance education?
4. What are Turkish lesson teachers' opinions about the functionality of writing activities in Turkish textbooks while doing distance (live) teaching during distance education?
5. What are Turkish lesson teachers' opinions about the functionality of vocabulary activities in Turkish textbooks while doing distance (live) teaching during distance education?

6. What are Turkish lesson teachers' opinions about research assignments in Turkish textbooks while teaching during distance education?

7. What do Turkish course teachers do when Turkish textbooks are insufficient in the distance education process?

Since they are in the position of implementers of content in the middle school Turkish textbooks, the research was limited to Turkish teachers only. It is believed that this research will contribute to literature in terms of digitizing middle school Turkish textbooks.

Methodology

In this section, research model, study group, data collection, and analysis are covered.

Research Model

This research, which was conducted in order to find out the opinions of Turkish teachers on the usability of Turkish textbooks in distance education, was designed as a qualitative research. As pointed out by Seggie & Bayyurt (2015, p. 16), qualitative research, unlike quantitative research, allow for a detailed understanding of the developing and changing world and the emerging insights, and the problems and struggles that come with it.

There are a number of research designs in qualitative research. Among the designs of qualitative research are action research, phenomenology, case studies, ethnography, narrative research, and grounded theory (Saban & Ersoy, 2019). This research has been designed as a qualitative case study.

Study Group

The study group of this research consists of 30 Turkish teachers who worked as Turkish teachers during the pandemic within the Ministry of National Education. The characteristics of the teachers are listed in Table 1:

Table 1. Information about the Turkish teachers in the study group

<i>Professional Years of Seniority</i>	<i>f</i>	<i>Education Level</i>	<i>f</i>	<i>Gender</i>	<i>f</i>
1-3	2	Bachelor's	21	Female	17
4-6	2	Master's	7	Male	13
7-9	12	PhD	2		
10-12	1				
12-15	4				
15 or more	9				
Total			30		

The number of participants in this study is limited to thirty teachers. This is because while the amount of data to be collected from the participants in the research increases, the number of individuals who should be included in the sampling is decreased (Yıldırım & Şimşek, 2008, p. 115). In the study, convenience sampling model was used. Since data obtained in this study was large (see Data Collection), this specific number of participants were interviewed. The required ethics committee approval was obtained from the respective institution for the research.

Data Collection

In qualitative research, interviews, observations, and documents are used as data collection methods. Since the opinions of Turkish teachers constitute the data source of this research, interview method was used in the study. Interview is a verbal communication process between two or more people. The interview can be

defined as collecting of data from the relevant people within the framework of the questions for which answers are sought in the research. The interview provides us with in-depth information about a specific research topic or a question (Büyüköztürk, Çakmak, Akgün, Karadeniz & Demirel, 2008, p. 158).

Semi-structured interview method was used as the data collection tool in this study. The form titled "Semi-Structured Interview Form Questions Regarding the Opinions of Turkish Teachers Concerning the Usability of Textbooks in Distance Education Process" was sent to 3 experts who had a doctorate in the field of Turkish education. Then, data was collected from 3 Turkish teachers for the pre-application of the form. The form was, then, finalized in accordance with the opinions of the experts in the field and the pre-interview data. Questions on the form are as follows:

1. What are your positive or negative opinions about the functionality of the listening/monitoring texts and activities in Turkish textbooks while doing distance (live) teaching during distance education? What are your views on the digitalization of the texts and activities?

2. What are your positive or negative opinions about the functionality of speaking activities in Turkish textbooks while doing distance (live) teaching during distance education? What are your views on the digitalization of these activities?

3. What are your positive or negative opinions about the functionality of reading texts and activities in Turkish textbooks while doing distance (live) teaching during distance education? What are your views on the digitalization of these texts and activities?

4. What are your positive or negative opinions about the functionality of writing activities in Turkish textbooks while doing distance (live) teaching during distance education? What are your views on the digitalization of these activities?

5. What are your positive or negative opinions about the functionality of vocabulary teaching/activities in Turkish textbooks while doing distance (live) teaching during distance education? What are your views on the digitalization of these activities?

6. What are your opinions about the research assignments in Turkish textbooks while doing distance (live) teaching during distance education?

7. What do you do when Turkish textbooks are insufficient during distance education? What do you do to overcome this deficiency? What are your solution methods/suggestions?

During the data collection stage, face-to-face interviews were not held with the participants due to COVID-19, instead, the answers were received in writing through digital media. 14 pages of data consisting of 5121 words was collected after typing in Microsoft Office Word using Times New Roman font, font size of 12, page margins at 2.5 cm, and spaced with single line.

Data Analysis

Content analysis method was used to analyze the data in this research. Content analysis is used to determine the existence of and to enumerate words, concepts, themes, idioms, characters, and sentences in one or more texts (Kızıltepe, 2015, p. 253-254). Deductive content analysis method was used since the sub-problems of the study guided data collection. As mentioned by Patton (2014, p. 453), deductive content analysis is based on data analysis according to existing frames, in contrast to inductive content analysis (Patton, 2014, p. 453).

The themes of this research were determined before the data analysis. "Listening/Monitoring Texts and Activities in the Distance Education Process," "Speaking Activities in the Distance Education Process," "Reading Texts and Activities in the Distance Education Process," "Writing Activities in the Distance

Education Process," "Vocabulary Teaching Activities in the Distance Education Process," "Research Assignments in the Distance Education Process," and "Insufficiency of Turkish Textbooks in Distance Education Process" are the themes of the research. By reading and rereading the research data several times, codes were determined. For the reliability of the data analysis, the codes were reviewed by one other person apart from the researchers. Miles and Huberman's (2015) formula was used for consistency between encoders. The correspondence percentage was found to be .87. Since this correspondence should be higher than 70% (Tavşancıl & Aslan, 2001), it was determined that the content analysis conducted in this research was reliable.

Findings

Under this heading, the findings obtained in accordance with the sub-problems of the research are presented:

Findings in Relation to the First Sub-Problem

Table 2. Turkish teachers' views about the functionality of the listening/monitoring texts and activities in middle school Turkish textbooks in the distance education process

Categories	Codes	f	%
Positive	Listening/monitoring texts and activities are appropriate for distance education.	7	23.33
	Students can follow listening/monitoring texts more easily in the computer environment.	1	3.33
	It is a positive situation to project the listening/monitoring text voices on the screen.	1	3.33
Negative	The sound quality of the listening/monitoring texts is poor.	5	16.66
	Listening/monitoring texts should be uploaded to eba.gov.tr.	2	6.66
	Listening/monitoring activities should be designed for distance education.	2	6.66
	Listening/monitoring texts and activities are boring according to students in distance education.	3	10
	Digital (interactive) functionality of listening/monitoring texts and activities should be improved.	11	36.66
	Listening/monitoring texts are not beneficial at all in distance education.	1	3.33

Table 2 contains the views of Turkish teachers about the functionality of the listening/monitoring texts and activities in the middle school Turkish textbooks in the distance education process. There are 3 codes in the positive category and 6 codes in the negative category. 7 participants stated that the listening/monitoring texts and activities in the middle school Turkish coursebooks are appropriate for distance education. One of the teachers stated that the text/activities were followed more easily on the digital environment and that it was positive to project the text/activities on the screen.

In the negative category, 11 participants stated that the listening/monitoring texts and activities should be made interactive. 5 participants stated that the sound quality was bad while sharing screen during listening/monitoring texts. 3 participants stated that listening/monitoring texts and activities are boring according to students in distance education. Two participants emphasized that texts and activities should be uploaded to "eba.gov.tr" and that the text and activities should be restructured for distance education. One participant stated that listening/monitoring texts were not beneficial at all in distance education. Examples of participant responses are given below:

Opening texts from the internet is not efficient due to poor sound quality. It would be great if our textbooks and listening texts were uploaded to EBA. (Participant 1)

I use the texts and activities in Turkish textbooks in the distance education process effortlessly. I do not have any problems in this regard during the distance education process. As a matter of fact, our school did not have a smart board. As a consequence, we sometimes had difficulties during face-to-face education while working on listening/monitoring texts. Nevertheless, now it is possible for students to follow the lessons more easily in the computer environment. I do not think there is need for an extra process to change the text and activities or have them adapted for distance education. This is because they already do the work in distance education. (Participant 2)

Making text and activities interactive would both increase their functionality and make them more practical. (Participant 6)

Digitalization is a necessity brought by the times. With the development of Education 2.0 tools, I approve of and find it necessary to adapt the textbooks to this environment. (Participant 7)

I find these activities inadequate; they should be supported by materials such as various digital games, etc. (11th participant)

I am trying to make them listen to the listening/monitoring texts on the phone. However, listening and comprehension cannot be achieved as well as in the classroom. When these texts and activities are transferred to digital media, active participation and a fun learning environment can be created. (Participant 25)

There are almost no watching texts in the textbooks. When we turn on the listening texts on the Internet, the computer sound is not transmitted to the students. Only our voice while we speak on the microphone is transmitted. And therefore, I have not been able to teach the listening texts properly. I have asked the students to share and to listen to the listening texts from the class WhatsApp group and also do some activities before the lessons. But most of them showed up without listening to them. These texts should be digitized. Particularly, lower grades need to be given more watching texts. Interactive digital texts will be much more productive. (Participant 30)

Findings in Relation to the Second Sub-Problem

Table 3. Turkish teachers' views about the functionality of the speaking activities in middle school Turkish textbooks in the distance education process

Categories	Codes	f	%
Positive	Distance education affected the students positively who are not active in spontaneous speaking activities in the classroom environment.	1	3.33
	Since the virtual classroom environments are quiet, students focus on spontaneous speeches more easily.	1	3.33
	Distance education has positive aspects in terms of achieving target acquisitions in speaking skills.	4	13.33
Negative	Speaking activities are not productive in distance education.	16	53.33
	Students' gestures and facial expressions cannot be understood in distance education.	3	10
	Due to the time constraints in distance education, only short speeches can be made.	2	6.66
	Speaking activities should be adapted for distance education.	7	23.33
	Students cannot use body language in speaking activities.	2	6.66
	Eye contact cannot be established with students during speaking activities.	1	3.33

The table above contains the views of Turkish teachers about the functionality of the speaking texts and activities in middle school Turkish textbooks in distance education process. 9 codes were reached at, 3 of which are in positive and 6 in negative categories. In the positive category, it was stated that the digital environment has positive aspects in terms of achieving target acquisitions for speaking skills (f = 4). One participant stated

that distance education positively affected nonparticipating students in spontaneous speaking activities and the quietness in the virtual classroom environment helped students focus more.

In the negative category, the fact that speaking activities are not efficient in distance education is the most stated view ($f = 16$). In support of this view, 7 participants stated that speaking activities should be adapted for distance education. 3 participants stated that the gestures and facial expressions of students could not be understood in the speaking activities; 2 participants stated that speaking activities could not be performed in distance education because of time problems and that students could not use body language in speaking activities; and 1 participant stated that it was not possible to establish eye contact with the students. Examples of participant responses are given below:

We find it difficult to conduct speaking activities in distance education. In the classroom environment, we could see the students' gestures and facial expressions, and reactions, etc. We could provide feedback. In distance education, I can only allow the students to speak briefly due to lack of time. Due to reasons beyond our control, speaking activities are a bit neglected. (Participant 1)

I have not heard about my students being negatively affected by this compulsory digitization process in terms of speaking skills. My personal observation is that the students used to have more problems, especially in spontaneous conversations, as they knew that all eyes were on them in the classroom. Now, I can say that I have witnessed many of my students who suffer from shyness in the classroom environment are able to speak more comfortably in distance education. Considering the subject in terms of prepared speeches, when I give the students necessary time to prepare for the relevant subject just like in the classroom environment, they perform well while giving speeches. In fact, when they observe some of their peers not paying attention to them in the classroom, it causes them to get distracted or to perceive that their speech is unimportant; on the other hand, the quietness in distance education allows them to focus more. By answering questions from their friends, they receive feedback, and they interact with each other. In short, I have not observed a significant disadvantage of the digital environment in terms of achieving target learning outcomes in speaking skills, but I can say that I have witnessed many positive aspects. (Participant 3)

I think the contents of the books should be edited for distance education. (Participant 4)

In face-to-face education, students were more productive as they took an active role. In distance education, there is a lack of spirit. (Participant 10)

Speaking activities also continue to take place in distance education, but limited space on the screen does not allow students to use body language. (Participant 24)

I have had to skip almost all speaking activities in distance education. It is very difficult to direct students from the other end of the computer to speak, and so, I inevitably become the only person speaking on a subject. (Participant 29)

Findings in Relation to the Third Sub-Problem

Table 4. Turkish teachers' views about the functionality of the reading texts and activities in middle school Turkish textbooks in the distance education process

Categories	Codes	f	%
Positive	Reading text and activities are appropriate for distance education.	8	26.66
	Projecting texts on the screen saves time.	2	6.66
Negative	Since the texts are lengthy, they are not appropriate for distance education.	6	20
	Reading texts and activities should be edited for distance education.	9	30
	Text and activities should allow for drawing on and modifying using digital pens.	2	6.66
	Students without screen reading skills experience difficulties.	1	3.33

Students do their reading activities by using the ready-made homework websites.	1	3.33
Students whose cameras and sound are turned off sometimes drift away from the lesson.	1	3.33

This table contains the views of Turkish teachers about the functionality of the reading texts and activities in middle school Turkish textbooks in the distance education process. There are 2 codes in the positive category and 6 codes in the negative category. In the positive category, that texts and activities are suitable for distance education is stated most (f = 8). 2 participants stated that projecting the reading text on the screen saves time.

In the negative category, the fact that reading texts and activities should be edited for distance education is the most stated view (f = 9). Two participants made a reference to the interactive books by mentioning that the text and activities should be modified using digital pens. One participant stated that students lacking screen reading skills had difficulties; another one stated that students found answers on the internet instead of doing their homework, and another one stated that students who had their cameras and sound off drifted away from the lesson. Examples of participant responses are given below:

We do not have any problems teaching about reading texts and activities in the distance education process. I can have the students read the text by having them read aloud just like in the classroom environment. I can easily achieve the learning outcomes in comprehension and vocabulary. For this reason, activities or the texts do not need to be digitized. I am already projecting the text and activities in PDF form on the screen. (Participant 2)

I think the contents of the books should be edited for distance education. (Participant 4)

There is no problem in reading the texts, but there are problems in practice as the activities are not adapted to the current time and the digital environment. (Participant 5)

It would be better if their text and activities could be written and drawn on with a digital pen. I do not have such technology. (Participant 9)

In reading activities, students lacking screen reading skills experience difficulties. It feels as if it has become more difficult to follow the reading processes. (Participant 15)

We use our textbooks by projecting them on the screen in the digital environment. That is why I think it is better than the standard environment. (Participant 19)

There is no difference in conducting activities on reading texts from face-to-face education. If these activities are given as homework in advance, some of the students take the easy way out and give the ready-made answers from ready-made homework sites without taking the trouble of writing during the lessons. It is immediately clear who is free-riding and who is doing the work by looking at the uniformity of the answers. (Participant 24)

I share the PDF of the textbook with the students during the lessons. I draw on it. Students read from their own books. I make them do read aloud and silent reading. I ask different students to continue to read. Students are sometimes away from the lesson when their camera and sound are off. There are sometimes pauses when I ask them to talk or ask them questions. Textbooks and reading texts should definitely be digitized. We should be able to go beyond asking them to log onto EBA and to watch videos. For example, if a place is described in the text, the student should be able to take a virtual tour there. Images can be modeled in 3D. (Participant 30)

Findings in Relation to the Fourth Sub-Problem

Table 5. Turkish Teachers' views about the functionality of the writing activities in middle school Turkish textbooks in the distance education process

Categories	Codes	f	%
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Positive	Students' demand for sharing their writings has increased even more in the distance education process.	1	3.33
	Images appropriate for writing practices can be easily projected on the screen.	1	3.33
	Writing methods and techniques are being used more functionally in distance education.	1	3.33
Negative	Writing activities are not appropriate for distance education.	15	50
	Feedback cannot be provided for writing activities in distance education.	7	23.33
	Writing activities should be designed for distance education.	4	13.33
	Due to time constraints, sharing writing activities during the lesson is a problem.	1	3.33
	It is difficult to monitor the students' writing process in distance education.	7	23.33
	Students have low motivation towards writing activities in distance education.	1	3.33

Table 5 contains the views of Turkish teachers about the functionality of the writing activities in middle school Turkish textbooks in the distance education process. There are 3 codes in the positive category and 6 in the negative category. In the positive category, one participant stated that students wanted to share more of what they wrote in the distance education process. One stated that the visuals appropriate for writing activities could be easily projected on the screen. And one other participant stated that writing methods and techniques were used more functionally in distance education.

In the negative category, 15 participants stated that writing activities are not appropriate for distance education. Seven participants stated that feedback could not be provided for writing activities in distance education, and it was difficult to monitor the writing process of students. 4 participants stated that writing activities should be designed for distance education. One participant emphasized that writing activities could not be shared in the virtual classroom due to time constraints and the motivation of the students towards writing activities was low. Examples of participant responses are given below:

It is difficult to do writing activities in distance education. Waiting for students to do writing activities is a waste of time due to time constraints. I was able to give students some time and ask them to do the activities in the classroom environment. In the meantime, I was able to look at their notebooks and check their writings. But I do not have control over it or cannot provide guidance in distance education. During writing activities, I ask students to write and read only for a short time. If these activities can be integrated into the distance education process, perhaps writing education can be more efficient during this process. (Participant 2)

It is almost impossible to do and check writing activities right away in digital environment. We usually do writing activities by assigning them homework. It is also hard to check them. (Participant 5)

I find writing activities to be the most difficult in this process. That is because I cannot ask the student to do writing during the lesson. If I ask them to do the writing, I have issues with not being able to complete the topics within time. I assign them homework and ask them to send it to me. However, reading and reviewing homework on the phone or computer takes a lot of time and causes eye strain. (Participant 8)

Writing process in distance education is not very productive. There are interesting writing topics, but students have very little motivation to write in an unsupervised environment. (Participant 13)

It is difficult to check the writing activities for the teachers. We cannot check the writing of the students. Has the student included the introduction, main ideas, and the conclusion sections; is there a spelling mistake; has the student paid attention to the punctuation marks? These fall short in distance education. (Participant 14)

It has become more difficult to implement writing skills in distance education. Writing, using a notebook and taking notes on a digital platform do not draw student attention. (Participant 16)

It is difficult to do the writing activities effectively because we are not able to see the student's writing or hear their expressions well. When writing activities are done in digital environments, for example, a content that instantly warns the student of his/her mistake when the student's work is incoherent can be useful. (Participant 25)

Findings in Relation to the Fifth Sub-Problem

Table 6. Turkish teachers' views about the functionality of the vocabulary activities in middle school Turkish textbooks in the distance education process

Categories	Codes	f	%
Positive	Vocabulary activities are appropriate for distance education.	3	10
	Students' use of digital dictionaries has improved during distance education.	8	26.66
Negative	Vocabulary activities should be digitalized.	10	33.33
	Existing vocabulary activities are better suited for face-to-face education.	2	6.66
	Vocabulary learned from digital dictionaries are forgotten quickly.	1	3.33
	Vocabulary activities do not attract students' attention in distance education.	1	3.33

The table above reflects the views of Turkish teachers about the functionality of vocabulary activities in middle school Turkish textbooks in the distance education process. Two separate codes were achieved in the positive category. 8 participants stated that students' use of digital dictionaries has improved in distance education, and 3 participants stated that vocabulary activities are appropriate for distance education.

In the negative category, 4 codes were determined. That vocabulary activities should be digitized was the most frequent one (f = 10). Two participants said that existing vocabulary activities were better suited for face-to-face education. One participant stated that words learned from digital dictionaries are forgotten quickly. One stated that vocabulary activities do not attract students' attention in distance education. Examples of participant responses are given below:

Students' use of digital dictionaries has improved during distance education. If they do not know a vocabulary item such as a word, phrase, proverb, etc., they can find the meaning immediately by using the digital dictionary on their computers. While mostly print dictionaries were used in the classroom environment, digital dictionaries are used now. This prevents waste of time. I think that being able to access the meanings of words in a short time also enables students to learn more functional vocabulary. (Participant 2)

I think it would be great if these activities could be digitalized. This is because I think the computer environment lends itself to be suitable for various word processing games and digital media. (Participant 3)

The fact that the students have easy access to the Contemporary Turkish Dictionary, and the Dictionary of the Proverbs and Idioms, and that they frequently prefer this directly affect their vocabulary. Not every student at school brought dictionaries, nor could they find the information or the vocabulary item they were looking for in their dictionaries. Moreover, there were scarcely any students who brought their Dictionaries of Proverbs and Idioms, or spelling guides. (Participant 4)

I asked students who cannot afford a dictionary to download and look at dictionaries from the Play Store. This is affordable in every aspect. But because it is virtual, it is immediately forgotten. I also make them write it down in a notebook. (Participant 10)

We cannot do the dictionary contest we do in the classroom environment in the digital environment. The students would learn new vocabulary in a competition atmosphere, but I cannot do this activity in the digital environment (20th Participant)

Findings in Relation to the Sixth Sub-Problem

Table 7. Turkish teachers' views about the functionality of the research assignments in middle school Turkish textbooks in the distance education process

Categories	Codes	f	%
Positive	Students' skills in using presentation tools have improved in distance education.	2	6.66
	Students learn to use reliable web addresses in distance education.	1	3.33
	Research assignments are appropriate for distance education.	6	20
Negative	Homework presentations cannot be done due to time problems.	5	16.66
	Research assignments should be redesigned for distance education.	8	26.66
	They develop screen dependency because they research and present their assignments on the internet.	1	3.33
	Research assignments do not make any contribution because the students do not have the skills to use the presentation software.	4	13.33
	Feedback cannot be provided for research assignments in distance education.	3	10
	Students cannot use body language during homework presentations.	1	3.33
	Students get accustomed to laziness, since the answers to the research activities are readily available on the internet	1	3.33

The views of Turkish teachers about the functionality of research assignments in middle school Turkish textbooks in the distance education process are presented in the Table 7. 3 codes in the positive category and 7 codes in the negative category were identified. 6 participants stated that their research assignments are appropriate for distance education. Two participants stated that students' ability to use presentation tools has improved, and one participant said that students have learned to use reliable web addresses.

In the negative category, that research assignments should be redesigned for distance education was the most expressed opinion (f = 8). 5 participants stated that students were unable to present their homework due to lack of time during lessons. 4 participants stated that the students did not have the skills to use the presentation software. 3 participants mentioned that they were not able to give feedback to homework in distance education. One participant each stated that the students grew screen dependency; students could not use body language during homework presentations; and the answers to research activities were readily available on the internet and so the students got accustomed to laziness. Examples of participant responses are given below:

It is indisputable that it visually offers a much more comfortable interaction opportunity for students. Students can prepare slides. He/she can present it on everyone's screen. He/she can draw on it as he/she wants and highlight the points he/she wants to draw attention to. Thus, the students can appeal to more than one sense. This increases the quality and the permanence of learning. (Participant 3)

Research assignments in Turkish textbooks fall short in distance education. If the correct programs are used in this process, research assignments will definitely be more effective. (Participant 7)

When research assignments are done by students, not every student can present it in the form of a presentation because they do not know how to use the presentation software. Their presentations consist of plain lecturing. (Participant 8)

It definitely does not meet the needs; it is not appropriate for current (digital) environments. (11th participant)

The presentation of research assignments is not like how it used to be in face-to-face education because there is a shortage of time in distance education and so we try to do everything quickly. For this reason, there are no colorful and detailed presentations. The student presents what he/she has worked on in front of the screen but cannot use his/her body language. (Participant 24)

In my opinion, the most useful type of activity in both distance and face-to-face education is research activities. Especially because the research done in the digital environment is also presented in the digital environment during distance education which has provided great convenience. Moreover, demonstrating how to do research in practice in distance education has proved very useful while you could not do it during face-to-face education. (Participant 29)

Findings in Relation to the Seventh Sub-Problem

Table 8. What Turkish teachers do when Turkish textbooks fall short in the distance education process

<i>Codes</i>	<i>f</i>	<i>%</i>
Teachers make use of the lecture notes/activities that they have written themselves.	11	36.66
Teachers use other digital/interactive resources.	9	30
Teachers try to update the activities in the textbooks and make them more functional.	2	6.66
Teachers utilize ready-made activities.	14	46.66
Teachers use WEB 2.0 tools.	5	16.66

Table 8 shows what teachers do as an alternative when Turkish textbooks fall short in the distance education process. It stands out that while 14 participants used ready-made activities, 11 participants made use of the lecture notes and activities written by themselves. 9 participants stated that they used other digital/interactive resources. 5 participants stated that they used WEB 2.0 tools, while 2 participants stated that they tried to update activities in the textbooks and make them more functional. Examples of participant responses are given below:

I can support the lesson by projecting different sources on the screen. I can also send digital resources to students. Both MEB and private publishing houses use a variety of digital sources. These are also very useful in enriching lessons. (Participant 2)

When I have an issue with an activity, I try to update it and make it more functional. When I do not like it, I share worksheets or materials with them. It is very easy to deliver them to students. I can easily share materials using EBA or social groups. I can easily receive feedback and I do not have any issues with storing data in the digital environment. These assignments or exercises were not readily available in face-to-face education compared to digital media. Textbooks should now be pulled away from their traditional form. For example, an activity should be digitalized. For instance, a clue can be provided upon clicking on. In short, it should allow for more interaction. Printing format is from a bygone era. (Participant 3)

I use WEB 2.0 tools online and I try to support students with various literature reviews. (Participant 7)

I use PDF files that I have prepared myself, external pdf files, and interactive resources prepared by various publishers. (Participant 9)

It is necessary to Project the lectures for the students, so I use the Z-books from the publishers to make the topics more concrete. It sometimes lacks in terms of testing and practice, so I try to reinforce the topics with tests in EBA. (14th participant)

I use Z-books prepared by different publishers. Some of these also contain interactive activities. I think it would be useful to design textbooks by taking these examples into consideration. (21st Participant)

I think Turkish textbooks are insufficient in distance education in many aspects. In such situations, I myself write examples or do some research and find them. For instance, in an example of a travel letter, I asked the students to find the coordinates of a place introduced on the world map in the fifth-grade textbook. Afterwards, we visited the places described with the help of Google street view. We searched for the images of the animals mentioned. Of course, it would have been much easier for the teacher if all of these were presented in the textbooks with web addresses. (Participant 29)

Discussion, Results, and Recommendations

The views of Turkish teachers regarding the usability of textbooks in the distance education process have been presented in this study. The most prominent negative findings in the first sub-problem of the study are: Increasing the digital (interactive) functionality of the listening/monitoring texts and activities, improving the sound quality, counteracting the boring listening texts and activities in distance education, and editing them for distance education. The fact that the listening/monitoring texts and activities are appropriate for distance education stands out as a positive finding.

Özgül, Ceran & Yıldız (2020, p. 406) found out in their study in which they evaluated Turkish lessons done during distance education according to teachers' views, that some teachers emphasized audio books for listening/monitoring skills. The emphasis on audiobooks supports the view which was determined in this study "to counteract the boredom of listening texts/activities in distance education." Sarıçam, Özdoğan & Topçuoğlu Ünal (2020, p. 2952) in the study in which they examined the teachers' views on the implementation of Turkish lessons in distance education stated that the teachers with undergraduate degrees could transfer the listening texts to the students in an interactive environment in distance education. Furthermore, they stated that since distance education is based on listening it contributed to the development of the listening skills. On the other hand, teachers with a master's degree stated that there might be deficiencies in the development of listening skills in the distance education process. The findings of Sarıçam, Özdoğan & Topçuoğlu Ünal's (2020) research obtained from teachers with an undergraduate degree overlap with the finding about "increasing the functionality of listening/monitoring texts/activities digitally (interactive)" which was determined in this study. Furthermore, the opinions of teachers with master's degrees support the negative opinions in the first sub-problem of this study. Karakuş, Ucuzsatar, Karacaoğlu, Esendemir & Bayraktar (2020, p. 230) found out that the participants considered distance education useful in terms of listening/monitoring skills in the study in which they evaluated the views of Turkish teacher candidates on distance education. In addition, Güngör, Çangal & Demir (2020, p. 1182) evaluated learner and teacher views on teaching Turkish as a foreign language in distance education. In the study, one of the teachers stated that distance education is beneficial for listening and speaking skills. The findings of Karakuş, Ucuzsatar, Karacaoğlu, Esendemir & Bayraktar (2020) and Güngör, Çangal & Demir (2020) overlap with the view in this study that "listening/monitoring texts and activities are appropriate for distance education." Süğümlü (2021, p. 181) has determined in his research in which he has studied the state of Turkish education in middle schools during distance education in Turkey according to the views of teachers and the observations of researchers that they experience difficulties in teaching listening/monitoring skills. Süğümlü's (2021) findings overlap with the negative opinions about the listening/monitoring texts and activities in this study. Tanrikulu (2020) examined the effect of listening texts adapted as digital stories on listening skills. As a result of the study, it was concluded that digital storytelling had a positive effect on the development of listening skills, that it was more effective than listening lessons taught with audio recordings, and that it increased student motivation. Findings of Tanrikulu (2020) like Süğümlü's (2021) support the opinions in the negative category expressed by Turkish teachers in this study on listening/monitoring texts and activities. In addition, considering that there are some problems in terms of listening texts in the textbooks for teaching Turkish as a foreign language, which constitutes a different dimension of Turkish teaching, it turns out that this is a chronic situation in terms of skill teaching (Korkmaz, 2019a; Korkmaz, 2019b; Korkmaz, 2019c). Considering the first sub-findings of the research and the findings

in the literature, it is revealed that the listening/monitoring texts and activities in middle school Turkish textbooks are not appropriate for distance education, and these contents should be digitalized by making them interactive.

The significant negative findings in the second sub-problem of the study are as follows: Speaking activities are not productive in the distance education process; speaking activities should be adapted for distance education; and the students' gestures and facial expressions are not understood in distance education. In addition, the view that "distance education has positive aspects in terms of helping students acquire speaking skills" stands out as a positive finding.

Atlı, Aksüt, Atar & Yıldız (2007, p. 740), in their study in which they evaluated the approach of Turkish teacher candidates to information technologies, found out that teachers wanted to use information technologies in order to teach the four basic skills of Turkish, including reading, writing, speaking, and listening, but found out that the training provided on this was inadequate. This gives rise to the thought that there is a need for having digital competence in order to acquire language skills in the distance education process and making speaking skills activities in the textbooks adapted for distance education. In addition, this finding in the literature necessitates teachers to have technopedagogical field knowledge. In his research, Göçen (2011) examined the effects of television on speaking education based on student views, and concluded that television encourages students to speak well, improves students' vocabulary and makes it easier to express themselves more comfortably. This finding suggests the result that speaking activities adapted for the distance education process can attract the attention of students. Sarıçam, Özdoğan & Topçuoğlu Ünal (2020, p. 2952-2953) found out that teachers with undergraduate, graduate and doctoral degrees stated that speaking education in distance education was inadequate, that the acquisitions could not be attained due to lack of instant feedback in speaking skills, and speaking methods and techniques could not be used. Karakuş, Ucuzsatar, Karacaoğlu, Esendemir & Bayraktar (2020) presented the opinions of Turkish teacher candidates on speaking skills education in the distance education process. Teacher candidates have mostly stated negative opinions. Süğümlü (2021, p. 181) determined that difficulties in teaching were experienced for speaking skills in middle school Turkish lessons in the distance education process. Özgül, Ceran & Yıldız (2020, p. 405) revealed that Turkish teachers stated that there should be a different infrastructure for activities in live lessons regarding the teaching of speaking skills in distance education, and that they need instantly available activities loaded on the system for speaking and other skills. The findings of Sarıçam, Özdoğan & Topçuoğlu Ünal (2020), Karakuş, Ucuzsatar, Karacaoğlu, Esendemir & Bayraktar (2020), Süğümlü (2021), and Özgül, Ceran & Yıldız (2020) support the opinions in negative category expressed in this study that the activities in middle school Turkish textbooks are not appropriate for distance education. Considering the findings in the second sub-category of this study and the findings in literature, it is concluded that speaking activities in middle school Turkish textbooks are not appropriate for distance education and that these contents should be digitalized by making them interactive.

The adaptation of the reading texts and activities for distance education, the facts that the lengths of the texts are not appropriate for distance education, that the text and the activities are not adapted for modifying with digital pens are the striking negative findings in the third sub-problem of the research. That the reading text and activities are appropriate for distance education stands out as a positive finding.

Spencer (2006), in his research done with two hundred and fifty-four students, found out that students preferred to read printed texts rather than on a screen. Moreover, DüNDAR & Akçayır (2012) found no difference between students comparing reading on a tablet screen and reading on paper in their study. The findings in both studies are against both the nature of distance education and the development of reading skills in a virtual environment. On the other hand, this study contradicts with the idea of digitalization of reading texts and

activities expressed by teachers. The reason for this contradiction can be explained by the fact that the two studies mentioned were conducted before the pandemic that affected the whole world.

Özbay and Özdemir (2014) established skills definitions related to digital literacy, and by adapting them to the Turkish curriculum, proposed them as goals and learning outcomes. In the research, a total of eighteen digital-focused outcomes related to reading and writing skills were proposed. Duran and Topbaşoğlu (2015) investigated the effect of digitally interactive, narrative texts on reading comprehension. In the study, it was observed that the students displayed a more positive attitude towards tablet computers compared to the printed books. Şanal (2016) found out that the use of Z-books as a Turkish textbook has positive effects on reading comprehension of students in the study. Similarly, Tiryaki & Karakuş (2019) found out in the study that reading through digital applications has a more positive effect on reading comprehension in which Turkish teacher candidates examined their reading comprehension skills through digital applications. Kartal and Uysal (2020) investigated the status of digital storytelling programs in terms of improving reading skills. As a result of the research, it was determined that 123 out of 142 learning outcomes aiming to improve reading skills in TDÖP-2019 were able to be achieved with digital storytelling programs. Karadoğan (2020) investigated the effects of interactive book reading program applications on reading comprehension skills and attitude towards reading. As a result of the research, it was found out that these practices positively affected, developed, and supported primary school 2nd grade students' reading comprehension skills and their attitudes towards reading. Sarıçam, Özdoğan & Topçuoğlu Ünal (2020, p. 2953-2954) found out that three teachers with master's degrees expressed positive, two teachers with master's negative, and one teacher with a doctoral degree expressed negative views about improving the reading skills in distance education. Karakuş, Ucuşatar, Karacaoğlu, Esendemir & Bayraktar (2020) evaluated the opinions of Turkish teacher candidates on distance education, and 55.4% of the pre-service teachers think that the contribution of distance education to reading skills as low, because the lessons were conducted by direct instruction method in virtual environment. Bayburtlu (2020, p. 150), in his study in which he evaluated distance education in terms of Turkish teachers' views, stated that there is a need for digital texts and applications that will increase students' interest in reading books. The findings and opinions in literature support the views in the negative category expressed by Turkish teachers that the reading skills text and activities in middle school Turkish textbooks are not appropriate for distance education. Considering the findings in the third sub-category of this study and the findings in literature, it is concluded that the reading texts and activities in middle school Turkish textbooks are not appropriate for distance education and that these contents should be digitalized by making them interactive.

The fact that writing activities are not appropriate for distance education, not giving feedback on writing activities, not being able to control the students' writing process, and the necessity of updating the writing activities for distance education are the opinions frequently expressed in the negative category of the fourth sub-problem. It is thought-provoking that the three different views about writing skills expressed in the positive category of the sub-problem are all mentioned once.

Kitchakarn (2012) investigated the effect of blog use on students' summary writing skills. The results of the study revealed that after working together on student blogs, their English summary writing mean scores were higher than the pre-test and they had positive attitudes towards using the blogs in learning. Similarly, Hosseinpour, Biriya & Rezvani (2019) found out that Edmodo mobile application contributed positively to the academic writing skills of students learning English as a foreign language. The findings of Kitchakarn (2012) and Hosseinpour, Biriya & Rezvani (2019) revealed that the use of technology improves various writing skills. At the same time, this finding supports the view expressed by Turkish teachers in the research that writing activities should be updated for distance education.

In the study in which Başar & Çangal (2020, p. 23) discussed the learner and instructor views on distance learning Turkish as a foreign language, it was determined that writing was the skill that developed the least by technology use according to the instructor's views. Lack of technological tools/interactive virtual environments appropriate for various writing activities can be considered as the reason for this situation. Başar & Çangal's (2020) finding justifies the interpretation of the negative situation in terms of writing skills during distance education which was considered as positive and expressed one time each by Turkish teachers.

Sarıçam, Özdoğan & Topçuoğlu Ünal (2020, p. 2953-2954) revealed that teachers remarked that developing writing skills in distance education is difficult and their writing activities lack feedback and supervision. Similarly, Karakuş, Ucuşsatar, Karacaoğlu, Esendemir & Bayraktar (2020) determined according to the views of the teacher candidates that writing skills could not be improved in distance education. Aydın & Erol (2021) and Süğümlü's (2021) opinions also support the findings in literature. Aydın & Erol (2021, p. 64) researched the views of Turkish teachers on distance education during the pandemic. In the research, it was determined that the least improved skill in the distance education process was the writing skills. Süğümlü (2021, p. 181) declared that most difficulty was experienced in writing skills among the language skills taught, and that was a result of writing skills being a plan and process-based skill. Considering the findings in the fourth sub-category of the study and the findings in literature, it is concluded that the writing activities in middle school Turkish textbooks are not appropriate for distance education. Furthermore, the adaptation of virtual environments/digital activities to textbooks appropriate for different aspects of writing skills and being able to provide instant feedback in the virtual environment can be described as another result.

The significant findings regarding the fifth sub-problem can be summarized as follows: The positive effect of distance education on students' use of digital/interactive dictionaries was noted down as a positive view. The fact that vocabulary activities should be appropriate for face-to-face education and that they should be digitalized stands out in the negative category.

Metruk (2017) examined the effect of using electronic dictionaries on pronunciation exercises of students who learn English as a foreign language. In the study, it was determined that the participants used electronic dictionaries for pronunciation more often. Maden (2020) analyzed the effect of using electronic dictionaries on 5th grade students' attitude towards dictionary use. As a result of the research, it was presented that the use of electronic dictionaries is more effective than traditional teaching on the attitude towards dictionary use. Elekaei, Tabrizi & Chalak (2020) investigated the effects of podcast use on vocabulary. By help of podcasts, it was concluded that the words were remembered more easily, and students' vocabulary increased. The findings of Metruk (2017), Maden (2020) and Elekaei, Tabrizi & Chalak (2020) support the positive and negative opinions reached in the fifth sub-problem of this research.

Melanlıoğlu (2013) studied the dictionary use habits of middle school students. In the study, it was determined that there were students who used printed dictionaries along with electronic ones and found them functional. The findings of Melanlıoğlu (2013) confirm the conclusion that electronic/interactive dictionaries are needed in Turkish lessons, especially in the distance education process. Kardaş (2016) conducted a research study on the dictionary use attitudes and habits of foreign students learning Turkish. In the study, it was determined that the students used dictionary applications on their tablets, desktop computers and smart phones. The result obtained by Kardaş (2016) confirms the interpretation that printed dictionaries do not appeal to generation z, defined as digital natives for vocabulary teaching. Baskın (2017) determined the dictionary needs of 5th grade students and compared these needs with middle school dictionaries. As a result of this research, it was found out that they need a dictionary that is integrative and organizes homonyms as separate entries, and also organizes the meaning, type, synonyms and antonyms, connotations, figurative meanings, multiple meanings, other words it evokes, and example sentences in sections. It is revealed that the dictionaries currently used do not meet the needs of students. The qualities specified by Baskın (2017)

regarding dictionaries should be taken into consideration in interactive dictionaries that will be developed independently or in accordance with middle school textbooks in the distance education process. Taking the fifth sub-findings of the study and the findings in literature into consideration, it is concluded that vocabulary activities in middle school Turkish textbooks are not functional in the distance education process. Furthermore, it is necessary to integrate interactive dictionaries with middle school Turkish coursebooks and to have interactive vocabulary activities in the textbooks in the form of Z-books.

The significant negative findings in the sixth sub-category of the study are: reediting of the research assignments in textbooks for distance education, being unable to present homework assignments due to time constraint, students' not using presentation software, and not being able to give feedback to the research assignments. The view that research assignments are appropriate for distance education is the most stated opinion in the positive category of the sixth sub-problem.

Sarıçam, Özdoğan & Topçuoğlu Ünal (2020, p. 2956) emphasized that they recommended assigning homework to improve the writing skills of teachers with undergraduate degrees in distance education. However, existing textbooks are insufficient in distance education in terms of following up on these assignments and providing feedback to them. In Karakuş, Ucuzsatar, Karacaoğlu, Esendemir & Bayraktar's (2020, p. 235) study in which they evaluated the views of Turkish teacher candidates on distance education, a pre-service teacher stated, which is worthy of attention, "We write everything on the computer because of homework. I really miss writing using a pencil. While I was taking notes, I started writing crookedly." This situation reveals that the activities and homework in middle school Turkish textbooks should be prepared in a way allowing them to write on Z-books with digital pens. In their research, Bayburtlu (2020, p. 146) examined teachers' views on distance teaching of Turkish, some teachers stated that Turkish textbooks should be integrated into the EBA portal and all sections in the textbooks should be designed in a way which will allow assigning homework and following the assigned and completed assignments on the EBA portal. This supports the main idea asserted in the research, "Middle school Turkish textbooks should be made interactive." Furthermore, it coincides with the finding that following up on homework and giving feedback on homework are challenging in distance education. Similar to the activities related to language skills, it is revealed that the research assignments in the middle school Turkish textbook are dysfunctional in the distance education process.

In cases where Turkish textbooks are insufficient in distance education, Turkish teachers mostly make use of ready-made activities. Moreover, teachers prefer using lecture notes/activities they have written/prepared themselves, using digital/interactive resources, and using WEB 2.0 tools. Özgül, Ceran & Yıldız (2020, p. 409) found out that Turkish teachers assign homework for testing and evaluation in distance education, use ready-made tests, and teach lessons using the question-answer technique. The findings of Özgül, Ceran and Yıldız (2020) are in line with the finding in this study that Turkish teachers mostly benefit from ready-made activities. In addition, the presence of teachers who cannot prepare technology-based activities in the distance education process shows that ISTE standards have not been achieved.

ISTE's [The International Society for Technology in Education] "educational technology standards set for teachers, students, administrators, computer science educators and technology coaches in order to support teaching and learning have been adopted by many countries today and it has been accepted as a guide on the use of educational technologies (Türker, 2019, p. 577)." One of the standards put forward by ISTE for teachers is "the designer teacher." The designer teacher "designs authentic learning activities that align with content area standards and use digital tools and resources to maximize active, deep learning" (<https://www.iste.org/standards/for-educators>). The facts that a small number of Turkish teachers use WEB 2.0 tools, and most teachers prefer ready-made activities lead us to this notion: "reviewing the contents of middle school Turkish teacher undergraduate program."

In the study, it was concluded that middle school Turkish textbooks are not appropriate for distance education in terms of listening/monitoring, speaking, writing, reading and vocabulary teaching activities and research assignments. This general finding indicates the risk of not achieving the goals of middle school Turkish lessons which are vital as the “main subject” in the distance education process. In addition, the inappropriateness of the textbooks for distance education indicates that the QFT has been violated.

The “digital competence” concept within the scope of QFT denoted in TCC 2019 refers to “(...) basic skills such as the use of computers for accessing, evaluating, storing, producing, presenting, and exchanging information, as well as participating in common networks and establishing communication via the Internet (MEB, 2019, p. 5).” It is evident that textbooks integrated with technology will contribute to achieve these basic skills.

Based on the findings of the study and findings in literature, the following recommendations are made:

- The texts and activities for language skills in middle school Turkish textbooks should be designed interactively in the form of Z-books.
- The outcomes in TCC 2019 should be made appropriate for distance education.
- The outcomes in TCC 2019, and the texts and activities in the textbooks should be designed in a way to allow for digital literacy.
- Interactive/electronic dictionaries in the form of a Z-books and integrated into middle school Turkish course books should be designed.
- Virtual applications that the teacher can check and give feedback instantaneously should be developed in order to improve students’ writing skills. Furthermore, these virtual applications should be integrated into the middle school Turkish textbooks.
- Technopedagogical content knowledge of Turkish teachers should be improved. For this purpose, along with organizing in-service training, teacher training undergraduate programs should be updated.

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