

ISSN 2621-5799 (Online)
ISSN 2657-215X (Print)

Asian Institute of Research

Education Quarterly Reviews

Volume 4 Special Issue 1: Primary and Secondary Education
(April 2021)



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Special Issue Review Policy

Each manuscript was first reviewed by the editorial board in terms of its subject, and plagiarism. The study, which received editorial approval, was sent to three reviewers. These reviewers are academicians who are not AIOR members and do not work at universities in Turkey. Our publications implement a blind-peer review process that does not enclose reviewers to manuscripts. The names of these reviewers, who have academic expertise in their field and non-Turkish, were kept confidential in terms of publishing policy and academic ethics. However, the reviewers' evaluations were shared with the researchers.



“Competence Areas” as a New Notion Instead of Teacher Competencies

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Abstract

The concept of "teacher competence" has been used as a defining concept in explaining the competence levels of teachers in different fields since the early 2000s. However, with the publication of the 2019 Turkish course curriculum, it was seen that this concept was not included in the program, but instead "competence areas" were explained in detail. In this context, the study aimed to evaluate the 2019 Turkish Lesson Curriculum in terms of teacher competencies. Before the publication of the curriculum 2019, primary teaching competencies in the literature were investigated and listed, and the Turkish lesson curriculum was then evaluated considering those teacher competencies. In the 2019 Turkish Lesson Curriculum, unlike other programs, the scope and content of competency areas were defined in detail. Thus, the analysis of competency areas by teacher competence contributes to the literature. In the literature, teacher competencies were associated with various skills such as "digital competence," "learning to learn," "social and civic competencies" and "the sense of initiative and entrepreneurship." The 2019 Turkish Lesson Curriculum was assessed considering those skills. Accordingly, in the Turkish Lesson Curriculum 2019, the most critical competence area is the "digital competence" dimension. We can see the reflections of digital competence in the definition of skills and educational text types. The precondition for fostering digital competence in students is that teachers have digital competence. Thus, it is suggested to redefine and determine teaching competencies, knowledge, and skills related to "digital competence."

Keywords: Competence Areas, Teacher Competence, Curriculum, Turkish Lesson

1. Introduction

1.1. Teacher Competence

The concept of teacher competence is characterized by educational process capability. In this sense, teachers are expected to possess additional competencies apart from evaluating educational activities. Instead, it is also vital to design, plan, and implement the activities and monitor the educational process. Lastly, the capacity to choose

an appropriate assessment and evaluation method is critical for the evaluation phase. In a review of national and international literature on teaching competence, it can be seen that teachers' qualifications include as follows:

According to The Council for Accreditation of Teacher Education (CATE) in England, the teacher competencies are categorized under six field: curriculum knowledge, planning, classroom management, assessment and evaluation, self-assessment, professional relations, and qualifications (Moore, 1996 cited in Coşkun, et al., 2010: 38). The Turkish Ministry of Education described teachers' professional qualifications in two main dimensions: professional competence and general competence. General competence includes personal and professional values, student, teacher, and learning setting dimensions, monitoring and evaluating the learning outcomes, and relations with society, school, and family. Professional competence involves issues surrounding educational development, monitoring, assessment procedures, personal and professional qualifications, art and aesthetics, language skills, scientific and technological development, personal responsibilities and socialization, and physical education, and security (Coşkun, et al., 2010: 381).

Teacher competencies embrace the characteristics such as knowledge, skills, attitudes, values, and behaviors that teachers are expected to have. In general, teaching competencies are discussed under three main headings: subject matter knowledge, professional knowledge, and general knowledge (Şişman, 2009: 68).

The teacher competencies and qualifications described in the reports of the Bologna Process for the countries in the European Union are as follows (the Commission of the European Communities, cited in 2007. Şişman, 2009: 70):

A High-Quality Profession: Teachers should be trained in higher education institutions, have a broad knowledge of the subject matter, excellent pedagogical knowledge, and recognize social and cultural dimensions of education.

A Profession of Teachers with Lifelong Learning: Teachers should appreciate the importance of learning and applying new knowledge and be promoted to improve professional careers.

A Mobile Profession: Mobility is the central concept for teacher education programs. Teachers should be encouraged to cooperate with colleagues from other European countries.

A Cooperative Profession: Teacher education institutions should cooperate with schools, and the training should also be carried out with regional business networks and stakeholders."

Communication is vital for the teaching profession. The target audience is human, so teachers should be willing to teach and have positive attitudes towards the profession. Besides, it is crucial to meet the age requirements professionally and follow the current developments. In this respect, faith in self-efficacy also plays a role in loving and improving the profession.

Teachers take an active role in competently educating students in line with the requirement of the age. Positive attitudes towards the profession and affective competencies are among the fundamental features that teachers should have to improve the education. The reasons for choosing the teaching profession, the teaching perceptions, and formal education affect their opinions about the profession. Teacher candidates' motivation depends on developing positive perspectives on the teaching profession (Karadağ, 2012: 46).

Strong self-efficacy beliefs suggest that they would show more effort to become an ideal teacher. Therefore, teacher training programs should include practices strengthening teacher candidates' self-efficacy beliefs (Azar, 2010: 247).

Teachers' perceptions also influence students' confidence in the teacher and role modeling. Thus, teachers must first believe in themselves to convince students to trust their knowledge and guidance. Teachers are role models for students in establishing an identity Teachers' feelings of efficacy are directly associated with children's motivation to learn (Sünbül, 1996: 602,604). Teacher candidates should also have certain personality traits. Teachers who have unfavorable attitudes towards the teaching profession and students in the classroom reflect them to the students (Kılıç, as cited in 1997. Çetinkaya, 2007: 9).

In his studies on self-efficacy, Bandura (1977; 1982; as cited in 1986. Aksoy & Diken, 2009: 711) stated that individuals tend to avoid situations that they think they cannot cope with self-efficacy perceptions directly affect their efforts to solve a problem.

An essential factor that should be dealt with in increasing the teaching profession's quality is teacher candidates' stress in the teaching certification exam. The majority of teacher candidates experience the anxiety of not being appointed/employed even when they attend the faculty.

In Turkey, teacher recruitment has become more challenging than attending a teaching department at a university. There are many unemployed teacher candidates- more than needed. Therefore, teacher candidates study very hard for the recruitment exam and are under stress and pressure (Arı & Yılmaz, 2015: 923).

In their study, Ayrancı (2007: 69) attempted to describe Turkish lesson teacher candidates' general knowledge level by using a survey. The survey was completed by students, parents, and school principals and aimed to reveal their expectations from Turkish lesson teachers. The study showed that Turkish lesson teacher candidates did not follow professional publications, were not a member of any social club, did not know about others' expectation from them, were incompetent in using educational materials, did not have qualified practical training, and wanted to replace specific lessons with other lessons that they believe to be more useful in the classroom. The participant Turkish teacher candidates got a medium score in the field knowledge test, which is very insufficient for such an important profession. They also got an average score on the placement test related to educational practices. It was even below the required score for the Public Personnel Selection Examination (PPSE). It was concluded that the Turkish lesson teacher candidates were incompetent in educational sciences.

Teachers should have pedagogical knowledge, professional formation, and general knowledge. As the researchers found a direct relationship between school achievement and language skills, Turkish teachers play a fundamental role in education (Çetinkaya, 2007: 5).

1.2. The Choice of Teaching Profession

Internal and external factors can be influential in choosing teaching as a profession. When internal factors are determinants in choosing the teaching profession, it stands for that those individuals also have the necessary professional and personality traits. Professional commitment is also widespread among those who choose the teaching profession for the sake of society.

The literature findings of the reasons for professional career choice provide essential information in planning the professional training, monitoring its effectiveness, and predicting future professional outcomes (Çermik, et al., 2017: 643).

The reasons for professional career choices can be discussed under the three groups: internal, external, and altruistic reasons. Career choices should be primarily based on internal reasons as they are characterized by "loving to teach" or "showing interest in a particular field." In its simplest form, external reasons refer to indirect professional qualifications (Kyriacou & Coulthard, cited in 2000. Çermik, et al., 2017: 644). Lastly, altruistic reasons represent the beliefs related to the social benefits of being a teacher and contributing to children and society. As stated above, external, utilitarian, and stereotypical reasons lead to professional commitment problems in the long term (Çermik, et al., 2017: 645).

It is suggested that teacher candidates should read the curriculum in detail before the recruitment. Researches show that teacher qualifications are still questioned. The sympathy to the profession also affects professional attitudes. These problems can be overcome by improving the professional conditions and ensuring that volunteer and qualified people become teachers.

According to Çetinkaya (2007: 53), students who are not satisfied with their department do not feel ready for the profession. They also do not have positive attitudes about the teaching profession.

Despite the high number of new education faculties, there are still lacks in specific teacher training programs. Thus, authorities attempt to fill the gap by delivering certificate programs and distance education. They sometimes recruit university graduates as teachers, which is still a contradictory discussion regarding the teacher qualifications (Şişman, 2009: 79).

Recruitment of competent teacher candidates is as important as teacher training programs. Teacher candidates' opinions about the teaching profession provide essential benefits to organize education. The teaching profession is closely related to the teacher candidates' thoughts and behaviors (Özbek, et al., 2007: 222).

The economic and social regulations and improvements can promote positive attitudes towards the profession among teacher candidates (Özbek, et al., 2007: 232).

In their study, Şimşek and Büyükkıdık (2015: 37) investigated teachers' regrets and found that only five teachers mentioned no regrets in their lives, which implies that many teachers have regrets in life. Those teachers wanted the opportunity to go back to change some negative experiences, have better financial status, and retire at a later age. Three teachers emphasized that they had wished to be recruited where they wanted to work before retirement, which shows teachers' complaints about being unable to work where they wanted. It seems that it also affected their retirement lives. Only one teacher was pessimistic about what he did. However, most of the participant teachers felt good as they provided a promising future for their children, they became a teacher, had a happy family, continued working, and had social security benefits. Indeed, having a happy family life, promising future for children, and social security benefits were among the primary concerns of the participant teachers (Şimşek & Büyükkıdık, 2015: 37).

Positive attitudes towards the teaching profession can be assumed as a condition of being a qualified teacher. Teachers substantially contribute to the national development through their raising competent and talented students. Thus, it is vital to determine students' characteristics and skills early and guide them to appropriate professions (Göktaş, 2017: 1293).

In his study, Şahin (2011: 1177) found that due to the economic and social class-related problems, some participants had to study in a field and work where they did not want to for a permanent job, and they felt obliged to work as a teacher for a living. However, despite those unfavorable conditions, they felt disappointed when they were not appointed to teaching positions. He believes that those unemployed teacher candidates would experience profound economic and psychological problems.

1.3 The Importance of the Research

The concept of teacher competence has been investigated since the early 2000s, and there are many studies on this topic (Kiraz, 2003; Kocasaraç, 2003; Aktağ & Walter, 2005; Kahyaoğlu & Yangın, 2007; Karadağ, 2007; Çetinkaya, 2007; Karacaoğlu, 2008; Şişman, 2009). Some researchers examined the relationships between teaching competence and effective teaching dimensions (Kızıltepe, 2002; Şen & Erişen, 2002; Karakelle, 2005; Dilekmen, 2008, Şahin, 2011; Özkan & Arslantaş, 2013). Others concentrate on its relationship with Turkish lesson teaching competencies" (Özlük, 2010; Yılmaz, 2010; Maltepe, 2011; Şengül, 2012). However, in the 2019 Turkish Lesson Curriculum, unlike other programs, the scope and content of competency areas were defined in detail. Thus, the analysis of competency areas by teacher competence contributes to the literature.

1.4. The Purpose of the Research

The research aimed to evaluate the 2019 Turkish Lesson Curriculum by teacher competencies. Before the publication of the curriculum 2019, primary teaching competencies in the literature were investigated, and the Turkish lesson curriculum was reviewed considering teacher competencies.

2. Method

The Method section describes in detail how the study was conducted, including conceptual and operational definitions of the variables used in the study. Different types of studies will rely on different methodologies; however, a complete description of the methods used enables the reader to evaluate the appropriateness of your methods and the reliability and the validity of your results. It also permits experienced investigators to replicate the study. If your manuscript is an update of an ongoing or earlier study and the method has been published in detail elsewhere, you may refer the reader to that source and simply give a brief synopsis of the method in this section.

2.1 Research Pattern

This study, which examines the relationship between the concept of teacher competence with the concepts of "The Dimensions of Effective Teaching," "Special Field Competencies for Turkish Lesson Teachers" and evaluated through the competency areas in 2019 Turkish Lesson Curriculum, was carried out with a basic qualitative research design. Basic qualitative research is one of the most common research methods used in education, which can be seen in all discipline and practice areas. In this research method, the data; It is collected through observation, interview or document review (Merriam, 2002).

2.2 Study Material and Collection of Data

In this study, the 2019 Turkish Lesson Curriculum was used as the study material. In this context in collecting of data, eight competence areas under the heading "Competencies" were examined and evaluated. In addition, the basic approach of the curriculum, subject and theme examples, and text types were examined and evaluated in terms of "teacher competence." Turkish Lesson Curriculum has been chosen as the study material because it is the most basic reference resource for Turkish lesson teachers, teacher candidates and the relevant academicians.

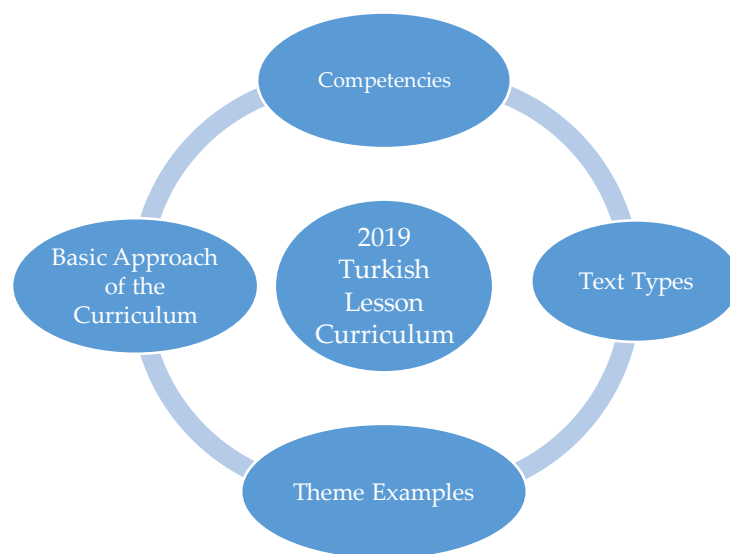


Figure 1: Study Material of the Study and the Subheadings

2.3 Analysis of Data

In the study, document analysis method was used. Document review is a systematic process, including assessing both printed and electronic materials (Bowen, 2009). It is characterized by describing, categorizing, researching, and interpreting the materials (Payne & Payne, 2004: 60). It can also be defined as collecting, reviewing, and analyzing various documents as the primary source of research data (O'leary: 2004). In a study, it can be used as the only research method or applied with other qualitative methods (Yıldırım & Şimşek, 2008: 187).

The method covers the analysis of written materials about the target phenomenon or facts and is an advantageous data collection technique for almost any research. There are several steps in reviewing a document, but they should be considered as general guidelines. Researchers can reinterpret and manipulate those stages depending on their research problem and the type, content, and depth of the data they aim to obtain (Yenilmez & Sölpük, 2014: 35). Document analysis is also known as documentary scanning or documentary observation. Document analysis method can be used for two different purposes; general scanning and content analysis. It refers to the systematic analysis of the records or documents as a data source. A prerequisite for successful document analysis is to find, review, and synthesize the target documents to reach a particular result and opinion (Karasar, 2007).

Document analysis is a systematic procedure for reviewing or evaluating documents—both printed and electronic (computer-based and Internet-transmitted) material. Like other analytical methods in qualitative research, document analysis requires that data be examined and interpreted in order to elicit meaning, gain understanding, and develop empirical knowledge (Corbin & Strauss, 2008). O'Leary (2017) explains document analysis as a research tool that aims to collect, study, question and analyze various written text formats as the primary research data source.

Bowen (2009: 31) express the advantages of using document analysis method as follows:

- **Efficient method:** Document analysis is less time-consuming and therefore more efficient than other research methods. It requires data selection, instead of data collection.
- **Availability:** Many documents are in the public domain, especially since the advent of the Internet, and are obtainable without the authors' permission. This makes document analysis an attractive option for qualitative researchers.
- **Cost-effectiveness:** Document analysis is less costly than other research methods and is often the method of choice when the collection of new data is not feasible. The data (contained in documents) have already been gathered; what remains is for the content and quality of the documents to be evaluated.
- **Lack of obtrusiveness and reactivity:** Documents are 'unobtrusive' and 'non-reactive'—that is, they are unaffected by the research process. Therefore, document analysis counters the concerns related to reflexivity (or the lack of it) inherent in other qualitative research methods.
- **Stability:** As a corollary to being non-reactive, documents are stable.

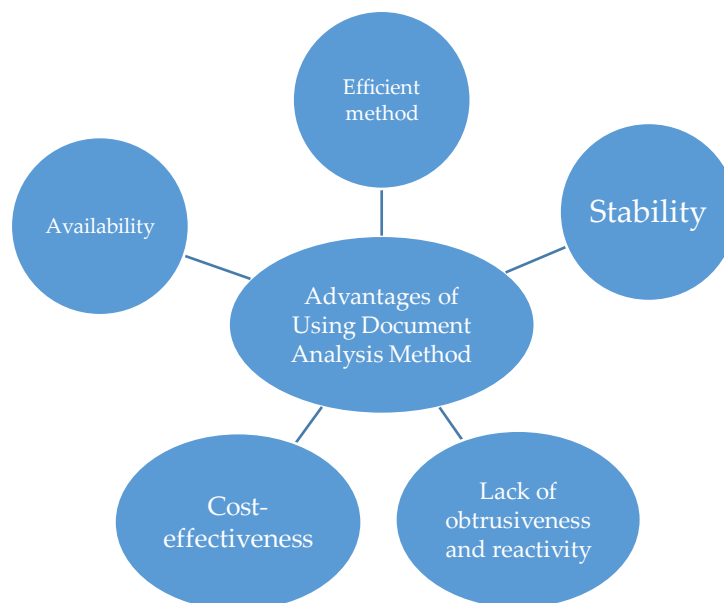


Figure 2: Advantages of Using Document Analysis Method

In document analysis, current documents and document management practices are studied and described, and new document structures and document management practices are developed. Document analysis is thus

regarded as a means for document design; it is an iterative process producing in its initial stages definitions for old document structures and later on definitions for new document structures (Salminen, Kauppinen & Lehtovaara, 1997).

4. Findings

This section covers the "Dimensions of Effective Teaching," "Special Field Competencies for Turkish Lesson Teachers," and "Competence Areas in the 2019 Turkish Lesson Curriculum".

4.1 The Dimensions of Effective Teaching

According to Karakelle (2005: 3-4), effective teaching dimensions are as follows:

a. Professional Knowledge

The knowledge of various aspects of the profession can be considered as a standard dimension. The professional competence, knowledge of teaching techniques and students' developmental characteristics, and the learning process are among the basic knowledge needs of an effective teacher.

b. Teaching Skills

Another standard dimension includes the skills and competencies related to the teaching process. An effective teacher should have a rich repertoire of teaching techniques, apply them considering the subject topic and students' academic readiness, and enrich the educational process.

c. Student Relationships

Almost all researches stress the importance of behavior and communication style with the student. Influential teachers are friendly, and can properly communicate with students, appreciate and support their individuality.

d. Presentation Skills

The presentation skills include using influential voice, gestures, mimicry, organizing the lesson, and making clear and precise presentations.

e. Classroom Management

Classroom management is characterized by making the necessary arrangements to create an efficient learning environment and a warm atmosphere in the classroom. Many studies have shown that effective teachers are competent in classroom management and create a productive and festive classroom atmosphere.

f. Personal Traits and Attitudes

An effective teacher should be flexible, enthusiastic, and cooperative. They should think multidimensionally, behave friendly, and believe in lifelong learning.

4.2 Special Field Competencies for Turkish Lesson Teachers

Teachers are required to have some competencies in many fields in order to develop the knowledge, skills, attitudes and values that their students need and to perform their teaching profession well (Can, 2019: 1621). Teachers should have sufficient knowledge, skills and qualifications in order to play their leading roles in training students according to their needs. In order to meet these needs, teachers should know the special field competencies. Competence fields are shown in Figure 3:



Figure 3: Special Field Competencies for Teachers

Considering the information presented in Figure 3, it can be stated that professional knowledge includes knowledge about facts, principles, processes and general concepts related to the teaching profession. Professional skills include the cognitive and practical skills necessary for successful performance in the teaching profession. Professional qualification consists of personal characteristics, qualifications, attitudes, values and responsibilities attributed to the teaching profession. These three competency dimensions are designed to complement each other in order to have a manageable number of qualifications in terms of scope and not to consist of overlapping and repetitive expressions. Among these dimensions, the 'skills' dimension includes the knowledge - field knowledge, pedagogy knowledge, vocational knowledge, general culture - group. In this sense, teachers are expected to have information about the sub-competency groups included in the skill dimension "learning environments, planning teaching, teaching methods and techniques and evaluation" (Buldu, 2014: 205).

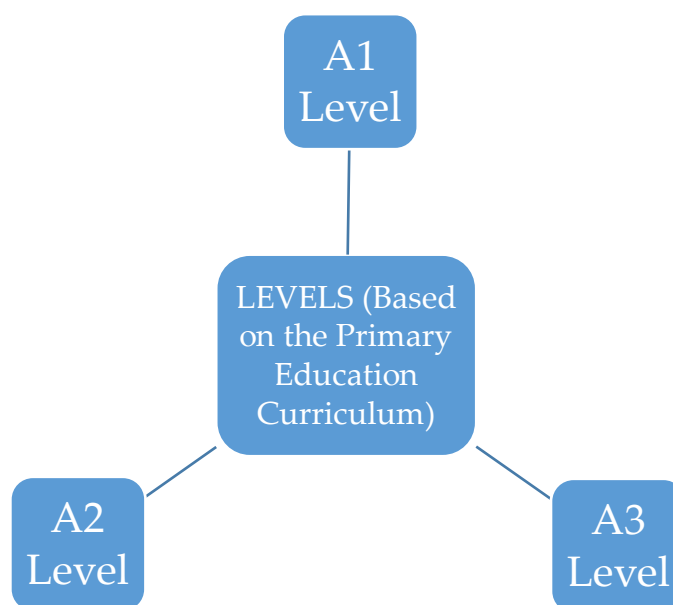


Figure 4: Levels Based on the Primary Education Curriculum

The Turkish Ministry of National Education (MoNE) published its report on general teacher competence criteria and particular field competencies in 2008 (Temizyürek & Aksoy, 2016: 104). One of the competency areas was published as Turkish Lesson Teachers' Special Field Competencies (MoNE, 2008). Based on the primary education curriculum, each competency area is represented by A1, A2, and A3.

A1 Level: It includes performance indicators regarding teachers' curriculum practices and professional knowledge, skills, and attitudes.

A2 Level: The performance indicators show that teachers proficiently fulfill the curriculum requirements, diversify the educational practices, and consider students' interests and needs, as well as the knowledge and awareness at the A1 level.

A3 Level: It includes performance indicators that require the teacher to diversify and enrich the A2 level practices, taking into account the different teaching variables. A3 level teachers create unique practices and cooperate with colleagues, parents, non-governmental organizations, and other institutions (<https://oygm.MEB.gov.tr/www/ilkogretim-ozel-alan-yeterlilikleri/icerik/257>).

The competencies and performance indicators related to the *Turkish Lesson Teacher Special Field Competence* are as follows:



Figure 5: Turkish Lesson Teacher Special Field Competencies and Performance Indicators

As seen in the information presented in Figure 5, there are five competencies and performance indicators:

1. *Planning and Organization* includes planning the teaching process, organizing the learning setting, preparing materials, and using resources. There are four competence components and 19 performance indicators in this area.

2. *Language Skills Development* refers to organizing activities to improve students' comprehension and expressive skills and promote the correct and effective use of Turkish by considering students' needs, national values, and Atatürk's views on the Turkish language. There are nine competence components and 69 performance indicators in this area.

3. *Monitoring and Evaluation of Language Development* covers monitoring and evaluating students' Turkish language development. There are four competencies in this field and 27 performance indicators.

4. *The School, Family, and Community Cooperation* refers to collaboration with families about social leadership, school culture, ceremonies, and organizations to support Turkish teaching. There are five competencies and 27 performance indicators in this field.

5. *Professional Development in Turkish Lessons* covers professional development practices to support the Turkish lesson teaching process. There are three competencies in this field and 23 performance indicators (MoNE, 2008).

4.3 Competence Areas in the 2019 Turkish Lesson Curriculum

The desired skills in the 2019 Turkish Lesson Curriculum are covered under "competence areas." In other words, unlike other programs, the 2019 Turkish Lesson Curriculum described the competence areas in detail. The competencies are "operational components that facilitate the integration of our cultural heritage with humanity" (MoNE, 2019: 4). They are discussed in eight dimensions and shown in Figure 5:

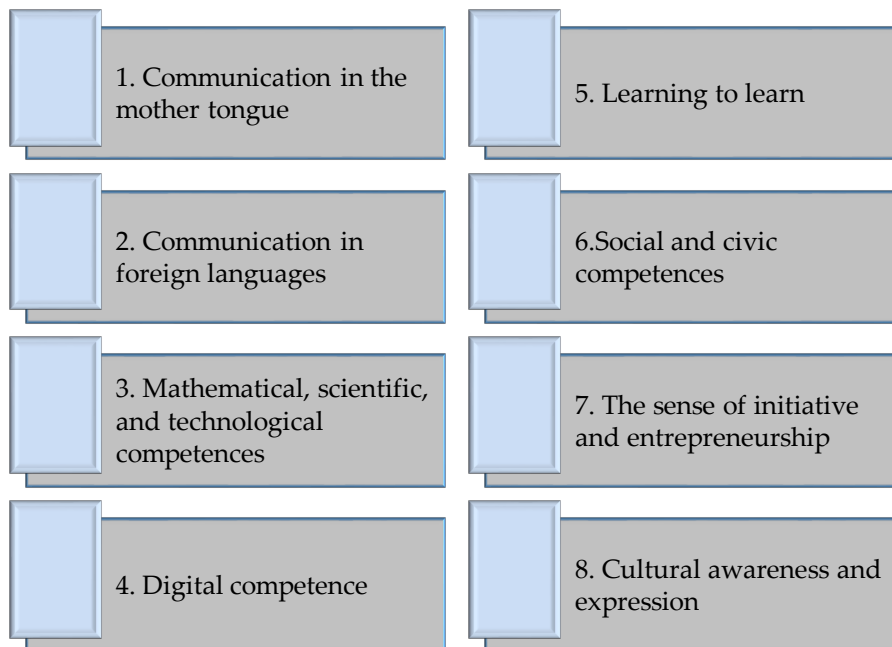


Figure 6: The Competence Areas in 2019 Turkish Lesson Curriculum

As reported in the curriculum, digital competence refers to the safe and critical use of information communication technologies for business, daily life, and communication. This competence is supported by necessary skills such as access to information and the use of computers for the evaluation, storage, production, presentation, and exchange of information, as well as communication and participation in standard networks via the internet (MoNE, 2019: 5).

Learning to learn is one's ability to pursue and insist on learning opportunities within sufficient time and knowledge management to organize the learning process individually or collaboratively. This competence is characterized by the awareness of learning needs and available opportunities and coping with difficulties for successful learning (MoNE, 2019: 5).

Social and civic competencies include personal, interpersonal, and intercultural abilities, enabling individuals to effectively and constructively participate in society and working life, covering all forms of behaviors to resolve conflicts if required (MoNE, 2019: 5).

The sense of initiative and entrepreneurship stands for one's ability to put their thoughts into action. It involves creativity, innovation, taking risks, and planning and project management to achieve goals. This competence supports everyone at home and in the community, and business life to be aware of the context and conditions of their work and available job opportunities. It also includes awareness of ethical values and supports good governance" (MoNE, 2019: 5).

5. Conclusion and Discussion

In the Turkish Lesson Curriculum 2019, the most critical competence area is the "digital competence" dimension. We can see the reflections of digital competence in the definition of skills and educational text types. For example, reading skills in the program are dealt with to include screen and media reading comprehension beyond what is written on paper. Similarly, writing skill is defined beyond writing consistent texts on paper, and involves digital writing applications such as "blog," "e-mail," "social media messages." Besides, "information literacy, multiple literacies, digital literacy, e-book, technology literacy, and media literacy" are among the themes directly related to the digital competence in the curriculum.

The precondition for fostering digital competence in students is that teachers have digital competence. Thus, it is suggested to redefine and determine teaching competencies, knowledge, and skills related to "digital competence." Many studies in the literature emphasize the importance of digital competence. For instance, Geçgel, Kana, and Eren (2020: 899) indicated that "The texts in Turkish lesson coursebooks should both stimulate students' interest in digital competence and be suitable for technological changes. They stated that when students improve digital reading skills, it also contributes to improving digital literacy skills. Scherer, Siddiq, and Teo (2015) also stressed the significance of improving students' digital competence as the primary goal in the 21st century. According to Kurudayıoğlu and Soysal (2020: 186-187), digital competence is a natural result of our age's digitalization and technological developments. Today's people must be able to use digital media tools effectively.

"Learning to learn" another competence area discussed in the 2019 Turkish Lesson Curriculum, is one of the program's basic principles. The curriculum 2019 is based on the constructivism approach, and one of the most critical features of constructivism is to enable people to take responsibility for learning. Terminologically, the concepts such as "discovery teaching," "metacognitive learning," and "self-regulation" is associated with this learning principle. In brief, the Turkish Lesson Curriculum 2019 aims to make students strive to acquire knowledge and solve problems with patience and persistence. As Aydın (2015) stated, "learning to learn" is a paradigm based on structuring knowledge in a learning environment and reflects holistic learning properties such as learning by doing. Besides, 'learning to learn' encourages learners to integrate the available knowledge and skills with prior learning and life experiences and apply them in various contexts such as home, workplace, and educational settings (European Commission, 2007). In this sense, Demirel (2009: 701) suggests that the students of the information and technology age must have the essential skills of learning to learn, that is, the ability to rapidly access, evaluate and use the information from various sources.

"Social and civic competencies" is a field that regulates interpersonal relationships and promotes positive behavior patterns. Therefore, it can be stated that the most important goals of the curriculum are to develop problem-solving skills and make individuals a harmonious and effective component of social life. In addition, adaptation to different cultures and situations and developing practical communication skills can be considered within the scope of this competency area. In their studies, Aliyev and Öğmiş (2015: 54) found that people who appreciated the importance of intercultural interactions adapted more quickly to the new cultures and conditions than those who did not know others' cultural identity. Aslan and Arslan Cansever (2007) emphasize that individuals learn how to behave and cope with problems through the family's interactions, and the personality develops through identification, modeling, reinforcement, and learning.

"The sense of initiative and entrepreneurship" refers to individuals' life-oriented knowledge and skills. In this sense, it promotes recognizing and adapting to the available conditions and then evaluating the alternatives to exist and develop in given conditions. According to Pan and Akay (2015), entrepreneurship is one of the critical factors in increasing societies' development levels. They also emphasized that all societies want to raise influential entrepreneurs worldwide; therefore, entrepreneurship culture should be promoted in childhood. Yılmaz (2014: 305) stresses that entrepreneurship education is essential for the success of future ventures, for developing entrepreneurial behaviors among teenagers, and revealing their entrepreneurial potentials.

6. Implications

Teachers should be proficient in planning and implementing educational activities and assessment and evaluation procedures. Besides, they are expected to recognize students' needs and other variables such as timing, setting, and materials. They should acquire all of them during the undergraduate and in-service training (Gündoğdu, et al., 2015: 31).

The quality of education faculties should also be improved. The educational content should be determined considering the target audience's readiness and background. Therefore, students' readiness levels should be determined at the education faculties. The guidance of the lecturers and pre-service training are also essential factors for teacher candidates' experience.

The primary function of education faculties is to optimally prepare students with different readiness levels for the teaching profession. Students' different readiness, abilities, interests, and educational backgrounds should also be considered in their education. Thus, suitable educational settings should be prepared for all students to minimize the adverse effects of such differences (Altunçekiç, et al., 2005: 101).

The academic staff at universities should guide teacher candidates and provide them with real-life teaching experiences and educational settings that allow them to compensate for their lack of professional knowledge and experience, which in turn contribute to the proper functioning of the education system and to raise qualified individuals (Kahyaoğlu & Yangın, 2007: 84).

In conclusion, it is suggested to regularly review and update curriculums to train qualified teachers and improve prospective teachers' attitudes towards the teaching profession. Prospective teachers' expectations and needs should also be taken into account in this sense (Dönmez & Uslu, 2013: 13).

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The Sources of Organizational Gossips in Schools

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Acknowledgement: This research was presented as an oral presentation at the 13th International Congress on Educational Administration held on 10-12 May, 2018, Cumhuriyet University, Sivas, Turkey.

Abstract

Informal and evaluative speech about a person who is not present in a conversation environment is defined as gossip. Gossip is one of the informal forms of communication that is also important in school life, because schools have an intense network of communication. This research aims to detect the sources of organizational gossips in schools that have the potential to harm organizational functioning. A descriptive survey model was applied in the research. Gossip Sources Questionnaire (GSQ) prepared by the researcher was used to investigate the topic. In the research the factors causing gossips in schools are classified as; individual factors stemming from the people themselves, social factors arising from the social environment in which the individuals stay and organizational factors arising from the characteristics of the organizational structure of the workplace. According to the teacher views individual features such as jealousy, envy, unethical behaviors, curiosity, vanity and aimlessness are the most common sources of gossips in schools. At the end of the research, there are some suggestions for teachers and principals about coping techniques of organizational gossips.

Keywords: Gossip, Informal Communication, Teacher, School

1. Introduction

As a social being, people communicate with other people at every stage of life. People share all kinds of feelings, thoughts and ideas with others and communicate with people around them on every issue. While the topic of this interpersonal communication may involve many different elements, they are often about other people and some assumptions about them. In this context, informal and evaluative speeches about a person who is not present in the conversation environment are considered as gossips. Gossip is defined in the Oxford Dictionary (2019) as “casual or unconstrained conversation or reports about other people, typically involving details which are not confirmed as true.” In organizational literature, gossip is defined as; social conversations about the formation, change and continuation of social networks, in the context of the formation of group unity, and generally about the people who are not present in the environment (Difonzo & Bordia, 2007), positive or negative information sharing about third parties in the context of intimacy (Foster, 2004), informal and evaluative speeches in a group

that is usually not more than a few people and who is not usually present (Kurland & Pelled, 2000). In the definitions of the term gossip, the researchers focus on its both positive and negative effects for organizations. Organizational gossip is an important factor in explaining some social characteristics of the organizations. Therefore, investigating the gossips circulating among the employees will enable to understand the social relations in a school. Thomas and Rozell (2007) state that gossip is a natural part of every social environment and has a significant impact on organizational behavior. According to Brady, Brown and Liang (2017) typical workplace gossip can be either positive or negative in nature and may serve important functions. Since gossips form the basis of human social relations (Dunbar, 2004), it is seen as a social phenomenon and an important aspect of organizational communication (Waddington, 2005). In this context, Han and Dağlı (2018) highlight the importance of examining the organizational impacts of gossips in social organizations where human relations have an important role. Determining the sources of gossips in schools will extend the literature of behavioral and management science related to this informal type of communication. Moreover, it may give insight for administrators to deal with the harmful effects of gossips.

Gossips are generally accepted as unethical and immoral behaviors among people, on the other hand, this form of informal communication is quite common in society and organizations. The fact that gossip is exhibited so often in society although seen as a negative behavior by many people shows that gossips have many different and complex sources. Organizational studies have revealed many reasons that cause gossips among employees. Stewart and Strathern, (2004) focus on personal characteristics in spreading gossips. According to them the main reason for explaining and spreading gossips is a component of emotions such as self-proving, revenge, hate and jealousy. Similarly, the research conducted by Luna and Chou, (2013) concluded that the attitudes and subjective norms of individuals are important predictors of intention to gossip. In this context, the results of many studies conducted on gossips (Stewart & Strathern, 2004; Arabacı et al., 2012; Eşkin-Bacaksız & Yıldırım, 2015) show that some negative attitudes and behaviors of people are the main factors that cause them to produce and spread gossips. The researches in the literature focus on the personal characteristic of employees in producing and spreading gossips. Therefore, the personal characteristics of teachers should be taken into consideration in explaining the gossips in schools. In addition to the individual features of employees, there are some other issues that may cause gossips in organization. In this context, the features of schools also may affect the production of gossips. DiFonzo et al., (1994) state that if there is an incomplete information about a situation or the information is not adequately explained employees usually want to learn this information through gossips. That means the communication structure in schools may trigger the gossip circulation among teachers. In this case, it can be claimed that the basic knowledge deficiencies in organizational communication are an important factor in revealing gossips (DiFonzo, Bordia & Rosnow, 1994; Bordia & Rosnow, 1998; Foster, 2004; Solmaz, 2006; DiFonzo & Bordia, 2007). In the same way, Mills, (2010) states that gossips are more likely to occur when formal communication is limited. In other words, employees try to obtain the information from informal channels when they cannot obtain it from official communication channels in the organizations (Solmaz, 2004). Therefore, the research concludes that congestions in formal communication channels in organizations are among the factors that cause gossips (Doğan, 2002; Berkos, 2003; Solmaz, 2004; Stewart & Strathern, 2004; DiFonzo & Bordia, 2007; Mills, 2010; Eşkin-Bacaksız & Yıldırım, 2015; Bahar, 2016). Considering the effects of gossip on organizations, it is seen that there are features that stem from both the structure of the organization and the characteristics of the employees. It is seen that organizational gossip has a very critical function in schools, which are educational organizations with intense social relations. In this respect, the organizational functions of gossip are a current research topic for schools and teachers.

Gossip is one of the informal forms of communication that is also considered important in school life, which is surrounded by a network of communication. Eckhaus and Ben-Hador (2019) identified gossip as the most negative feature of school life. Teachers spend most of their working time in school, where they share feelings, ideas, thoughts about other people. In such environment the speeches about others should be under control. Uncontrolled gossips may cause problems in schools. Thomas and Rozell, (2007) state that distortion of information in the gossip network may become a big problem in the organizations. Michelson and Mouly (2004) mention many damages that gossip can cause to organizations. Babalola, et al. (2019) emphasize the potential harm of negative workplace gossip on employees' innovative behavior. The most prominent of these are demoralizing employees, reducing productivity and causing waste of time. In the same way, Kurland and Pelled,

(2000) focus on the damage of gossip on the reputation of the person in society. Grosser, Lopez-Kidwell and Labianca, (2010) also found out that gossips have negative consequences such as decreased productivity, demoralization, damage to emotions and reputations, and employee turnover. In this regard, school administrators have to deal with harmful gossips in order to maintain a positive climate in the school. In the process of combating harmful gossips, first of all, it is necessary to determine the situations and causes which lead gossips. Unidentified gossips cannot be controlled and may harm the school climate and the performance of teachers. Therefore, gossips in schools should be investigated in order to decrease their negative effects. In this regard, the reasons of the gossips circulated among the teachers in the schools constituted the starting point of this research. Identifying the sources of organizational gossips in schools is expected to enrich the related literature by pioneering the studies in the field of behavioral management. After determining the sources of organizational gossips in schools, this study identifies some techniques to deal with gossips that have the potential to harm organizational functioning.

1.1. Purpose of the research

The aim of this study is to investigate the sources of organizational gossips in schools and to develop some techniques to eliminate the harmful effects of the negative gossips.

2. Method

This research investigates the gossips in schools according to teacher views by survey model. With a descriptive research, the reasons for an existing situation in schools were investigated. Descriptive survey models aim to describe a situation as it is (Karasar, 1998). In this type of research, the opinions of the participants on a subject or event, interests, skills, abilities and attitudes, etc. are tried to be defined within their own conditions (Büyüköztürk, et al., 2011). In this study, as the sources of the rumors in schools were examined in the context of organizational conditions, the survey model was preferred.

The study group of the research, the measurement tool and the process of conducting the research are explained below.

2.1. Study group of the research

In the research, by using convenient sampling technique 79 teachers working at the schools in Diyarbakır/Turkey were determined. In the determining of the sample by using maximum variation the teachers were chosen from different branch, seniority, gender and schools. Some of the personal characteristics of the teachers who participated in the research are shown in Table 1.

Table 1: Some features of the participants

Branch	N	%	Seniority	N	%	Gender	N	%
Social sciences	51	64,6	1-2 years	44	55,7	Male	39	49,4
Science	22	27,8	3- 5 years	30	38,0	Female	40	50,6
Others	6	7,6	6 and more	5	6,3	Total	79	100,0
Total	79	100,0	Total	79	100,0			

As shown in Table 1, in terms of gender, 49.4% (n=39) of the participants were male and 50.6% (n=40) were female; 64.6% (n=51) were employed in social sciences, 27.8% (n=22) in natural science and 7.6% (n=6) in other fields (physical education, sports etc.). In terms of the seniority of teachers 55.7% (n=44) were working for 1-2 years, 38.0% (n=30) 3-5 years and 6.3% (n=5) 6 years and more. All the teachers are in public schools and working full time. All of the teachers were in public schools so they have similar income, showing that they have similar socio-economic features. The schools were located in city center and had similar features and

opportunities. The focus of the research is not the different features of participants; instead it focuses on general teacher views related to gossip sources in schools.

2.2. Gossip Sources Questionnaire (GSQ)

In this study, a questionnaire was used to determine the sources of gossips in schools. In the preparation process of the questionnaire, the related literature was reviewed and the possible situations that may cause gossips were determined. In order to develop the questionnaire form, the cases which were thought to be causes of organizational gossips among teachers were listed. By this way, a draft framework with 40 expressions was prepared. After examining the draft form, similar expressions, complex and unclear items were deleted. The remaining items were sent to two different researchers to take expert opinion. At the end of review process, "Gossip Sources Questionnaire" (GSQ) with 30 items was created.

In the "Gossip Sources Questionnaire" (GSQ) there are 3 main categories showing sources of gossips in schools. In the first part of the GSQ there are 14 items showing *individual factors* of gossip sources such as "jealousy and envy, exposing the shortcomings of others, weakness of ethical values, satisfying curiosity, need to prove himself, underestimating people, aimlessness, excess of leisure time, covering his own flaws, the desire to take revenge on his dislikes, lack of self-confidence, hate, grudge, not trusting people, lack of motivation, disregarding rivals". In the second part of the GSQ there are 9 items showing *social factors* of gossip sources such as "unhealthy communication in school, fulfill the need to speak something, having different political ideas, conflicts in school, to be admitted in society, learn about people without having to ask them, having a good time and having fun, romantic relationships among teachers, the need to know people in school". In the third part of the GSQ there are 7 items showing *organizational factors* of gossip sources such as "not satisfied with the working environment, not treating employees equally and fairly, monotonous working environments, inadequate chance to express thoughts at school, unexpected promotions and awards, manager changes in the organization, changes in the structure and functioning of the organization". In the questionnaire the participants are given the option to sign the items that they consider as the sources of gossips in schools. In the questionnaire the participants can choose as many options as they want.

2.3. Data collection and analysis process

In the data collection process, the researcher visited the schools and after taking the permission from the school administration the teachers were informed about the research. Totally 79 volunteer teachers from different schools were accepted to participate in the research. The teachers were asked to fill in the paper-based forms of "Gossip Sources Questionnaire" (GSQ). In case of need, some more explanations were provided related to the filling the forms. In the questionnaire the teachers were free to mark as many items as they want. That means they chose more than one items that they consider as the sources of gossips in school. By this way, 79 teachers expressed totally 1005 views in the GSQ. The analysis was conducted by using these views.

After collecting the forms, the researcher made relevant arrangements for analysis. By using SPSS program, the data was analyzed. Descriptive analysis, percentages and frequency analysis were conducted to calculate the most frequent gossip sources. At the first stage, the item analysis was used to determine the frequency of each item. Then, the total frequency of the dimensions (individual, social, organizational) was calculated. The analyses were interpreted according to the frequency of the item/dimension-based. High frequency of the item/dimension means that the teachers consider this situation in the related item/dimension causes gossips in schools. The findings were visualized with graphics and tables and the explanations were provided under each table/graphic.

3. Findings

In this section, the findings of the research related to the sources of gossips in schools according to the views of teachers are given.

3.1. Frequencies of teachers' views on gossip sources

In this study, in order to investigate the causes of organizational gossips circulating among teachers, the teachers were asked to indicate the sources of gossip that they observe most frequently in their schools. The frequency of each expression was calculated based on teacher views. Table 3 presents the frequencies of teachers' views on gossip sources.

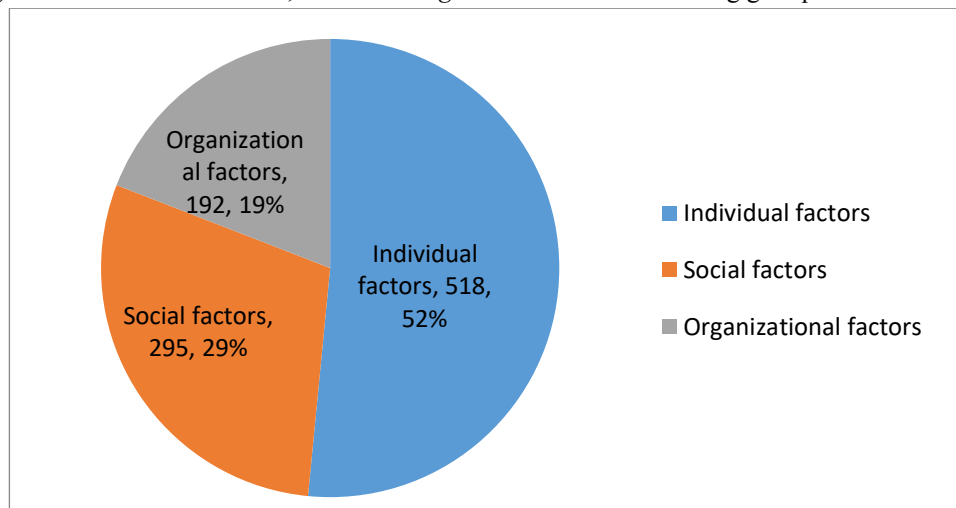
Table 3: Frequencies regarding gossip sources according to teachers' views

	Gossip Sources	n
<i>Individual factors</i> (n= 518)	Jealousy and envy	55
	Exposing the shortcomings of others	50
	Weakness of ethical values	49
	Satisfying curiosity	45
	Need to prove himself	44
	Underestimating people	27
	Aimlessness, excess of leisure time	42
	Covering his own flaws	35
	The desire to take revenge on his dislikes	32
	Lack of self-confidence	32
	Hate, grudge	30
	Not trusting people	29
	Lack of motivation	19
	Disregarding rivals	29
<i>Social factors</i> (n=295)	Unhealthy communication in school	34
	Fulfill the need to speak something	34
	Having different political ideas	44
	Conflicts in school	39
	To be admitted in society	37
	Learn about people without having to ask them	30
	Having a good time and having fun	24
	Romantic relationships among teachers	29
The need to know people in school	24	
<i>Organizational factors</i> (n= 192)	Not satisfied with the working environment	40
	Not treating employees equally and fairly	33
	Monotonous working environments	32
	Inadequate chance to express thoughts at school	31
	Unexpected promotions and awards	21
	Manager changes in the organization	20
	Changes in the structure and functioning of the organization	15

As seen in Table 3, according to teacher views the most common sources of organizational gossips are respectively; jealousy and envy (n=55), exposing the shortcomings of others (n=50), weakness of ethical values (n=49), satisfying curiosity (n=45), need to prove himself (n=44), having different political ideas (n=44), aimlessness, excess of leisure time (n=42). The item-based frequency analyses show that personal characteristics of teachers such as jealousy, envy, unethical behaviors, curiosity, vanity, aimlessness are seen as the sources of emerging gossips in school environment. Moreover, teachers emphasize the role of social factors in gossips. They stated that "having different political ideas" is an efficient source of gossips.

3.2. Factors sourcing gossips

The views of the teachers about the sources of gossip were examined in terms of their content and evaluated in three categories. These are *individual*, *social* and *organizational* factors causing gossips in schools.



Graphic 1: Individual, social and organizational sources of gossip

As seen in Graphic 1, the teachers evaluate the *individual factors* (n=519) as the most frequent sources of gossips. Then they consider the *social* (n=295), and *organizational* factors (n=192) as the sources of gossips in schools respectively. Among the participants who stated that gossip is caused by *individual* characteristics, 51.9% is female and 48.1% is male. Among the participants who stated that gossip is caused by *social* characteristics, 53.3% is female and 46.7% is male. Those who stated that gossip is caused by *organizational* factors, 48.5% is female and 51.5% is male. According to this finding, there is a difference among the views of male and female teachers. Female participants prioritize *social* and *individual* factors in producing gossips in schools, while male participants prioritize *organizational* factors as sources of gossips.

For the dimension-based analysis, the total frequency of the items in this category was calculated. The *individual*, *social* and *organizational* factors, which are stated to be the sources of gossip, are examined in detail below.

3.2.1. Individual factors of gossip

Participant teachers expressed the *individual factors* as the sources of gossips they observed in their schools such as; jealousy and envy, exposing the shortcomings of others, weakness of ethical values, satisfying curiosity, need to prove himself, underestimating people, aimlessness, excess of leisure time, covering his own flaws, the desire to take revenge on his dislikes, lack of self-confidence, hate, grudge, not trusting people, lack of motivation, disregarding rivals. Teacher expressed 512 (%52) views in this category. According to this, it can be claimed that some individual features of teachers may trigger the gossips in schools. The participants are in the opinion that teachers having negative characteristics such as jealousy, envy, unethical behaviors, curiosity, vanity, aimlessness etc. are producing gossips in school environment. Accordingly, they emphasize individual factors as the most common sources of gossips.

3.2.2. Social factors of gossip

Participant teachers expressed the *social factors* as the sources of gossips they observed in their schools such as; unhealthy communication in school, fulfill the need to speak something, having different political ideas, conflicts in school, to be admitted in society, learn about people without having to ask them, having a good time and having fun, romantic relationships among teachers, the need to know people in school. Teacher expressed 295 (%29) views in this category. Therefore, it can be claimed that the social features of the group and the climate of the school may cause gossips in schools. The teachers emphasize the political ideas of the group

(n=44) as sources of gossip. The teachers with different political ideas may express their opposition or rivalry by using gossips. Similarly conflicts among the teachers (n= 39) are listed as the sources of gossips in school.

3.2.3. Organizational factors of gossip

Participant teachers expressed the *organizational factors* as the sources of gossips they observed in their schools such as; not satisfied with the working environment, not treating employees equally and fairly, monotonous working environments, inadequate chance to express thoughts at school, unexpected promotions and awards, manager changes in the organization, changes in the structure and functioning of the organization. Teacher expressed 192 (%19) views in this category. It can be understood that the features of organizations may cause gossips in schools. However, when compared to the individual and social factors organizational factor are less common in producing gossips.

4. Results, Discussion and Recommendations

This research aimed to reveal the sources of organizational gossips circulating among teachers working in public schools. In the research, the factors that cause gossips were investigated according to the views of the participant teachers. According to the findings of the study, teachers stated some factors that cause gossips in schools. In the analysis of the items in the questionnaire form, these factors are classified in three main categories. In this context, the factors that source gossips are listed as; *individual factors* stemming from the people themselves, *social factors* arising from the social of teachers and *organizational factors* arising from the characteristics of the workplace and the school environment. According to the teacher views, gossips in schools are mostly caused by individual, social and then organizational factors respectively.

Teachers within the scope of research stated that individual factors were the most frequent sources of gossip. The teachers expressed the *individual factors* such as; jealousy and envy, exposing the shortcomings of others, weakness of ethical values, satisfying curiosity, need to prove himself, underestimating people, aimlessness, excess of leisure time, covering his own flaws, the desire to take revenge on his dislikes, lack of self-confidence, hate, grudge, not trusting people, lack of motivation, disregarding rivals. According to this, it can be concluded that some individual features of teachers may trigger the gossips in schools. Therefore, in terms of the management of gossips the starting focus should be on the individuals. Since the individual features of teachers are seen as the main sources of gossips, the school administration should focus on personal issues. In coping process with gossips, the principals should try to guide the teachers' personal attitudes and behaviors.

In parallel with this finding of the research, other studies in the literature also reveal that the individual attitudes of people are the source of gossip. Luna and Chou, (2013) found that individuals' attitudes and subjective norms are important predictors of gossip. Similarly, Kuo, Wu and Lin (2018) emphasize the individual attributes (e.g. behavior and attitudes) in explaining workplace gossips. Research has revealed that gossips are more common in intimacy environments (Grosser, et al., 2010), and increase in the extreme competitive environment (Michelson and Mouly 2002). Moreover, Stewart and Strathern, (2004) emphasize that individuals tell and spread gossips because of their feelings such as proving themselves, revenge, hate, jealousy and so on. In a research conducted by Han, (2020a) although gossip is perceived as "fun, tasteful and attractive," it is mostly evaluated as "harmful information." Similarly, Arabacı, et al., (2012) concluded that the gossip in the educational organizations emerged due to the personality traits such as jealousy, incapacity, skepticism and lack of self-confidence. Kong (2018) points the relationship between employees' hostile attribution and negative workplace gossip. In this respect, some elements such as uncertainty, insecurity, curiosity, jealousy, belief and anxiety causes gossips. Wilkie (2019) also states that gossips cause erosion of trust and morale in organizations.

In addition, the teachers in this research stated that "weakness of ethical values" was a reason of producing and spreading the gossips in schools. Similarly, in a research conducted by Eşkin-Bacaksız and Yıldırım, (2015) the weakness of the ethical values also found to cause the emergence of gossips. Considering that some negative behaviors arising from the personal characteristics of the teachers cause gossips in the school environment, some measures should be taken to prevent the harmful effects of gossips in the organizational environment. In this respect, it may be effective to provide individual and collective seminars such as personal development and

effective communication. In order to reduce the negative behaviors of teachers that affect their communication with their colleagues in the school and to ensure them to behave more ethically some trainings should be provided in schools.

Teachers focused on *social factors* as the other sources of gossips. According to the research findings, social factors are among the sources that reveal gossips in schools. These social factors are stated as; the need to know people in school, having a good time and having fun, learn about people without having to ask them, romantic relationships among teachers, unhealthy communication in school, having different political ideas, satisfying curiosity, fulfilling the need to speak something. Therefore, it can be concluded that the social features of the group and the climate of the school may cause gossips in schools. Parallel to the finding of this research, some other studies in the literature have also revealed that social conditions are the sources of gossips. Noon and Delbridge, (1993) consider the gossip as an effort to understand the individual's own social environment. In other words, it can be claimed that gossip serves to strengthen existing relations (Gabriels & Backer, 2016). The research results in this topic conclude that gossips have some important functions in organizations such as; entertaining the audience or attracting social attention (Guerin & Miyazaki, 2006); enhancing social interactions and relationships within networks (Smith, Lucas & Latkin, 1999); strengthening social sharing (Mills, 2010); having benefits for the group (Kniffin & Wilson, 2005); cooperating employees in the organization (Wu, Balliet & Van-Lange, 2016); uniting social groups (Dunbar, 2004); controlling social norms (Vaidyanathan, Khalsa & Ecklund, 2016); giving social approval (Litman, Huang & Chang, 2009); strengthening social ties (Brondino, Fusar-Poli & Politi, 2016); contributing to the convergence and socialization of employees (Çalıkuşu, et al., 2013); sharing the secrets (Ditmarsch, et al., 2017); allowing the formation of groups (Savarimuthu, 2013). According to this, there are different social situations in schools that cause the gossips among teachers. Some of these social factor may cause innocent gossips that do not deteriorate the social unity and positive climate in schools. However, some social conditions such as “unhealthy communication and conflicts among teachers” bear the potential to harm the social relationships in school. In this context, Babalola et al. (2019) found that negative workplace gossip may have more serious implications for targets’ affective and performance responses at work.

The teacher in the research listed the “different political ideas” of the teachers as a source of gossips in school. That is the teachers with different political ideas may use gossips as a tool to revenge or t harm for his opponents. Considering that organizational gossips may harm the school’s social environment, social activities should be prepared for teachers to develop tolerance towards individuals having different views of life and political thinking. In addition, the desire to recognize people living in their environment is a fundamental need, so a healthy communication should be established in schools. In addition, the need of teachers to meet each other must be conducted in a desirable and transparent manner. Since curiosity is a basic need of people, a communication environment should be prepared in which teachers can learn the issues they are curious about other teachers in the school. The duration breaks may not enough for teachers to socialize. Therefore, extra social activities should be organized for teacher interactions.

Participant teachers expressed the *organizational factors* as the sources of gossips they observed in their schools. These factors are stated as; unexpected promotions and awards, manager changes in the organization, lack of motivation, changes in the structure and functioning of the organization, monotonous working environments, inadequate chance to express thoughts at school, not treating employees equally and fairly, not satisfied with the working environment. It can be understood that the features of organizations may trigger the gossips in schools. Therefore, some negative practices in the organizational environment are the source of gossips among teachers. Tian et al. (2019) found that workplace gossips negatively influence employees’ performance. Han (2020b) states that there are many precautions that school administration can use in the management of gossips. In order to eliminate the monotonous working environment in schools a professional promotion system can be conducted. By this system, the teachers will have the need to work hard to get it, which will also enhance the teacher motivation. Similarly, some studies in the literature have revealed that some negative organizational practices lead to gossips. In his research, Doğan (2002) claims that gossips may emerge in an organization that does not have effective organizational communication. In addition, it was found that the problems related to the management and functioning of the organization gave rise to gossip such as the lack of clear and transparent

management strategies (Eşkin-Bacaksız & Yıldırım, 2015). Arabacı, et al. (2012) concluded that in their research on the teachers, the gossip in the educational organizations emerged due to some organizational reasons such as aimlessness and too much free time. In addition, there are some organizational elements such as uncertainty and distrust in organizations that cause gossips. In this case, monotone working environments and unhealthy communication environments that disrupt the morale of teachers and reduce the work efficiency should be eliminated in schools. Teachers should be informed of what is going on at school and the changes made in the institution should be shared with the teachers.

In general, it can be concluded that gossip is a widespread social phenomenon in organizational life. The school administration should organize gossips to achieve its goals in a healthy way. It is very important to detect and identify the factors that contribute to organizational gossips in schools. In this study, the factors that cause the gossips among teachers in schools are identified. According to the teachers, there many individual, social and organizational factors that cause gossips in schools. Among these factors they especially emphasize the individual features as jealousy, envy, unethical behaviors, curiosity, vanity and aimlessness. Accordingly, it can be claimed that identifying and eliminating the individual, social and organizational situations that cause harmful gossips in the school will contribute to the continuation of the positive climate of the school in terms of organization. Therefore, this research recommends the administrators to focus on arrangement of especially individual factors in the management of gossips in schools.

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Teaching German as a Second Foreign Language at Primary Education in Turkey

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Abstract

It is a known situation that knowing a single foreign language is not enough in the 21st century and that knowing a second language will give an individual privilege. Accordingly, in recent years, serious steps have been taken related to foreign language teaching in Turkey. In Turkey is beginning to be taught in basic education German as a second foreign language after English as a first foreign language. Due to the increase in the importance given to the second foreign language, it has become an important situation to organize activities according to the interest and readiness of the student in order to achieve the desired success in learning German. In this context, the aim of this study is to provide examples of activity design in which communication for German teaching after English in primary education is at the forefront. In this study, is designed activities related to the topic "Einkaufen, Farben, Obst und Gemüse, Mülltrennung, Berufe, Artikel, Krankheiten" located in the German language curriculum in basic education in Turkey. Considering the cognitive, physical and affective development of the students in the design of the activities, many teaching principles such as relativity to the student and the principles of experiencing by doing have been brought to the fore.

Keywords: Turkey, Basic Education, Second Foreign Language, German, Teaching Activities.

1. Introduction

Today, there is a serious interaction and communication between countries depending on many developments such as technological, economic, social and political. The importance of knowing a foreign language for this communication is once again understood. In this context, it is known that knowing a single foreign language is not enough and that knowing a second language will gain privilege for the individual in the 21st century. Therefore in Turkey in recent years it has been taken serious steps regarding the teaching of foreign languages. Turkey in 1997, the 5-year compulsory basic training period was increased to 8 years. As a result of that, the curricula of basic education were rearranged and many new learning areas were included in the curriculum. One of these areas is foreign language teaching. According to this new regulation, English as the first foreign language has been taught from the 4th grade of primary education. German as a second foreign language has been added to the programs as an elective course from the 4th grade of primary education (MEB, 2006). Foreign

language education and training in recent years as can be understood from the regulations at an early age, in Turkey is increasing importance of foreign language teaching. As a matter of fact, with the 4 + 4 + 4 education law that started to be implemented in the 2012-2013 academic year, foreign languages have been taught at lower levels of primary education and in 2012, English was taught from the 2nd grade. This new law has positively changed the perception of the German language in our country (Balci, 2016). Because in Turkey until 2012, both in public schools and in private schools was not given due importance to German (Karaman, 2017: 105). However, with the changes made in the regulations, German was brought to the fore as the second foreign language after English as the first foreign language. The increasing importance given to German teaching has brought the need to design different teaching methods, techniques and activities. In order to achieve the desired success in German teaching, it has become an important issue to organize activities according to the interest and readiness of the student. In this context, the aim of this study is to design activities in which communication is at the forefront for teaching German after English at primary education level. In this study, is designed activities related to the topic "Einkaufen, Farben, Obst und Gemüse, Mülltrennung, Berufe, Artikel, Krankheiten" located in the German language curriculum in basic education in Turkey.

2. Teaching German as a Second Foreign Language in Basic Education in Turkey

As in teaching the first foreign language in basic education, it should also be ensured that the students are interested in the activities used in the second foreign language teaching. Because, first of all, if the student develops a negative perception and attitude towards German, it will prevent her from achieving success in the learning process. Therefore, in teaching a second foreign language after the first foreign language at an early age, the child's perception and attitude towards the language in question determines whether the language learning process will be successful or not. The methods, approaches, techniques and activities used, especially the teacher, play an important role in the formation of the child's perception and attitude in the second foreign language teaching process in basic education. As a matter of fact, in a foreign language course designed in accordance with the readiness level, interests and wishes of the child, active participation will be higher and the chance of achieving the desired success will be higher. In this context, it is necessary to focus on an activity-oriented education in German teaching in basic education. Because of its natural nature, foreign language teaching includes abstract rules (Thalmayr, 2008). Considering the physical and mental development of children in basic education, it will be seen that abstract thinking skills do not develop at the desired level and it will not be easy for them to learn abstract concepts. Because the concrete transactions period covers the period between 7 and 11 years of age. During this period, children can understand the rules regarding concrete concepts. The abstract operations period is the period of 11 years and after. During this period, children start to learn abstract concepts and problem solving (Ari, 2017: 105-106). Therefore, in order for this process to be successful and to attract the students' interest in the learning material, it is necessary to concretize and transfer the abstract linguistic structures to the student as much as possible. Because the creation of learning environments with the experiences children encounter in daily life or where they are likely to encounter will make a great contribution to the foreign language learning process of the student. In order to achieve this goal, activity-centered teaching should be brought to the fore.

A number of teaching principles should be taken into account while designing the activities. The first of these principles is the principle of relativity to the student. Relativity to students is that all activities and learning situations planned in the teaching process are designed according to the developmental characteristics of the student and the student is placed in the center. This principle is of particular importance as it forms the basis of all other teaching principles (Köksal & Bünyamin, 2017: 21). Another principle to consider when designing activities is the principle of readiness. The principle of readiness means that the student has all the skills, interests and attitudes, and prior knowledge on the subject that he / she needs to learn a new learning material (Sünbül, 2011: 26). If the student cannot make a connection between the previously learned knowledge and skills and the new subject to be learned, it becomes difficult to have permanent learning. For this reason, when designing the activities, care should be taken to prepare the students in a way that they can make mental associations.

In the principle of closeness to life, which is another principle, it is important to transfer the information that can be used actively by the students in daily life and that serves the living skill to the student (Karabacak, 2021: 172). According to this principle, it is not functional to teach abstract information that cannot be used by the student. At this point, it comes to the forefront that students should not be given a mere rule transfer as in traditional foreign language teaching, but instead should be given linguistic structures needed for communication. Because the main purpose of language teaching is not to teach the rules of language that are abstracted from the content; It is to provide students with reading, listening, speaking and writing skills depending on the of their class levels and to enable them to use the language effectively (Göçer, 2015: 233). As Kalfa stated, "the goal in foreign language teaching is to be able to establish the correct and effective communication required in daily life with the foreign language that the student has learned. It is important that the teaching process is designed to meet the need in this direction" (2015: 250).

Another point to be considered while designing the activities is to create learning environments that will enable students to learn by doing and experiencing. Turkey adopted the constructivist theory of teaching in the education system since 2005, and all training programs were organized in the framework of this theory. According to this theory, the student actively participates in the learning process, learns by doing knowledge and skill. According to Helmke, the basis of the constructivist approach is not to give information in teaching, but to structure the knowledge in the student's mind (2009: 68). The information that is processed and structured in the mind of the student becomes permanent information and becomes functional.

As in the first foreign language teaching process, the main purpose in the second foreign language lessons is to enable the student to express himself first in the target foreign language. Therefore, learning environments should be organized taking into account the communicative competence. As is known, communicative competence is the information needed to communicate in a language and their use at the skill level (Aktaş, 2005: 90). Since the development levels of children are not suitable for using written language in a foreign language, bringing more speaking skills to the forefront increases efficiency. In basic education, it is an important issue to emphasize the activities where the speaking skill is at the forefront.

3. Activity Designs for Teaching German in Basic Education

The following concrete examples of activities designed for some topics in the German teaching curriculum at the basic education level in Turkey are given. These activities are planned considering active participation, communicative competence and teaching principles. In addition, while designing the activities, each activity was organized based on a learning approach and method.

3.1. Activity 1: Krankheiten (Diseases)

In this activity, the student understands the German equivalents of the diseases. It is expressed in German 10 diseases that are frequently encountered in daily life, including "Erkältet, Fieber, Kopfschmerzen, Husten, Halsschmerzen, Bauchschmerzen, Ohrenschmerzen, Zahnschmerzen, Pocken, Grippe". This event has been planned with a real hospital environment in mind. In daily life, there are patients waiting to see a doctor at the hospital. The body language of these patients is different depending on their illnesses. Therefore, figures with 10 different diseases were pictured in this activity, as seen below. When the designs and features of the figures are examined, it will be seen that they can attract the attention of young children. Because in the activities, figures similar to the characters that children watch in cartoons were preferred. In addition, the colors of the figures' clothes are striking for children. Scripting has been done in a hospital environment with sick figures. Human figures representing each disease are waiting for their turn in the waiting room. There are German expressions on each figure. In this activity, students are asked to match the illness of the figures in the waiting room with the sentences written in the German language on pink papers. Later, the teacher takes the role of a doctor in the classroom and asks "Was ist los?" to each student by directing the question, he tells the students to express in German which disease they have.

Picture 1



As explained above, in this activity, the student was given experience and the German of the diseases was tried to be taught and communication skills were gained. Indeed, the goal of basic education in Turkey primarily to acquire knowledge and skills in accordance with the needs of students and society's expectations of its age (Güven, 2012). At this point, German language teachers should also have some qualifications. Therefore, today it is not foreign language teachers who transfer knowledge as it is; there is a need for teachers who provide the reproduction of knowledge and give the opportunity to use what has been learned in daily life. At this point, teachers have a great duty and responsibility. One of these tasks is designing and organizing creative activities. Because, according to Jank and Meyer, the learning process is not by taking the student's learning input passively; it is formed by the experiencing of the information himself or herself (2014: 288). This goal can be achieved by providing the students learning environments where the student can gain experience.

Picture 2



As it is known, games are of great importance for children at the basic education level. Since play is an action that must be fulfilled to meet vital needs, it can be evaluated as an exercise (Aydın, 2014: 72). Transferring a situation that children enjoy doing in their daily lives to learning environments both makes the learning process

more enjoyable and the desired success is achieved. Therefore, in the above activity, inspired by the puzzle game, they were asked to combine the images of diseases and their German equivalents correctly. For this activity, firstly, puzzle pieces are drawn on paper and then these pieces are cut. Images of the disease and disease names are written on these cut puzzle pieces. It is recommended to organize this activity as a group, as it will contribute to the learning of children from each other within the group. Because in group work, students feel a common responsibility for the successful fulfillment of the task and contribute to each other's learning (Storch, 2009: 307).

3.2. Activity 2: Articles (Artikel)

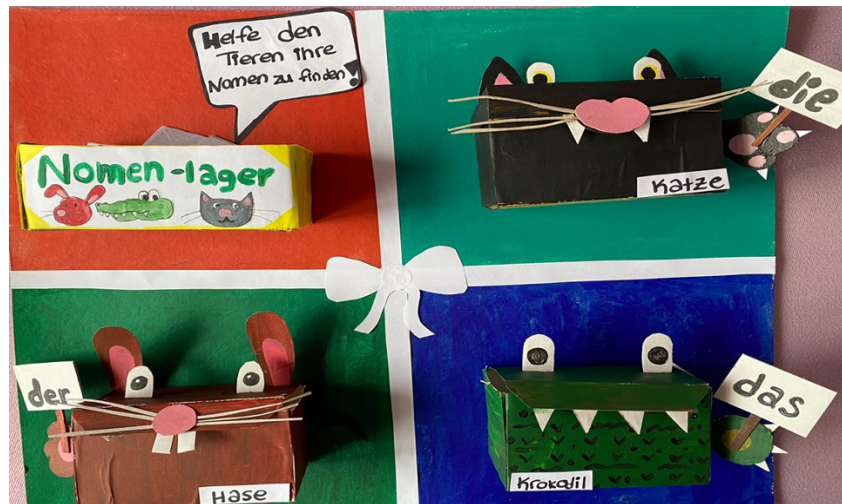
The topic of article is one of the most important and abstract topics in German. Because it is necessary to know the articles in order to use many structures such as akkusativ, dativ, and genitive. In German, each genus name has an article. There are three articles in German language: Der, Die, Das. Since there are no three different articles in English as in German, concretizing this subject as much as possible will facilitate the learning process of students. This activity is organized based on the constructivist approach and the discovery learning method. In this activity, the abstract subject of the article is tried to be reinforced with animals. A banner showing the Artikel of their name is prepared in the hands of each animal model. An animal is prepared for each article. Der Hase (rabbit) for "der" article, die Katze (cat) for "die" article and das Crocodile (crocodile) for "das" article. On the other hand, words that take the articles of der, die, das are selected and images of objects such as "das Auto, das Haus, der Stuhl, die Blume" are added to the Nomen-Lager (name box).

Picture 3



Above are the images of the objects that take the articles of "der, die, das." First of all, using these visuals, a general review is made by asking the students which object takes which article. Then the teacher asks the students "Helfen den Tieren ihre Nomen zu finden?" and by repeating this question, it enables the students to make a visualization in their minds. Here, animals are personified and tried to be portrayed as people in need of help.

Picture 4



In order to give clues to the students, a banner showing which article it represents was given to each animal's hand. At this point, students think about the articles of the images given in a mixed way and place them in the correct box. Thus, the student will be able to understand the learning input by coding the rabbit with the "der" article, the cat with the "die" article, and the crocodile with the "das" article. Thus, with this activity, an abstract linguistic structure can be made concrete in accordance with the physical, mental and emotional readiness of the students.

3.3. Activity 3: Jobs (Berufe)

This activity is designed for the topic of professions. The activity is based on a constructivist approach and method of presentation. With this activity, the student learns the German of 10 professions.

Picture 5



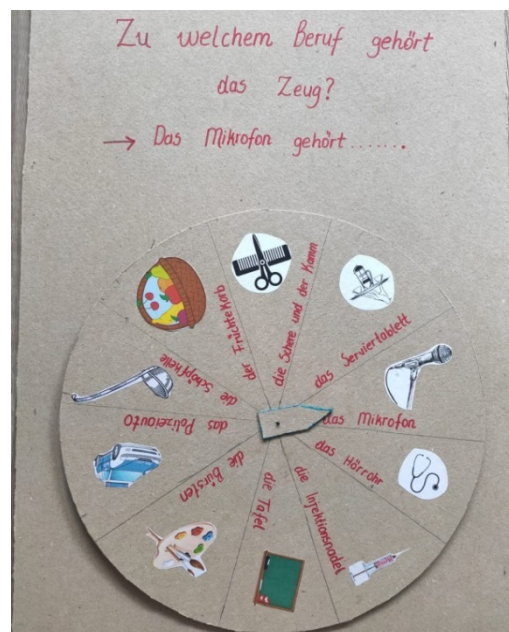
Visuals of each job are prepared. The figures of the jobs whose articles are "der" are pasted on the green pipette with their heads cut. The figures of the jobs whose articles are "die" are glued to the yellow pipette with a cut head. A female head is attached to a separate yellow pipette, and a male head is attached to a green pipette. Each pipette is cut to fit into each other. Since the writing format and articles of jobs in the German language differ according to gender, students are made to make both female and male figures in the activity. As seen above, each puppet reflects the external visual features of a profession.

Picture 6



In this activity, on a voluntary basis, each student is asked to come to the blackboard and choose the professions they dream of and want to be in the future and say it in German equivalents. The teacher gave the volunteer student "Was bist du von Beruf?" A small dialogue is to be established by directing the question. If the student who answered the question is female, answer so "Ich bin eine Krankenschwester"; The male student expresses himself verbally in German in the form of "Ich bin ein Lehrer". This activity contributes to students' speaking and listening skills. The main purpose here is to make the gains more communicative by making the activities skill-centered (Tarakcioğlu, 2012). Therefore, in order to enable students to communicate with each other, students can ask this question each other: "Was sind Sie von Beruf?"

Picture 7



In addition to the subject of professions, an additional event can be organized in order to reinforce the tools frequently used in the professions mentioned above. A Wheel of Fortune design is made in this event. For this, a piece of cardboard is cut into a circle. And the circle is drawn by dividing it into 10 equal parts. Tools and equipment belonging to 10 professions are cut and stuck on the circle. German equivalents are written under the pasted tools. The circle is fixed in the middle of the cardboard with an arrow needle. The cut circle is glued on the rectangular cardboard and the top is the question "Zu welchem Beruf gehört das Zeug?" is written. A sample sentence is written under the question to make it easier for them to answer this question. Then, by turning the wheel, the students express in German which profession the corresponding object is related to.

3.4. Activity 4: Separating garbage (Mülltrennung)

This activity was designed with a constructivist approach and question and answer method. The aim of this activity is to correctly express and group the words given in the course in German by the student for garbage separation. In this activity, when the student is asked to differentiate the garbage in three ways: paper, plastic and glass, she/he can group it in German. When designing this activity was inspired by Kemal Sunal film, who is a film and theater actor in Turkey and very important for each generation of Turks. Since the year 1970 in Turkey, Kemal Sunal films have an important place for Turkish cinema (sunal, 2012: 520). So many generations grew up with Sunal films in Turkey and continue to grow. The use of a hero belonging to Turkish culture in teaching German may positively affect the interest and attitude of the student to the language in question. Turkish films are a helpful tool in foreign language teaching due to their rich content and cultural elements (İşcan, 2011: 946).

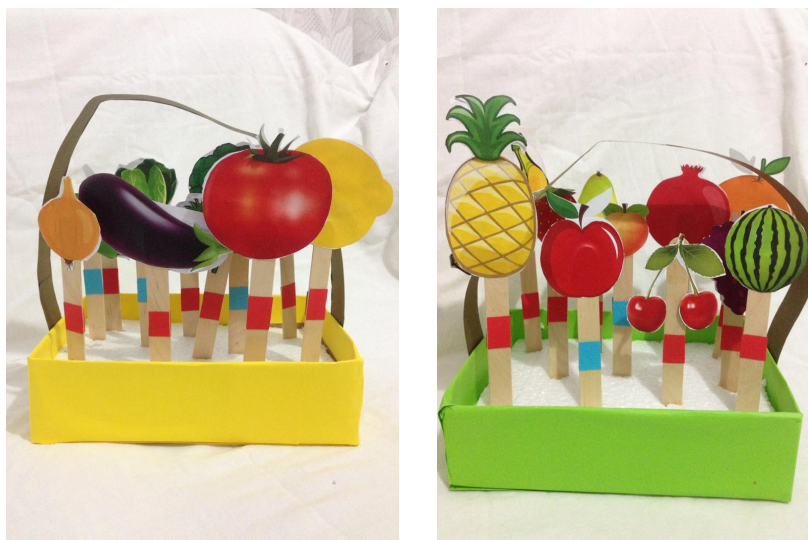
Picture 8



As a matter of fact, this activity was inspired by the movie "The King of Garbage" (Çöpçüler Kralı) and for that, a garbage collection truck was designed. In this activity, students grasp the German names of waste materials and place them in the sections in the garbage truck. The words will be even easier to remember since the event includes a hero that the students enjoy watching. In addition, students will have an enjoyable learning process.

3.5. Activity 5: Vegetables and fruits (Obst und Gemüse)

Picture 9



The above activity is designed for the subject of "Obst und Gemüse". In this activity, they are asked the students to reenact with the question "Wer bin ich?". Students are asked to play the role of the vegetables and fruits they have chosen. Thus, children can learn the German of vegetables and fruits by using their imaginations to see themselves as a fruit or vegetable they love. Since the student is active in this activity, learning by experience comes to the fore. As is known, learning by doing also plays an important role in learning information permanently. In this activity, as in the other activities in this study, it was aimed to improve the communication skills of the students and was planned as an activity for speaking and listening skills.

3.6. Activity 6: Colors (Die Farben)

This activity is designed to teach colors. After this activity, the student can write and say colors in German. In the activity, students try to find out which colors to match the ice cream balls written on the bottom. Accordingly, it distinguishes the colors as light and dark in German. The student builds her/his knowledge with a constructivist approach by experiencing.

Picture 10



As it can be seen, the event was inspired by ice cream balls. First of all, the colored Etil Vinil Asetat is cut and pasted on the cone in the form of a round ice cream ball. The student is asked to understand the colors on this cone and place it on the small ice cream cone given on the side. The German equivalent of the color of each round ice cream ball is written on these small ice cream cones. Since the event is prepared using velcro adhesive, it is economical as it can be used more than once. Each student can recognize and match colors with their German over and over again. Thus, the subject is further reinforced by repeating the subject.

3.7. Activity 7: Shopping, asking price (Einkaufen, Preise nennen)

This activity is designed for the topic "einkaufen, Preise nennen". The aim of this activity is that the student can use the words and speaking situations that he/she needs in shopping in German. When he buys something, he can ask for prices in German.

Picture 11



As seen above, a small market is designed for this activity. On the shelves in the market, nutrients that are frequently needed in daily life are lined up. On the side, shopping lists are hung on ropes. In this activity, a learning environment is created that will make the student feel himself in the market. According to the scenario in the activity, the student comes to the market, asks the prices of the food items and the shopping list in German, and the student in the role of seller answers. Thus, with this activity, a communication environment where the student is likely to encounter in real life is provided and the student can express herself/himself in German.

4. Result

Serious steps have been taken in recent years related to foreign language teaching in Turkey. One of these steps is teaching German as a second foreign language in basic education. The increasing importance given to teaching German brought the need to design different teaching methods, techniques and activities. Creating learning environments with the experiences children encounter in daily life or with a high probability of encountering will make a great contribution to the foreign language learning process of the student. In order to achieve this goal, an activity-centered teaching should be brought to the fore.

In order to achieve the desired success in German teaching, it has become an important issue to organize activities according to the interest and readiness of the student. In this study, activity design examples where communication for teaching German as a second language after English at primary education level is at the forefront are presented. . In this study, is designed activities related to the topic "Einkaufen, Farben, Obst und Gemüse, Mülltrennung, Berufe, Artikel, Krankheiten" located in the German language curriculum in basic education in Turkey. Considering the cognitive, physical and affective development of the students in the design

of the activities, many teaching principles such as relativity to the student and the principles of experiencing by doing have been brought to the fore.

As in teaching the first foreign language in basic education, it should be ensured that the students are interested in the activities used in the second foreign language teaching. While designing activities in teaching German as a second foreign language, explanations and principles of educational sciences should be taken into account. Because in a foreign language course designed in accordance with the child's readiness level, interests and wishes, active participation will be higher and the chance of achieving the desired success will be higher.

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A Critical Perspective on the Removal of the Teacher's Guidebooks from the Curriculum

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Abstract

The purpose of this study is to determine the Turkish Language teachers' views on the removal of teacher's guidebooks from the curriculum. This study employed case study, one of the qualitative research designs. The study group consisted of 66 Turkish Language teachers. The study group was formed using the maximum variation sampling, one of the purposeful sampling methods. A structured interview form developed by the researcher was used in collection of data. Content analysis was employed to analyze the data obtained from the participants. The majority of the participating teachers stated that they did not approve the removal of the teacher's guidebooks. Teachers expressed that they did not approve the removal of the teacher's guidebooks due to their positive contribution to the teaching of the lessons and preparation for the lesson, and due to their contribution to the course's standards, and stated that should be reprinted.

Keywords: Teacher's Guidebook, Turkish Language Teacher, Professional Teacher

1. Introduction

1.1 Introduce the Problem

The textbooks in Turkey have been constantly changing and are being updated with each new curriculum. The Ministry of National Education declared its transition from behaviorist approach to constructivist approach with a radical change made in the curricula in 2004 (MoNE [Ministry of National Education], 2004). With this change, there has been a transition from teacher-centered education to student-centered education. During the 2005-2006 academic year, textbooks were also changed along with the Turkish Language Curriculum, which was developed based on the constructivist approach and the theory of multiple intelligences. With this curriculum, a triple book model, in which the student textbook, student workbook and teacher's guidebook were prepared separately, was adopted (Durukan, 2009). Student textbooks included texts, student workbooks included activities, and teacher's guidebooks included additional activities, questions and directions to ensure effective use of student textbooks and student workbooks.

Used for a long time, the triple book model was abandoned after the works carried out in the last five years on the renewal of Turkish Language curriculum. The student textbook and the student workbook were combined into a single textbook, and the teacher's guidebook was removed altogether. This was partially implemented in the 2017-2018 academic year and implemented at all grade levels in the 2018-2019 academic year. Thus, the examination of the effect of the removal of teacher's guidebooks from the curriculum on teachers became the focal point of this study.

The teacher's guidebook is the main resource guiding the teacher in the planning, implementation and evaluation of learning activities. Developed in line with the objectives and explanations included in curricula, the teacher's guidebooks are works in print or electronic format including various instructions, explanations, exercises and activities that ensure the effective use of the student textbook (MoNE, 2015). These works help the teachers on how to present the subjects, establish the relationship between information, skills and ideas among students, and select activities to evaluate students' learning processes (Koseoglu et al., 2003).

Since the curricula, student textbooks and teacher's guidebooks in Turkey are determined by the MoNE, teachers do not have much of a leeway. Teachers do not take an active role in the preparation process of teacher's guidebooks. Therefore, they become the practitioners of the scenarios prepared by others for them. The instructions and practices given in the teacher's guidebooks significantly limit the role of teachers during the teaching process. Almost every step such as objectives, lesson plans, lesson scenarios, methods, techniques and assessment tools are presented to the teacher in a ready-made teacher's guidebook, and the teacher is expected to comply with them (Guner, 2011). This restriction of the role of the teacher turns teaching into a static job that does not require skills rather than a professional occupation. In other words, the teacher becomes a simple practitioner who fulfills the instructions rather than an expert who makes their own decisions during the teaching process (Ozoglu et al., 2013). Sari (2018) argued that this understanding will cause teachers to lose their professional control and turn them into unqualified people. According to the results of an important study conducted in our country on this subject, more than half of the teachers (54%) believe that they are passive practitioners of the decisions made from the center (Yurdakul et al., 2016).

Contrary to the arguments in the literature that teacher's guidebooks prevent teachers' autonomy, there are studies in which teachers stated that teacher's guidebooks are useful. Teachers expressed that they receive support from teacher's guidebooks on many subjects, especially on planning, method and technique, and that they want to continue to receive support (Genc et al., 2014; Gur, 2014; Gocer, 2011; Guner, 2011). The fact that the teacher's guidebooks have just been removed from the curriculum makes teachers' experiences and opinions about the teacher's guidebooks important. There are only a few studies on this issue. It can be said that the effect of not using teacher's guidebooks on teachers should be addressed and evaluated with more studies. It is believed that the present study will contribute to the discussion that teacher's guidebooks limit teachers' autonomy and will raise awareness of teachers' feelings, thoughts and expectations about the reuse of teacher's guidebooks.

The autonomy of teachers during the teaching process contributes positively to their professional performance, school climate and students. Teachers who are given authority can structure a more purposeful and student-centered education process in line with student needs and desires (Colak & Altinkurt, 2017; Frostenson, 2015; TED-Mem 2015). The studies on PISA revealed a positive relationship between country achievement scores, and teacher and school autonomy. Particular attention is drawn to the role of teacher autonomy in Finland's high achievement in PISA (Sahlberg, 2011). Many studies put forth a positive relationship between teachers' perceived autonomy levels and self-efficacy levels (Kosar, 2015), their job satisfaction (Altinyurt et al., 2017), the positive working climate (Ingersoll, 1996), and their competence and professionalism (Pearson & Moomaw, 2005). When teachers use their autonomy to realize what is required for students' education, students can also develop responsibility for their own learning. Although teacher autonomy has many positive contributions, there are also many factors affecting the autonomy level. The centralized structure of the education system, restrictive legislation and regulations, curricula and textbooks developed by the central authority can limit teacher autonomy (Bumen, 2019).

1.2 Study Objectives

The purpose of this study is to determine the Turkish Language teachers' views on the removal of teacher's guidebooks from the curriculum. The views of the Turkish Language teachers, who have used the teacher's guidebooks before, are significant. In the study, teachers thoughts about the removal of teacher's guidebooks from the curriculum will be questioned. For this purpose, answers to the following questions will be sought:

- 1) How do teachers assess that the removal of the teacher's guidebooks?
- 2) Why do teachers assess this way?

2. Method

2.1 Research Design

This study employed case study, one of the qualitative research designs. Yin (2014) described case study as a research method that is used to answer how and why questions. In this study, the case study design was chosen as it was investigated what Turkish language teachers think about removing the teacher's guidebooks from the curriculum and why they think so. Thus, the advantages and limitations of these books, and whether or not they should be used were investigated from the perspective of those who knew them best.

2.2 Participants

The participants of the study were determined using the maximum variation sampling, one of the purposeful sampling methods. The criteria used to determine the study participants were to use the teacher's guidebooks for at least one year and to voluntarily participate in the study. The maximum sampling method was chosen to ensure that the study group consisted of people with different seniority and different working conditions. Since teachers' experiences and opinions about teacher's guidebooks can be affected by the seniority and sex variables, it was aimed to diversify the study group in terms of these variables. It is believed that this diversity will contribute to a better understanding of the experiences and opinions about the phenomenon examined in the study.

In the study, individuals who filled out the electronic data collection form shared on e-mail were reached in order to ensure maximum diversity. There are several reasons why the study group was formed in this way. First, since the use of teacher's guidebooks, which were developed by different publishing houses, varied from city to city, it was aimed to diversify the study group as much as possible in terms of city. E-mail was believed to be the easiest way to reach participants living in different cities. Second, since it was believed that the teachers would not sincerely express some of their views, thinking that their identities would be disclosed during the face-to-face meeting, the participants were reached via social media. Participants varied in terms of the sex, seniority and city of employment variables. 39 males and 27 females from 8 cities from different regions of Turkey participated in the study. Gender and seniority information about the participants are presented in Table 1.

Table 1: Personal Information of Participants

Gender	2-4 years	5-8 years	9-12 years	13-16 years	17-20 years	21 years and over
Female	9	6	4	4	2	2
Male	3	14	12	5	3	2
Total	12	20	16	9	5	4

2.3 Data Collection Tools

In the study, developed by the researcher, Teacher Views on Teacher's Guidebooks Questionnaire (TVTGG) including open-ended questions was administered as a data collection tool. Before the questions in the questionnaire were developed, similar studies in the literature (Gocer, 2011; Gocer & Akturk, 2015; Sari, 2018)

were examined and utilized. Considering the purpose of the study and related studies, a draft form consisting of open-ended questions questioning teachers' opinions about teacher's guidebooks was developed. The form included opinion questions aiming to understand the person's interpretation process (Patton, 2014).

In order to ensure the content validity of the form developed by the researcher, expert opinion was asked. Three experts with a Ph.D. in the field of Turkish education examined the draft form in terms of the draft being understandable and the level of coverage of the researched subject. The interview form was finalized in line with the recommendations of the experts and became ready for administration. The interview form included two questions about their opinions on the removal and reprinting of the teacher's guidebooks. In addition, personal questions about participants' sex, professional experience, city of employment and online meeting request were also included in the interview form.

2.4. Process

Study data were collected between September 16, 2020 and September 26, 2020. The questionnaire developed online in the Google Drive application was sent teachers' e-mail. Participants were asked whether they would voluntarily fill out the electronic form shared with them after writing a directive explaining the purpose of the study and the confidentiality protocol. Teachers who wanted to participate answered the questionnaire by clicking the link. After that, a 40-minute meeting was held by video conference method with 15 participants who accepted the online meeting request in the interview form. Video conference recordings and electronic forms filled out by participants were stored in a folder.

2.5 Data Analysis

The study data were analyzed by content analysis. First, preliminary analysis of the forms from 73 participants, which were obtained via the electronic environment, were performed. During this analysis, some of the participants' forms (seven participants) were not included in the study due to the lack of justified explanations and plain and superficial answers provided by them. During the in-depth examination, the participant forms and the recordings were read more than once and common codes were determined. Themes were determined by developing upper categories from the obtained codes. Finally, the qualitative data obtained were quantified and tabulated by taking the frequency values of the data. Since each participant can give more than one answer, the calculated frequency value of the codes shows the frequency value of the answers.

2.6 Validity and Reliability

Certain measures were taken to ensure the validity, reliability and compliance of the study with ethical principles. In order to ensure the internal validity of the study, analyst variation and expert review were performed. Analyst variation refers to the use of multiple analysts to control the findings (Patton, 2014). In this regard, 10 randomly determined forms were coded separately by the researcher and a teacher with a master's degree in Turkish Language Education, and then the codes developed by each researcher were checked by the other researcher. The codes that were determined to be different are discussed rearranged accordingly. Another validity and reliability strategy used in the study was expert review. This technique is a peer interview about the overlap of the raw findings and comments obtained (Merriam, 2013). The researcher presented the interview forms he deciphered and the codes and themes he obtained for the approval of an expert in the field of qualitative research. At the confirmation meeting, feedback was received regarding the codes and themes determined by the researcher.

For the transmissibility of the study results to similar groups or environments (Yildirim & Simsek, 2013), the statements of the participants were presented with direct quotations, and various characteristics of the participants were given. In selecting direct quotations, the criterion was that the quotation included proof supporting the relevant theme and code in the best way and the quotation was a sufficient example. Each participating teacher was given a code name (such as P1: Participant 1). Thus the participants' personal information was kept confidential. In order to increase the validity and reliability of the study, the findings

obtained from the analysis were presented without comment. Discussion of the study results was based on basic findings.

Attention was paid to voluntary participation and confidentiality of the participants' identities in order to conduct the study in accordance with ethical principles. The study purpose and how the questions would be answered were explained in detail in the directive of the questionnaire. The questionnaire also stated that the data obtained from the study would not be shared with second persons.

3. Results

"How do teachers assess that the removal of the teacher's guidebooks?" the answers given by the participants to this question consist of codes gathered under four themes. The themes and codes within the scope of these themes are presented in Table 2.

Table 2: Teachers' Views on the Removal of the Teacher's Guidebooks

Theme	Code	f
Contribution to teaching of the lesson (f=45)	Instructions explaining what to do during the teaching process	17
	Explanations on how to do the activities and exercises	13
	Original methods, techniques and activities	12
	Listening texts	3
Contribution to preparation for the lesson (f=35)	To have ready lesson plans	26
	To have the necessary preliminary information about the lesson	9
Insufficiency/nonconformity of teacher's guidebook (f=30)	To have directing excessive	11
	Explaining certain activities and instructions in great detail	8
	Some activities and instructions not appropriate	7
	Incomplete and erroneous explanations	4
Contribution to lesson's standard (f=13)	Ensured a standard lesson	7
	Led to a monotonous lesson	6

According to Table 2, teachers' views on the removal of the teacher's guidebooks were mostly gathered under the themes of contribution to teaching of the lesson (f=45), contribution to preparation for the lesson (f=35), insufficiency/nonconformity of teacher's guidebook (f=30) and contribution to lesson's standard (f=13), respectively.

3.1 Theme 1: Contribution to Teaching of the Lesson

Under the contribution to teaching of the lesson theme, teachers stated that they did not find the removal of the teacher's guidebooks appropriate since they made it easy to teach the lesson. Many teachers (f=17) considered the instructions provided in the teacher's guidebooks that directed them on what to do during the teaching process advantageous. They particularly emphasized the importance of the instructions for the newcomers to the profession. One of the teachers (P41) explained the function of the instructions using the following words, "The teacher's guidebooks helped us during the teaching process. The instructions were drawing our roadmap. The teacher was teaching more efficiently by adding his own knowledge and experience. It was a guide, especially for newcomers to the profession." Another teacher (P8) expressed compared the instructions in the teacher's guidebooks to a compass and stated, "Having a compass in the hand of the teacher while he or she was trying to help the student acquire an objective made it easier to reach the goal."

The teachers pointed out the function of the instructions and explanations in the teacher's guidebooks and stated that they should be reprinted. Teachers mentioned that they did not follow all the instructions in the teacher's guidebooks, that they preferred to use only some of them, and that these instructions were very useful especially for those who were new to the profession. On this, one teacher (P55) said, "The teacher's guidebook is not a copying method, only a guide, and every person sometimes needs a guide. Even if it wouldn't be right to stick

with it completely, it guide sets a road map for you.” In parallel with this, another teacher (P27) told, “The teacher’s guidebook would be appropriate for teachers who are not experienced in teaching in terms of guiding them. Directive and warning information will be useful.”

A significant number of teachers (f=13) mentioned that some activities and exercises in the student textbooks were complex, incomprehensible and contradictory, and teacher’s guidebooks should be used to understand them. P40 said, “I needed to use guidebook last year. I don't even understand what some activities want. How can the child understand? There is definitely a need for a teacher’s guidebook for such activities.” Similarly P55 explained this situation with the following:

Sometimes I cannot even establish a connection between the texts and the questions in the student textbooks. I wonder about their meaning. So, I cannot understand how I am expected to give correct information to the students when I cannot understand the student textbook. Certainly, books like this should be given with a teacher’s guidebook.

Some teachers (f=12) expressed that there were different and original activities, methods and strategies in the teacher’s guidebooks, which facilitated the teaching process, and therefore they did not find it appropriate to remove the teacher’s guidebooks. Teachers want to start using the teacher’s guidebooks again as they provide a variety of activities and methods. P10 said, “Educational science is a science that is constantly evolving and changing. I needed a guide book, especially on topics and activities that new approaches in education should have been known.” One teacher (P15) explained the originality of the activities and methods in the teacher’s guidebooks as follows:

An objective can be acquired by students with different methods and activities. However, the teacher’s original activity may not always be better than the activity ideas in teacher’s guidebooks. In this respect, I believe teacher’s guidebooks are a helpful resource that can be used in classroom activities.

Another teacher (P32) mentioned that the activities and methods in the teacher’s guidebooks are the source of creative thinking and said, “Thinking different activities and thinking creatively are not everyone’s cup of tea. We were at least starting from what was ready and gave it a shape.” Although the teacher’s guidebooks restricted the freedom during teaching, P27 stated the importance of teacher’s guidebooks in terms of method:

Although teacher’s guidebooks prevented teachers from teaching the lesson freely by providing every point during the teaching process in detail, at least they were guiding. The teachers benefited greatly from the teacher’s guidebooks due to their lack of knowledge about methods and techniques.

Some teachers (f=3) considered it an advantage to have transcriptions of the audio materials related to the lesson in the teacher’s guidebooks and therefore it is not appropriate to remove teacher’s guidebook. Explaining his views on the listening texts, one of the teachers (P60) stated,

The listening texts were given in the teacher’s guidebooks. This is important for equality of opportunity. There is no smart board, internet, or a sound system in every school. We would have the written version of the listening texts. When technical facilities were insufficient, we could teach by reading aloud.

3.2 Theme 2: Contribution to Preparation for the Lesson

Under the lesson preparation for the lesson theme, teachers (f=26) emphasized that it was an advantage for them to have ready lesson plans in the teacher’s guidebooks. Many teachers mentioned that they did not have to prepare lesson plans when there were teacher’s guidebooks, and that this provided them with an important convenience. The teachers emphasized that they were required to prepare daily lesson plans by the school administration since the teacher’s guidebooks were removed from the curriculum. Thus, they did not approve the removal. The teachers explained this issue:

I do not find it right to remove the teacher’s guidebooks. An application that was good and that provided was abandoned for no reason. I see the only reason as the cost of the teacher’s guidebooks. We are returning back to the old days. Preparing daily plans is constantly wasting paper every week. It is very unnecessary to reproduce the daily plan separately for yourself and for the administration. (P33)

I want teacher’s guidebooks used again books because they reduce the paperwork for us and makes it easier for us to focus on the lesson. In addition, since I didn’t have to go to the trouble of preparing

lesson plans, I was able to research different activities and methods that would help students understand the subjects. (P10)

In addition, some teachers (f=9) emphasized that teachers' guide books have the necessary preliminary information about the lesson and this situation contributed to their preparation for the lesson. One of the teachers (P63) stated that even going unprepared to the lesson was not a problem when there was a teacher's guidebook and said:

The greatest contribution of the teacher's guidebooks was to help me with how to prepare before the lesson. On the other hand, even if the teacher was unprepared for the lesson, he did not suffer from it during teaching as long as there was the teacher's guidebook.

3.3 Theme 3: Insufficiency/nonconformity of Teacher's Guidebook

Under the insufficiency/nonconformity of teacher's guidebook theme, the negative aspects of teacher's guidebooks are emphasized. Some teachers criticized the excessive detail of teacher's guidebooks and the quality of their activities and instructions, based on their experiences in the past years. Teachers want the problems they have identified with regard to the guidebooks to be eliminated and to be updated.

Mentioning that the teacher's guidebooks were excessively detailed, the teachers stated that they were uncomfortable with the teacher's guidebooks directing them excessively (f=11) and explaining certain activities and instructions in great detail (f=8). The teachers considered the instructions explaining how to do even the simplest task and giving the answer to each question in the guide as excessive. On this subject, one teacher (P1) said, "Providing the answers to even the simplest questions and explaining the activities in great detail made the teacher's guidebooks boring." Similarly, P58 stated, "It is unnecessary to explain everything in detail. It caused us to miss important points because there was too much text. The teacher's guidebooks should have been."

Some instructions and activities not appropriate for class and region (f=7), and incomplete and erroneous explanations (n=4) are the other disliked aspects of the teacher's guidebooks. The teachers also stated that the content of the teacher's guidebooks was not appropriate, and if the content would be updated, the teacher's guidebooks should be reprinted. Regarding this issue, P47 said:

We did not apply every instruction literally, of course. It changed according to class and school conditions. The teacher's guidebooks were developed considering all schools were at the same level. We had lower its standards for our school. There were activities and suggestions we didn't do. So the content would be updated and the teacher's guidebooks should be reprinted.

3.4 Theme 4: Contribution to Lesson's Standard

Under the contribution to lesson's standard theme, there were opposing teachers' views. According to some teachers, teacher's guidebooks ensured a standard Turkish Language lesson (f=7), whereas for some teachers, teacher's guidebooks led to a monotonous and uniform Turkish Language lesson (f=6).

Among the teacher views on not wanting the teacher's guidebooks to be reprinted, the belief that using teacher's guidebooks was expecting everything to be handed on a silver platter and that they prevent teachers' freedom came to the fore. One teacher (P22) said, "For me, there is no need for teacher's guidebooks. Teachers should go to their classrooms preparing for their own lessons. The teacher's guidebook inevitably makes us teachers a little lazy." Similarly, one teacher (P5) told, "No, I don't want them to be reprinted. Instead, a platform like EBA should be created on the internet for teachers only." In addition, P6 stated, "No, I don't want them to be reprinted. We now have the opportunity to freely teach our classes. The teacher's guidebooks prevent us from teaching the lesson ourselves." P22 said:

I find it correct to remove the teacher's guidebooks. The teacher should teach the lesson according to his classroom environment. The teacher's guidebooks were forcing a certain region into a single type of Turkish Language lesson. Teachers tended to go to class without preparation.

A significant number of teachers ($f=7$) expressed that the explanations and information in the teacher's guidebook made them feel like they were teaching a standard Turkish Language class. In fact, P53 said, "I would definitely want the teacher's guidebooks. They are important because they supervise and show the shortcomings of the teacher in terms of activities, planning and program," whereas P42 said, "Yes, I would like to have them back because they would reduce my workload and provide unity between teachers. There won't be discussions on who taught what to students." In addition, P47 stated,

Maybe we wouldn't need a teacher's guidebook if every school had the same conditions, but unfortunately our schools don't have the same conditions. So, in a school where there is no smart board and no technological devices, I think we need a teacher's guidebook, having only the annual plan is not enough.

4. Discussion

Evaluated within the framework of the relevant literature, the results of this study, which aimed to determine the Turkish Language teachers' views on the removal of teacher's guidebooks from the curriculum are presented below.

Most of the teachers participating in the study stated that they made use of the teacher's guidebooks especially in terms of teaching of the lesson, preparation for the lesson and the lesson's standard, and therefore they did not find it appropriate to remove the teacher's guidebooks from the curriculum. Many teachers expressed that they did not find it right to remove the teacher's guidebooks, especially because it takes time to make a lesson plan and prepare for the lesson, and that they should be reprinted. It is believed that school administrations wanting the teachers prepare daily lesson plans is after this decision. Similar to this finding, previous studies revealed that teachers find daily lesson planning unnecessary detailed and time-consuming work and a formality (İsman & Eskicumali, 2003; Ozturk, 2012).

All of the participating teachers participating in the study asserted that the teacher's guidebooks contributed to them in various ways in the past years. The instructions in the teacher's guidebooks explaining what teachers do during the teaching process were found beneficial by many teachers in this study. Various study results in this field also put forth that teachers benefit from teacher's guidebooks and have positive thoughts about them (Gocer, 2011; Gocer & Akturk, 2015; Guner, 2011; Gur, 2014; Sari, 2018). The instructions in the teacher's guidebooks that explain to the smallest detail what the teacher should do during the teaching process actually restrict teacher's autonomy during the teaching process. The studies conducted in Turkey on teacher autonomy argued that teachers felt autonomous during the teaching process (Colak et al., 2017) and they did not believe the teacher's guidebooks interfere with their autonomy (Gur, 2014, Sari, 2018).

In his study based on teachers' views, Gur (2014) revealed that most of the teachers did not believe the teacher's guidebooks limited their professional autonomy. The information and explanations in the teacher's guidebooks were followed by the teachers. However, they were not being followed completely. The participating teachers in this study also read the explanations and suggestions in the teacher's guidebooks, applied some of them according to the needs of their own classes, and did not apply the rest. A study conducted with Turkish Language teachers determined that all of the participating teachers referred to the teacher's guidebooks, but some of the teachers used the teacher's guidebooks more and some used less (Gocer, 2011). It can be said that using the teacher's guidebooks extensively and performing the teacher role given in these books without questioning is against teacher autonomy, but looking at the information and explanations in these books for advice is not against teacher autonomy.

Teachers have positive attitudes towards teacher's guidebooks as well as some negative attitudes. The majority of teachers participating in this study expressed that the teacher's guidebooks were overly detailed, contained excessive direction, and that the activities and instructions were generally similar, and some of them were not applicable. These findings are in parallel with the results of previous studies (Akkocaoglu, 2009; Ilik, 2011; Sert, 2012). The literature argued that activities and instructions are included in the teacher's guidebooks in similar forms in every theme and text (Uysal, 2012), that teacher's guidebooks did not give enough chance to the teacher

to choose, stretch or change the activities, and that some of the activities are not appropriate for the opportunities the students have living in small residential areas (Akkocaoglu, 2009; Sert, 2012). All these negative criticisms actually show that the teacher's guidebooks limit teacher autonomy in some aspects.

Although the teachers participating in the current study directed various criticisms towards the teacher's guidebooks, majority of them stated that they needed a teacher's guidebooks within the last year. Teachers mentioned that they needed teacher's guidebooks especially in terms of lesson plans, instructions, activities and method variety. Since the teachers in Turkey use the ready-made teaching methods and techniques found in the curricula and teacher's guidebooks, they are at-risk of not having the need to improve themselves in terms of new methods, techniques and methods (Mavis Sevim et al., 2017). In this context, it can be argued that teacher's guidebooks are in the way for teachers to research different methods, activities and practices, and to develop various innovations in line with the needs of their classes.

Almost all of the teachers who participated in the study stated that the teacher's guidebooks should be reprinted in the near future. The findings of the studies conducted after the removal of the teacher's guidebooks from the curriculum (Sugumlu et al., 2019; Yurtbakan & Ozsevgec, 2019) support the findings of the current study. According to the result of a recent study on the necessity of teacher's guidebooks, the majority of classroom teachers (81.05%) said that they were necessary (Yurtbakan & Ozsevgec, 2019). As a result of a study conducted with Turkish Language teachers, reusing middle school teacher's Turkish Language guidebooks came to the fore (Sugumlu et al., 2019). When all these findings are evaluated together, it can be said that although the teachers criticize the teacher's guidebooks, they adopted them significantly and want to use them again. This can be interpreted as the teachers want to continue using the teacher's guidebooks since they have various deficiencies and inadequacies in selecting methods and techniques, designing different activities, planning and implementing lessons.

It can be thought that teacher's guidebooks were removed by the MoNE in order to increase teacher autonomy and encourage teachers to be more creative in their lessons. With the removal of the teacher's guidebooks, teachers were expected to make daily lesson plans according to the needs of their classes, to search for methods and materials appropriate to the level of their students and use them. However, based on the views expressed by the teachers in this study, it can be said that very few teachers acted in accordance with this goal. Teachers should be individuals who can learn, solve problems and conduct research on their own in order to obtain the expected benefit from removing the teacher's guidebooks and increasing teacher autonomy (Yavuz, 2016). The following recommendations can be made considering teachers' habits of following the teacher's guidebooks, and the need for them to do research on subjects related to teaching process and for them to be professionals who can act autonomously. First, the practice of teacher's guidebooks should continue with some changes. Teacher's guidebooks should be developed flexibly, and should be designed as a reference work that can give new ideas to teachers, away from the supervision of inspectors and administrative management. The teacher's guidebooks should not be thought of as a strict program that should be followed by the teachers. On the contrary, they should be designed as a help book giving teachers new ideas and offering various suggestions. Second, instead of providing repeated activities with each text and unit or offering explanations about how to do even the simplest activities, teacher's guidebooks should include examples that will offer creative ideas to teachers, explanations on how to implement the lesson objectives within the framework of the conditions specific to schools, regions and classes, and suggestions to increase teacher autonomy. Third, it can be said that teachers should increase their professional knowledge, improve their research and learning skills, and follow scientific developments in their fields in order to better display autonomous behaviors during the teaching process (Colak et al., 2017). Finally, in future studies, teacher practices after the removal of the teacher's guidebooks can be examined with longitudinal studies, and the positive and negative aspects of this removal can be examined in more depth.

4.1. Limitation of the Study

One of the limitations of this study is that teachers' views on teacher's guidebooks were determined solely based on the views of Turkish Language teachers. Since the contents of the teacher's guidebooks for different courses may differ significantly from each other, the study focused only on one course's teacher's edition in order to

obtain more in-depth information. For this reason, in order to obtain more generalizable results in future studies, the views of teachers from different branches on teacher's guidebooks can be examined in quantitative or mixed design studies with the help of questionnaires and scales.

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Effects of Drama Method on the Decision-Making Skills of Primary School Students

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Abstract

The purpose of this study is to determine the effects of courses that integrate drama method in primary schools on the decision-making skills of students. In line with this purpose in present study pretest-posttest control grouped experimental research pattern has been employed. The study was conducted in Cahit Sıtkı Tarancı Primary School located within Ergani district in the city of Diyarbakır. Population of the research consisted of classes 4/C (control group) and 4/D (experimental group) in the particular school. Experimental group received drama activities for a period of 8 weeks whilst control group received no drama activities. To the end of measuring students' decision-making skills, "Decision-making Skills Assessment Scale (DMSAS)" developed by Karakaş (1999) was employed. For the aim of analyzing the difference between pretest scores of the groups, dependent groups t-test and lastly in order to detect the difference between posttest scores of groups "Covariance Analysis" was implemented. At the end of conducted study, no significant difference could be identified between scores of experimental and control groups. It has thus been concluded that implemented drama activities triggered no statistically significant difference in the decision-making skills of the participants.

Keywords: Drama Activities, Decision Making, Skills

1. Introduction

An individual who constantly interacts with his/her surrounding is engaged in a decision-making behavior while correspondingly maintaining his/her attempts to fulfill personal needs. Decision making is far from being a simple skill for any individual. When the issue is related to solving a problem in particular, decision-making process can much easily lead people to even a further complex and unmanageable state. Decision-making skills involve a range of concepts such as socialization of the person, interpersonal communication and sense of self, which collectively play vital role in decision-making skills. By the same token drama activities demonstrate the kind of features that support and develop the identical concepts. It has thus been suggested that implementation of drama in the acquisition of decision-making and problem-solving skills can prove to be substantially effective on individuals.

In our daily life it is feasible to frequently come across ambiguous cases in which respondents are expected to make sound decisions. The cases that necessitate a decision-making behavior introduce alongside making future predictions, opting for the best between two or more alternatives or reasoning based on limited knowledge (Kökdemir, 2003).

Taking into account the recent developments in the field of education it can be posited that “drama in education” is indeed one of the vital and rising components in both national and international educational system. Driven from this argument it is reasonable to claim that “drama in education” that can provide students certain experiences which can be reflected in their daily lives can be implemented as an effective method to acquire decision-making skills as one of daily life skills. That is due to the fact based on group processes that drama inherently is a teaching technique that deals with the features and behaviors aiding the child to socialize while simultaneously analyzing interpersonal experiences via role play (Çakmakçı, 2009).

Educational experiences of human beings are directly influential on their decision-making and problem-solving skills. Only effective educational environments can aptly provide such educational experiences. The changes conducted in educational environments will play effective role in either positive or negative development of individuals’ problem-solving and decision-making skills. One the changes to foster in educational environments is effective implementation of drama and drama activities in such environments.

Drama in education method, on the basis of kids’ games and replicate activities, makes use of theatre or drama techniques viz. monitoring, improvisation, role play and dramatization within a group work and via acting out various events from real life, reacting and reanalyzing real life events and attempting to gain insights and learning through such life events. Drama is a life philosophy. It is furthermore an educational method that fosters multidimensional development by teaching how to empathize, how to be an active learner in educational life, how to express oneself better, how to be creative, how to perceive life from several dimensions, how to be more motivated and willing to research and gain further insights in educational life (Güneysu, 1991).

A long list of studies indicate that an average person is capable of learning and reminiscing 20% of what is heard; learning and reminiscing 30% of what is seen; learning and reminiscing 50% of what is heard and seen; learning and reminiscing 90% of what is heard, seen, analyzed and experimentally acquired. This finding translates to the fact that an effective learning environment requires to be the kind of environment in which appropriate stimulants are transmitted to the eyes, ears and all accompanying sensory organs (Barutçugil, 2002). The kind of environment in which drama in education method is applied can be seen as the major environment summing the preconditions above. In brief, implementation of such environments can, via motivating individuals to employ multiple sensory organs, enable a further effective learning experience.

Drama, based on all the features listed hereinabove, can be defined as an effective and appropriate educational method in the light of all the arguments in favor of modern education. In all educational activities related to children and adults alike this particular method is an influential and applicable technique in the transfer, process and assessment of all contexts. Drama method in which all participants are equally valued and cared; in which personal experiences are utilized in educational process and in which there is a learner-centered approach involves in itself a humanitarian character. One essential feature of drama is that regardless of the nature of the topic, it naturally creates a democratic and participatory environment while treating the topic. In such an environment participants socialize and their self-confidence and confidence towards others escalate. With all due benefits drama should decisively be integrated into all educational curriculums (Karadağ, 2012).

Decision-making is a mental process and one of the pivotal life skills. Decision-making is unique to human beings endowed with a mind, reason, awareness and self-will. All human actions and decisions pertain to a decision-making process, be it consciously or unconsciously. Throughout daily life one has to experience a number of situations in which there emerges a necessity to make decisions. Once these decisions have negligible significance on human life, people most of the times are likely to make random decisions without any in-depth contemplation. Nevertheless, there are certain decisions such as deciding about the school and profession or life partner that could potentially have substantial effects on human life; thus such decisions necessitate an extensive

contemplation. As a reflection of the latest technological, economic and political changes social experiences have also been diversified and one's options in social surrounding are getting multiplied and complicated. This in effect makes it hard for an individual to process decision-making and enforces people to spend greater lengths of time on the available options before reaching a final decision (Hamamcı and Çoban, 2007).

Decision-making process commences with the emergence of a problem, presence of multiple solutions for the emergent problem and an ambiguous condition related to selecting one appropriate solution way. Making an effort to identify or solve the emergent problem is both the hardest and foremost stage within problem-solving process (Goloğlu, 2009). Decision-making skills, however, equal to one's ability to effectively employ his/her inherent talents, experiences and manners in an attempt to solve the problems (Arın, 2006).

The decisions one takes throughout life play highly effective role in ensuring that the person rises as a successful, sound and fully-qualified and responsible citizen. The more appropriate and effective decisions are, the easier it becomes to attain the desired objectives since there exists an intricate connection between decision-making competency and personal success. On that account it is a must to gain effective decision-making skills to human beings starting from the very first years of life. Schools and families play critical role in the acquisition of such skills (Goloğlu, 2009).

As stated by Yüksel (2003) decision-making skills should be developed at early ages in all children and should be put into practice during school years. Consequently, when at school students should, via courses and miscellaneous activities, experience and refine their decision-making practices.

Baysal (2009) argues that decision making relates to identifying the existing alternatives by applying certain criteria and selecting one among the multiple alternatives. Effective decision-making skills are inextricably intertwined with creative and critical thinking skills. Creative thinking is required in generating the alternatives needed for making a selection in decision-making process whilst critical thinking is required in the assessment of existing alternatives. Improving decision-making skills should be the preliminary objective while teaching social topics. In line with that objective, implementing decision-making models in any given classroom setting can develop decision-making skills of students since it is of great importance to foster problem solving, decision making, critical and creative thinking skills that might potentially be utilized in daily life.

1.1. Purpose

The purpose of present study is to determine the effects of drama activities implemented among primary school 4th graders on their decision-making skills.

2. Method

2.1. Research Model

In this research, experimental research models were utilized. Experimental research models are the models in which, to the end of identifying cause-effect relations, the data that are aimed to be observed are generated under the direct supervision of researcher (Karasar, 2013, p.87).

The research was conducted according to pretest-posttest control grouped experimental pattern. In pretest-posttest control grouped experimental pattern there are two groups formed via unbiased selection. One group is identified as experimental group while the other one is identified as control group. In both groups measurements are computed before and after the test.

Symbolic image and signifiers of these symbols in any pretest- posttest control grouped model are as seen in the figure below (Karasar, 2013, p.97).

G₁	R	O_{1,1}	X	O_{1,2}
G₂	R	O_{2,1}		O_{2,2}

G₁: Experimental group **G₂**: Control group **O**: Measurement Tools (test scores, dependent variable)

X: Independent Variable (Drama Activities) **R**: Unbiased formation of groups

Figure 2.1: Pretest-posttest control grouped experimental pattern

In this pattern employed for this research a comparison is made between experimental group and control group. First subject groups were identified. Next the groups were randomly assigned as experimental and control groups. Before the experimental “Decision-making skills Assessment Scale” (DMSAS) was applied as a pretest to both groups. Drama activities were implemented among experimental group 2 class hours average in a week for a period of 8 weeks. At the end of this implementation the scale was applied as the posttest to both groups.

2.2. Population

For the purposes of this study Cahit Sıtkı Tarancı Primary School located in Ergani district within Diyarbakır city was selected. Population of the research consisted of a total of 54 students in class 4/C (27 students) and class 4/D (27 students). Class 4/C was assigned as the control group and class 4/D as the experimental group (classroom in which drama activities were implemented). Of all the participating students 21 were female and 33 were male pupils. Distribution of participant students is as displayed in Table 2.1.

Table 2.1: Distribution of Participant Students with respect to Gender and Experimental & Control Groups

	Female		Male		Total	
	N	%	N	%	N	%
Experimental group	10	37	17	63	27	100
Control group	11	41	16	59	27	100

2.3. Data, Data Collection Tool and Analysis

To collect data in the research “Decision-making Skills Assessment Scale” (DMSAS) developed by Karakaş (1999) was utilized. The scale was, upon consulting to experts' views, implemented as pretest and posttest. Pretest was conducted in the second week of February with a total of 54 students 27 of whom belonged to experimental and 27 of whom belonged to control group. In the aftermath of an eight-week long implementation process the same scale was implemented among the same student groups as the posttest.

Originally developed by Karakaş (1999), “Decision-making Skills Assessment Scale” (DMSAS) was also utilized by Çakmakçı (2009). In this scale there are collectively 17 items distributed amongst 4 subdimensions. In “dependent decision making” subdimension there are 6 items; in “decision making based on personal wishes” subdimension there are 5 items; in “independent decision making” subdimension there are 4 items and in “decision making based on personal talents” subdimension, there are 2 items.

The scale consists of 17 statements distributed as positive and negative in order to measure decision-making skills. In the scale there are 10 positive statements and 7 negative statements. The scale is 4 Likert type formatted. Responses of students are categorized as; Never (1), Rarely (2), Mostly (3) and Always (4). In scoring stage, negative statements were measured via reverse coding. The highest score to receive from the test is 68, and the lowest score is 17. The reliability of scale was tested via Cronbach Alpha Analysis and Alpha coefficient was measured as “.70”.

Data collected from this study was analyzed by utilizing SPSS 21 (Statistical Package for the Social Science) software. In order to determine which tests to employ in the analyses, normality hypotheses were tested. To identify whether collected data exhibited normal distribution, Shapiro-Wilk Test was implemented for each single scale according to pretest and posttest results of the control and experimental groups.

The results related to the normality of distribution obtained from the pretest of Decision-making Skills Assessment Scale (DMSAS) are as demonstrated in Table 2.2.

Table 2.2: Results of Shapiro-Wilk Test related to the Normality of DMSAS Pretest Distribution

Dimensions	Group	Shapiro-Wilk		
		Statistics	sd	p
Dependent Decision making	Control	.966	27	.509
	Experimental	.980	27	.857
Decision making based on personal wishes	Control	.963	27	.440
	Experimental	.908	27	.210
Independent Decision making	Control	.949	27	.204
	Experimental	.905	27	.180
Decision making based on personal talents	Control	.896	27	.110
	Experimental	.920	27	.400
Total	Control	.964	27	.459
	Experimental	.987	27	.978

Sd: degree of freedom

p. Lilliefors significance correction

As seen in Table 2.2, significance values demonstrate that for each dimension of the scale, pretest distribution meets normality hypothesis ($p > 0,05$). Results related to the normality of distribution obtained from the posttest of Decision-making Skills Assessment Scale are as displayed in Table 2.3.

Table 2.3: Results of Shapiro-Wilk Test Related to the Normality of DMSAS Posttest Distribution

Dimensions	Group	Shapiro-Wilk		
		Statistics	sd	p
Dependent Decision making	Control	.950	27	.217
	Experimental	.931	27	.073
Decision making based on personal wishes	Control	.936	27	.098
	Experimental	.919	27	.360
Independent Decision making	Control	.955	27	.288
	Experimental	.887	27	.070
Decision making based on personal talents	Control	.939	27	.116
	Experimental	.901	27	.140
Total	Control	.971	27	.621
	Experimental	.975	27	.737

As the significance values displayed in Table 2.3 are examined it becomes feasible to argue that posttest distribution's normality hypothesis was met for each single dimension of the scale ($p > 0,05$).

For the aim of examining the difference in the pretest scores between control and experimental groups, t-test for independent groups was employed. t-test for independent groups is used to contrast the values that both groups receive from a continuous variable (Pallant, 2005).

So as to analyze the difference between pretest and posttest scores of control and experimental groups, dependent groups t-test was used. t test for dependent groups is utilized to compare the scores received by the group in two different measurements (Pallant, 2005).

In order to analyze whether a significant difference existed between posttest scores of control and experimental groups, Covariance Analysis (ANCOVA) was utilized. In pretest- posttest control grouped patterns the variance triggered by external variables on dependent variable can strengthen the power of test via being statistically controlled by ANCOVA (Büyüköztürk, 2011).

Likewise, in this study pretest scores were kept under control while the difference between posttest scores of control and experimental groups were being examined. The significance of statistical results was analyzed on $p < 0,05$ level.

3. Findings and Remarks

In order to identify whether a significant difference existed with respect to subdimensions of Decision-making Skills Assessment Scale and total scores between experimental group in which drama activities were implemented and control group in which current curriculum was implemented, independent groups t-test was conducted prior to the implementation and obtained findings are as displayed in the tables below.

Table 3.1: Pretest Mean Scores relevant of “DMSAS” Subdimensions between Experimental and Control Groups and Results of Independent Groups t-test

Subdimension	Group	n	X	Ss	sd	t	p
Dependent Decision making	Control	27	2.77	.55	52	1.421	.161
	Experimental	27	2.56	.57			
Decision making based on personal wishes	Control	27	2.82	.72	52	-1.985	.052
	Experimental	27	3.17	.59			
Independent Decision making	Control	27	3.14	.48	52	-1.141	.259
	Experimental	27	3.31	.59			
Decision making based on personal talents	Control	27	2.11	.93	52	-.163	.871
	Experimental	27	2.15	.72			
DMSAS Pretest Total	Control	27	2.80	.35	52	-.805	.424
	Experimental	27	2.87	.31			

Table 3.1 manifests that in all the subdimensions of DMSAS no statistically significant difference could be detected between control and experimental group students ($p > 0,05$). Accordingly, it is feasible to claim that prior to experimental procedures, perceptions related to DMSAS subdimensions were in identical levels among control and experimental group students.

In order to test the significance of the difference between pretest and posttest “total scores” of the DMSAS pertaining to control group, dependent groups t test was implemented and obtained findings are as displayed in Table 3.2.

Table 3.2: Dependent groups t-Test Results related to DMSAS Pretest and Posttest Total Scores of the Control group

Control group	N	X	Ss	sd	t	p
Pretest	27	2.79	.34	26	-.361	.721
Son Test	27	2.82	.28			

As manifested in Table 3.2 no statistically significant difference could be identified between DMSAS pretest and posttest total scores of control group students ($t_{(26)}=-.361$; $p>0,05$). It can thus be claimed that the education provided for control group students did not significantly affect “decision-making skills” of the students.

In order to test the significance of the difference between pretest and posttest “total scores” of the DMSAS pertaining to experimental group, dependent groups t test was implemented and obtained findings are as displayed in Table 3.3.

Table 3.3: Dependent groups t-Test Results related to DMSAS Pretest and Posttest Total Scores of the experimental group

Experimental group	N	X	Ss	sd	t	p
Pretest	27	2.87	.31	26	-.981	.336
Posttest	27	2.92	.38			

As manifested in Table 3.3, no statistically significant difference could be identified between DMSAS pretest and posttest total scores of experimental group students ($t_{(26)}=-.981$; $p>0,05$). It can thus be claimed that drama activities provided for experimental group students did not significantly affect “decision-making skills” of the students.

In order to identify whether a significant difference existed with respect to subdimensions of Decision-making Skills Assessment Scale and total scores between experimental group in which drama activities were implemented and control group in which current curriculum was implemented, Covariance Analysis (ANCOVA) was conducted after the implementation.

Table 3.4: Covariance Analysis Results related to “Dependent Decision making” Dimension between Posttests of Experimental and Control Groups

Origin of variance	Sum of squares	Sd	Mean of squares	F	p
Pretest	5.425	1	5.425	16.766	.000
Group	.483	1	.483	1.493	.227
Error	16.503	51	.324		
Total	421.250	54			

Table 3.5: Covariance Analysis Results related to “Decision making based on personal wishes” Dimension between Posttests of Experimental and Control Groups

Origin of variance	Sum of squares	Sd	Mean of squares	F	p
Pretest	11.988	1	11.988	45,792	.000
Group	.223	1	.223	,853	.360
Error	13.351	51	.262		
Total	529.720	54			

Table 3.6: Covariance Analysis Results related to “Independent Decision making” Dimension between Posttests of Experimental and Control Groups

Origin of variance	Sum of squares	Sd	Mean of squares	F	p
Pretest	6.154	1	6.154	23.195	.000
Group	.570	1	.570	2.148	.149
Error	13.531	51	.265		
Total	568.875	54			

Table 3.7: Covariance Analysis Results related to “Decision making based on personal talents” Dimension between Posttests of Experimental and Control Groups

Origin of variance	Sum of squares	Sd	Mean of squares	F	p
Pretest	2.122	1	2.122	3.011	.089
Group	.841	1	.841	1.194	.280
Error	35.952	51	.705		
Total	307.750	54			

Table 3.8: Covariance Analysis Results related to DMSAS Posttest Total Scores of Experimental and Control Groups

Origin of variance	Sum of squares	Sd	Mean of squares	F	p
Pretest	2.710	1	2.710	44.339	.000
Group	.043	1	.043	.701	.406
Error	3.118	51	.061		
Total	450.889	54			

As pretests were checked according to the tables no significant difference could be measured between all subdimensions and total scores of the DMSAS pertaining to control and experimental group students. ($F=,701$; $p>0,05$). Therefore, it is safe to argue that drama activities implemented among experimental group students, compared to control group students, did not create a significant effect on their decision-making skills.

4. Conclusion, Discussion and Suggestions

Scores that experimental and control groups received from DMSAS pretest and post tests were analyzed with respect to 4 dimensions termed as dependent decision making, decision making based on personal wishes, independent decision making, decision making based on personal talents and below listed findings were obtained.

As regards experimental group students' pretest-posttest scores related to "dependent decision making" dimension no significant difference could be identified ($p>,05$). By the same token control group students' pretest-posttest scores related to the same dimension also revealed no significant difference ($p>,05$).

As regards experimental group students' pretest-posttest scores related to "decision making based on personal wishes" dimension no significant difference could be identified ($p>,05$). By the same token control group students' pretest-posttest scores related to the same dimension also revealed no significant difference ($p>,05$).

As regards experimental group students' pretest-posttest scores related to "independent decision making" dimension no significant difference could be identified ($p>,05$). By the same token control group students' pretest-posttest scores related to the same dimension also revealed no significant difference ($p>,05$).

As regards experimental group students' pretest-posttest scores related to "decision making based on personal talents" dimension no significant difference could be identified ($p>,05$). By the same token control group students' pretest-posttest scores related to the same dimension also revealed no significant difference ($p>,05$).

As regards experimental group students' pretest-posttest scores related to DMSAS total scores no significant difference could be identified ($p>,05$). By the same token control group students' pretest-posttest scores related to the same dimension also revealed no significant difference ($p>,05$). While experimental group's pretest mean score was initially 2,87, posttest mean score increased to 2,92. While control group's pretest mean score was initially 2,79, posttest mean score increased to 2,82.

Conclusive findings obtained at the end of this research can be outlined as below:

Implemented drama activities failed to be significantly effective in developing students' decision-making skills in these four subdimensions (dependent decision making, decision making based on personal wishes, independent decision making, decision making based on personal talents). Nonetheless in the posttest scores a climb in favor of experimental group was measured.

As the results obtained from the scales implemented to assess decision-making skills were examined, no significant difference could be measured within pretest and posttest scores. All these conclusions suggest that this implementation triggered not any significant change in the perceptions of decision-making skills among both groups.

Nevertheless, in Çakmakçı's (2009) study titled as "Analyzing the Effects of Drama Course in Gaining Decision-making Skills to Primary Education 4th Graders" it was identified that the courses involving drama method positively affected students' decision-making skills.

Çakmakçı (2009), in this study, analyzed the effects of drama activities on decision-making skills of students with respect to variables such as gender, education level of parents, number of siblings, date of birth among siblings. As repeated measures were reassessed with the groups it was detected that scores experimental group students received from posttest were, compared to the scores experimental group students received from pretest, not significantly different between groups. Çakmakçı's research thus concluded that participating in any structured and unstructured drama program triggered a positive effect in developing students' decision-making skills. In addition, a significant difference was identified with respect to variables such as gender, education level of parents, number of siblings and date of birth among siblings.

Based on the findings obtained from our study, below listed suggestions can be shared.

1. In this study, Decision-making Skill Assessment Scale (DMSAS) was employed to analyze the effects of drama activities on decision-making skills. For the prospective studies related to the same topic, it is suggested to implement different scales or develop new scales to measure particular skills.
2. In this study 16 drama activities identified at the end of literature review conducted by the researcher were implemented during a period of 8 weeks. In the prospective studies the quantity and implementation period of drama activities are suggested to be increased.
3. Population is limited with 54 students from primary school 4th graders. In the prospective studies a variety of class levels could be integrated and the number of students within the population could be climbed.
4. It is also suggested to use a variety of data collection tools (interview, survey etc.) alongside with the scales implemented in the study.
5. In this study effects of drama activities on decision-making skills were analyzed with respect to the subdimensions within the utilized scale. For the prospective studies related to the same topic, it is suggested to use a range of variables (age, gender, education level of parents, socio-economic state etc.).
6. The research was conducted among primary school 4th graders. Effects of implemented drama activities on decision-making skills were attempted to be identified only via the scales applied on students. The truth is that in order to more accurately designate the change observed among students it is suggested to develop teacher-oriented surveys alongside with the scales oriented to students since teachers themselves are the individuals who can most accurately observe the changes witnessed among their students. This is also another suggestion for prospective studies.
7. To the end of disseminating the use of drama in school courses it is suggested to organize seminars for teachers and increase the quantity of in-service teacher training courses by MEB (Ministry of National Education). Another suggestion is to conduct attempts to change drama course, which is an elective course in Primary Education Curriculum, into a required course.

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Middle School Students' Problem Posing Processes

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Abstract

Problem posing has an important place in mathematics education curriculum in many countries. There are a few studies in the literature that reveal students' problem posing processes. The purpose of this research is to examine the problem posing processes of middle school students in geometry. The Research was carried out with 160 students who are in 5th-8th grades (aged 11-14). When the findings obtained in the study were examined, it was understood that the students followed some certain ways while posing problems, identified in the research. The processes followed by the students while they are posing problems are classified into 5 steps. It has been observed that the students do not go through all steps in problem posing processes; while some students use all of these steps, the others use some of them. The students are divided into four different types according to the way they used in their problem posing processes.

Keywords: Geometry, Middle School Students, Problem Posing

1. Introduction

Problem posing is a process of creating a new problem from a situation given to us or from an experience we have had. (NCTM, 2000). Silver (1994) explained problem posing as creating new problems and revising and revealing a problem in the problem solving process in order to understand the mathematical situation given in depth. In the definitions made about problem posing, it is emphasized that problem posing is a new problem generation process in accordance with the given situation.

Problem posing is closely related to problem solving skills and contributes to the development of problem solving skills. (Cai ve Hwang, 2002; Cankoy ve Darbaz, 2010; Silver ve Cai, 1996). Silver and Cai (1996: 522) stated that "As well as contributing to problem solving skills, the problem posing approach also draws attention to enabling to observe students' conceptual perceptions, attitudes, and ways of thinking. In addition to this, problem posing; a way to help students understand math and become autonomous learners". (In the meantime, the problem posing approach is a cognitive activity suitable for the constructivist approach. (Rosli, Mary, Goldsby, Gonzales, Onwuegbuzie and Capraro, 2015). In our country, Turkey, as in many countries in recent years, is forming education programs based on constructivist approach has included the problem posing in

mathematics education curriculum. Many researchers have said that problem posing is a key component in mathematics teaching programs such as problem solving, so problem posing should be at the center of mathematical activities. (Crespo, 2003; NCTM, 2000; Osana ve Pelczer, 2015). It is revealed in the literature that problem-posing activities carried out in the classroom environment affect students' learning positively and provide them a range of learning opportunities. (Crespo and Sinclair, 2008). For this reason, many researchers state that problem posing activities should be included in the classes. (Leung and Silver, 1997; Kılıç, 2013).

However, problem posing activities is included very little in mathematics teaching of students studying in middle school and students are rarely asked to create their own problems. Yaman and Dede (2005), stated that teachers do not want to bring problem posing into the classroom environment due to the limited time or the intensity of the curriculum. They also stated that problem posing activities would enable students to understand the problem itself rather than seeing their mistakes and solving the problem. English (1997a) stated that problem posing activities develop students' flexible and different thinking skills and help them understand concepts and processes. On the other hand, according to Kojima, Miwa and Matsui (2009), the individual who learns to pose problems can present different thoughts from their peers thanks to the different ways they have acquired. It is also obvious that problem posing is an activity that enables students to take responsibility in their own learning processes (Cunningham, 2004).

Since problem posing has a very important place in mathematics education, it is also very important how is the process the students go through while problem posing. Examining students' problem posing processes is important as it will reveal how students pursue cognitively in this process, what they do, and what difficulties they face. Because it is thought that the examination of the problem posing process will show us the invisible and reveal a wondered issue about problem posing.

In Turkey mathematics curriculum in geometry there are learning outcomes about problem posing as well as problem solving (MoNE, 2009). It is thought that having such learning outcomes in the curriculum will contribute to students' problem posing skills in geometry learning. (Geçici, 2018). It is stated that if students participate in problem solving and problem posing activities while learning geometry, they will see that geometry is more than just knowing definition, recognizing and classifying geometric shapes. (Geçici, 2018 quoted from Walter, 1980).

When the literature is examined, it is seen that, most of the problem-posing studies in mathematics education are gathered around certain topics such as problem posing ability (English, 1997a; Van Harpen and Presmeg, 2013; Ngah, Ismail, Tasir and Mohammad-Said, 2016), classification of the problems posed (Singer, Voica and Pelczer, 2017; Işık and Kar, 2015). There are also other studies about problem posing processes in the literature (Pelczer and Gamboa, 2009; Adelina and Fatma, 2018). However, it is seen that most of them are focused on algebra and number learning, and generally they are conducted with teachers and teacher candidates. On the other hand, it is seen that there are problem posing studies in geometry, but their number is few. These problem posing studies mostly done with dynamic geometry software (Christou, Mousoulides, Pittalis and Pitta-Pantazi, 2005; Fukuda and Kakihana, 2009; Abu-Elwan, 2011).

In the literature, there are not many studies in the field of geometry learning that cover all of the middle school class levels and reveal students' problem posing processes. So, the purpose of this research is to examine the problem posing processes of middle school students in geometry, which is one of the important part of mathematics curriculum. This study which is carried out for this purpose is thought to contribute to mathematics education.

2. Method

In this research, problem posing processes of the middle school students in geometry of establishing were examined. Accordingly, case study, one of the qualitative research methods, was used to reach the research purpose. (Büyüköztürk, Kılıç Çakmak, Akgün, Karadeniz and Demirel, 2017).

The research is done in a metropolis city of Turkey with 160 different students chosen from 14 different middle schools in grades 5, 6, 7 and 8 (aged between 11-14) whose success levels are low, middle and high. The selection of students with different academic success levels was made by using the marks of mathematics lessons of the previous year and the opinions of the mathematics teachers.

In order to collect data clinical interview and problem posing activities were used. During the clinical interview, the students questioned and observed while posing geometry problems.

In this study, "Problem Posing Activities" are created separately in accordance with the 5th, 6th, 7th and 8th grade levels (aged between 11-14) by taking into account the education program of middle school students' (MoNE, 2013; MoNE, 2018) on different geometry topics. In these activities, students were asked to pose problems in accordance with the given situations. Moreover, an interview form was prepared in order to have in-depth knowledge to reveal students' problem posing processes and problem posing strategies. In the implementation of the problem posing activity, students were given a time of two lessons. Problem posing activities were applied to some students individually, while others were applied as group work (3-4 students with different success levels). During the application of the problem posing activity, the students were asked not to use any eraser. It is stated to the students that they can write the new expression they want to write by drawing a single line on the expression they want to change. During the activity, students were free to solve or not to solve the problems they posed. After applying the forms, 123 of the students who participated in the research were interviewed.

In the research, content analysis was used to determine the processes of students' posing geometry problems. Firstly, the interview records transcribed and turned into a written document. The common answers given by the students, the behaviors they exhibit were grouped and certain codes were created. In the direction of these codes, the data collected in the research were examined entirely again and student responses were included in the suitable categories. Later, using these categories, problem posing processes were categorized and named. Finally, the data were analyzed in accordance with these named categories.

3. Results

In the research the problems posed by the students and the interviews with them about these problems were examined. It was revealed that the students followed certain steps in the problem posing process. The processes are divided into some categories. In the following part, these categories are identified by the light of the data.

At the beginning of the problem posing process, the students were seen that they were trying to find an answer to the questions of, "What is the situation given to me and what is the situation that is asked from me?" It was observed that the students first examined the problem posing situation in the activities given and tried to understand what they were asked to do. It was understood that the students completed this process after perceiving the given problem posing situation and the aim of the situation. This category is named as "**The Step of Understanding the Problem Posing Situation.**" Some students' interview transcripts are given below.

S₃₃: First I looked at what I was given in the problem, what it wanted from me, I decided what happened in case of problem posing, after understanding what was given ...

(5th Grade Student – Quote from interview)

S₁₃₉: I started by examining the shape, I examined the information given and tried to extract something from this information.

(8th Grade Student – Quote from interview)

S₁₁₈: While posing a problem, I first looked at the information given, I tried to understand the information, and then I tried to write a story according to this information.

(7th Grade Student – Quote from interview)

According to the data when the students understand the problem posing situation they started looking for an answer to the question "How will I write?". It was understood that the students looking for an answer to this question decided on the strategy they would use while posing a problem in this process. After the students had decided on the problem posing strategy, they completed this process. This category is named as "**The Step of Determining Problem Posing Strategy.**" Some students' interview transcripts are given below.

S₃: I thought how I could pose the problem, I dreamed of the event as if I was experiencing it. For example, in the garden question, I said Bengü as if I was in the problem myself.

(5th Grade Student – Quote from interview)

It is understood from the interview transcripts above that the student was imagining herself and used a strategy to pose the problem by imagining herself in the problem.

S₄₉: I thought how I could pose the problem. I tried to think of the problems that I saw in the lesson and the books generally. I tried to remember what was written and what were the numbers in the problems I had solved before.

(6th Grade Student – Quote from interview)

From the interview transcripts above, it is seen that the student tried to pose the problem by thinking of the problems he / she encountered before and created a strategy to pose a problem.

It is observed that the students who determined the strategy started to write the problem by using the problem posing strategy. This category is considered as "**The Step of Implementing the Strategy Determined.**" Some students' interview transcripts about this are given below.

S₄₄: I love writing stories, I write stories at home too. In my problems, I wrote stories about my daily life. I tried to make them similar to the problems I solved in class before.

(6th Grade Student – Quote from interview)

S₁₀₉: ... After deciding how to pose the problem, I started to write the problem scenario I remembered from past times and wrote the events that came to my mind from the lesson and test books

(7th Grade Student – Quote from interview)

S₁₃₅: If there is a shape, I first draw the shape and write the appropriate question accordingly. If there is no shape, I visualize a shape in my head and then I start writing the problem. I feel like it has to be a shape when posing geometry problems. For example, in the postponing question, I first I visualized the shape in my mind and after that started writing the event.

(8th Grade Student – Quote from interview)

On the other hand, it was confirmed that some of the students read the part of their problems they wrote over and over again during the problem posing process, and changed the numbers, names etc. they wrote in the problem. It is understood that some students made these changes randomly. In addition, some students made these changes after trying to solve the problems they established, if the numbers they gave did not have a solution or to make the calculations easier. This category is named as "**The Step of Editing-Fixing and Solving.**" Some students' interview transcripts about this are given below.

S₈: It can be solved. After writing the numbers, I tried to solve it to see whether it can be solved with the numbers I gave, if not, I changed the numbers, I had already tried to pose the problem with the corresponding solvable numbers while posing it.

(5th Grade Student – Quote from interview)

S₇₆: First, I give the numbers out of my head, then I pose the problem, if I can solve it myself, I leave it like that. If not, I change it. Finally, if I want to make it harder, I change the numbers

(6th Grade Student – Quote from interview)

S₁₀₀: I wrote the mathematical expressions in the problem by solving it with the numbers I had given so that the number I gave can be solved. If the problem is not solved with the numbers I gave, I change the numbers.

(7th Grade Student – Quote from interview)

It was seen that some of the students read and solved their problem after writing the problem completely, corrected the mistakes and / or deficiencies (words, numbers, etc.). It was understood that some the students did this to check the problem they had posed. For this reason, this category has been named as "**The Step of Assessment of the Problem.**" Some students' interview transcripts are given below.

S₂₆: Actually, I solved the problem after I had given the numbers. But after I pose the problem completely, I solved it again to check the problem.

(5th Grade Student – Quote from interview)

S₆₀: Yes, I tried to solve it. While posing the problem, I did the solution, then after the story was completely over, I solved it again for another check.

(6th Grade Student – Quote from interview)

S₁₁₈: Yes, have solved it. I think it can be solved. After finishing the question, I solved it and also tried it after giving the numbers. But when I was solving it for the last time, I solved it to check my problem. If there was nothing wrong, I continued to another problem posing activity.

(7th Grade Student – Quote from interview)

In the summary, it is possible to give the steps to pose problems as follows.

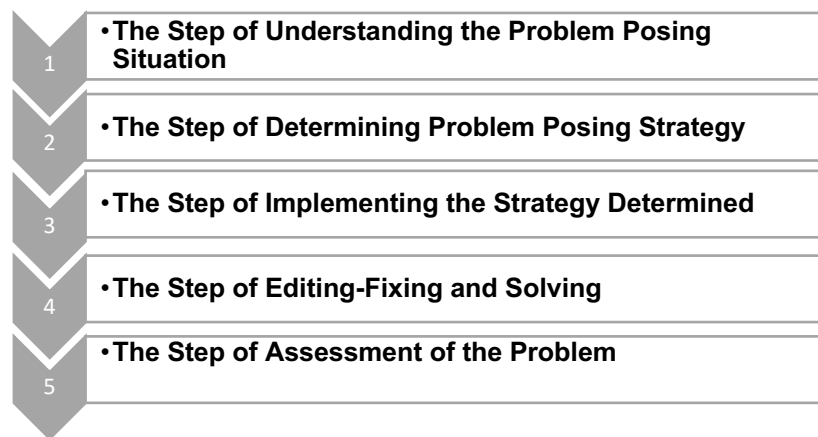


Figure 1: The steps of problem posing

The way students use the steps specified in the problem posing process varies according to whether they use some steps or not. According to the problem posing processes, it can be divided students into four types in the most general sense. It can be seen in Table 1.

Table 1: *The Student Types Which Steps They Used*

The Steps of Problem Posing	Type 1	Type 2	Type 3	Type 4
The Step of Understanding the Problem Posing Situation	✓	✓	✓	✓
The Step of Determining the Problem Posing Strategy	✓	✓	✓	✓
The Step of Implementing the Strategy Determined	✓	✓	✓	✓
The Step of Editing-Fixing and Solving	✓		✓	
The Step of Assessment of the Problem	✓			✓

There are students who use all the problem posing steps (1-2-3-4-5) as well as students who do not use some steps in the problem posing process. All of the students used the first three steps of problem posing. After these

three steps, some of the students' problem posing process ended (1-2-3). Some students have also used the step of **editing-fixing and solving** (1-2-3-4) after the first three steps to complete the problem posing process. Some of them completed the problem they posed after the step of **implementing the strategy determined** and then passed directly to the **assessment of the problem** step (1-2-3-5). This results in differences in students' problem posing processes. In the most general sense, the quotation of a student (Coded S₁₁₈ - 7th Grade Student) who used all problem posing steps and the problem that the student posed are given below.

A: What kind of a path did you follow when you posed a problem?

S₁₁₈: While I was posing the problem, I first looked at the information given, I tried to understand the information, and then I tried to write a story according to this information.

A: What did you think when posing a problem? What was in your mind?

S₁₁₈: The first thing that comes to my mind comes is the given situation's place in daily life. In addition to this, I tried to remember the problems that I had solved in the lesson in the test books so that I could make my problem similar to them while posing it.

A: What did you do after you decided how to write the problem?

S₁₁₈: My job gets easier when I bring back the questions I had solved before or the given situation's equivalent daily life. While writing the problem, I wrote things from daily life, for example, I wrote my brother in basketball question, because he likes basketball. And I made one of the problems similar to a problem that our Maths teacher solved.

A: How did you decide on the mathematical expressions in the problem?

S₁₁₈: First I give the numbers randomly, then I try to solve the problem if the result is not odd, the number remains, but if the result is odd or the problem cannot be solved, I change the number.

A: Do you think the problem you wrote can be solved? Did you try to solve the problem?

S₁₁₈: Yes, I did. I think it can be solved. After finishing the question, I solved it and also tried it after giving the numbers, but when it was finished, I finally solved it to check my problem.

*The student states that before posing the problem, first, he tried to understand what was given by reading. This shows that the student starts writing problems with **the Step of Understanding the Problem Posing Situation**.*

*After the student understands what is given in problem posing situation, he states that he tries to find the equivalent of those given in the daily life and / or tries to compare them to the problems he has encountered before. This shows that the student is in **the Step of Determining the Problem Posing Strategy**.*

*After the student determined the problem posing strategy, it was understood from his answers that he put the strategy into practice and started to pose the problem so he is in **the Step of Implementing the Strategy Determined***

*The student stated that he gave the numbers randomly while posing his problem and then changed these numbers if these numbers were not suitable (if they are not solved, the result is not an exact number etc.). This shows that the student is in **the Step of Editing-Fixing and Solving**.*

*The student expresses that after posing the problem completely, he / she solves it in order to check the problem, which indicates that the student has ended the problem posing process with **The Step of Assessment of the Problem**.*

Fatma has made a equilateral quadrangle shaped kite. She wants to decorate its perimeter with sequin. When $|AE|=4$ cm, $|BE|=3$ cm, how long is its perimeter?



$$|AE| = 4$$

$$|BE| = 3$$

$$AB = x$$

$$x^2 = 3^2 + 4^2$$

$$x^2 = 9 + 16$$

$$\sqrt{x^2} = \sqrt{25}$$

$$x = 5$$

Find (ABCD) equilateral quadrangle's perimeter?

Pose a problem by completing this sentence. (While writing the problem, you can either use or not use the shape.)

$$\begin{array}{r} x \quad 4 \\ \hline 16 \end{array} \quad \begin{array}{r} 9 \\ \hline 16 \\ \hline 25 \end{array}$$

Figure 2: A Problem Posed by Student

When the interview with the student and the responses of the student in the problem-posing activity are examined, it is seen that the student starts problem posing with **the Step of Understanding the Problem Posing Situation** first. Later, the student stated that "he tries to find equivalent of the given situation in his daily life and/or tries to compare it to the problems he has encountered before." This indicates that the student has passed to **the Step of Determining the Problem Posing Strategy**. Then, when the student's response to problem posing activity (Figure 2) is examined, it is seen that the student started to set up the problem in accordance with the problem posing strategy, that means he is in **the Step of Implementing the Strategy Determined**. After this step, it is understood that the student is editing the data in the problem while posing the problem from the statements written in the problem posing activity of the student ($x^2 = 3^2 + 4^2$, $x^2 = 25$, $x = 5$); and the student gives the numbers randomly while posing the problem, if it is not suitable (if it cannot be solved, or the number is fractional etc.) he changes the numbers. This shows that the student is in **the Step of Editing-Fixing and Solving**. Finally, it is seen that the student solves the problem he posed. This shows that the student is in **the Step of Assessment of the Problem**.

4. Discussion and Conclusion

When the findings obtained in the study were examined, it was understood that the students followed certain steps while posing a problem. The processes that students experienced while posing problems were classified and divided into 5 steps. These are; The Step of Understanding the Problem Posing Situation, The Step of Determining the Problem Posing Strategy, The Step of Implementing the Strategy Determined, the Step of Editing-Fixing and Solving and The Step of Assessment of the Problem.

These steps partially coincide with the work of Brown and Walter (2005). It is stated in the study that, problem solving is progressed systematically and with the steps of Starting Point Identification, Listing Qualifications, What If Not? Strategy, Problem Posing and Problem Analysis. In this context, the Step of Understanding the Problem Situation in our study coincides with the descriptions of the Starting Point Identification and Listing Qualifications steps, which are given as the first two steps of problem posing and includes both steps. The problem posing step which is named as The step of Assessment of the Problem in this study, coincides with the Evaluation Level. It is pointed out for both of these steps that, they are in the last stage of problem posing process and their purpose is to check the problem.

In addition, it was understood in the study that students differed according to the way they used the problem posing steps mentioned above while posing problems. It is understood that some students use all of the problem posing steps in the problem posing process, while some students use some of these steps.

The reason why students' problem posing processes differ can be that the students who are experienced in problem posing can use transformations and follow the cyclic way while novice students have a simpler problem posing process (Pelczer and Gamboa, 2009). The students participated in this research are divided into four different types of students according to the way they use the problem posing steps.

If we take the steps of problem posing in general terms; In the processes of geometry problem posing of all students, the steps of Understanding the Problem Posing Status, Determining the Problem Posing Strategy and Implementing the Strategy Determined are included. The problem posing processes of the students differ according to whether not using any of the Steps of the Editing-Fixing, Solving and Assessment of the Problem, or using only the Step of Editing-Fixing. Solving, using only the Step of Assessment of the problem, or using both. In a study conducted in the field of algebra learning with middle school students (Ekici, 2016), students were divided into 5 different types according to their problem posing processes. Even the names of these steps are not the same, there are some similarities between these student types and the student types included in our study, according to the descriptions of the steps and the order of the students using these steps.

When students' geometry problem posing processes are considered, it is seen that students go through certain problem posing steps in problem posing processes, while some students use all of these steps others use just some of these steps. Students are divided into four different types according to the way they use these steps in their problem posing processes. Understanding the Problem Posing Situation, Determining the Problem posing Strategy and Implementing the Strategy Determined, are the steps which are used by all students during the problem posing process. This shows that the problem-posing process progresses systematically and in the same way up to a certain step for all of the students as in Brown & Walter, (2005)'s research, then some of the steps differentiate in our research.

It has been observed that students using all problem posing steps can write more valid problems compared to other students. But, there are also some students who do not write valid problems even though they use all problem posing steps Based on the data students who did not use the step of Editing-Fixing, Solving from the problem posing steps wrote problems that could not be solved mathematically. In addition, it students using the Step of Assessment of the Problem and therefore solving the problems that they created, made it possible for them to pose mathematically more valid.

Based on the results obtained in the research, the following suggestions were made.

- The fact that students having information about the problem-posing process can enable students to pose more qualified problems by going through the problem-posing steps. For this reason, it is recommended to inform students about the problem posing process and to carry out sample problem posing activities based on this information. If teachers involve problem-posing activities in the classroom in parallel with the problem-posing process, the activities can be more efficient.
- Teachers having knowledge of problem posing process can enable them to create correct and effective problems.
- If teachers involve problem posing activities in the classroom environments in parallel with the problem posing process, the activities can be more efficient.
- This research, which reveals the processes of establishing geometry problems for middle school students, can be carried out with primary school students, high school students, teacher candidates and teachers, and the number of studies on the problem posing process can be increased. In this way, more in-depth and detailed information about the problem posing process can be provided.
- In this study, the factors affecting the middle school students' process of establishing geometry problems were not examined. In other studies, to be carried out in this context, it is recommended to examine

middle school students' problem posing processes in terms of different variables such as the socioeconomic structure, gender, level of success, etc.

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The Development of Scientific Discussion-oriented Activities to Remove the Misconceptions: The Unit of 'Change of Matter'

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Abstract

This study, whose purpose is to examine the effect of scientific discussion-oriented activities on eliminating misconceptions in the 'Change of Matter' unit, has been designed in accordance with the action research method. Action research is a research approach that is carried out by practitioners alone or with a researcher to understand and resolve the problems that arise in practice, combines research and practice, and facilitates the transfer of research results into practice. In this context, the test developed, two tier diagnostic test, before the application started was applied to the students as a pre-test, then activities developed based on scientific discussion were applied in a total of 18 lesson hours, and reflective diaries were kept in the students during this process. After the application process, the same test was applied as a posttest. In addition, semi-structured interviews were conducted with the students at the end of the application. In these interviews, students were asked 5 questions to determine their misconceptions and 2 questions to determine their opinions about the application process. The sample of the study consists of 26 5th grade students. At the end of the study, it was determined that the science lesson which is taught with scientific discussion activities were effective in eliminating misconceptions, understanding the lesson better and enjoying group work.

Keywords: Misconception, Scientific Discussion Activities, Change of Matter

1. Introduction

1.1 Introduce the Problem

"In what period of life does an individual encounter the nature of science and science?" It is difficult to answer the question. Because science is a field, we will encounter in every period of our life. For example, weather events, the formation of the rainbow, cloning, recycling, fermentation, rancidity and degradation events, electric

shocks or salt spilling on the roads in snowy and icy weather are within the field of science. In our country, science education begins formally with the science lesson in the third grade of primary education and the science lesson in secondary education; it is divided into fields such as physics, chemistry and biology. In this respect, science lesson in primary education; it forms the basis of physics, chemistry and biology courses. In this context, providing individuals with an effective science education at an early age is important for their success in later science lessons. The purpose of the Science Curriculum is defined as "To train all students as science literate individuals" by MEB (2018). Expected from education processes; It is the training of individuals who can think logically, have problem solving skills, do not accept the situation as it is when faced with any situation, question it and think critically (Domaç, 2011).

In the Science Curriculum, a holistic perspective has been adopted in terms of learning-teaching theories and practices, and a learning strategy based on inquiry and knowledge transfer, which is generally responsible for the student's own learning, ensures active participation in the learning process, is taken as basis. In the learning-teaching process, while the teacher assumes the roles of encouraging and guiding, the student undertakes the role of an individual who researches, questions, explains, discusses and transforms the source of information into a product. (MEB, 2018). Effective science education is provided by providing these gains to students. However, existing or potential misconceptions in students may prevent meaningful learning and effective science education. As students learn new information, they build on previous knowledge. In the process of learning the new concept, incorrect information may be in line with the student's logic and previous knowledge, and at the same time, the student may not know that his actions are not scientifically valid (Yağbasan & Gülçiçek, 2003). In this case, misconceptions develop in the student. Karakuyu et al. (2007) defines misconceptions as information that is against the scientific facts formed because of personal experiences and prevents the teaching and learning of concepts that have been proven by science.

Misconceptions are a distressing situation in science education for both the teacher and the learner (Aydoğan et al., 2003; Bayrakçı, 2007). According to Sarı Ay and Aydoğdu (2015), misconceptions affect student success negatively. It prevents the provision of a permanent science education and at the same time, individuals have difficulty in adapting the information they have learned in science lessons to their daily lives. In this context, trying to overcome misconceptions is a necessity. Many studies have been added to the literature on the detection and elimination of misconceptions students have in science education (Sarı Ay & Aydoğdu, 2015; Demircioğlu et al., 2004; Güneş et al., 2010; Tekkaya et al., 2000; Coştu et al., 2003; Pabuçcu & Geban, 2006). Studies aimed at eliminating misconceptions show that the traditional teaching method is inadequate in eliminating students' misconceptions (Yıldırım et al., 2007; Köse, 2007; Sarı Ay & Aydoğdu, 2015).

MEB (2018) has based on the research and inquiry-based learning approach in the science curriculum. According to this approach, the student is active in the planning and implementation of the lesson and the teacher is the guide. "Learning process; It covers exploring, questioning, argumentation and product design. In addition, it is expected that opportunities that enable students to develop their communication and creative thinking skills by expressing themselves in written, oral and visual forms are expected to be presented to students. In order for students to express their opinions comfortably, to support their opinions on different grounds, and to develop opposite arguments in order to refute the claims of their friends, environments where they can discuss the benefit-harm relationship for scientific facts should be provided. Teachers play a guiding role in discussions where students present their claims based on valid data for justified reasons" (MEB, 2018).

One of the methods to be used in science education in order to achieve the objectives stated above is the teaching method based on scientific discussion. In studies conducted in our country; It has been determined that the scientific discussion-oriented teaching method increases student achievement, participates actively in the learning process, is a cultivated method for students to defend their own ideas by discussing with their peers, and is beneficial for students' socialization (Tümay & Köseoğlu, 2010; Demirbağ, 2011; Mixan, 2011; Yeşildağ Hasançelebi & Günel, 2013; Öğreten & Uluçınar Sağır, 2014; Çetin et al., 2014; Demirbağ & Günel, 2014; Ulu & Bayram, 2015).

Scientific discussion-oriented teaching method is an effective method in which students will question their knowledge by making scientific discussions with their peers, develop students' critical thinking skills and increase their conceptual learning (Özkara, 2011; Ceylan, 2012).

It is especially important to use scientific discussions in teaching chemistry concepts, where abstract concepts are predominant and microscopic events that cannot be observed with the naked eye are common. Students can make sense of these abstract, complex and obscure concepts in their mind diagrams through scientific discussions. The subject of change of matter and matter is one of them. Atoms, particles, molecules, physical and chemical changes are all interrelated and basic topics of chemistry. However, studies have reported that understanding these issues is difficult for students of all ages (Bayrakçı, 2007; Buluş Kırıkkaya & Güllü, 2008; Taşdemir & Demirbaş, 2010; Turgut & Gürbüz, 2011; Çelik & Çakır, 2015; Gülay & Tekbıyık, 2015) . However, it is seen that there are not many chemistry activities focused on scientific debate in the literature. Developing and presenting activities focused on scientific discussion will enable teachers to access ready-made materials and save time. Of course, the most important contribution of this process will enable the learning of abstract chemistry concepts in a meaningful way.

In this context, the purpose of the research is to develop scientific discussion-oriented (SDO) activities that include the concepts in the unit of 'Change of Matter' and to examine the effects of these activities on eliminating the misconceptions of the students in the unit. Considering that science learning environments can be created in which students participate actively in the science learning process, by doing-living, by questioning their own and other learners' ideas and by establishing logic relationships with the "Scientific Discussion-Focused Teaching Method," it is indeed very resistant to change. It is thought to be important in the process of overcoming misconceptions. Misconceptions negatively affect subsequent learning and reduce academic achievement. In this context, this study aimed at eliminating misconceptions is thought to be important.

2. Method

This study, whose purpose is to examine the effect of scientific discussion-oriented activities on eliminating misconceptions in the 'Change of Matter' unit, has been designed in accordance with the action research method. Action research is a research approach that is carried out by practitioners alone or with a researcher to understand and resolve the problems that arise in practice, combines research and practice, and facilitates the transfer of research results into practice (Yıldırım & Şimşek, 2013). In this context, it is thought that the action research method will be suitable for this study in order to ensure the active participation of the researcher in the process and to examine the research results in depth.

In this context, the test developed before the application started was applied to the students as a pre-test, then activities developed based on scientific discussion were applied in a total of 18 lesson hours, and reflective diaries were kept in the students during this process. After the application process, the same test was applied as a posttest. In addition, semi-structured interviews were conducted with the students at the end of the application. In these interviews, students were asked 5 questions to determine their misconceptions and 2 questions to determine their opinions about the application process.

2.1. Working group

In this study, an easily accessible situation sampling method was used for the researcher to better observe and manage the process, and the sample was chosen as 5th grade students of a public school in Çayeli district of Rize where the researcher worked. A student who only participated in the implementation process of the activities at certain intervals was not evaluated. In this context, the sample of the study consists of 26 5th grade students. The gender distribution of the sample is given in Table 1.

Table 1: Distribution of the selected sample by gender

Gender distribution of the sample	Female	Male
Number of students	12	14

2.2. Data Collection Tools

In the research, as data collection tools, the Misconception Test (MT), Semi-structured Interview and Reflective Diaries were used. Data collection tools used within the framework of the sub-problems of the research are given in Table 2.

Table 2: Data collection tools for the sub-problems of the research

Sub-Problems of the Research	Data Collection Tools		
	MT	Semi-Structured Interview	Reflective Diaries
What is the effect of scientific discussion-oriented activities on students' overcoming misconceptions in the 'Change of Matter' unit?	X	X	X
What are the opinions of the students about the process of using scientific discussion-oriented teaching method?		X	X

Considering the misconceptions in the literature about the unit of substance change, a two-stage MT consisting of 13 questions was created. The distribution of the questions in the test according to the subjects is given in Table 3.

Table 3: Distribution of the questions in the MT by subjects

Question No	Subject
1, 2	Expansion-Shrinkage
3	Warm-Up-Cool-Down
4	Evaporation
5	Expansion
6	Evaporation-Condensation
7	Evaporation
8	Condensation
9, 10	Boiling
11, 12	Boiling-Evaporation

The questions in MT were examined by 3 faculty members who are experts in the field of chemistry education and 1 faculty member who is an expert about the SD0 teaching method and their opinions were taken in terms of the suitability of the questions prepared. The pilot study of the test was conducted with 50 students. As a result of the reliability analysis performed after the pilot study, the 7th question, which reduced the reliability of the test, was removed from the test and there are 12 questions in the final form of the test. In line with the data obtained from the pilot study, the reliability of KYBT was found to be $\alpha = 0.87$. The application time of the test was determined as 40 minutes.

In this study, semi-structured interview was used as another data collection tool because it is very powerful in revealing individuals' data, opinions, experiences, and emotions and is based on speech, the most common form of communication (Yıldırım & Şimşek, 2013). Expert opinion was received in order to ensure the validity of the interview questions. Whether the interview questions were suitable for the purpose of the study was evaluated in terms of content validity and it was determined that the interview questions were appropriate for the purpose of the study in line with the expert opinions. Semi-structured interviews consisting of 7 questions were conducted with 6 students at time intervals of approximately 15 minutes each, after the implementation process of the activities.

In the research; reflective diaries were used as a data collection tool in order to obtain information about the aspects that students liked and had difficulties in science lessons taught with scientific discussion-oriented activities, the contributions of the activities to the students and how they changed their interest in science. From the day the activities were implemented, they were asked to write at home their thoughts about the contributions

of the activities to the students, the aspects they liked and had difficulties, and whether their interest in science lesson changed at the end of each acquisition, and at the end of the application, the reflective diaries were collected from the students.

2.3. Creating Activities and Implementation Process

While creating the activities used in the study, the misconceptions in the literature regarding 5th grade science curriculum, SDO activities and the unit of 'Change of Matter' were examined (Bayrakçı, 2007; Buluş Kırıkkaya & Güllü, 2008; Taşdemir & Demirbaş, 2010; Turgut & Gürbüz, 2011 Çelik & Çakır, 2015; Gülay and Tekbiyık, 2015). In line with these examinations, 9 activities were developed in accordance with the SDO teaching method. Activities prepared in line with the misconceptions determined from the literature are shown in Table 4.

Table 4: Distribution of scientific discussion-based activities according to misconceptions

Misconceptions	Activities	Explanations
Cold substances do not have heat. The substance gets hot when it gets hot.	Racing Theories: The Story	The students were given a story about the effect of warming and cooling on matter. It is given on the worksheet, together with the explanation of the two claims for the story. Students are asked to explain which claim they support, along with reasons. After the students express their opinions, they make a joint decision by making a class discussion.
Expansion does not change with temperature. Seasonal change causes expansion-contraction. Expansion and contraction phenomena are mixed.	Racing Theories: Cartoon	Four theories about expansion and contraction were given to students. The students were asked which theory they participated in, and a group discussion was held by forming groups of students who supported the same theory.
Expansion does not change with temperature. Expansion and contraction phenomena have been mixed.	Creating arguments	The students were given visuals about the positive and negative effects of expansion, and they were asked whether they agreed with the theory given in line with the visuals, and they were asked to create arguments by forming groups with their reasons and discussing them.
They mixed condensation and evaporation phenomena.	Experiment report	A ready experiment report was given to the students. Based on this report, students are asked to discuss the claims about the experiment and explain the mistakes in the report along with their reasons.
They mixed condensation and evaporation phenomena. Water does not evaporate at all temperatures. The temperature of the environment does not affect evaporation. Temperature is required for evaporation.	Racing Theories: Cartoon	Students are given opinions about evaporation. Students are asked to divide into groups in line with the opinions they share and explain their claims along with their requirements.
Water does not evaporate at all temperatures. The temperature of the environment does not affect evaporation. Temperature is required for evaporation.	Racing Theories: The Story	Students are given a story about the relationship between temperature and evaporation. Based on this story, the students are asked to discuss as a class with the reasons for the opinion they defend.

Continuation Table 4: Distribution of scientific discussion-based activities according to misconceptions

Misconceptions	Activities	Explanations
Temperature is required for evaporation. The higher the evaporation rate, the higher the temperature. The higher the temperature, the higher the evaporation rate.	Experiment Design	In order to ensure the reliability of the data, the students are given the order of how often they will measure, indicating which variables are wanted to be measured. The students are guided in this direction and discuss their claims by dividing them into groups together with their reasons.
Bubbles from boiling water; oxygen and air bubbles. There is no evaporation without boiling. Boiling takes place on the surface of the liquid. Evaporation is at every point in the liquid. Temperature is required for a liquid to boil.	POE	The experiment designed for boiling was given to the students as a worksheet. First, students are asked to make predictions about the event before starting the experiment. Afterwards, an experiment is done and students are asked to make observations. If a different situation arises between their predictions and their observations, students are asked to reconsider and explain their first arguments.
They mixed condensation and evaporation phenomena. Boiling takes place on the surface of the liquid. Evaporation is at every point in the liquid. There is no evaporation without boiling.	Statement of Expressions	Students were given a worksheet consisting of 7 statements about the item and the exchange unit. Students are asked to divide into groups and discuss with the group members whether each statement is true or false, along with the reasons. Afterwards, the group representatives expressed the opinions of the groups for each statement and a class discussion was held.

After the activities were developed, they were checked by 2 lecturers who are experts in the field of chemistry education, 1 lecturer and 1 science teacher specialized in the field of SDO teaching method, some activities were corrected in line with the feedback received, and some activities were removed from the application.

Before the actual sampling, the activities were applied to 27 5th grade students studying at the same school and a pilot study was conducted, and the places that students had difficulty understanding and the deficiencies in the activities were determined. As a result of the pilot study, necessary corrections were made and activities were finalized.

2.4. The implementation process of the activities

The Toulmin discussion model was used in the discussions during the course of the lessons. In this context, four and five activity groups were formed for the students in the teaching of the unit "Change of Matter" and lessons were conducted. In this context, a total of 7 groups were formed. In addition, for each acquisition, students were exchanged for their group mates so that they could interact and discuss with different friends.

In the activities, students were asked to find data that support or refute the claims they made and discuss them. In addition, they were asked to discuss which claim they support or why they do not support them, along with their reasons. Using this method of discussion, students were first asked to reach a consensus within themselves, and then by their chosen group representative, they were asked to explain the group's ideas and decisions to other groups along with their reasons and to reach a consensus using discussion items with other group representatives.

The researcher is in the role of conducting the discussion in the application process. In cases where students had difficulty during the implementation process, students were guided in line with the scientific discussion-based teaching method.

The argumentation worksheet developed by Ceylan (2012) for students to better understand Toulmin's discussion model and its elements before starting to practice with scientific discussion-oriented teaching method activities, and the researcher developed "What Should Doctor Cenk Do?" activity has been done.

2.5. Data Analysis

Students' responses to the two-stage misconception test (MT) in the pre and post tests were examined by two researchers and divided into categories as shown in Table 5. By evaluating the categories made by the two researchers, common categories were created for each student's answers. Afterwards, the frequency values of the student responses in each category were found and converted into a table.

Table 5: Categories used in the analysis of MT and their explanations

Abbreviation	Explanation
DS-DN	Right Option - Right Reason
DS-KDN	Right Option - Partially Right Reason
KYS-DN	The Misconceptional Option - Correct Reason
DS-KYN	Correct Option-The Misconceptional Reason
DS-B	Correct Option-Blank
KYS-KDN	The Misconceptional Option - Partially Correct Reason
KYS-KYN	The Misconceptional Option - The Misconceptional Reason
KYS-B	The Misconceptional Option -Blank
B	Blank

While analyzing the semi-structured interviews, descriptive analysis method was used in the analysis of 5 questions regarding the scientific discussion-oriented teaching method and the implementation process. Students' answers were categorized as full comprehension (TA), partial understanding (KA), misconceptional answer (KYC), wrong answer (YC) and empty (B). Then, frequency and percentage values are tabulated according to the categories. In addition, some remarkable student expressions were presented with direct quotation method. The analysis of two questions about the teaching of the science course with scientific discussion-oriented teaching method was done by direct quotation method.

Content analysis method was used in the analysis of reflective diaries. In this section, the students were given codes such as ST1, ST2, ST3,, ST25, ST27 and abbreviated. Then, the codes were determined by examining the expressions of the students about each department and themes were created based on the codes. Afterward, similar expressions were coded in the reflective diaries and tabulated with frequency values.

3. Findings

3.1. Findings Obtained From the Analysis of MT

In this section, the distribution of the explanations given by the students to the MT in the pre and post test is tabulated (Table 7). In Table 7, the categorized form of the responses given by the students to MT and the number of students responding to each category are presented.

Table 6: Pre-post test frequency distribution of MT by categories

Kategoriler		DS-DN	DS-KDN	KYS-DN	DS-KYN	DS-B	KYS-KDN	KYS-KYN	KYS-B	No answer
1	Pre test	1	6	0	3	2	0	13	1	0
	Post test	11	2	3	1	1	1	7	0	0
2	Pre test	7	4	2	2	1	0	6	4	0
	Post test	6	1	1	0	3	2	13	0	0
3	Pre test	5	3	1	2	2	1	8	4	0
	Post test	12	0	1	3	4	1	5	0	0
4	Pre test	4	13	0	3	1	0	3	2	0
	Post test	6	9	1	1	3	1	5	0	0
5	Pre test	7	3	0	2	1	2	9	2	0
	Post test	15	2	3	0	1	0	3	2	0
6	Pre test	12	5	0	3	1	2	3	0	0
	Post test	10	1	2	1	1	3	7	1	0
7	Pre test	3	0	0	4	1	0	12	6	0
	Post test	18	0	0	0	0	0	7	1	0
8	Pre test	9	1	0	3	5	0	5	1	2
	Post test	11	0	0	2	1	0	7	5	0
9	Pre test	9	2	0	0	1	5	5	3	1
	Post test	15	2	1	1	1	1	3	2	0
10	Pre test	10	1	0	0	2	1	8	4	0
	Post test	16	0	0	1	4	0	4	1	0
11	Pre test	2	0	0	0	2	3	16	3	0
	Post test	10	0	0	2	3	0	10	0	1
12	Pre test	7	8	0	0	0	3	4	4	0
	Post test	15	4	0	0	1	4	2	0	0

When Table 6 is examined, it is seen that the number of students who responded in the DS-DN category in the post-test generally increased. However, it is seen that there are student answers in KYS-KYN and KYS-B categories even after the activities are applied in the posttest.

3.2. Findings from Structured Interviews

In this section, the findings obtained from the interviews with 6 students after the application in order to deepen the research results are included.

In the first question, "What is evaporation? Please explain." The question was asked. The answers given by the students are presented in Table 7.

Table 7: Answers given by the students to the first question

Categories	Frequency (f)	Student Codes
TA	4	S1, S14, S25, S26
KA	2	S2, S4
KYC		
YC		
B		

When Table 7 was examined, it was determined that 4 students answered the first question in the TA category and 2 students in the KA category. Examples of students' responses in the TA category are "Evaporation is the transformation of a liquid substance into a gas state by taking heat." (ST26), "Liquids take heat and turn into gas." (ST1, ST14, ST25). Examples of student responses in the KA category are "The transformation of a liquid substance by taking heat is evaporation." (ST2), "A liquid evaporates by absorbing heat. It is like this; If we put a liquid under the sun, it will evaporate over time." (ST4).

In the second question, "What is a condensation event? Please explain." The question has been asked. The answers given by the students are presented in Table 8.

Table 8: Students' responses to question two

Categories	Frequency (f)	Student Codes
TA	2	ST1, ST25
KA	1	ST4
KYC	3	ST2, ST14, ST26
YC		
B		

When Table 8 was examined, it was determined that 2 students answered the question in TA category, 1 student in the KA category and 3 students in the KYC category. Examples of students' responses in the TA category are "The transformation of gaseous substances into liquid by heat." (ST1, ST25). An example answer to the KA category is "Moving from gas to liquid is condensation. Gaseous substances take heat and condense. For example, precipitation event is..." (ST4). Examples of student responses in the KYC category "Condensation is the solid state of gaseous substances. For example, it may be cloud but not solid..." (ST14), "It is the transformation of solid materials into gas without transforming into liquid state by taking heat. Naphthalene is an example of condensation. When we put the naphthalene somewhere, it turns into a gas without turning into a liquid." (ST26). The students were asked to show the condensation phenomenon with a drawing, but the students could not show the condensation phenomenon with a drawing.

In the third question, students said, "What do you think about the temperature at which evaporation takes place? The question has been asked. The answers given by the students are presented in Table 9.

Table 9: Students' responses to question three

Categories	Frequency (f)	Student Codes
TA	4	ST1, ST4, ST25, ST26
KA		
KYC	2	ST2, ST14
YC		
B		

When Table 9 was examined, it was determined that 4 students answered the first question in the TA category and 2 students in the KYC category. Examples of students' responses in the TA category are "Evaporation occurs at any temperature." (ST1, ST4, ST25), "Evaporation takes place at any temperature. In other words, according to the ratio of temperature, evaporation will be more at the phase temperature, less evaporation at low temperature." (ST26). Examples of student responses in the KYC category are "No evaporation without boiling." (ST14), "Evaporation happens when it gets heat." (Ö2).

In the fourth question, "Explain the boiling event." The question has been asked. The answers given by the students are presented in Table 10.

Table 10: Students' responses to question four

Categories	Frequency (f)	Student Codes
TA	1	ST4
KA	4	ST2, ST14, ST25, ST26
KYC	1	ST1
YC		
B		

When Table 10 was examined, it was determined that 1 student answered the 4th question in the TA category, 4 students in the KA category and 1 student in the KYC category. Examples of student responses in the partial understanding category "Water boils when heated, bubbles appear in boiling." (Ö14), "A liquid substance boils when it gets heat." (ST2). Sample answer to the full comprehension category;

- "For example, let's put a liquid substance in a pot... For example, we put a liquid substance in a pot, whatever, let's say water. Liquids boil when heated." (ST4)
- "Is temperature required for boiling?" (Researcher)
- "Must." (ST4)
- "Is the boiling temperature the same for each substance?" (Researcher)
- "It's not the same." (ST4).

In the 5th question to students, "Is there a difference between boiling and evaporation events? Please explain." The question was asked. The answers given by the students are presented in Table 12.

Table 11: Students' responses to question five

Categories	Frequency (f)	Student Codes
TA	1	ST4
KA	3	ST14, ST25, ST26
KYC	1	ST1
YC		
B	1	ST2

When Table 11 was examined, it was determined that 1 student answered in TA category, 3 students in KA category, 1 student in KYC and 1 student in category B. Examples of answers given in TA category; "There is a difference between boiling and evaporation. While evaporation happens at any temperature, boiling does not occur at all temperatures. " (ST4), examples from the answers given in the KA category; "In the boiling event, the conversion of the liquid into gas is faster, and it is slower in evaporation. (Ö26), examples from the answers given in the KYC category; "There is a difference between boiling and evaporation. When it boils, the water gets hot. It does not evaporate when it boils, but when it evaporates, it becomes gas, and water decreases..."(ST1).

As the seventh question, the students asked, "What are your thoughts about the teaching of your science course with scientific discussion-oriented activities?" The students answered this question that the lesson was generally enjoyable and that the information learned with this method was more memorable. Some of the student answers are presented below.

- "For example, I did not know that there is evaporation at every temperature, we learned these by discussing with our friends." (ST1),
- "Our lessons were very good. It was better than our other science classes. " (ST2),
- "I think our lesson was very good. We learned many things. I was learning before, but I didn't remember much. Now I think I remember more. " (ST4),
- "Our lesson was fun, we always discussed very well. We learned better. I could not learn last semester, now I understand better. "(ST25).

"What do you think about the previous science lesson and the science lesson taught according to scientific discussion-oriented activities? Students stated that the lessons taught with the scientific discussion model were generally better and they enjoyed group discussions. Some of the student answers are presented below.

- "I liked arguing with our friends." (ST2),
- "We argued with our friends, we defended ourselves. We argued with our friends in unknown places and corrected our mistakes. In our previous lessons, information remained in our minds for a short time. In these lessons, we corrected our mistakes and stayed more in our minds with our friends. "(ST4),
- "The lesson we taught according to the scientific discussion model was very nice and more fun." (ST25),
- "I think we learn better by discussing with groups." (ST14),

Findings from the Analysis of Reflective Diaries

The data obtained from the students' reflective diaries were analyzed with content analysis and the direct opinions of the students were given in the rest of the table.

Table 12: Data obtained from analysis of reflective diaries

Categories	Codes	Theme			
		Benefits from the activities Frequency (f)	Positive views towards the lesson Frequency (f)	Difficult sections in the course Frequency (f)	Interest in science class Frequency (f)
Academic success	Learning concept	21	6		4
	New techniques	18	7		
Learning skills	Learning new concepts Clearing misconceptions	22	23		6
	Scientific process skills	10	3		
	The ability to think		13		
	Fun	16			13
Affective skills	Be happy	5			5
	Team work	8	16		2
Social skills	To express yourself	7	14	16	6
	Increased interest in the lesson	7	6		15
Arouse interest					

When the data obtained from the students' reflective diaries were analyzed, the expressions of the students in the diaries were gathered under five themes: 'Acquisitions from activities, Positive opinions about the lesson, difficult parts of the lesson, interest in science lesson.' These themes are categorized under five categories: "Academic achievement, Learning skills, Affective skills, Social skills, and arousing interest." When Table 12 is examined, it was determined that during the implementation of the activities, students stated that the activities increased their academic achievement, enabled them to learn new concepts meaningfully, enabled them to gain scientific process skills, the process was fun, enabled them to gain positive opinions about the lesson, and that they enjoyed group work. In addition to these, the students also stated that they had difficulties in expressing themselves, persuading the other group and understanding the statements of the other group during the application process. Examples of students' views are presented below:

"I understood better the temperature, heat, expansion and contraction. I learned how to defend my claim. "(ST1)

"I liked to say my own opinion." (ST14)

"I learned to have scientific discussions and now I like science lesson more. Because our lesson is fun. " (ST15)

"I like it when we think with our bandmates and defend our thoughts." (ST2),

"I understand the subject better by arguing. It is very nice to think and express our opinions with our group friends... " (ST10)

"It was great to experiment. I understood the subject better. "(ST25)

"I had a hard time understanding the rival team's statements. Sometimes I had trouble making my own statements. "(ST1)

"I had difficulty defending my claim." (ST14)

"I had trouble understanding my friends' examples. Sometimes I couldn't make a sentence myself. "(ST22)

4. Discussion

In this section, firstly, the data obtained for the effect of scientific discussion-oriented activities on eliminating the misconceptions in the 'Change of Matter' unit, and then the data obtained to determine the students' opinions about the process were evaluated and discussed.

When the findings obtained from the pre-test and post-test taken by the students from MT in general, it is seen that the number of students who gave correct answers to the questions in the post-test (Table 6) increased. Based on this result, it can be said that activities focused on scientific discussion-oriented (SDO) activities have a positive effect on eliminating misconceptions. In this context, in order to examine this situation in more depth, the findings obtained from MT were evaluated and presented in the dimension of questions.

In the pre-test, one of the students answered in the DS-DN category to the FIRST question about expansion and contraction, while 11 students answered in this category in the post-test. Again in the same question, 13 students answered in the KYS-KYN category in the pre-test, while 7 students answered in this category in the post-test (Table 6). The increase in the DS-DN category and the decrease in the KYS-KYN category show that activities based on scientific discussion are effective in eliminating misconceptions. A similar situation occurred in other questions in general. However, in the post-test, the increase in the number of correct answers and the decrease in student answers in the KYS-KYN category are the 3rd, 5th, 7th and 11th questions. It can be said that activities have an effect on eliminating students' misconceptions. Because, while preparing the activities, they were developed by taking into account the misconceptions determined in previous studies on this subject in the literature. And during the activities, the students from time to time participated in individual discussion processes and sometimes in group discussion processes. This process enabled them to constantly examine themselves and their knowledge and concepts. At the end of the process, there was a decrease in the number of misconcepted answers in general. When Table 12, which includes the findings from the reflective diaries, is examined, similarly, it is seen that the students think that the scientific discussion-based teaching method eliminates their misconceptions ($f = 22$). S4's opinion on this issue; "It made me understand the science lesson better. I learn the truth of what I know wrong. Once I realized that evaporation is at every temperature. It made us remember some things. " in the form.

In this case, it coincides with the studies in the literature, with the result that scientific discussion-oriented teaching method increases academic achievement in students, improves conceptual understanding and conceptual change. Özkara (2011) concluded in his study that scientific discussion activities applied to the experimental group enabled the students to construct their knowledge about pressure in their minds. Boyraz et al. (2016) stated in their study that argumentation was effective in removing confusion in students. Acar et al. (2016), in their study to examine the effect of argumentation teaching activities on the conceptual understanding of 6th grade students, scientific thinking skills and understanding of the nature of science, the conceptual understanding of the experimental and control group students developed from pre-test to post-test, but the conceptual understanding between the two groups was pre-tested. They concluded that there was no significant difference between the post-test scores. Demirel (2015) concluded that the teaching of science lessons with scientific discussion activities on the subject of solid pressure eliminates students' misconceptions. There are many similar studies in the literature (Güler, 2016; Doğru, 2016; Cin, 2013; Türkoğuz & Cin, 2013; Üstünkaya & Savran Gencer, 2012; Şahin & Hacıoğlu, 2010; Tüay & Köseoğlu, 2011; Ulu & Bayram, 2015; Altun, 2010; Öğreten & Uluçınar Sağır, 2014; Uluay, 2012; Yeşildağ Hasançelebi & Günel, 2013; Yeşiloğlu, 2007; Deveci, 2009; Okumuş, 2012; Arlı, 2014; Kabataş Memiş, 2011; Öztürk, 2013).

A striking point in the data obtained from the test is that in the second question, 6 of the students answered in the KYS-KYN category, while 7 of them answered in the DS-DN category (Table 6). When the posttest findings were examined, 13 of the students answered in the KYS-KYN category, while only 6 of them answered in the DS-DN category. In this case, the conclusion that activities based on scientific discussion are effective in eliminating misconceptions in the 1st question does not match the result obtained in the 2nd question. However, when the answers given by the students about the expansion and contraction to the question asked in the interview are examined in detail, it is seen that the students who gave the wrong answer in the test gave the

correct answer to the question asked in the interview. This contradictory situation is similar to the result of the study conducted by Coştu (2002) with high school 1st, 2nd and 3rd grade students in order to determine the level of understanding by students of evaporation, condensation and boiling concepts and to compare between levels. In the study, it was concluded that the students gave a misconceptual answer to the question in the test related to the condensation event, but gave correct answers to the question asked about the subject in the interview. This situation can be considered as an indication of the advantage that the interviews provided in revealing students' learning in more detail.

In the other questions in the test, the answers of the students in the correct DS-DN category in the pre-test to the post-test generally increased, while their answers in the KYS-KYN category decreased. However, it has been determined that it is not a question in which the frequency of misconceptions is zero. This is an indication that misconceptions are highly resistant to change. A similar situation can be seen from the answers given by the students to the interviews. Among the answers to all five questions asked to students, there are answers in the Misconceptual answer (KYC) category (Tables 7, 8, 9, 10, and 11).

The opinions of the students about the activities carried out with scientific discussion-oriented instruction were revealed both in the interviews and with the findings obtained from the reflective diaries they wrote throughout the process. In this context, in both data sources, the students emphasized that the lesson was fun, the information learned with this method was more memorable, it provided meaningful learning, and that they learned new techniques. There are many studies in the literature that support this result (Demirel, 2015; Uluay, 2012; Ceylan, 2010; Arlı, 2014; Kabataş Memiş, 2011). Similarly, Küçük (2012) investigated the effect of using classroom activities supported by scientific discussion on students' conceptual understanding, perceptions of inquiry learning skills and attitudes towards science. During the implementation phase, while the lesson was taught with the experimental group with in-class activities supported by scientific discussion, the lesson was taught with the control group with the traditional method. The result of the study showed a significant difference in favor of the experimental group between the students' conceptual understanding levels and their attitudes towards science lesson.

When Table 12 is examined about the sections in the reflective diaries that were difficult in the lesson, the students stated that they had difficulties in expressing themselves ($f = 7$), persuading the other group ($f = 6$) and understanding the explanations of the other group ($f = 3$), while 10 students stated that they had no difficulty in the lesson. They stated. It is thought that the reason for students' difficulties is that students are not familiar with such activities, although two case studies were conducted to introduce scientific discussion-oriented activities before the application began. It is believed that after a few activities they will not have any problems. Similarly, Aslan (2014), in his study with high school students in order to examine the ability to construct a written argument and to evaluate the argument presented, concluded that his students were successful in establishing an argument, but mostly failed to construct an acceptable justification to support their claims and that students could not support their claims in all aspects.

5. Suggestions

In this section, some suggestions are given in line with the results obtained from the study.

1. It has been determined that the students find the science lesson, which is taught with scientific discussion activities, entertaining, understand the lesson better, and enjoy group work. In this context, it is thought that giving more scientific discussion activities in science lessons will increase the science achievement of students.
2. In the literature reached about the second item change unit, studies to determine misconceptions are frequently encountered, but there are few studies to eliminate them. Some gains have been studied in this study on the unit of change of 5th grade item. In other acquisitions related to the unit of change of matter, the effect of scientific discussion-oriented activities on overcoming misconceptions can be investigated.
3. The sample of this study consists of 5th grade students. The effect of scientific discussion-oriented activities in eliminating misconceptions can be applied to students at the next level.
4. Studies can be conducted to compare the effect of scientific discussion-oriented activities on overcoming misconceptions with the effects of different methods on overcoming misconceptions.

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The Concept of Homeland in Elementary School Students

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Abstract

The aim of this study is to assess the impact that the current status of the country and of the education system has on the identity and place attachment of the students attending the 2nd, 3rd, 4th and 5th grades of the elementary school, in the context of the meanings these students attribute to the concept of homeland via the metaphors they have created and the pictures they have drawn. The study was conducted on 27 male and 33 female students that attend the Yedidalga Elementary School in the Lefke District of Northern Cyprus. Metaphors and pictures were chosen as the tools to assess the students' perceptions of the concept of homeland, and for this reason, the students were asked to reflect their perceptions of the concept of homeland on the metaphors they create and on the pictures they draw. The data obtained were analyzed using the methods of descriptive analysis and document analysis. Students produced a total of 20 metaphors that were categorized into 4 themes about the concept of homeland, and produced pictures, in which they used blue color the most followed by green color. In conclusion, the results of the study suggest that the students' perceptions about the concept of homeland focus mostly on national values and loyalty, and that the elementary school students associated the concept of homeland predominantly with a sense of protection of national values.

Keywords: Homeland, Child, Picture, Elementary School

1. Introduction

1.1 Background

According to Ziya Gökalp (1973), homeland is “a geography where the spirituality and sacredness, memories and ideals of a nation are fused with the national culture, and where the past and the future are united.” On the other hand, Namık Kemal (2015) stated that a society lacking in love of homeland and devotion to homeland will eventually lose all love and loyalty, and that the freedom of loving whomever desired would only be possible in a free and independent homeland. Homeland is a value that is of great importance for each and every society. Every country would like to instill homeland awareness into its own society. Transferring the values to the social life and passing them down to new generations have always been considered among essential issues. Today, as a result of the increase in the need felt in the society about values and about homeland in particular as

a value, the matters such the concept of value, teaching and gaining of values are frequently brought up (Arslan and Yaşar 2007: 8). In terms of educational objectives, to furnish the individuals with the values that keep the society alive emerges as an important objective (Bacanlı, 2006: 47). Many different studies were and currently are carried out on this subject.

Many different definitions of value have been made. According to some, value refers to the beliefs, ideas and actions that people find worth spending their lives for (Bobaroğlu, 2002: 66), whereas for others it refers to the criteria that determine the desired and the enjoyable without being bound by a condition (Oral, 2014). The definition of value made by Demirutku (2007) is noteworthy. According to Demirutku (2007), values refer to a system of hierarchically shaped beliefs that determines what is actually needed from among the social and individual needs and allows us to make the right choice from among the behaviors and situations that have become permanent over time. According to Yılmaz (2013), values are divided into two categories as positive values and negative values. The concept of homeland as a value is categorized under the category of positive values. A country and a nation can maintain its continuity in unity and solidarity only on the basis of values. Values are accepted as criteria and form an important part of national unity and solidarity (Yılmaz, Duman, 2018: 643). Individuals lead and end their lives within the framework of values. Because values provide the people also with criteria for how they should die, as in the case of becoming a martyr and sacrificing life for the sake of the homeland. Hence, “love of homeland” can be a sufficient motive for someone to sacrifice his/her life for the sake of his/her homeland (Özensel, 2014: 74). National values such as homeland represent the union of emotions and thoughts that arise from the society, religion, culture, history, customs and traditions one is affiliated with, and which is passed down from generation to generation (Özkartal, 2009: 64). Individuals use these as a measurement mechanism and shape their life accordingly. In this way, they have the opportunity to reach the status accepted by the society and general judgments (Öcal and Yıldırım, 2014).

When the issue of where to start and how to proceed in teaching the values is considered, the common view is that it is something of necessary to try to furnish the children with values. Here, the school and the families have a major role (Bolay, 2007: 19), and among the two, families may not have sufficient knowledge and skills required to furnish the children with values. Although this constitutes a problem, this problem can be solved by reaching out to the families, where necessary. Undoubtedly, the most important way to achieve this is through education. The acquisition of values starts with the family and continues with the contributions made by the school and the society. In this way, the individual learns the values related to traditions, customs, manners, mores, and morals (Ulusoy ve Dilmac, 2014: 62). It is an important issue for the schools, particularly because they are institutions that provide planned and programmed education, to provide education in accordance with the levels of children and in a manner to develop their moral understandings in the positive direction (Caglayan, 2013: 96). If we were to give an example from the past, it would be sufficient to recall the propaganda tools produced during the First World War. We see that children were used in materials such as pictures and postcards, which were used as propaganda materials in that period, in a planned and deliberate manner. The values of the period were passed on to the children and the young generations in the said manner in order to prepare them for the wars and destruction to be experienced ahead. The minds were prepared for the political crises to be encountered between the two world wars by such propaganda (Ozgisi, 2013). This example reveals the importance of planned and programmed activities, especially the activities aimed at changing human behavior.

1.2 Importance of Values Education and the Concept of Homeland

In today's world, elementary schools constitute the first stage of education in many countries and an important period in the life of individuals in terms of the curricula implemented and educational environment. In this period, the curricula implemented should be elaborated in accordance with the realities of the country and the world as well as with the needs of the child (Güney, 2019). Providing an education on the basis of an unrealistic curriculum will do more harm than good. It should be kept in mind that countries need individuals that will develop and sustain the countries themselves. For this reason, the education to be provided should be supportive of the unity and the integrity of the country, and it should not be overlooked how important the education provided at the elementary level is in this regard. Considering the characteristics of the children between the ages

of 6-12, which is the common age range of the children attending elementary schools, it is known that in this period they are in the concrete operational stage and they are gradually going onto the abstract operational stage. Children of this period, especially children between the ages of 7-9, start to come into contact with the society, become conscious of being a part of the environment and they reflect this on their drawings (Kehnemuyi, 2001). According to Malchiodi (2005), in the realism stage that is experienced between the ages of 9-12, children move away from self-centered thinking and begin to attach importance to the opinions and ideas of others. The children of this period quickly begin to notice the world around them (Malchiodi, 2013). The fact that the children begin to attach importance to the opinions and ideas of others in this period increases the importance of the environment in children's education. This environment starts at the family and continues at the school. Considering the environment of schools, teachers are seen as important role models. For this reason, whatever the teachers say and do is perceived as correct in the eyes of the children. Thus, it is a very important task for both teachers and school administrators to be very meticulous in the implementation of educational programs directed at the children of this age range in particular.

It is stated by many researchers that the behaviors acquired during the elementary school period, which is a critical period in the lives of individuals, and during the childhood in general, are considered as permanent behaviors (Çolakça, 2019). For this reason, the behaviors that are gained in elementary schools, where education is provided in a planned and scheduled manner, will affect the individual's life and subsequently the society's life positively. Anything happening to the contrary must be identified and remedied immediately. Therefore, the studies to be carried out with regards to this period of the children should be examined using many different techniques, as it would not be easy to find the truth from a single point of view. Pictures drawn by the children of this period are an important tool that can be used in this regard.

Important information about the children can be obtained based on the evaluations made on the pictures drawn by the children. Pictures can be utilized for the purpose of learning about the children in general and about their inner worlds. Picture is an important interpretable tool that facilitates communication, enriches and enables the individual to express himself. Through drawing, children in particular can better express their feelings and thoughts that they could not express verbally. Because the picture drawn is a product of the child's emotional world and thoughts. Children draw the pictures of what they care about the most. Pictures drawn can be seen as a common product of both conscious and unconscious levels (Bati, 2012; Güney, 2019). According to many researchers that study the picture tests, children's drawings are very important treasures that can be used to get information about the inner worlds of the children, the problems they experience, and their personalities (Halmatov, 2015: 9). According to Yavuzer (2017), children see drawing as a game. When they are on their own, they take in an interest in drawing, as much as they care about their belongings and toys (Yavuzer, 2017: 23). Through drawing, children express themselves comfortably and reveal distinctive characteristics of themselves. In this way, they draw with their own expressions and can show their unique aspects (Şen Beytut et al., 2009; Stuyck, 2003). In fact, through the pictures they draw children reflect on their inner selves and the relations they have with their environments. For these reasons, the pictures drawn by the children should be carefully examined and the children should be given the opportunity to express themselves also verbally from time to time (Bati, 2012).

When you assign a subject to an elementary school age child and ask him/her to draw something, he/she would look at you with eyes as if he/she tries to say: "I know what I want to draw and what I want to do," and then he/she would start drawing immediately. He/she would be engaged in drawing to the level that the result of his/her action would not matter anymore but only the time that passes would matter (Kehnemuyi, 2001: 17). The things that the child does during this period give important information about the child's inner world. During this period of education, pictures can be used more than the tests to learn about how the things taught to the children reflected on their inner worlds. As a reason, drawing is a natural means of expression for the child since through drawing the child can concretize his/her psychology (Ekici, 2008: 17). The child tries to show how he/she perceives the subject given in a wholeness and transparency, and describes his/her loved and unloved ones, his/her emotional bonds and the world surrounding him/herself (Artut, 2004: 215). With his/her drawings, the child reflects a little bit of him/herself, and expresses his/her feelings, thoughts and opinions (Yavuzer, 2017). The picture drawn by each child is personal for him/herself and is deemed as a private matter. Children

commonly reflect a different situation or a problem via their drawings. At the end of the day, these special pictures meet on common ground at some point. Certain features of these pictures are almost always the same. It is usually seen in these pictures that the children find similar solutions to the problems. For this reason, children's drawings can be said to demonstrate certain common characteristics (Kırışođlu, 2005: 73).

Colors start to make sense for children after they are 4 years old. In general, children reflect their happiness with the yellow color and their unhappiness with the brown color. The color chosen in the picture is a reflection of the child's inner world and his/her positive and negative emotions (Çankırılı, 2015: 205). Colors are briefly described as warm and cool colors. Yellow, red, orange colors are classified as warm colors, whereas blue, green and purple are classified as cool colors (Dilci, 2017: 108).

1.3. Objective of the Study

The aim of this study is to investigate and understand the perceptions of the Turkish elementary school students, who are subjected to self-inquiries in respect of identity and place attachment due to the fact that the country in which they live is de facto in status, as the members of a society that has gone through a period of war as a result of the ongoing conflicts between the two communities in Cyprus, about the concept of "homeland," which represents the ultimate level of these self-inquiries, through both the pictures they have drawn and the metaphors they have created. The most important aim of this study is to set forth the pictures drawn and the metaphors created about the concept of homeland by the students that are between the ages of 7-11 and who attend elementary school, and to reveal the ways that the students they express these pictures and metaphors. For this purpose, answers to the following questions were sought;

1. What are the metaphors used by the elementary school students about the perception of homeland?
2. How do the elementary school students reflect their perceptions of the homeland on their paintings?

2. Material and Method

This study was carried out within the framework of phenomenological research design, which is one of the qualitative research methods. In phenomenological research design participants of the study define the phenomenon and the individuals describe their experiences in respect of this phenomenon (Creswell, 2014, s. 14).

2.1. Ethics Committee Approval

For the study, firstly, an application was made from the National Education Ministry for the necessary permissions. Within the framework of the permission obtained as a result of the commission examinations, with the relevant school principal were discussed. School teachers and parents of students were informed with the statements of the school director and related researchers. Within this framework, the students were included in the study with the approval of the parents who accepted to participate in the study.

2.2. Study Group

The study was carried out on the students attending Yedidalga Elementary School located in the Lefke District of Northern Cyprus. Purposeful sampling method was utilized in determining the participants of the study as well as in conducting the study, as it allows time-savings and flexibility (Miles and Huberman, 2015; Patton, 2014). 27 male and 33 female students were included in the metaphor study. Of these students, 15 were in the 2nd grade, 17 were in the 3rd grade, 14 were in 4th grade, and 14 were in 5th grade (Table 1). 1st grade students were excluded from the study since they do not possess the necessary literacy skills to participate in the study. On the other hand, some of the data obtained from the students of other grade levels of the elementary school have not been taken under consideration since they were not deemed to be suitable. Metaphors generated were examined on the basis of the data obtained from 55 students in total. One of the painting course hours, which has been deemed convenient for the 40 students (Table 2) who accepted to make a drawing, was scheduled, in order for the participating students to make a drawing reflecting their perceptions of the concept of the homeland. The

work produced by 4 out of these 40 students were excluded from the study as they were not deemed suitable for interpretation.

Table 1: Distribution of students participated in the metaphor study

Gender	2 nd Grade	3 rd Grade	4 th Grade	5 th Grade	Total
Female	8	9	8	8	33
Male	7	8	6	6	27
Total	15	17	14	14	60

Table 2: Distribution of students participated in the painting study

Gender	2 nd Grade	3 rd Grade	4 th Grade	5 th Grade	Total
Female	6	6	4	4	20
Male	5	6	5	4	20
Total	11	12	9	8	40

2.3. Data Collection Method

Metaphors used by the students are utilized in the collection of the data to reveal how the concepts are perceived by the students and to obtain rich data on the subject (Yıldırım and Şimşek, 2011: 211). Additionally, pictures drawn by the students, as they express themselves more comfortably when drawing pictures, and the individual interviews held with the students so that they can verbally describe the pictures they have drawn were also utilized as data collection tools (Malchiodi, 2013:45). In this way, data were collected from many sources instead of a single source (Creswell, 2014:189). Necessary permissions were obtained from the Ministry of National Education for the collection of data, and the data have been then collected during the meetings with the students at a certain time frame designated in cooperation with the school administration. Only the students that voluntarily participated in the study were included in the study upon obtaining the permissions from their families.

First the students were given a form of incomplete sentences in the following format of “Homeland is like Because” as a data collection tool, and then they were asked to write their opinions by filling the blanks. Another day, students were given white paper and crayons, and asked to draw pictures on the concept of homeland. Names of the students were not used in any of the works completed by the students for the purpose of the study, and the works have been coded instead to keep students' identities confidential. Codes were in the format of Y(first letter of the name of the school)(grade level)-(student's sequence). For example, “Y4-11” denoted that the student is a 4th grade student from Yedidalga elementary school that is in the 11th place among the students participating from that grade level.

2.4. Analysis and Interpretation of Research Data

Descriptive analysis and document analysis methods were used to analyze the data. Descriptive analysis allows the categorization of the data in a logical and orderly fashion and their interpretation as such, and the inference of a conclusion through the establishment of a cause-effect relationship (Yıldırım and Şimşek, 2011: 246). Metaphors have been resolved within this framework. The reliability formula of Miles and Huberman (2015) was used to ensure reliability. [Reliability = Consensus / (Consensus + Disagreement)]: $[18 / (18 + 2) = 0.90]$. Thus, the reliability of this study was calculated as .90. Consensus were reached in disagreements and metaphors with similar characteristics were given under the same title.

Document analysis allows the collection of the information from first-hand and facilitates the analysis (Creswell, 2014: 191). The pictures drawn by the students have been analyzed via this method. Two researchers made a joint decision based on the extent that the concept of homeland was reflected in the pictures. Reliability of this method was found as .88.

3. Results

In this section, the metaphors developed by the students about the concept of “homeland” and the themes composed by these metaphors are provided.

Table 3: Metaphors Developed by the Elementary School Students About the Concept of Homeland

METAPHORS	2nd Grade	3rd Grade	4th Grade	5th Grade	Total
House	1	5	3		9
Mother	4	2	1		7
Native country	3	1	3		7
Family	2	2	1	1	6
Country		1	2		3
Home			1	2	3
Peace	1		1		2
Republic	1		1		2
Society			1	1	2
Friend	1			1	2
Life	1			1	2
Beautiful	2				2
Nation			1		1
War			1		1
Place of birth				1	1
Tolerance				1	1
Solidarity				1	1
Flower				1	1
Chastity				1	1
Spirit		1			1
A total of 20 metaphors were generated				frequency	55

Students have developed a total of 20 metaphors in respect of the concept of the homeland. Metaphors such as nation, war, place of birth, tolerance, solidarity, flower, chastity, life and spirit were each developed by one participant. Other metaphors developed by the students and the number of the students who have mentioned of the respective metaphor are as follows; house (f=9), mother (f=7), native country (f=7), family (f=6), country (f=3), home (f=3), peace (f=2), republic (f=2), society (f=2), friend (f=2), and beautiful (f=2).

3.1. Categorical Distribution of Metaphors Developed by the Students About the Concept of Homeland

Metaphors developed by the students about the concept of "homeland" were categorized under 4 categories, which are as follows; category of national values comprising metaphors of native country, country, society, republic, peace, war, nation, and chastity; category of loyalty comprising metaphors of family, mother, friend, place of birth, house, home, war, peace, spirit; category of values comprising metaphors of solidarity, beautiful, and tolerance; and category of vitality comprising metaphors of life and flower.

Table 4: Categories emerged from the metaphors developed by the elementary school students in relation to the concept of homeland

National Values	Loyalty	Values	Vitality
<ul style="list-style-type: none"> •Native country •Country •Society •Republic •Peace •War •Nation •Chastity 	<ul style="list-style-type: none"> •House •Mother •Family •Home •Friend •Place of Birth •Spirit 	<ul style="list-style-type: none"> •Solidarity •Beautiful •Tolerance 	<ul style="list-style-type: none"> •Life •Flower

Category of National Values

Elementary school students developed 8 metaphors that can be classified under the “national values” category of the concept of “homeland.” These metaphors and number of the students who have used these metaphors are as follows; native country (f = 7), country (f = 3), society (f = 2), republic (f = 2), peace (f = 2), war (f = 1), nation (f = 1), and chastity (f = 1). It can be speculated that the students who used the metaphors of native country and country meant to say that these are synonyms of homeland and that the homeland must be protected and looked after. It is inferred that the students describe homeland as a place they can fight for and live in peace thereafter. In this way, the homeland becomes a place where they can live safely. It can be speculated that they are sensitive about the protection of the homeland.

The metaphors developed by the students and classified under this category are listed below.

Homeland is like a native country. Because the synonym of homeland is native country. (Y2-46)

Homeland is like a country. Because homeland and country have almost the same meaning. (Y3-54)

Homeland is like society. Because if there was no homeland, everyone would live in turmoil. (Y4-1).

I liken the homeland to the republic. Because Atatürk won our homeland for us. I love Atatürk and our homeland. (Y4-18)

I compare the homeland to peace. Because, people can live in peace in their homelands. (Y4-9)

Homeland is like war. Because homeland is about fighting for it. (Y4-11).

Homeland is like a nation. Because our nation would not be protected if we did not have a homeland right now. (Y4-9)

Homeland is like chastity. Because one must love his/her own homeland or someone else will come and deprive him/herself of this/her homeland. (Y5-27)

Category of Loyalty

Elementary school students developed 7 metaphors that can be classified under the “loyalty” category of the concept of “homeland.” These metaphors and number of the students who have used these metaphors are as follows; house (f = 9), mother (f = 7), family (f = 6), home (f = 3), friend (f = 2), place of birth (f = 1), and spirit (f = 1)

The metaphors developed by the students and classified under this category are listed below.

Homeland is like our home. Homeland is like our home. Because as life cannot exist without a house, it also cannot exist without a homeland. (Y3-59)

Homeland is like house. Because if we don't take good care of our house, it will be destroyed. If we do not take care of our homeland, the homeland will also be lost. (Y4-14)

Homeland is like a mother. Because it is indispensable, and it cannot be discarded or sold, and no one can do without it. (Y3-55)

Homeland is like family. Because everyone gets along well within a family and helps each other. (Y3-58)

Homeland is like a home. Because the homeland is a place where all of us live brotherly and must live brotherly. (Y5-30)

I compare the homeland to a friend. Because if I do not have a friend, I will be left alone when everyone else is playing (Y5-28).

Homeland is like the place where we live and where we were born. Because I compare the homeland to where we live, because it is the place where we live in. (Y5-22).

Homeland is like our spirit. Because our houses, families, schools, works and loved ones are here. (Y3-51)

Category of Values

Elementary school students developed 3 metaphors that can be classified under the “values” category of the concept of “homeland.” These metaphors and number of the students who have used these metaphors are as follows; solidarity (f = 1), beautiful (f = 2), and tolerance (f = 1). It can be speculated that the reasons for the students to have used these metaphors are because they describe the homeland as a beautiful place, where people show solidarity and thus unite and also as a place where even some of the mistakes committed can be resolved with tolerance. In a way, they have expressed what is needed for peace.

The metaphors developed by the students and classified under this category are listed below.

Homeland is like solidarity. Because the homeland is nothing but like solidarity. (Y5-25)

Homeland is like beautiful. Because it is the homeland that saved us. (Y2-48)

Loving the homeland is like tolerance. Because we must love our homeland and protect it. (Y5-22)

Category of Vitality

Elementary school students developed 2 metaphors that can be classified under the “vitality” category of the concept of “homeland.” These metaphors and number of the students who have used these metaphors are as follows; life (f = 1), and flower (f = 1). Students associated homeland with life itself and the flower, which is one of the elements that represent vitality.

The metaphors developed by the students and classified under this category are listed below.

Homeland is like life. Because we would fall, if not for homeland. (Y2-37)

Homeland is like a flower. Because homeland is the most beautiful place that we humans love. (Y5-26)

3.2. Analysis of the Pictures Drawn & Paintings Made by the Students on the Concept of Homeland

In the analyses made about these paintings, priority was given to the extent how much the colors were used in the paintings made by the students. The results of these analyses are given in Table 5.

Table 5: The extent of the use of colors in the paintings made by the elementary school students

COLOR	2nd Grade	3rd Grade	4th Grade	5th Grade	Total
Blue	5	10	3	4	22
Green	5	3	2	3	13
Orange	1	4	3	1	9
Red		2	1	1	4
Purple			2	1	3
Black	1	1			2
Total	12	20	11	10	53*

* In some pictures there were two colors that were used in the same amounts.

Blue is one of the primary colors and is a cool color. It represents peace, freedom and eternity. It was seen that blue has been used in the paintings of the students irrespective of their grade level. Blue has been the mostly used color as it was the predominantly used color in 22 of the paintings made by the students.

The green color, which is formed by mixing the blue and yellow colors, has a relaxing feature. Green, which is the second most used color in students' paintings, creates a sense of trust and instills hope. People, who love green, are innovative, dynamic and lively (Avara, 2019: 34).

The third most used color in the pictures has been orange. As one of the warm colors, orange represents vitality, dynamism and commitment to life (Avara, 2019: 34). Apart from these colors, purple and black were also used intensely in the pictures. Black color may have different meanings depending on the context it is used. It is used to describe strength and passion, but may also describe pain and sorrow. Black color culturally describes mourning in the west, whereas in Japan it represents happiness. People who love mystery and perfection choose this color and by choosing this color in their clothes, etc. they imply that they expect to get respected (Avara, 2019: 34). In the context of this study, we can say that the use of black color connotes mourning, more than happiness.

It was determined that there were 17 different figures drawn by the students in the pictures they made. It was seen that these figures, which have been drawn by the students in relation to the concept of homeland, have been drawn in different the grade levels and in different frequencies. A total of 36 students have drawn 153 figures in total. The distribution of these figures by the grade levels is given in the table below.

Table 6: Distribution of the figures drawn by the elementary school students in their paintings by their grade levels

FIGURE	2nd Grade	3rd Grade	4th Grade	5th Grade	Total
Flag	6	11	6	4	27
Soldier	6	5	6	7	23
Tank	4	7	2	4	17
People	3	7	3	3	16
Sun	4	3	3	5	15
Helicopter	3	2	1	3	9
Enemy	2	2	2	3	9
Military vehicle	1	2	1	1	5
Flower	1	1	2	1	5
Atatürk's mausoleum	2	1	2		5
Balloon	1	3	1		5
Fighter jet		1	2	2	5

Continuation of Table 6: Distribution of the figures drawn by the elementary school students in their paintings by their grade levels

FIGURE	2 nd Grade	3 rd Grade	4 th Grade	5 th Grade	Total
Cloud		1	2	2	5
Tree	1	1	1		3
House		2			2
Atatürk			1		1
School		1			1
Total number of figures					153

Seven of these figures, which are flag, soldier, tank, helicopter, enemy, military vehicle, and fighter jet, were classified under the category of security. It can be speculated that by drawing these figures students wanted to associate the concept of homeland with the feeling of security. Additionally, four of these figures, which are sun, flower, cloud and tree, were classified under the category of nature. It can be speculated that by drawing these figures students wanted to associate the concept of homeland with a physical place, where people live in peace. Furthermore, three of these figures, which are people, house and school, were classified under the category of immediate surroundings, whereas the figures of Atatürk and Atatürk's mausoleum were classified under the category of leader. Thus, 4 main categories have emerged from the figures drawn in the students' paintings (Table 7).

Table 7: Categories emerged from the figures drawn by the elementary school students in relation to the concept of homeland

Security	Nature	Immediate Surroundings	Leader
<ul style="list-style-type: none"> •Flag •Soldier •Tank •Helicopter •Enemy •Military vehicle •Fighter jet 	<ul style="list-style-type: none"> •Sun •Flower •Cloud •Tree 	<ul style="list-style-type: none"> •Human •House •School 	<ul style="list-style-type: none"> •Atatürk •Atatürk's mausoleum



Examples of the paintings made by the 2nd grade students in relation to the concept of homeland



Examples of the paintings made by the 3rd grade students in relation to the concept of homeland



Examples of the paintings made by the 4th grade students in relation to the concept of homeland



Examples of the paintings made by the 5th grade students in relation to the concept of homeland

4. Discussion And Conclusion

As a response to the research question of “*What are the metaphors used by the elementary school students about the perception of homeland?*”, it was observed that students have developed a total of 20 metaphors about the concept of homeland, which were classified under 4 themes. It can be speculated that the metaphors developed by the students mostly focused on national values and loyalty. It was concluded as a result of the analysis conducted on the metaphors generated under the category of national values that the students consider the words that are homeland, country and native country, which have similar meanings, within the same framework. Use of other metaphors such as society and nation, which can also be considered among the metaphors directly related to the concept of homeland, indicates that the students are raised in line with this concept. On the other hand, it can be speculated that with metaphors such as house, home, or people who live in the close vicinity, students indirectly referred to the loyalty, which needs to be shown towards the homeland. Family and mother metaphors were found to be among the most used metaphors In the study conducted by Türküresin (2018), as well. One of

the metaphors that catches attention among the metaphors evaluated within the scope of this study is chastity. There are other studies, where the concept of homeland was found to have been associated with chastity by the participants. In the study conducted by Sağdıç and İlhan (2018) on the preservice teachers, chastity was used as a metaphor in place of the homeland, and a similar definition was made in respect of the homeland by the participants of the study, who perceived homeland as a holy place. We can infer from the said finding of the study conducted on preservice teachers that the meaning that teachers attribute to a concept affects the students they teach in the future. Furthermore, use of life and flower metaphors, which are among the metaphors developed by the students within the scope of this study, indicates that the homeland is described as vital and happy. In a study conducted by Maagero and Sunde (2016), children were asked to depict 'happiness' and 'fear' through drawing a picture. The results of the study revealed that Palestinian and Norwegian children used the same symbols in their pictures for happiness, such as flowers, tresses, a bright sun, family and friends. Having had to leave homeland to survive is something that would be perceived negatively by anyone. Continuing to live in homeland despite the experienced difficulties and having to leave homeland as a refugee are two very different situations. We can clearly see the said difference when we compare the results of this study with the results of the study conducted by Oztabak (2020). As a result of examining the pictures drawn by Syrian and Palestinian refugee children about their perceptions of war and immigration; it has been determined that the drawings were mostly about negative elements such as death (37), war (28), and despair (18), whereas the drawings about positive elements such as nature (11) and hope (1) were substantially less (Oztabak, 2020). In addition, in the study by conducted by Maagero and Sunde (2016), it was observed that 17 of the 29 Palestinian children drew a house in an attempt to depict 'happiness,' and that 6 of these children drew dark houses and dark windows, which were interpreted as an indication of fear.

It was found that the elementary school students associated the concept of homeland predominantly with a sense of protection of national values. Developing a good sense of homeland in children is not an easy task. Developing a good sense of homeland in children will also create an infrastructure for patriotism. It is known that the children's perceptions of patriotism are shaped around phenomena such as protecting the country and other related concepts, such as loving soldiers and protecting the flag (Tatlı, Güngöraytar, 2017). Patriotism includes the sense of loyalty and love felt for the country (Huddy and Khatib, 2007: 63). In addition, Yıldırım (2006) stated that patriotism is not only a measure of love felt for the country, and that it also includes any behavior that will benefit the country and help its development. In the light of these findings, we can infer that the students, who were studied within the scope of this study, will become good patriots as they know what homeland means. A good patriot would know very well what he/she has to do for his/her country. However, it should not be forgotten that education also plays a very important role in gaining this value.

The results of the analysis of the colors used in the pictures drawn by children revealed that the most preferred color by the students was blue. In addition to representing peace and freedom, blue is thought to slow down the blood flow, as well. It is known that the bridge piers are painted blue in order to prevent suicides in the Western world. It was observed that children were more stagnant in schools with walls painted blue (Avara, 2019: 34). The fact that the students have used blue color the most was interpreted as to that the students perceive homeland as a place, where people live in peace. On the other hand, their predominant use of blue color may also reflect their wishes in respect of a calm, happy and free life, which is supported with their use of green color as the second most color.

It was observed in the study conducted by Jabbar and Betawi (2019) that the drawings about peace featured cheerful colors, such as blue and green, which depict happiness and calmness. People, who love green, are innovative, dynamic and lively (Avara, 2019: 34). As one of the warm colors red color connotes fire. Love may refer to affection and passion, as well as aggression and anger. Accordingly, it was observed in the study conducted by Jabbar and Betawi (2019) that one of the children used predominantly the red color in his/her drawing about peace, which was interpreted as an indication of his/her feeling of intense anger. Red color is used in the flags of many countries since it has the effect to stimulate people (Avara, 2019: 33). Although red color was used less than other colors in the pictures, the flag was the most drawn figure and most of the flags had red, as in the case of the flag of the country the students live in. The fact that the flag of the country in which they live is a red color is also a finding that explains this situation. The color that catches the attention in the students'

paintings is black. This color is commonly associated with pessimism and grief in the current society. It can be speculated that some students have used the black color in that direction. Though it was not much, use of black color may be something that is necessary to be taken into consideration. It is seen from the pictures drawn by the students that they have acted with the instinct of protection for their environment when drawing. They have verbally stated that protecting the environment they live in is important for the homeland. It is a remarkable finding that fighting for homeland was a phenomenon that is depicted in the paintings made by the students and that is expressed in the metaphors developed by children. They have drawn pictures of soldiers fighting. It was found that they perceive flag as the most important figure in relation to the concept of homeland. It was observed that the students used expressions such as protecting the homeland and helping soldiers, when they were asked to describe their paintings. Considering the status of the country they live in, the depiction of the phenomenon of fighting with enemy soldiers in the paintings was something expected. It can be speculated that it is because of the country in which they live is de facto in status that they have drawn enemy flags in their paintings. It can also be interpreted as that they have a certain perception of enemy. Drawings of soldiers, fighter jets, helicopters, military vehicles, enemies and flag indicate that the students have a certain knowledge on what war means in general. On the other hand, besides the concept of war, nature was another theme depicted in the pictures. It is seen that students imagine a sunny, happy and peaceful place where balloons fly and flowers bloom when thinking about homeland.

5. Recommendations

Students walk on the path drawn for them by their teachers, who guide them. It is important for the next generations and the future of the countries that a correct definition of homeland is made today. In this context, the education programs of many countries is always shaped to raise a good citizen. Attention should be paid to teacher education as they are the implementers of the education programs. For this reason, teacher training programs and in-service training programs can be arranged to include methods of teaching values such as patriotism and citizenship. National values possessed by the society should be explained to the students explicitly. It would be beneficial to utilize trips and other methods of observation. As a result, students should be able to develop an understanding that they must be well-equipped to have a happy and peaceful homeland, and that their homeland would be lost otherwise.

It is important that the Ministry of National Education acts by taking students' perceptions into account while carrying out curricular studies. Otherwise, it is likely that the students will have heterodox perceptions. Training should be provided on what needs to be done to protect the country from engaging in a war, other than military measures. Common values agreed upon about the homeland should be clearly determined and activities should be carried out to provide children with these values.

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Principals' Positive Organizational Behavior in Schools and Its Results

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Abstract

In this study, the positive situations that principals put forward about teachers, students, the institution and themselves, and the results of these positive situations and practices were investigated. The current study has been carried out with a descriptive purpose. The positive organizational behavior of the principals in schools and its results, which is the subject of the study, are examined within the scope of "phenomenology." The research was conducted on 32 different institutions and educators in a province in the Western Black Sea Region in the 2020-2021 academic year. In the present study, it has been obtained that the principals generally emphasize the positive organizational behaviors of teachers, students, the school and themselves. Considering the fact that positive organizational behavior in schools increases corporate and individual performance and highlights the strengths of the organization and employees, the following comment can be made: Educational institutions and managers need to make positive organizational behavior a part of the corporate culture and corporate climate.

Keywords: School, Positive Organizational Behavior, Principal

1. Introduction

Organizations are social entities whose activities are consciously structured and coordinated, connected with the external environment, towards specific goals. Organizations bring together material and human resources to achieve desired goals and results. They produce goods and services efficiently. They allow to come true new discoveries. They use modern production and information technologies. They adapt to the changing environment and at the same time affect that environment. The organizations create value for its customers and employees. They manage difficult issues such as employee motivation, coordination, ethics and diversity (Daft, 2015). Organizational behavior is a discipline that tries to understand the reasons for the attitudes and behaviors of individuals within the organization, to control and predict these attitudes and behaviors, and to create conditions that can ensure the happiness of individuals in the workplace. Organizational behavior is a branch that researches the effects of individuals, groups and structures on behavior within the organization in order to improve the efficiency of the organization. Organizational behavior focuses on the questions of how it happens and how

much the effects of individuals, groups and organizational structures on individual behaviors within the organization in order to improve the effectiveness and efficiency of the organization (Robbins & Judge, 2012).

Today, institutions are under pressure of a progressively increasing competitive. Some of the basic questions that organizations ask to be successful in a competitive environment are: How can organizations reveal people's strengths? How can the potential of individuals be increased? How can dynamism and flexibility in the organization be developed? These questions, which are focused and whose answers are researched, fall into the field of positive organizational learning (positive organizational behavior). Luthans and Youssef (2007; as cited in Robbins & Judge, 2012) state that in their researches, the negative and wrong behaviors of those employees in organizations are mostly focused. However they state that it is necessary to be highlighted their positive and best strengths, be approached with a positive perspective and be viewed from a positive perspective for the company and its employees. Thus, it is emphasized that the performance of employees increases, they develop more and become stronger, and as a result of all these, they contribute to organizational goals and organizational outputs. Therefore, it can be said that managers in institutions should focus on the good and strong aspects with their positive features of the employees.

Positive organizational behavior follows a recent positive psychology that focuses on the strengths and psychological capacities of individuals and is guided by research and theories (Luthans, 2002; as cited in Özen Kutanis & Yıldız, 2014). Positive organizational behavior is also within the subject of social psychology. Social psychology is the scientific study of how people think about each other, how they affect each other, and how they relate to each other (Myers, 2017). Positive organizational behavior was born out of positive psychology and used the scientific method. Positive organizational behavior is mainly concerned with the issue of personal psychological qualities and their influence on the development of performance. The concepts they are interested in are topics like self-efficiency, hope, optimism, resilience, positive psychological capital, trust, and extroversion (Luthans, Youssef & Avolio, 2006). It is seen that highlighting the positive, well-done strengths of the employees of the institution, approaching their behavior with a positive perspective increases the performance of the employees, they develop and become stronger and it increases simply the quality of organizational outputs. This situation can be explained with social impact theory in one way. Social impact is the changes that occur in a person's behavior by being affected by the judgments, attitudes and opinions of another person or people (Güney, 2016). In addition, positive organizational behavior is also compatible with the expectation theory in motivation. Motivation expectation theory emphasizes that positive expectations from individuals increase their success and also reduce their anxiety. Various research findings have been obtained showing that students in schools where teachers have positive and high expectations about the students are more successful than other schools (Slavin, 2013).

One of the important concepts of social learning theory, which is closely related to positive organizational behavior, is self-efficiency. Self-efficiency describes a person's belief in the power to perform a task (Robbins & Judge, 2012). Self-efficiency is the feeling of self-efficiency and competence, unlike self-respect which means self-esteem (Myers, 2017). Self-efficiency is people's beliefs, judgments and thoughts about their own capacity to do a job well, to solve a problem, to acquire a skill. It can be given an example such as a math teacher believing that he can teach algebra successfully to his students. Therefore, individuals who have strong beliefs about their own abilities are more successful and more persistent in their efforts (Hoy & Miskel, 2012). Naturally, people with high self-efficiency are not afraid to try new things (Senemoğlu, 1997). Individuals with high self-efficiency can cope with complex events, overcome problems, be more patient and become more successful (Korkmaz, 2006). For this reason, it is necessary to organize activities to improve the self-efficiency of people from childhood and to provide training in this context.

As tried to explain above, positive organizational behavior refers to positive behaviors that contribute to the goals of the organization and positive organizational outcomes. Therefore, organizational behavior should be viewed from a positive perspective. Supportive, affirmative and close relationships should be developed in order to increase positive organizational behavior in institutions. So, increasing positive feelings increase both health and happiness (Myers, 2017). School administrators have important responsibilities in this regard. School administrators should benefit from both the strengths of educators at school and they should be able to reveal the

strengths of educators. For this, school administrators should have a positive perspective towards human behavior.

How do we affect other people or how are we affected by other people? The purpose of asking those questions is important both to increase the happiness of the individual in the workplace and to increase the performance of individuals and groups. The questions on which organizational behavior focuses are as follows: How and how much effective are factors such as personality, self, attitude, stress, perception, emotion, age, gender, seniority, education, expectation, motivation, and goal in increasing the performance of the organization and the individual? How much is the formation of teams, task distribution, communication, social, cultural relations, job descriptions in order to improve and increase corporate performance (corporate effectiveness, efficiency) and how does it affect individual behaviors (performance of the individual) within the organization?

In the present study, what is wanted to be researched and learned is whether school administrators have a positive perspective towards human behavior in their institutions. In this context, the research focused on the following questions:

- Is the behavior of individuals (school, teacher, student, employee) in the institution viewed from a positive perspective by school administrators?
- Are the strengths of employees emphasized by school administrators and these aspects highlighted?
- In which situations do school administrators exhibit more positive behaviors?
- What are the consequences of the positive behavior of school administrators?

2. Method

The research was conducted for descriptive purposes. In descriptive understanding, the researcher defines, classifies, lists, or categorizes events and their relationships to describe mental processes and behavior (Shaughnessy, Zechmeister & Zechmeister; 2020). The study was based on qualitative research methods and techniques. The research was planned according to the phenomenological (phenomenological) pattern. The positive organizational behavior and results of the school principal subject to the study were examined within the scope of "phenomenology." The process of "phenomenology," also called phenomenological study, helps to reveal and interpret individual perceptions and at the same time aims to investigate the phenomena that we are not completely alien to but still cannot fully understand (Yıldırım & Şimşek, 2008).

2.1 Study Group/Participants

The research was applied in the 2020-2021 academic year. In the research, maximum diversity sampling was preferred. Demographic characteristics of the participants are shown in Table 1

Table 1: Demographic characteristics of the participants

Field	The participant Teacher		
	Field	Female (14)	Male (18)
Mission	<i>Teacher</i>	11	16
	<i>Assistant</i>	3	2
	<i>Principals</i>		
Level of Education	<i>Bachelor's Level</i>	12	16
	<i>Post-graduate Education</i>	2	2
Teaching Seniority	<i>1-5</i>	1	1
	<i>6-10</i>	4	8
	<i>11-15</i>	6	5
	<i>Above 16</i>	3	4
Place of Duty	<i>Kindergarten</i>	3	
	<i>Primary School</i>	5	9
	<i>Secondary School</i>	3	4
	<i>High School</i>	3	5
Total		14	18

The research was carried out on 32 *assistant* principals and teachers working in different educational institutions (preschool, primary school, secondary school and high school) in a province in the Western Black Sea Region. Attention was paid to include participants from equal education levels in the research.

2.2 Data Collection and Data Collection Tools

Qualitative research is a process in which many data collection methods such as observation, interview and document analysis used and the perceptions and events revealed in a realistic and holistic manner in the natural environment (Yıldırım & Şimşek, 2008). In this context, data were collected using the interview form and document analysis methods. In the preparation of the interview form, firstly the literature review was made. A draft interview form with ten items was created. Two academicians, a teacher and a school principal for content validity, and a Turkish teacher to determine language proficiency were interviewed. Before giving the final form to the interview form, a pre-interview was held with three teachers. As a result of the feedback received as a result of the pre-interviews, five questions containing demographic information were added to the interview form, and a semi-structured interview form consisting of four main questions and two sub-questions under each question was formed.

During the data collection process of the study, due to the pandemic, the interview form was obtained via e-mail and, when necessary, calls were made by mobile phone to make explanations. Participants were given code names such as E1, E2, E3,... The questions that constitute the Semi-Structured interview form are:

1) *Are generally your negative and wrong aspects, your behaviors or your strengths and behaviors that you do best emphasized by your school administrator?*

- *In which situations are your positive or negative aspects and behaviors more prominent at school?*

- *What kind of consequences does highlighting your positive or negative aspects and behaviors at school have?*

2) *Are generally the negative and wrong aspects, behaviors, or strengths and behaviors of the students highlighted by your school administrator?*

- *Applications in which positive or negative behaviors of students to be highlighted at school.*

- *The results of the positive or negative behaviors of students to be highlighted at school*

3) *Are the negative and wrong aspects of the school in general or the strengths and behaviors of your school that it does the best highlighted by your school administrator?*

- Applications highlighted positive or negative aspects in school.
 - The results of highlighted the positive or negative aspects in school
- 4) Does your school principal generally emphasize his / her negative and wrong aspects, behaviors, or his / her best strengths and behaviors?
- Situations and practices in which the school administrator highlights positive or negative behaviors about him / her
 - The results of the school principal's highlighting positive or negative behaviors about himself/herself

2.3 Data Analysis

Content analysis technique was used in the analysis of the research data. Content analysis is a systematic analysis of written and oral materials. Content analysis can be defined as the process of coding what people say and write according to clear instructions (Simon & Burstein, 1985; cited in Balci, 2010). Therefore, the data have been conceptualized, categorized, interpreted and presented. The stages followed in the study are generally as follows: transcribing the interview data sent via mail, organizing the written data, determining the concepts and expressions to be analysed, accessing key concepts from concepts and expressions, creating categories, analysing and explaining the data according to the specified categories and concepts; explaining, interpreting and presenting suggestions supported by direct quotations.

2.4 Reliability and Validity

The data collection process of the research was carried out and recorded in the e-mail environment in order to ensure the credibility, transferability, consistency and verifiability of the research within the scope of validity and reliability. Attention was paid to behaving objectively at all stages of the research. Care was taken to provide detailed information in the analysis of the data. Explanatory information is given in the method part of the study. The opinions of the participants in the study were presented in the findings section without comment and generalization. In order to ensure the verifiability of the study, it was explained in detail how the data were collected, the data were recorded and interpreted.

3. Results

It has been investigated what the positive situations highlighted by school administrators, teachers, students, the institution and themselves, as well as the results of positive situations and practices. 32 educators working at different educational levels participated in the study. The educators participating in the study stated that the school administrator generally exhibits positive organizational behavior. In this context, the research results have been categorized and interpreted under the following headings.

- Positive behaviors towards teachers at school and their consequences
- Positive behaviors towards students at school and their consequences
- Positive behaviors towards school and their consequences
- The positive behavior of the school administrator towards himself and its results.

3.1 a. Situations that the school administrator highlights best works of teachers and his / her strengths

School administrators generally emphasize the strengths of teachers and offer various opportunities to teachers in schools. For example, the administrator takes into account the strengths of teachers in effective implementation of teaching, methods and techniques, distribution of duties and responsibilities, use of technology, organization preparation, planning, programming, activities, group work, board meetings, developing education, scanning the field, and providing educational support. S/he supports projects. S/he appreciates the teachers by giving positive feedback. However, it is stated that school administrators should acknowledge teachers very well in order to highlight their strengths by the educators who participated in the study. It is also recommended that personal behavior should not be generalized.

3.1.b The results of the school principal's highlighting the strengths of the teachers that teachers do best:

School administrators encourage teachers to do new studies as a result of emphasizing the strengths of teachers in general, supporting them and appreciating them. This encouragement creates an objective, collaborative school climate. It both increases motivation and keeps it constantly alive. Communication within the school increases. School and teacher success increases. At school, a sense of we, not me, is created.

The answers given by the educators who participated in the research to this question are as follows:

In order for the education and training process to be more effective and the teacher to take a more functional role at this stage, our school administrator generally reveals more strengths and behaviors of us teachers. For example, in the educational environment, the strengths of teachers are mostly determinant in the distribution of duties and responsibilities. In another example, when our school principal assigns tasks or responsibilities to a technology-savvy teacher in school based on this strong characteristic, teachers' self-confidence increases and they become self-aware. In addition, the school administration, which deals with the wrong aspects of us educators from time to time, actually contributes to professional development in identifying our negative behaviors and providing the necessary support as well as knowing the strengths of the educators for the realization of education (E1). It highlights my strengths rather than what I do best. Just like the organization giving me the task of preparing for any organization to be held at the school. Like asking me to lead my other classmates in activities related to my field (E2). Good and good attitudes and behaviors are supported. Warnings are made in the appropriate language (E3). He reads the student progress reports and gives positive feedback (E4). Our school administrator highlights our strengths and behaviors that we educators generally do best. To give a concrete example, it always supports all kinds of work done for the benefit of the school and students. This support and appreciation of our manager encourage us teachers to do new studies. In the field surveys conducted recently in our school, teachers supported the colleagues in every subject and always appreciated the work done (E5). In order for our school administrators to know our strengths and weaknesses, first of all, they should know us well. A school administrator who does not know his staff well, unfortunately evaluates the educators according to the daily events. Our strengths are generally addressed to our institution. For example, the success of any teacher in the board meeting can be cited as an example (E6). Our school principal makes an objective explanation to us on this issue. It offers us suggestions on how to change our negative or wrong behavior. It always keeps our motivation high by highlighting the behaviors we do best (E7). It highlights my strengths more. Since our school is a vocational high school, many activities and activities are carried out. It is very important to establish School Industry cooperation. Last year, he commissioned me in the organization of our school's industry-school meeting. It was a very effective program. Planning the organization, inviting the participants, and leaving the program entirely under my coordination, gave me the opportunity to reveal my strengths (E8). Our principal highlights our positive and strengths / behaviors. In fact, I have witnessed many times that he used the expression "us" instead of "me" in the successes of our school where he was the pioneer. In incomplete or unfavourable situations, he undertakes the fault / fault himself and does not hurt the fault / mistake of the defective person, does not succumb to his personal ambitions and offend. Usually he tries to solve the situation in the most positive way possible for everyone (E9). Like a fellow teacher bringing his mistake to the agenda at every meeting and not commenting on the pleasurable situations that have developed (E10). Our school administrator always supports the implementation of teaching methods and techniques, communication within the school, and the successful fulfilment of our duties (E11). Students' successful results and positive behaviors are expressed in mock exams (T12). Our school principal attaches great importance to a positive school climate and cooperation. This approach creates a positive environment in the school (T13). Like a fellow teacher bringing his mistake to the agenda at every meeting and not commenting on the pleasurable situations that develop (E14). Generally, he assigns them to jobs that everyone thinks they can do according to their abilities (E15). My school principal always appreciates the work we have done, for example, during this epidemic. He talks about the good work we do in the general teachers' board meeting (E17). I am a Visual Arts teacher, thanks to the teachers' board meeting after my work, and praise me and my work (E18). He congratulates me verbally when I have good changes and success with my class or students (E19). He discovers that people in general have the intention and effort to work and makes it easy for him. For example, it supports me when I think I am doing my job properly, and helps when I need any help (E20).

3.2.a Situations where the school administrator the best works of students and highlights their strengths

There are lots of strengths and positive aspects of the students in school principal's school. Some of them are those; He gives tasks to students who can speak effectively in school programs. S/he provides opportunities for students with sportive success. These behaviors of students who display positive behavior are appreciated. The activities and skills that students do best are highlighted. Success is rewarded. Constructive criticism is made. Talented students are discovered. . S/he meets with the children one to one. . S/he provides materials suitable for children. . S/he organizes a wide variety of activities for students. . S/he tells them the good behavior of the child. . S/he provides financial support. However, it is also recommended that effective communication with students is required.

3.2.b The results of highlighting the positive aspects of the students whose the school administrator

As a result of emphasizing the strengths and positive aspects of the students in *the school administrator's* school, the quality of education increases. Students' behavior improves. Students realize themselves. Self-confidence and self-perception increase in students. They gain the necessary skills. Students act in accordance with the values. Problems are solved with an understanding of cooperation. Students become aware of their own abilities. Students feel comfortable and safe themselves. It helps teachers in the teaching-learning process. It prepares students for life. Students feel valued themselves.

The answers given by the educators who participated in the research to this question are as follows:

Our school administrator generally engages in activities that will highlight the strengths and behaviors of the students. For example, evaluating students with strong and effective speaking skills in school programs and students with strong sportive skills in this field gives very effective results. Our school administrator encourages the students to use their strengths and ensures that the product is of higher quality in education and that individuals realize themselves. Evaluating their strengths more predominantly helps students gain self-esteem (E1). Providing and providing appropriate materials for students. It organizes a wide variety of activities for students (E2). Our school administrator prepares students for life by bringing the positive aspects of the students to the forefront (E3). Strives for students to feel valued. It gives them financial and moral support (E4). MYZ My school is a school for disabled students. Our school principal attaches great importance to revealing the strengths and behaviors of our students and providing them with the necessary skills to continue their lives in the future without the need for anyone. The best example for this is the observation of students' skills in the 9th grade and placing them in the fields according to their skills in the 10th grade (E5). Our school administrator highlights the strengths and behaviors that students generally do best. To give a concrete example, we definitely announce every positive behavior that our students do in the school environment or outside, and that is in accordance with our values, at the National Anthem ceremonies, in order to take as an example for all our students. This situation positively affects our other students (E6). Our school administrator constantly reveals the positive aspects and thus increases the self-confidence of the students. In this case, students feel themselves in a comfortable and safe environment (E7). At our institution, students' strong and best jobs come to the fore. In particular, problems related to students are resolved with the cooperation of the psychological counsellor, guidance counsellor and parents. National and international achievements of students are rewarded (E8). Our school administrator takes care that our students must always be in line with a successful student profile. Makes constructive criticism of students on this issue (E9). Supports our students to highlight their strengths and behaviors. He enabled one of our unsuccessful students to demonstrate their talent in the field of sports and to prove themselves by giving them the necessary support (E10). As our school principal / administrators, we generally prefer to focus on the positive aspects. Since we are a vocational high school, the expectations of both the environment and the teachers of our school from the students are very low. However, we believe that each of our students is skilled and has aspects that need to be highlighted / discovered, and we emphasize this idea each time (E11). Usually, his communication with students is about misbehaviour. The communication process is completed by finding suggestions to prevent these behaviors (E12). Since pre-school education is continuous, children are always with their teachers. With the school administration, families, and teachers, children are made to behave positively (E13). Our school administrator meets with the children one-on-one in order to highlight the positive behaviors of the children. He tells the boy's good behavior to him. It helps the teacher (E15). Usually, his communication with students is about misbehaviour. The communication process is completed by making suggestions to prevent these behaviors (E16). It expresses that our students should always

be supported and that they are the future of us and our country. It works for vocational high school students to change the perspective of the environment (E17). My school principal appreciates those who have academic talent for their academic achievement, makes medals and rewards them. He tries to highlight these features of those who are talented in sports or fine arts and directs them (E18). He congratulates the children on the success they have achieved in the competition and often gives them a book, etc. rewards with things (E19). Emphasizes what students can do. It acts according to its potential. It contributes to the communication and social aspects of the student and their parents. For example; prefers to reward successful students in sports by advancing them in the field of sports. It also supports academically good students in this direction and talks with the student's classroom teacher and parents (E20).

3.3.a Situations and practices where the school administrator does the best and highlights the strengths of the school

Strengths and practices highlighted in the school are to have sufficient resources, the educators being effective, motivating, and the management unit being open to innovative developments. The products made by the students are shared with the environment of the school. The activities and projects carried out by them are published on the school website. The beautiful works of the school are exhibited, promoted and shared on social media. Precautions are taken beforehand for possible negative effects. The cleaning of the school is its internal and external security. However, it is recommended that importance and priority should be given not only to the academic achievements of the school principal but also to the development of relations with the school environment and employment areas.

3.3.b The results of positive situations/ practices highlighted at school

As a result of revealing the positive aspects of the school: suitable strategies for education and instruction are found and used. It provides coordination among school stakeholders. The strategic goals of the school are achieved. All teachers at the school work diligently, devotedly and make great efforts. The school has received a total quality certificate.

The answers given by the educators who participated in the research to this question are as follows:

Our school administrator finds the right strategy for the educational environment by revealing both the negative and strengths of our educational institution at the same rate. For example, the finding that the classroom corridors and common education areas of our school lack sufficient educational materials reveals a negative side of the school and also its strong side by emphasizing that there is an environment that has the potential to overcome this deficiency. Our school administrator also makes use of the strengths of the institution in achieving strategic goals. The most emphasized strengths of our institution are the sufficient resources, the effective and motivating staff of the educators, and the openness of the administrative unit to innovative developments (E1). It is the only school that has received a quality certificate within the scope of total quality management at the provincial level (E2). Rather, it reveals the strengths that our school does and has the best. For example, sharing the products made by our students with the environment of the school and exhibiting that our school is doing good work. Such as promoting school activities through social media (E3). Our school administrator is someone who praises the positive aspects of our school and makes an effort to increase these aspects. In this way, it conducts a coordinated study with all stakeholders of the school (E4). He takes an active role in projects that concern our school and includes them in pictures, videos, etc. shares them with images on social media or on the school site (E5). The achievements and strengths of our ÖG School stand out. For example, success in mock exams is seen as the strength of the school (E15). Our school administrator highlights the strengths that our school generally does best. To give a concrete example, all teachers in our school work selflessly. Everyone makes a great effort for our school and our students to continue their education and training activities under the best conditions. Our manager always makes his support felt everywhere, with all the means he can in these matters (E16). In my opinion, no manager wants to highlight the weaknesses of his institution. Usually, it brings the institution to the forefront in areas where it is strong. Of course, it takes measures in the weaknesses or tries to improve. The news we share on social media can be an example of this (E17). Although our school administrator is not satisfied with the physical structure of our school (the number of classrooms is small), he can tolerate this negative situation as much as possible. It reveals the strengths of our school (E18). Our school administrator generally highlights the positive and strong aspects of the school. It reminds us of the good work

we do in any situation / environment where positive / negative issues about our school come up, and emphasizes that we strive for better work and that we need to work with determination (E19). Since our school is a Vocational and Technical Anatolian High School, we can come forward with our stronger sides in the areas in our school. However, since our principal is not in the profession, he is trying to bring the school to the forefront, which is only focused on academic success. Unfortunately, it causes us to come to the fore with a negative aspect, not high, in our academic success. However, by opening a revolving fund in our school, it can produce products from fields to industry, it can be more effective in training qualified personnel for the sector. By actively interacting with the Chamber of Commerce and Industry, we can become a school that trains the staff the sector is looking for (E20). In general, we develop and strengthen these aspects of our work by taking an opinion on the works that are good and good. Before negative behaviors, measures are taken to prevent possible negativities. The activities and projects carried out are published on the school website (E21). Especially the cleanliness of the school and its internal and external security come to the fore (E22). It states that our school is a well-established school and should always be protected. Our school organizes an alumni meeting every year in cooperation with the Alumni Association (E23). Our school was not a school that prepared many students for the Fine Arts and Sports High School, when our principal came, he started the necessary work to prepare students for these high schools (E24). It enables us to discover the strengths of our school in general and contributes to the positive corporate culture of the school by organizing students, teachers and parents on these issues. For example; organizes social and cultural activities that can be done in our school, conducts interviews in the name of corporate culture and healthy communication, expresses that he values such issues (E25).

3.4.a Situations and practices in which the school administrator highlights positive behaviors about himself/herself

The situation is to be determined to leadership, guidance, effective speaking, ethical behavior and in decisions. S/he can communicate effectively, empathize, and act in accordance with the rules of courtesy. S/he can be just and respectful. S/he supports change efforts. S/he makes the right decisions for the effectiveness and efficiency of the institution. S/he uses a democratic and participatory management system. S/he makes use of school resources and educator elements. Being open to criticism is that s/he can also criticize himself when necessary.

3.4.b The results of the school principal's highlighting his/her positive behaviors about himself/herself

It creates a motivating education environment. S/he always improves himself/herself. The artistic aspect stands out. Being open to developments and trying to eliminate deficiencies. Trying to correct negative behaviors and taking responsibility in negative situations. It is the increase of general culture. However, it is also suggested that the school administrator should give more voice to the employees of the institution in order to increase the positive results about himself/herself.

The answers given by the educators who participated in the research to this question are as follows:

Our school administrator generally highlights his positive and strengths. For example, having an effective leadership role, insistence on ethical behavior, supporting change efforts in the school, taking the right decisions for the effectiveness and efficiency of the institution, gaining competence with postgraduate education and supportive education, adopting the idea that teaching is essential in the profession, all units in the school are on the denominator of good product output. To unite, to use democratic and participatory management system, to benefit from school resources and educator elements to achieve school goals, to create a motivating educational environment for the student and the teacher to realize himself, in short, to continuously improve himself to manage an educational institution effectively and efficiently it is a concrete indicator of using it more dominantly (E1). It is a role model (E2). Our principal often finds it appropriate to express his best or achievements (E3). My school administrator generally focuses on strengths (E4). In general, our school director focuses on his / her strengths and ensures that he / she can talk and move forward. For example, when talking about himself in a meeting or meeting, he expresses what he can do and acts in accordance with his character structure. (E5). It finds sponsors and proudly shares with us the educational materials provided free of charge to the school. He shares with us the achievements he has achieved and the thoughts he plans to make in his mind, and explains how useful projects are for the school and students (E6). I think he is a fair, respectful manager with empathy skills (E23). Our principal emphasizes the strengths that he does best. For example; I think he has a strong character in terms of his management position. Also, because his branch is painting, it has an artistic

side. It definitely has an artistic touch in the events and organizations to be held at the school. Like decoration (E24). Our school administrator is open to criticism. He is someone who can respond to all comments, good or bad, with maturity. Since our manager is open to developments, I do not think he would be uncomfortable hearing or expressing them when they have negative aspects (E25). Our school principal highlights his / her best performance or strengths. Human nature tries to hide negativity. He is aware of his own shortcomings and tries to improve them (E26). Our school administrator can criticize himself when necessary. It is quite natural for him to bring himself to the forefront in the works he has done and put a lot of effort into. However, he can criticize himself when necessary. He tries to correct his negative behaviors (E27). My School Principal highlights his strengths. My principal's strongest aspect is his preaching. It tries to guide students or teachers by talking about education, school, environment, student. Its general culture is quite good (E28). He underlines his positive aspects in general. However, when there is a negative situation about the school, he questions himself, his mistakes / deficiencies rather than the other. For example, his own speech, without giving the other party the right to speak at any meeting (29E). Our ÖG Manager often finds it appropriate to express his best or achievements (E30). Our school administrator is a kind, polite person who has a leading role in communicating with us. He is frank and sensitive (E31). Our school principal can change and update the curriculum if there is an error or a situation that may be better (E32).

4. Discussion

Positive psychology holds that we should deal with the positive aspects of human behavior rather than the negative aspects. The reflection of positive psychology understanding to the corporate environment is positive organizational behavior. In the present study, which investigated the results of positive organizational behaviors and positive organizational behavior of school administrators, it was obtained that the school administrator generally emphasizes the positive organizational behaviors of teachers, students, the school and themselves. These features are given in detail below.

4.1 School administrators highlight their strengths

4.1.a Situations about teachers

The school administrator offers a variety of opportunities to teachers in schools. S/he takes into account the strengths of teachers in effective implementation of teaching methods and techniques, distribution of duties and responsibilities, use of technology, organization preparation, planning, programming, activities, group studies, board meetings, developing education, scanning the field, and providing educational support. S/he supports projects. S/he appreciates the teachers and the students by giving positive feedback.

4.1.b Situations about students

S/he gives tasks to students who can speak effectively in school programs. S/he provides opportunities for students with sportive success. These behaviors of students who display positive behavior are appreciated. The activities and skills that students do best are highlighted. Success is rewarded. Constructive criticism is made. Talented students are discovered. S/he meets with the children one to one. S/he provides materials suitable for children. S/he organizes a wide variety of activities for students. S/he tells them the good behavior of the child. S/he provides financial support.

4.1.c Situations about school

Having sufficient resources, the educators being effective, motivating, and the management unit being open to innovative developments. The products made by the students are shared with the environment of the school. The activities and projects carried out are published on the school website. The beautiful works of the school are exhibited, promoted and shared on social media. Precautions are taken beforehand for possible negative effects. Trial exam results. The cleaning of the school is its internal and external security.

4.1.d Situations about the school administrator herself/himself

Leadership, guidance, effective speaking, ethical behavior and determination in decisions. They can communicate effectively, empathize, and act in accordance with the rules of courtesy. He can be just and

respectful. It is to support change efforts. It is to make the right decisions for the effectiveness and efficiency of the institution. It uses a democratic and participatory management system. It is to make use of school resources and educator elements. Being open to criticism is that he can also criticize himself when necessary.

4.2 School administrators highlight their strengths

4.2.a Results about teachers

As a result of his/her support and appreciation of teachers, s/he encourages teachers to do new studies. S/he creates an objective, collaborative school climate. S/he both increases motivation and keeps it constantly alive. Communication within the school increases. School and teacher success increases. At school, a sense of we, not me, is created. As Tugade and Fredrickson (2004) stated, positive emotions broaden the person's perspective cognitively (As cited in Narcıkara, 2017). Similarly, Luthans (2002; as cited in Özen Kutanis & Oruç, 2014) states that positive organizational behavior includes the development of existing employees and increasing their performance.

4.2.b Results about the students

The quality of education increases. Students' behavior improves. Students realize themselves. Self-confidence and self-perception increase in students. They gain the necessary skills. Students act in accordance with the values. Problems are solved with an understanding of cooperation. Students become aware of their own abilities. Students feel comfortable and safe themselves. It helps teachers in the teaching-learning process. It prepares students for life. Students feel valued themselves. Similar results were obtained in the research conducted by Şanlı (2009). According to the results of the research, it has been observed that the rate of bringing students to higher education is higher in schools where school principals who adopt a positive management approach and manage the school.

4.2.c Results about school

Correct and suitable strategies are found and used for education and instruction. It provides coordination among school stakeholders. The strategic goals of the school are achieved. All teachers at the school work diligently, devotedly and make great efforts. The school has received a quality certificate. Similarly, Güler and Saripek (2014; as cited in Tösten, 2015) stated that positive organizational behavior brings a higher commitment to the mission, values and goals of the organization, and employees are more willing, productive and collaborative while in a positive psychology.

4.2.d Results about the school administrator herself/himself

S/he creates a motivating education environment. It is constantly improving himself/herself. The artistic aspect stands out. Being open to developments and trying to eliminate deficiencies. Trying to correct negative behaviors and taking responsibility in negative situations. It is the increase of general culture. However, it is also suggested that the school administrator should give more voice to the employees of the institution in order to increase the positive results about himself.

As stated by Özen Kutanis and Yıldız (2014), emphasizing the positive aspects of people instead of their negative aspects helps to contribute to more effective human resources practices. The results of emphasizing the positive aspects and behaviors of the teachers, students, the school and himself in general also show consistency with the results of the school administrators' emphasized by Luthans, Youssef and Avolio (2006; as cited in Özen Kutanis & Oruç, 2014): Self-efficacy, hope, optimism, and resilience. The present results also support the thesis of Cameron, Dutton, and Quinn (2003) that positive emotions cause people to experience continuous and more positive emotions and to achieve positive outcomes, such as positive spirals that rise by influencing and expanding people's thinking behaviors and habits (Akt. Narcıkara, 2017).

Acknowledgments

When considering the positive organizational behavior in schools, increasing the institutional and individual performance and emphasizing the strengths of the institution and its employees, it can be said that educational institutions and managers should make positive organizational behavior a part of the corporate culture and

corporate climate. School administrators should approach employees and events with a positive perspective. The positive, best, and strengths of the organization and its employees should be brought forward. In addition, it is necessary that importance and priority should be given not only to the academic achievements of the school administrator, but also to the development of relations with the school environment and employment areas. It is stated by the educators who participated in the study that school administrators should know the teachers and students very well in order to highlight their strengths. It is also recommended that personal behavior should not be generalized.

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The Relationship Between Preschool Teachers' Attitudes Towards Science Education and Cognitive Flexibility Levels*

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Abstract

The aim of the research is to investigate the relationship between the preschool teachers attitudes towards science education and their cognitive flexibility levels. In this context, personal information of 207 pre-school teachers was collected with the Personal Information Form prepared by the researcher. Attitude Scale of Preschool Teachers Towards Science Education (Cronbach alpha coefficient: 82) and Flexibility Scale (Cronbach alpha coefficient : 81) used in the research. The Kolmogorov-Smirnov and Shapiro-Wilktest tests were used to determine the distribution of the data and Mann-Whitney U and Kruskal Wallis H tests were used in the research. It was seen that there was a positive and significant relationship between pre-school teachers' attitudes towards science education and cognitive flexibility levels.

Keywords: Attitudes Towards Science Education, Cognitive Flexibility, Preschool Teachers

1. Introduction

Preschool period covers the first years of life and greatly affects the future life of the child. With the gains acquired in this critical period, the personality of the child begins to form. Establishing the appropriate environment is very important, especially for science education to be carried out efficiently and effectively. Daily events such as boiling water at a certain temperature, falling of a pencil left from above with the effect of gravity are subjects of science education. It can be said that teachers in this period have important effects on the lifelong behaviors of children. Due to this effect, the teacher should have this feature in the first place in order to give children cognitive flexibility. Because, by nature of teaching, it requires reaching individuals with different characteristics and personality structures and knowing how to behave when unexpected situations are encountered. In the face of the aforementioned situations, the ability of the teacher to adapt thanks to his

* This study was produced from the master thesis prepared by Fatmagül Soylu under the consultancy of Banu Özkan.

cognitive flexibility is also important in terms of providing personal development for his students (Çuhadaroğlu, 2013).

It can be said that the concept of metacognition has an effect on the decision-making of children. According to Özcan (2007), individuals with advanced cognition skills, can determine their strategies and know how to use these strategies at the appropriate time and situation. When it is considered in terms of teaching profession, it is possible for individuals to use their metacognitive skills while transferring their experiences and strategies to children, as they have experienced these skills and also learning strategies. Dennis and Vander (2010) state that the individual should have cognitive flexibility in order to be able to change existing cognitive clusters in order to adapt to different environmental conditions.

Teachers should have cognitive flexibility in order to provide a good science education because of the fact that science education is affected by the developing technology and includes the conditions that cannot be calculated with its active structure. In addition, the use of scientific process skills while teaching science shows that cognitive flexibility and science education have common grounds. Based on these reasons, determining the relationship between attitude towards science education and cognitive flexibility and examining the effect of various variables on these two concepts made this research necessary.

2. Method

2.1. Research Model

This research is a descriptive study in the relational screening model to examine the relationship between pre-school teachers' attitudes towards science education and their cognitive flexibility levels.

2.2. Universe and Sampling

Target population of this study consists of pre-school teachers in Turkey. The sample of the study is 207 (12 males, 195 females) pre-school teachers living in Erzurum, Kütahya, Burdur, Gaziantep, Ağrı and Bitlis provinces in 2017-2018. These teachers were selected with the appropriate sampling method depending on the easy accessibility factor.

2.3. Data Collection Tools

2.3.1. Personal Information Form

Data collected with the Personal Information Form prepared by the researcher.

2.3.2. Attitude Scale Towards Science Education

“Attitude Scale of Preschool Teachers Towards Science Education” was first developed by Hyung-Sook-Cho, Kim and Choi (2003). Cronbach's alpha coefficient of the original version of the scale was calculated as .92. In 2010, adapted to Turkish culture by Pepele Ünal, Akman and Gelbal, the scale has a five-point Likert type consisting of 13 items in total (1- Never, 2- Very Low, 3- Occasional, 4- Mostly, 5- Always) is a scale. It consists of two sub-scales: Self-Development (6 items) and Self-Efficacy (7 items). The Self-Development sub-scale includes the following items: “I like to spend time collecting materials for scientific discoveries,” “I like to discuss with my colleagues about the ideas and subjects of science teaching.” In the Self-Efficacy sub-scale, there are items such as “I feel comfortable in my class while doing science activities,” “I will happily put children in scientific inquiries.” The Cronbach alpha coefficient, which was calculated to test the reliability of scale, was found as .82 in Self Improvement and .73 in Self Efficacy (Pepele Ünal, Akman & Gelbal, 2010).

2.3.3. Cognitive Flexibility Scale

Cognitive Flexibility Scale was developed by Martin and Rubin (1995) to determine the cognitive flexibility of the person. The original version of the scale was applied to university students in two different samples. Accordingly, Cronbach alpha coefficients; It was calculated as .76 for the sample consisting of 247 people (142

women, 105 men) and .77 for the sample consisting of 275 people (158 women, 117 men). The scale, adapted to Turkish culture by Altunkol (2011), consists of 12 items and 6-point likert type rating (1- Strongly Disagree, 2- Disagree, 3- A little Disagree, 4- A little Agree, 5- Agree, 6- Strongly Agree) is a scale used. The scale includes items such as: "I feel like I can never make a decision," "My behavior is the result of conscious decisions I make." It is seen that the internal consistency Cronbach alpha coefficient of the scale is .81 (Altunkol, 2011).

2.4. Data Analysis

SPSS 22 program was used for the analysis of the data obtained from the research and for statistical analysis. The Kolmogorov-Smirnov, Shapiro-Wilk test, Mann-Whitney U and Kruskal Wallis H tests were used.

3. Results

Table 1: Mann Whitney U Test Results for Preschool Teachers' Total Attitude towards Science Education, Attitude towards Science Education Sub-Scale (Self-Development, Self-Efficacy) and Cognitive Flexibility Scores on Gender

Dimensions	Gender	N	Rank mean	Sum of rank	Z	U	p
Attitude towards science education	Women	187	100.44	18782.50	-1.77	702.50	.08
	Men	11	83.50	918.50			
Self-development	Women	187	101.24	18932.50	-2.23	619.00	.03
	Men	11	69.86	768.50			
Self efficacy	Women	187	101.69	19016.00	-.96	852.50	.34
	Men	11	62.27	685.00			
Cognitive flexibility	Women	187	98.03	18331.50	-1.49	753.50	.14
	Men	11	124.50	1369.50			

According to Table 1, there is a significant difference in the self-development sub-scale of preschool teachers by gender ($Z: -2.23; p < 0.05$). When the rank averages are examined, it is determined that women have higher averages than men. However, there is no significant difference in attitude towards science education ($0.08 > 0.05$), cognitive flexibility total score ($0.14 > 0.05$) and self-efficacy sub-scale ($0.34 > 0.05$)

Table 2: Age-Related Kruskal Wallis Test Results of Preschool Teachers' Total Attitude Towards Science Education, Attitude Towards Science Education Sub-scales (Self-Development, Self-Efficacy) and Cognitive Flexibility Scores

Dimensions	Age	N	X ²	p
Attitude towards science education	18-23	22	4.28	.23
	24-29	112		
	30-39	56		
	40 age +	8		
Self-development	18-23	22	2.47	.48
	24-29	112		
	30-39	56		
	40 age +	8		
Self-efficacy	18-23	22	8.65	.03
	24-29	112		
	30-39	56		
	40 age +	8		
Cognitive flexibility	18-23	22	1.03	.79
	24-29	112		
	30-39	56		
	40 age +	8		

It is seen that there is a significant difference in the self-efficacy sub-scale (X2 (3): 8.65; $p < .05$). The result of the Mann Whitney U test to understand which groups differ is given in the table 3.

Table 3: Mann Whitney U Results According to Age of Self-Efficacy Sub-Scale Scores of Preschool Teacher

Age	N	Mean rank	Sum of rank	Z	U	p
18-23	22	88.82	1954.00	-2.83	763.00	.005
24-29	112	63.31	7091.00			
18-23	22	45.86	1009.00	-1.57	476.00	.12
30-39	56	37.00	2072.00			
18-23	22	16.07	353.50	-0.60	75.50	.55
40 age +	8	13.94	111.50			
24-29	112	80.70	9038.00	-1.44	2710.00	.15
30-39	56	92.11	5158.00			
24-29	112	59.80	6697.50	-0.83	369.50	.41
40 age +	8	70.31	562.50			
30-39	56	32.28	1807.50	-0.26	211.50	.80
40 age +	8	34.06	272.50			

There was a significant difference between the participants between the ages of 18-23 and those between the ages of 24-29. Accordingly, self-efficacy scores of the participants between the ages of 18-23 are significantly higher than the average scores of the participants between the ages of 24-29 ($p < .0083$). In addition, there was no significant difference in total attitude towards science education ($0.23 > 0.05$), self-development ($0.48 > 0.05$) and cognitive flexibility scores ($0.79 > 0.05$).

Table 4: Pearson Correlation Coefficients (Rho) Between Total Attitude Towards Science Education, Attitude Towards Science Education (Sub-Scales) and Cognitive Flexibility Levels

	1	2	3	4
1. Attitude towards science education	-	.88**	.84**	.31**
2. Self-development		-	.48**	.22**
3. Self-efficacy			-	.31**
4. Cognitive flexibility				-

When Table 4 is examined, a positive and significant relationship was found between attitude towards science education and cognitive flexibility ($r = .31$; $p < 0.05$). In other words, as the cognitive flexibility averages of the participants increase, their attitude towards science education also increases. In addition, as the cognitive flexibility scores increase, both the self-development sub-scale ($r = .22$; $p < 0.05$) and the self-efficacy sub-scale ($r = .31$; $p < 0.05$) increase significantly.

4. Discussion

According to the results of the analysis, it was observed that there was a positive relationship between total attitude scores and sub-scales (self-development, self-efficacy) and cognitive flexibility towards science education. Accordingly, teachers with high cognitive flexibility level are expected to show a positive attitude towards science education. Similarly, there are different studies in the literature that have a positive and significant relationship between cognitive flexibility and other dependent variables. As an example of these researches; Bilgiç and Bilgin (2016) found relationship between the cognitive flexibility and logical decision-making scores, Akçay Özcan and Kıran Esen (2016) found relationship between cognitive flexibility and emotional, academic, social and general self-efficacy, Alper and Deryakulu (2008) found a positive and

significant relationship between flexibility and students' attitudes, achievements and permanence in their learning, and Esen Aygün (2018) investigated relationship between cognitive flexibility and interpersonal problem-solving skills in their research and found a positive relationship.

Science education should be prepared for new situations, especially in the application part, teachers should be flexible and open to innovations. Otherwise, it will be difficult for teachers who can not think functionally, have a fixed mind and whose coping strategies are not developed, to provide sufficient efficiency in science education. It was observed that there was no significant difference in terms of gender variable in the total attitude and self-efficacy sub-scale of preschool teachers towards science education. However, it is seen that there is a significant difference in favor of female preschool teachers in the sub-scale of self-improvement attitude scale towards science education. Similar to this result, there are studies in which the gender variable shows a significant difference (in favor of female teachers) on attitude towards science education or teaching (Babaroğlu & Okur Metwalley, 2018; Can & Şahin, 2015). According to the research, the age variable has no effect on the total scores of attitude towards science education and the self-development sub-scale. According to this situation, it can be said that younger teachers and older teachers have a close attitude towards the lesson while they are giving science education and in their personal development activities. It is seen that other situations such as professional interest, motivation, working conditions, environmental conditions are more effective than the age factor of the teachers. Elmas and Kanmaz (2015), examined the science efficacy competencies of teachers, reached the same result and stated that age factor had no effect in science education. Okur Akçay (2014) supports this result by stating that there is no statistically significant difference in age and science education attitude scores in the study where pre-school teachers examined their attitudes towards science education according to some variables. Likewise, in his research on preschool teachers Sönmez (2007), concluded that science education does not differ significantly according to the age variable. However, it was concluded that age variable had a significant effect on self-efficacy, which is the sub-scale of attitude towards science education. It was observed that there was a significant difference between the teachers between the ages of 18-23 and 24-29, and the scores of the teachers between the ages of 18-23 were significantly higher. According to the items within the scope of the self-efficacy sub-scale, it can be said that the knowledge of the new graduates in this age range, who have the necessary knowledge in terms of academics and who have mastered the course contents, is a possible result of the freshness and use of student-centered new methods and methods.

Suggestions for Researchers

- In other studies, it can be suggested that the relationship between cognitive flexibility and more different variables should be examined.
- Qualitative methods can be used in new studies on this subject.

Suggestions for teachers

- There is a significant relationship between the cognitive flexibility of preschool teachers and their attitudes towards science education. Accordingly, teachers can participate in courses, seminars, workshops that will develop themselves in the direction of cognitive flexibility.
- Teachers can create learning environments to increase their cognitive flexibility levels by using problem solving method in their experiments and activities within the scope of science education.

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Alice Growing Up in ‘Temporary Protection’ Land: Immigrant Students’ Identity Development as a Reflection Toward Inclusion Practices

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Abstract

Our aim was to understand the adaptation process, belonging to Turkish culture, ethnic identity development among Syrian students arriving in Turkey and how they develop a sense of belonging and adapt their identities to become integrated into Turkish life and education. In this study, qualitative method and phenomenological research design were preferred. The process of adaptation of immigrant students to a new culture, school and ethnic identity was investigated. Convenience sampling method was preferred, and semi-structured interview form was used as data collection tool. As a result of the content analysis, three categories and 12 concepts related to the adaptation process were revealed. Three concepts were frequently emphasized about the actions of the family in the adaptation process. Six concepts were frequently emphasized about events that led to significant experiences in the school in adaptation process. Three concepts were frequently emphasized about environments’ contributions to adaptation process. Three categories and 16 concepts related to belonging to new culture, school, and class were revealed. Six concepts were frequently emphasized whether they feel part of the new culture. Four concepts were frequently emphasized if they feel belonging to the new school. Six concepts were frequently emphasized whether they feel belonging to the new class. Three categories and 11 concepts related to ethnic identity in school were revealed. Three concepts were frequently emphasized about teachers’ behavior in the classroom. Four concepts were frequently emphasized about ethnic identity grouping in activities. Four concepts were frequently emphasized about ethnic identity in games and homeworks.

Keywords: Immigrant Students, Identity Development, Acculturation

1. Introduction

We live in an era in which the world changes fast and countries and nations are affected from this period. Increasing the demands, working areas and transportation opportunities of people with technological developments brought multinationalism and multiculturalism. As a result, almost all societies are unable to

maintain their culture, language, and identity structures (Berry, 2009). Berry states that this is related to the fact that people must leave their homeland for various reasons, in other words, they migrate. According to him, the reasons why people go to other countries can be categorized as; asylum, escape from war, work, education, and tourism as well as international trade and political relations which are the result of globalization in our age. All these factors, cited by an increase in the number of multinational countries bringing together communities of different ethnicities, are forcing more and more people to flee from their country as immigrants (Berry 2009). Methods that will make it easier for people to live together and in harmony in social life should be used in democratic and multinational countries that accept immigrants. A process called “acculturation” takes place while people learn to live together and adapt to each other (Berry, Phinney, Sam, and Vedder, 2006; Saygin & Hasta, 2018).

1.1. Acculturation

Acculturation was described by Flaskerud (2007) and Gibson (2001) as, the change caused by the interaction of one group with another. As a result of the interpersonal interaction between them in the acculturation process, changes occur in the language, values and behaviors of both the host society and the immigrant minority society. Despite these changes, it is stated that both groups continue to differ from each other in their essence (Flaskerud, 2007). The acculturation process affects both the host and immigrant society. However, some researchers (Berry, 2001; Bourhis & Dayan, 2004; Flaskerud, 2007; Rohmann, Piontkowski, & van Randenborgh, 2008) argue that immigrants are more affected by the acculturation process.

Eunyoung and Jeannette (2013) identified acculturation from psychological development aspect and stated that acculturation is an important concept used to explore immigrants’ psychological well-being, family conflict, and issues related with mental health. The ability of the culture process to work depends on the symbiotic contact between individuals or groups with different cultural backgrounds and the alien group’s adaptation to the new culture. For many immigrant-origin students, acculturation is an important issue. Scholars (Ferguson, Ferguson, & Ferguson, 2017; Schwartz, Unger, Zamboanga, & Szapocznik, 2010; Unger, Gallaher, Shakib, Ritt-Olson, Palmer & Johnson, 2002) point out that there are three dimensions of acculturation; (i) the behavioral dimension, which includes cultural practices such as language and media tours followed, (ii) the emotional dimension that corresponds to cultural identification, such as the individual’s sense of belonging to the country he/she had to abandon or migrate from, and (iii) the cognitive dimension, which defines the individual putting the needs of his/her family in front of his/her own.

Gordon’s One-Dimensional Cultivation Model (Gordon, 1964) and Berry’s Two-Dimensional Cultivation Model (Berry, 1980) are two basic approaches toward acculturation process. The One-Dimensional Cultivation Model was developed by Gordon in 1964. According to Gordon, there are two options for the immigrants. First, it adheres to its own culture, ethnic origin, values, behavior and attitude. The second option is to adapt to the culture of the country of migration. The Gordon model stipulates that successful cultural adaptation must break with all ethnic ties (Bourhis, Moise, Perreault, and Senecal, 1997). Therefore, Bourhis et al. (1997) evaluated this model as assimilation. This model has been criticized for being inadequate due to the two options it offers (eg Rogler, Cortes, and Malgady, 1991), after which a “two-dimensional cultivation model” has been developed, which takes acculturation more extensively. The Two-Dimensional Cultivation Model was developed by John W. Berry. Contrary to the one-dimensional culture model, according to this model, which deals with acculturation more extensively, minority or immigrant groups can maintain their essential cultural or self-cultural identity while maintaining socially necessary relations with the host society (Saygin & Hasta, 2018). When Berry first developed the model, he identified eight cultivation trends. However, today it is seen that the number of these approaches has decreased to four; integration, separation, assimilation, and marginality (Berry, 2001).

1.2. Identity development

The level of education in the migrated country, the language of the subject, gender, length of life in the host country, age, marital status, religion, social identity and social distance are variables that affect the culture and adaptation process. Identity development is a serious result of acculturation and adaptation process and related with social identity. Goodenow and Espin (1993) argued that considering some factors in the identity development process positively affects the identity development process of immigrant students. In this context, it would be correct to talk about three factors. The first factor is the problems individuals face after gaining immigrant status. Being a newcomer as well as belonging to the ethnic minority group can be given as examples of additional difficulties. The second factor is the old country's and the host country's perspective on gender equality. The third and the last factor argues that there is an interaction between the first two factors. Ethnic or cultural identity and gender are a whole in social life. They intersect with each other and are influenced by each other.

The individual's not losing his identity while adapting to the new culture and his ability to adopt his new identity in a healthy way makes the process of identity formation eccentric, especially when it comes to adapting to a new country and culture (Catalano, Fox, & Vandeyar, 2016). As a result, immigrant students are forced to choose between refusing to adapt to the new culture or adaptation very quickly. In addition, it is a necessity to adapt to the gender understanding of the culture they migrate into. Goodenow and Espin (1993) pointed out the difficulties that immigrant students may face in the process of identity development, and argued that the necessity to adapt to the new culture brings along a new understanding of gender and a balance skill that will make it easier to have a sense of belonging to both cultures.

Birman (1998) underlines that many factors affect the process of identity development, such as the social class or status in the old and new culture, the previously established closeness with the people of the immigrated country, the experiences that cause them to leave their country, the problems encountered in the new country and in the new social life there. Immigrants try to create a sense of meaning, identity and self-consciousness in everyday life in their new country. In doing so, they make use of the new culture's elements such as ethnic identity, racial characteristics, gender perception and social class structures. Rubin (2007) examined the identity development process of immigrant youth and concluded that the situation of those living in urban areas in particular is overlooked and among cultural practices and structural inequalities, their real life experiences with employees such as teachers, police forces and social workers should also be taken into account. For example, Syrian immigrant students will have a completely different experience of acculturation from the civil war in Syria. There are some advantages that immigrants can take advantage of in the process of adapting to the new culture; having friends or family with people from the host community, being able to enroll in a school that accepts immigrants and has an effective bilingual education program.

As Guerrero (1974) said, rapid acculturation has a possible effect on identity development. Being an immigrant, having to leave your homeland and living in a completely different country is not an easy thing. Combined with rapid cultural changes, Syrian immigrants feel like they are stuck in a cage. There are some cultural changes that await them in this cage such as erasing all traces of the Syrian culture and to reject all limitations imposed by the native culture, learning the values, norms and language of Turkish culture; wearing Turkish style clothes; changing their name to a Turkish name; listening to Turkish music and changing preferences and habits in social life by adapting to the Turkish culture. Although this situation may initially be perceived as a "progress" for Syrian immigrant community, a rapid or excessive change in cultural values may lead Syrian migrants to develop an untrue personality by detaching all of them from their core and rejecting everything about their old culture in their current psychological inventions.

1.3. Gender and identity development

Goodenow and Espin (1993) reported that gender, together with the influence of ethnic origins and immigration, is very influential in the identity development process of immigrants. Sexual maturity and sexual roles play a

key role in the transition from childhood to adulthood and in all areas of life. As with other areas of psychology, researchers in identity development preferred to focus specifically or primarily on men. The experiences of women in the process of identity development have recently begun to be studied. Although immigrants face the problems of culture as a whole, these problems do not affect men and women in the same way (Goodenow & Espin, 1993). Espin (1987), working on immigrants in the United States, demonstrated that the process of men adapting to the American culture is happening quickly, while women are expected to preserve their former cultures' roles and virtues. It is expected that there will be a conflict inappropriate sexual role behaviour and sexuality in this context. It is not difficult to predict that this conflict will be severe and permanent, especially in women who grow up in the old cultural environment (Espin, 1987). The degree of alienation of women and men in the new culture is quite different from each other and, according to Goodenow and Espin (1993), the contrast between the old culture and the new culture's gender roles can easily lead to a feeling of being in limbo.

1.4. Acculturation and identity development

It is compulsory for immigrant students to adapt to the culture of the country they migrate to, if they will not return back to their home country. Berry (1983) states that there may be different forms of cultural adaptation at this point. For example, immigrant students may become marginalized members of the new culture while continuing identity development process smoothly, or the cultural experience may result in failure. Studies (Cervantes, de Snyder ve Padilla, 1989; Jaycox, Stein, Kataoka, Wong, Fink, Escudero ve Zaragoza, 2002; Kartal, Alkemade, & Kiroopoulos, 2019; Torres-Matullo, 1980) have revealed that severe depression, post-traumatic stress disorder and other serious mental health problems are common among immigrants, and the problem of inability in adapting to school is common among immigrant students who have recently had to leave their country (First & Carrera, 1988; Frattini & Meschi, 2019; Olson, 1988).

Williams and Berry (1991) argued, from a multi-cultural point of view, that all migrants who migrate to a different country face opportunities and threats to their cultural and individual identities from the law under the pressure of psychological pressure or cultural adaptation. Changes in values, behaviors and credentials create the traditions of the culture to be adapted to. In this context, Kazempur and Hulli (2001) concluded that the socio-economic status, the length of life in the immigrated country, the support of parents and friends, and the socio-political structure of the new culture strongly influence the culture experience of immigrants.

1.5. Ethnic media and identity development

Ethnic identity, a form of cultural identity, is about how individuals and groups define and make sense of themselves in terms of the ethnic group to which they belong. Jeffres & Hur (1980) observed that ethnic media exist for ethnic groups that are not assimilated, isolated, and put their ethnic identities at the centre of their social lives. Wang (2006), on the other hand, argued that there is a positive relationship between ethnic media use, ethnic identity and ethnicity criteria. Ethnic media also reinforces ethnic identity and enables immigrants to retain their main cultural characteristics. Many immigrants who had to leave their country of origin and grow and migrate to a new country want to preserve their cultural ties and ethnic identity. Ethnic media are used to meet this need (Wang, 2006).

Research (Gülner, 2011; Lee & Tse, 1994; Viswanath & Arora, 2000) revealed that ethnic media has a striking effect on ethnic identity development and culture. While the dominant ethnic media negatively affects the culture in the long term, the ethnic media strengthens the ethnic identity and enables the immigrant society to protect its own culture. For example, Im (1998) reported that Korean migrants maintaining their roots loyalty led them to follow the Korean media more, not the American media. Findings also revealed that following the Korean media negatively affects their adaptation to the new culture (American culture). Data also show that empowerment of ethnic media plays a positive role in the process of ethnic identity development (Jeffres, 2000).

People who had to leave their country of birth and who were named immigrants face the ethnic identities they left behind while trying to adapt to the new culture. Ethnic identity presents a dynamic and multi-dimensional structure. Individuals who adopt their ethnic identity prefer to take part in group activities in their social lives in

their new countries, to have a sense of belonging, to get involved with the members of their own society, which is not appreciated by the new society, and to define themselves as a member of a particular ethnic group (Cokley, 2007). Identity development in the adopted country must be evaluated comprehensively, since the immigrant students left behind their first culture and meet a new one. And, within the scope of this research, both Syrian and Turkish cultures require a realistic appraisal and an adequate mourning for what has been lost. We aimed to understand the adaptation process, belonging to Turkish culture and ethnic identity development among Syrian students arriving in Turkey. How Syrian students develop a sense of belonging and adapt their identities to integrate with Turkish life and education is the main purpose of the study.

2. Method

2.1. Research design

The aim of the study is to evaluate the process of Syrian immigrant students' adaptation to Turkish culture and acquiring an ethnic identity, and to examine their comments on the new culture and the school where they were educated. Within the scope of the study, qualitative research method and phenomenological design were preferred among research approaches. The purpose of the phenomenological pattern is to reveal the perceptions and experiences of individuals about the facts that they are aware of but do not have detailed information about. The data source of this design is the individuals or groups who experience the phenomenon that the research focuses on and who can project or reflect it (Altunışık, 2002; Yıldırım & Şimşek, 2006).

2.2. Participants

Convenience sampling, which refers to the sample group that the researcher can easily reach, was preferred in determining the participants of the study. The reason for this preference is that it is economical and makes it possible to obtain more detailed information (Paton, 2001). Eight students who study at the school that receives the most immigration in Nizip district of Gaziantep province, who do not speak Turkish and who have identity conflict were selected as sampling group.

2.3. Data collection

The semi-structured interview form was used as data collection tool. Conducting the interview based on a pre-prepared interview protocol that provides more systematic and comparable information is the greatest convenience provided to a researcher by the semi-structured interview technique (Yıldırım & Şimşek, 2006). Interviewing, on the other hand, according to Bogdan and Biklen (1998), is held with two or more people for a predetermined purpose and to obtain information. In the interview, the questions of the interviewer are answered by the participants and the researcher records these answers in various tools. Berg (1998) noted that interview questions are usually asked in a systematic and fixed order to the interviewer. Interviewer can ask the questions in any order they want during the interview and make explanations whenever he/she sees it when necessary (Yıldırım & Şimşek, 2006). Belonging to school and class; the level of conversations about class, age, gender, nationality in their new schools; time spent in Turkey; socio-economic status of parents; ethnic identity and a new culture, education and harmony were the questions to be answered.

2.4. Data analysis

The data obtained from the questions asked to the students were analyzed by using thematic analysis technique. Yıldırım and Şimşek (2006) made some suggestions to researchers who want to make thematic analysis. In this research, the aforementioned suggestions were also used. The first step is to create a frame for analysis. This is followed by the second step, that is the processing of the data according to the thematic framework. The third step is to process the data according to the thematic frame. The definition and interpretation of the findings refers to the fourth and last step. The main purpose of the analysis is to present the data for readers, arranged and interpreted according to the determined themes. In this framework, the collected data are first described in a logical and understandable manner, the depicted data is interpreted, the cause-effect relationship between the

findings is examined and interpreted by the researcher and these comments are included in the discussion part. In this framework, the students' ideas, which were recorded with audio and video, were recorded in computer environment and concepts were created, without taking into account the misrepresentation and incorrect sentence structures and making any corrections. The names of the students participating in the interview were coded. The data obtained were re-integrated based on the concepts and made ready for interpretation (Adu, 2019; Silverman, 2001).

2.5. Reliability and validity

Internal validity (credibility) was tried to be ensured by expert examination, participant confirmation and keeping the duration of the interviews long. External validity was carried out by detailed description method. In order to examine whether the categories and concepts obtained were organized effectively or not, they were presented to the opinions of 2 experts and necessary arrangements were made in line with the suggestions.

3. Results

In this section answers of students are analyzed, and findings are as below:

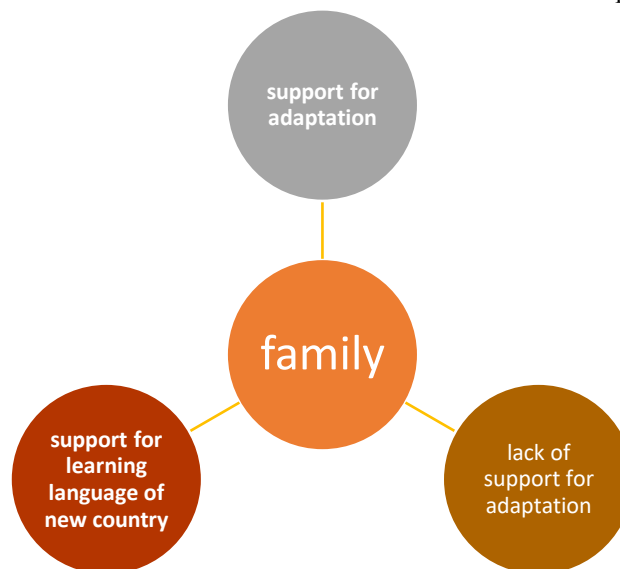
Findings about experiences in the adaptation process:

First of all researchers aimed to learn what the students experienced while adapting to culture in Turkey. The following questions were asked to the students in order:

- Are there any events you experienced with your family to adapt to this culture? Did your family contribute to this adaptation process?
- Are there any events you experienced in the school to adapt to this culture? Did teachers and peers contribute to this process?
- Are there any events you experienced in the environment to adapt to this culture? Did your environment contribute to this process?
- How did these events that you experienced affect your ideas?

As a result of the content analysis, three categories and 12 concepts related to the adaptation process were revealed.

Figure 1: Views of the students about their families' contributions to adaptation process



As seen in the figure 1, 3 concepts were frequently emphasized about the actions of the family in the adaptation process. These are support for adaptation, lack of support for adaptation, support for learning language of new country. The statement of a student about the question is as follow:

“My father used to bring home a notebook with Turkish words and teach us Turkish from it.”

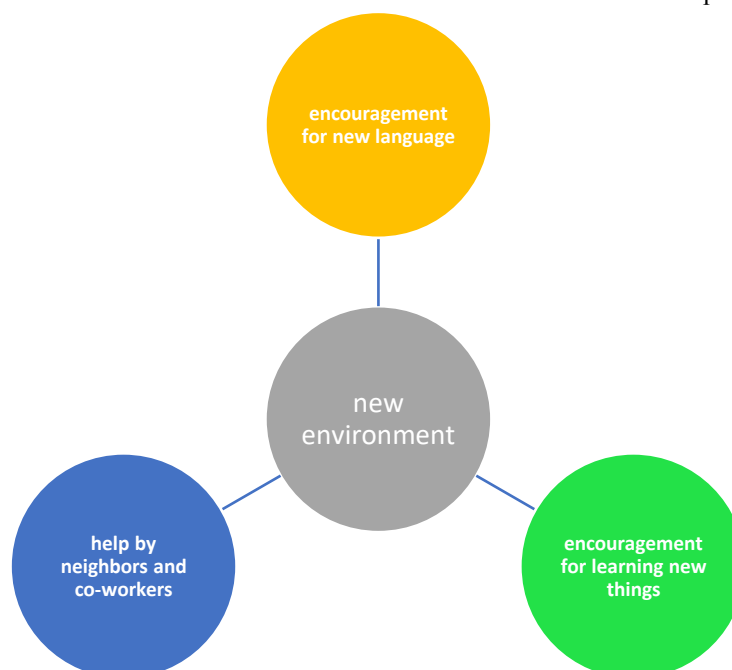
Figure 2: Views of the students about events that experienced in the school while adaptation process



As seen in the figure 2, 6 concepts were frequently emphasized about events that are experienced in the school while adaptation process. These are acceptance by peers, language proficiency causing acceptance, learning school norms, encouragement for language by students, encouragement for language by teachers, and fear about loneliness. The statement of a student about the question is as follow:

“All of my classmates helped me learn Turkish quickly.”

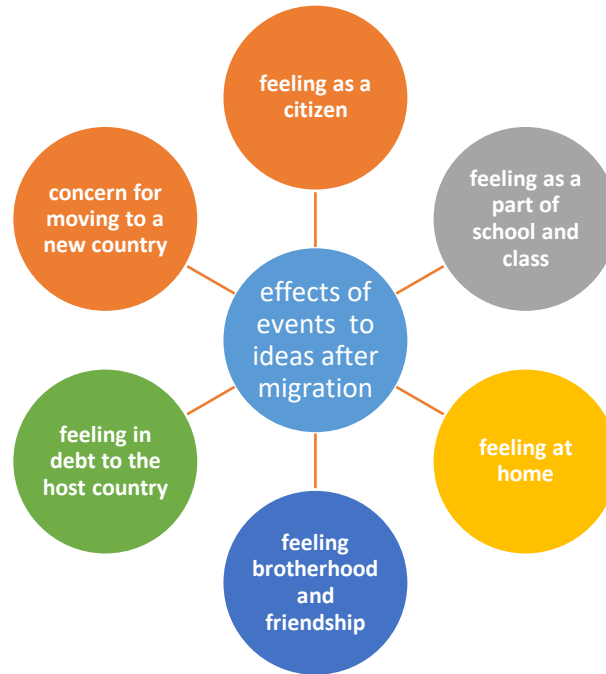
Figure 3. Views of the students about their environments’ contributions to adaptation process



As seen in the figure 3, three concepts were frequently emphasized about environments' contributions to adaptation process. These are encouragement for new language, encouragement for learning new things, help by neighbors and co-workers. The statement of a student about the question is as follow:

“I did not know Turkish and our neighbors and relatives encouraged me to read in Turkish and helped me learn Turkish.”

Figure 4: Views of the students about effects of events to ideas after migration



As seen in the figure 4, six concepts were frequently emphasized about effects of events to ideas after migration. These are feeling as a citizen, feeling as a part of school and class, feeling at home, feeling brotherhood and friendship, feeling in debt to the host country, and concern for moving to a new country. The statement of a student about the question is as follow:

“I did not know Turkish and our neighbors and relatives encouraged me to read in Turkish and helped me learn Turkish.”

3.1. Findings about belonging to new culture, school, class

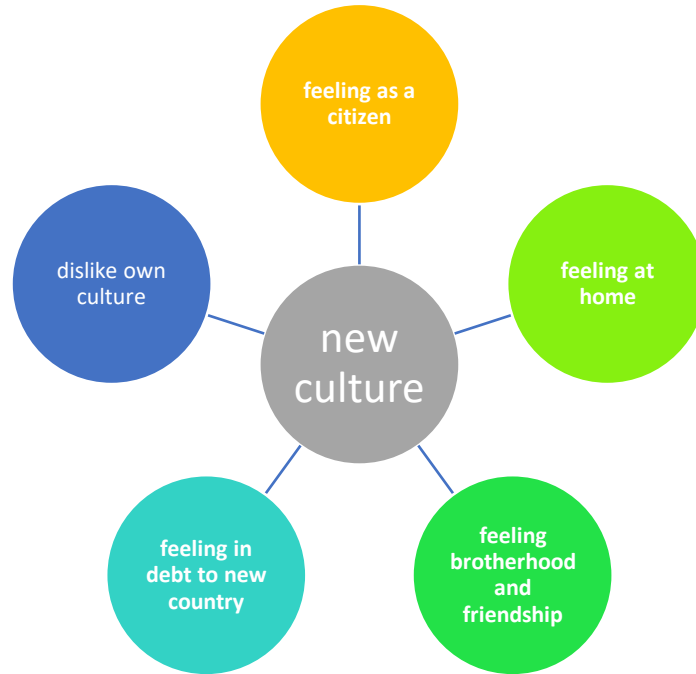
Secondly researchers aimed to learn about students' belonging to the new culture, school, and class.

The following questions were asked to the students in order:

- Do you feel part of the new culture? Why?
- Do you feel like you belong to your school? Why?
- Do you feel like you belong to your class? Why?

As a result of the content analysis, three categories and 16 concepts related to belonging to new culture, school, and class were revealed.

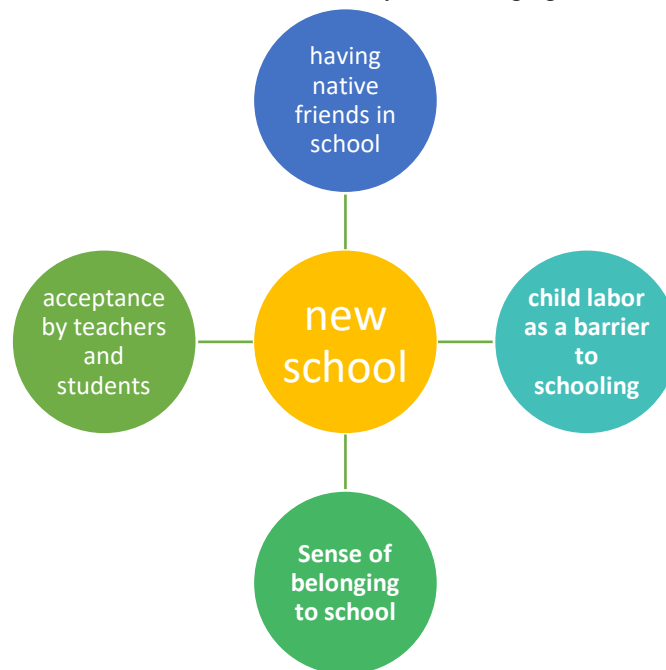
Figure 5: Students' views on whether they feel part of new culture or not



As seen in the figure 5, six concepts were frequently emphasized whether they feel part of new culture or not. These are feeling as a citizen, feeling at home, feeling brotherhood and friendship, feeling in debt to the host country, and dislike own culture. The statement of a student about the question is as follow:

"This is a country I love and I want to pay my debt. I feel very indebted to this country."

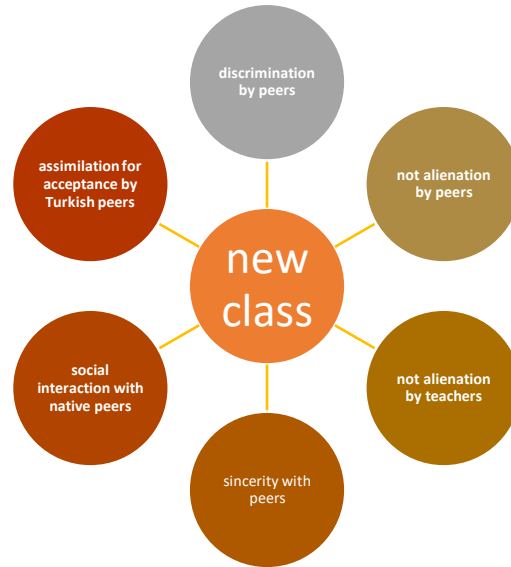
Figure 6: Students' views on whether they feel belonging to the new school



As seen in the figure 6, four concepts were frequently emphasized whether they feel belonging to the new school. These are having native friends in school, child labor as a barrier to schooling, sense of belonging to school, acceptance by teachers and students. The statement of a student about the question is as follow:

"My teachers and friends support me. I won't stay here for even one second if they don't support."

Figure 7: Students' views on whether they feel belonging to the new class or not



As seen in the figure 7, 6 concepts were frequently emphasized whether they feel belonging to the new class. These are discrimination by peers, not alienation by peers, not alienation by teachers, sincerity with peers, social interaction with native peers, and assimilation for acceptance by Turkish peers. The statement of a student about the question is as follow:

“First, I was excluded, then they started to like me because I started learning Turkish. They did not like me before, but now they do. My friends never talked to me when I first arrived, but now they talk and consult me about everything.”

3.2. Findings about ethnic identity in school

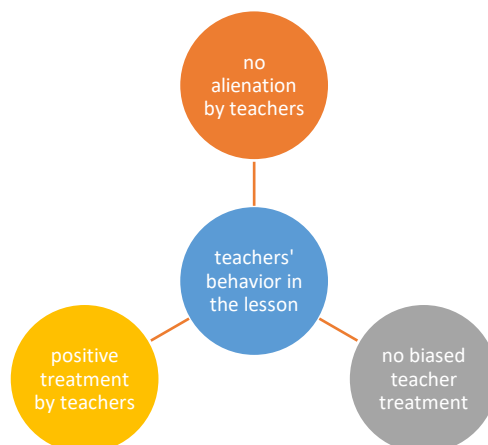
Finally, the researchers aimed to learn students' experiences about their ethnic identity in school.

The following questions were asked to the students in order:

- *Do your teachers behave differently towards you based on your ethnic identity?*
- *How are groups determined in lessons that used grouping activities?*
- *Is your ethnic identity effective in doing homework and playing games with Turkish students?*

As a result of the content analysis, three categories and 11 concepts related to ethnic identity in school were revealed.

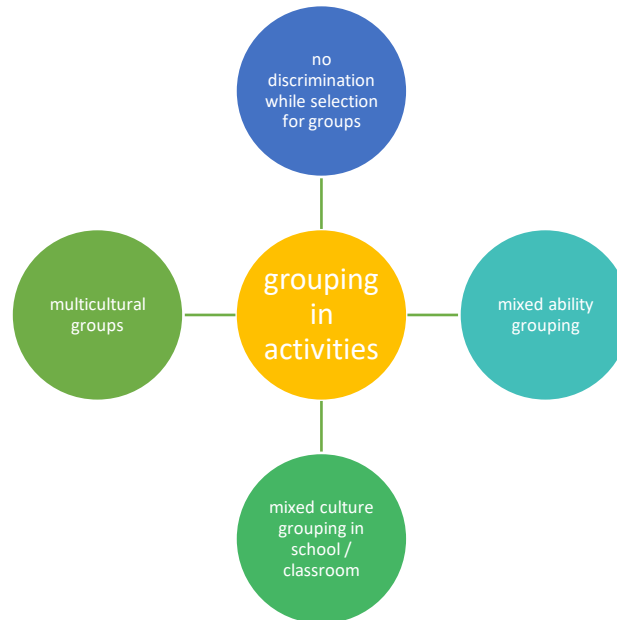
Figure 8: Views of the students about teachers' behavior in the lesson



As seen in the figure 8, three concepts were frequently emphasized about teachers' behavior in the lesson. These are not alienation by teachers, not biased teacher treatment, and positive treatment by teachers. The statement of a student about the question is as follow:

"I love my teachers because they do not discriminate students according to their ethnic identity."

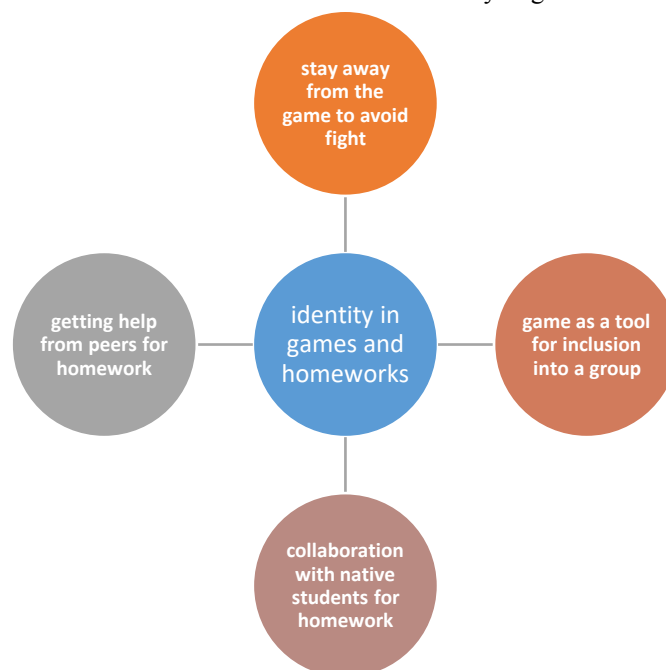
Figure 9: Views of the students about ethnic identity grouping in activities



As seen in the figure 9, four concepts were frequently emphasized about *ethnic identity* grouping in activities. These are no discrimination while selection for groups, mixed ability grouping, mixed culture grouping in school/classroom, and multicultural groups. The statement of a student about the question is as follow:

"Our teacher says that you will not exclude your friends, when I ask a question, you will talk and answer together. As Syrians and Turks, we form a mixed group."

Figure 10: Views of the students about ethnic identity in games and homeworks



As seen in the figure 10, four concepts were frequently emphasized about *ethnic identity in games and homeworks*. These stay away from the game to avoid fight, game as a tool for inclusion into a group,

collaboration with native students for homework, and getting help from peers for homework. The statement of a student about the question is as follow:

“Before I came here, I didn't know the hopscotch game, but my neighborhood friends taught me it.”

4. Discussion

As a result of the content analysis, three categories and 12 concepts related to the adaptation process were highlighted. Three concepts were frequently emphasized about the attitudes of the family in the adaptation process. *These are supported* for adaptation, lack of support for adaptation, and support for learning language of the new country. Conflicts between old and new cultures can have serious effects on cultural adaptation and some actors can affect identity development negatively. Ellis & Chen (2013) explored the identity development progress of 11 undocumented college students living in the United States and concluded that older family members' traditional values that are part of their native culture affect immigrant children's identity development negatively. Six concepts were frequently emphasized about events that are experienced in the school during the adaptation process. *These are* acceptance by peers, language proficiency needed for acceptance, learning school norms, support for language learning by peer students, support for language learning by teachers, and fear about loneliness. Three concepts were frequently emphasized about environments' contributions to the adaptation process. *These are* encouragement to learn the new language, encouragement for learning new things, help by neighbors and co-workers. Rubin (2007), on the contrary, found that civic participation and positive attitudes toward civic participation affect identity development positively. Students who have experience of ideals and life's realities that reflect an alignment/harmony and who develop an active attitude in civic participation are affected by the identity development positively. Students who have experience of ideals and life's realities that reflect a nonalignment/disharmony and who develop an active attitude in civic participation are affected by the identity development positively. Students who have experience of ideals and life's realities that reflect a nonalignment/disharmony and who develop a passive attitude in civic participation are affected by the identity development negatively.

As a result of the content analysis, 3 categories and 16 concepts related to belonging to new culture, school, and class were highlighted. 6 concepts regarding how much the new culture was embraced by the immigrants, were frequently emphasized. These are feeling as a citizen, feeling at home, feeling brotherhood and friendship, feeling in debt to the host country, dislike of own culture. 4 concepts were frequently emphasized regarding how much belonging they feel for the new school. These are having native friends in school, child labor as a barrier to schooling, sense of belonging to school, acceptance by teachers and students. 6 concepts were frequently emphasized regarding how much belonging they feel for the new class. These are discrimination by peers, reconciliation by peers, reconciliation by teachers, frankness with peers, social interaction with native peers, and assimilation to be accepted by Turkish peers. Bresnahan and Kim (1993) researched international teaching assistants in the US and found out that the biggest dream of these assistants was getting an assistantship prize at a major US university but they were also a greatly concerned about facing US undergraduate hostility and racism. On the other hand, according to Çelik & İçduygu (2019) Syrian students systematically raised their concerns regarding bullying and unfavorable stereotypes they receive from their peers in and outside of school. Even though some of these students could come over these problems by seeking help from their teachers, many other felt left out, bullied, stigmatized and outcast while some can solve these problems by asking for help from their teachers, many felt depressed, stigmatized, bullied and alienated. Ham, Yang & Cha (2017) found that, students with a native language that is different from the education language at the school were more likely to develop a lesser feeling of belonging at school. Similarly, by investigating mental health worries and the dealing mechanisms of 274 Chinese, Japanese and Korean immigrant junior high and high school students, Yeh & Inose (2002) concluded that the all three Asian immigrant groups commonly faced problems of communication difficulties. Using the social support networks was reported as the most frequently used coping strategy and Japanese students were more prone to interpersonal problems.

As a result of the content analysis, 3 categories and 11 concepts related to ethnic identity in school were revealed. 3 concepts were frequently emphasized about teachers' behavior in the lesson. These are; reconciliation

by teachers, no biased teacher treatment and positive treatment by teachers. 4 concepts were frequently emphasized about ethnic identity grouping in activities. These are; no discrimination during the selection for groups, mixed ability grouping, mixed culture grouping in school/classroom, multicultural groups. 4 concepts were frequently emphasized about ethnic identity in games and homework. These are; to stay away from the game to avoid fight, game as a tool for inclusion into a group, collaboration with native students for homework, getting help from peers for homework. According to the school principals, overcrowded classrooms is one of the most significant problems in the physical condition of the schools as recorded by Sahin & Sumer (2018). Language and communication difficulties, ostracization, prejudice, differences in cultural backgrounds, factions within the students, fighting and integration difficulties are specified as the major problems between the Turkish and the Syrian students. The major behavioral problems of the Syrian student at school were determined to be absence from the school, lack of discipline, frequent change of residence, factions within the students, being held to a higher standard and discontent with the teacher. The language difficulties, communication issues, having teachers with different attitudes, sense of being an outcast, grouping and different cultural backgrounds come forward as the primary problems that teachers have Syrian students while communicating with them. Identity development is a sophisticated process which have multiple source of influence such as native and the host cultural factors. There is a constant exchange between these value systems. Identity is built as a product of these exchanges between the native and the host cultures influences. Identity development is a dynamic process. Cultural (native-host country), contextual (obstacles) and personal (endurance) elements impact the development of immigrant students' own identity. External elements (legal, financial and interpersonal obstacles) can affect identity development negatively (Ellis & Chen, 2013).

This research can be repeated with other samples and methods. The reasons as to why immigrant students do not have family support during the adaptation process, the reasons of negative attitudes of their peers towards immigrant students, the reasons for immigrant students' employment at a young age, the reasons for their fear of loneliness and the reasons for their reluctance to be involved in games with their peers can be investigated.

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The Effect of Children's Literature Works on Students' Tendency to Violence

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Abstract

In this study, it was tried to determine whether the works of children's literature containing violence are effective on the violent tendencies of 7th grade students. In the research, one of the mixed method designs, triangulation (diversification) design was used. In the quantitative dimension of the study, the pre-test and post-test control group model was used, among the quasi-experimental designs, and in the qualitative dimension, the phenomenology design was used. The study group of the study consists of 50 students, 25 of whom are control and 25 of them are experimental groups, studying in 7th grade in Kahraman Kids Secondary School in Edremit district of Van province. In the study, the aggression scale developed by Buss and Perry as a quantitative data tool and adapted to Turkish by Demirtaş Madran; Semi-structured interview form was used as the qualitative data tool. SPSS 18 statistical package program was used in the analysis of quantitative data, and content analysis method was used in the analysis of qualitative data. According to the quantitative results of the study, no significant difference was found between the scores of the experimental and control groups in the post-test of the aggression scale at the end of the application. According to the data obtained through the semi-structured interview form, it was determined that the students mostly liked the children's books containing violence, they found them exciting, fluent and beautiful.

Keywords: Violence, Tendency to Violence, Children's Literature, Violence in Books

1. Introduction

1.1 Children's Literature and Children's Reading Tendencies By Ages

Stating that the concept of children's literature emerged in the first quarter of the 20th century, Karatay (2007) states that all of the products that can appeal to the understanding, emotion, imagination and thought world of children in the developing age can be called children's literature. According to him, children's literature is all oral, written and visual products that can appeal to the world of thought of young individuals of the society who are not adults and need to be educated.

Much has been said about the content and quality of children's literature. According to Şirin (1994), literature for children is above all language. Literature enriches the child's world. Good literature develops literary taste and a sense of beauty. It contributes to the child's knowledge of himself / herself and his / her environment, to speak well and to develop his / her tastes; prepares the ground for the emergence of talents; Improves thinking and commenting skills. Again, according to him, the most effective genre that feeds the child's soul is literature.

Children's literature works that contribute to the affective, cognitive and spiritual development of the child reader must be qualified and appropriate for the child's development and age group. Because children's interest in reading and books varies at certain ages. It is stated that children are between the ages of 6-7 interested in short, illustrated fairy tales with animals, giants and fairies; at 9-10 ages, tales of children tools and inventions, and works on the lives of famous men; 12-15 years old children, respectively, more interested in works and tales about home life, fairy tales about school life, fairy tales, love stories and works dealing with historical subjects (Kantarcıoğlu, 1991).

In the classifications made according to age groups, it is called the adventure period between 12-15 years. The child is in the pre-adolescent development stage during this period. At this age, there is an increasing interest in group formation and demonstrations of toughness. Reading interest is also in this direction. In this period, emotionalism and self-prominence are seen, so there is a tendency towards adventure books, emotional romance novels and travel books (Güneş, 2017).

On the other hand, children in the 11-14 age group also enjoy subjects related to adventure, hobbies, family life, interests and likes (Çakır, 2013).

According to a study conducted on middle school students, it was seen that 50.5% of the participants preferred texts like adventure, 48.2% fear, and 47.3% comedy (Bayat & Çetinkaya, 2018).

1.2 Reflection of Violence on Children's Literature

Violence is one of the most important problem areas of the age (Yılmaz & Destegüloğlu, 2019). According to Şirin, the world we live in is a world that produces violence and where violence is globalized. Children are the weakest and unprotected object of the culture of violence, and children grow up recognizing all types of violence (Şirin, 2016, p.204).

One of the media elements that can lead children to violence is children's books (Yavuzer, 2009, p. 243). There are two different opinions about whether or not there should be violent elements in children's books. While the first of these claims that violence should not be included in children's books in any way, the second opinion argues that violence can be included in the books provided that it is not presented as a solution (Yılmaz & Destegüloğlu, 2019).

According to Şirin, even if concrete violence in real life is reflected in literature in isolation, not every child can distinguish it. Literature can have a reinforcing effect on a child who has embraced violence. The book can fulfill a potential stimulating or stimulating function. (Şirin, 2016, p.205).

Sever (2002) draws attention to the existence of an understanding that contradicts the aims of the Basic Law of National Education and the universal provisions of the Convention on the Rights of the Child in some books prepared for children and young people starting from pre-school period to the youth period in our country.

He states that so-called children's books can meet with children in libraries, bookstores and textbooks. According to him, the emotional and mental health of our children is damaged by violent and ideological books.

Children are surrounded by guided, against human nature, intended to destroy human sensitivity, and naturalize aggression and violence. In addition, Sever is opposed to children's books that affirm violence and show it as a

way to solve problems, instead of displaying an understanding that is totally opposed to violence in children's books; argues that these books are not suitable for children.

According to Neydim (2003), in order for children to cope with their own fears, they need to encounter texts with reflected elements of violence and fear. Although it contains elements of violence and fear, Harry Potter was fondly read by children, and according to children, this book helped them cope with their fears. Neydim, as a result of his studies with students at various levels, objects to the display of children's literature as the source of the phenomenon of violence in children. According to him, these children did not even encounter proper literary texts, let alone encounter violence in children's literature. Therefore, there have never been literary texts that internalize violence in children. The real problem is in the understanding of education. The literary text should not be placed before the child as an absolute authority, and the child's right to criticize, object and refuse should not be taken away.

Nimon (1993) states that violence should be included in children's books. According to him, even if it is annoying, children should read these books in order to confront the realities of life, and these books take on the task of preparing children for the phenomenon of violence in real life. In addition, Nimon considers the exposure of the pain caused by violence in children's books containing violence important for the child to realize the reality of violence.

In the literature review, many studies have been found that deal with the phenomenon of violence in the context of children's literature. These studies examined both domestic and foreign works on the basis of the phenomenon of violence and the principle of relativity to children (Aktaş & Uzuner Yurt, 2017; Fırat, Güleç & Şahin, 2013; Güney 2007; Kuzu, 2003; Fırtına, 2003; İçözü, 2003; İlkan and Koç, 2003; Running, 2003; Sivri, 2003). There is only one applied study examining the children's readers' thoughts and reactions about the violent books. In this study carried out by Kayman (2020), seven stories of Ömer Seyfettin, which include different types of violence and different characters, were read to 5th grade students, and their reactions to these works were tried to be determined. In the study, it was observed that the students did not like these mostly violent works and wanted to exclude the scenes of violence from the work.

After reviewing the relevant literature, no other study other than the above-mentioned applied study was found. On the other hand, it was necessary to conduct such a study as it was aimed to determine how the violence in the works of other authors in Turkish and World Literature is perceived by students in older age groups and whether these works affect their violent tendencies. It is thought that the study will contribute to the literature and add breadth.

1.3 Aim of the research

The aim of this study is to determine whether children's books with violent content are effective on the violent tendencies of middle school 7th grade students. For this purpose, answers to the following questions were sought:

1. Is there a significant difference between the pre-test and post-test scores that the experimental and control group students got from the aggression scale?
2. What are the opinions of the experimental group students about the violent books they read?

2. Research Model

In this study, one of the mixed method designs, triangulation (diversification) design was used. The diversification pattern includes the collection and analysis of quantitative and qualitative data separately. The purpose of this design is to combine the results obtained from the analysis of quantitative and qualitative data (Creswell, 2017b: 37). In the research process, after the quantitative and qualitative data were collected, they were analyzed and combined.

In the quantitative dimension of the study, a model with pre-test and post-test control group, which is one of the quasi-experimental designs, was used. In the experimental study, measurements are made at the pre-test and post-test stages with measurement tools (Creswell, 2017a; 170).

In the qualitative dimension of the study, the phenomenology design was used. Phenomenology is a research model used to investigate the phenomena that people are aware of in daily life but do not have in-depth knowledge (Yıldırım & Şimşek, 2016). This study was also aimed at this study, and it was tried to examine students' views on violent children's books in detail using qualitative data collection tools.

2.1 The Study Group

Research was carried out with 7th grade students studying secondary school in the city of Van in Turkey. In the study, which included an experiment (N=25) and a control group (N=25), two classes with similar Turkish course achievements were selected. The two selected classes were divided into experimental and control groups by lot. The descriptive data of the experimental and control group students are presented comparatively in the tables below.

Table 1: Gender distribution of the experimental and control group students

Groups	Female	%	Male	%	Total
Experiment	13	52,0	12	48,0	25
Control	14	56,0	11	44,0	25

According to Table 1, there are 13 girls, 12 boys in the experimental group, 14 girls and 11 boys in the control group, 25 students in each group, and 50 students in total.

Table 2: Education levels of the mothers of the experimental and control group students

Education Levels	Experiment	%	Control	%	Total
Illiterate	7	28,0	8	32,0	15
Primary school graduate	10	40,0	9	36,0	19
Secondary school graduate	8	32,0	8	32,0	16
Total	25	100	25	100	50

Looking at Table 2, the mothers of the students in both groups are "illiterate," primary school graduates and secondary school graduates, at three different education levels. In addition, it is seen that the education levels of the mothers of the students in the experimental and control groups are close to each other.

Table 3: Educational levels of the fathers of the experimental and control group students

Education Levels	Experiment	%	Control	%	Total
Illiterate	4	16,0	5	20,0	9
Primary school graduate	8	32,0	9	36,0	17
Secondary school graduate	7	28,0	6	24,0	13
High school graduate	6	24,0	5	20,0	11
Total	25	100	25	100	50

According to Table 3, the fathers of the students in both groups have four different educational levels: "illiterate," primary school graduate, secondary school graduate, and high school graduate. In addition, it is seen that the education levels of the fathers of the students in the experimental and control groups are close to each other.

Table 4: Average family income levels of the experimental and control group students

Income Level	Experiment	%	Control	%	Total
Between 0-1500 TL	15	60,0	17	68,0	32
Between 1500-3000 TL	7	28,0	6	24,0	13
Between 3000-4500 TL	3	12,0	2	8,0	5
Total	25	100	25	100	50

When Table 4 is examined, it is seen that the average family income level of the students in both groups varies between 0 and 4500 TL, and the average family income levels of the students in both groups are close to each other.

2.2 Application Process

The research was carried out after the approval of the research permit obtained from the Governorship through the Van Provincial Directorate of National Education. In the study, attention was paid to the fact that the experimental and control group students were close to each other in terms of Turkish course success and demographic characteristics. The application part of the research lasted 8 weeks. Help was received from the school counselor during the implementation process and it was provided to support the students throughout the application. After the pre-test was applied to the students in the experimental and control groups, four books were read to both the experimental and control groups. It was paid attention that the books read by the control group were non-violent. These books are as follows:

1. Sevim Ak's work titled "Uçurtmam Bulut Şimdi" (My Kite is A Cloud Now)
2. Yalvaç Ural's work titled "Korkuluğun Kalbi" (The Heart of the Scarecrow)
3. Mustafa Ruhi Sirin's work "Her Çocuğun Bir Yıldızı Var" (Every Child Has a Star)
4. Gülten Dayıoğlu's work titled "Dünya Çocukların Olsa" (I Wish The World Belonged to Children)

The students in the experimental group, on the other hand, read four violent books. These books are as follows:

1. Ahmet Rasim's work called "Falaka" (Bastinado)
2. Kemalettin Tuğcu's work called "Kuklacı" (The Puppeteer)
3. Muallim Naci's work titled "Ömer'in Çocukluğu" (Ömer's Childhood)
4. Mark Twain's work titled "Tom Sawyer"

After the students in the experimental and control groups read the aforementioned books, the researchers applied a post-test to both groups. Subsequently, the students in the experimental group were given an interview form, and they were asked to express their opinions in writing in order to determine their thoughts about the books they read and the scenes of violence in these books. In all the studies carried out throughout the application, care was taken to avoid directing expressions, attitudes and behaviors that could affect the students' thoughts.

2.3 Data Collection Tools

In the study, "Aggression Scale" was used as a quantitative data tool and "Semi-Structured Interview Form" was used as a qualitative data tool.

2.4 Aggression Scale

Aggression Scale is a scale developed by Buss and Perry (1992) and adapted into Turkish by Demirtaş Madran (2012). This scale, which has 29 items and 4 factors, is prepared in 5-point Likert type. In the reliability studies of the scale, the internal consistency coefficient was calculated and test-retest and test halving methods were used. The internal consistency (Cronbach's alpha) coefficient was 0,85 for the whole scale, 0,78 for the physical aggression sub-factor, 0,71 for the hostility sub-factor, 0,71 for the anger sub-factor, and 0,48 for the verbal aggression sub-factor. In order to determine the criterion validity, the correlation of the Multidimensional Anger Scale (Balkaya & Şahin, 2003) of the Turkish form with the "anger-related behaviors" subscale was examined,

and it was determined that the correlation between the two scales was significant at the level of 0,01 (Demirtaş-Madran, 2012).

2.5 Semi-Structured Interview Form

After the application, a semi-structured interview form was prepared by the researchers to determine the students' views on violent children's books. In order to determine whether the questions in the interview form were suitable for the purpose or not, the opinions of a total of six people, including three Turkish teachers, two faculty members, and a psychological counselor, were consulted. After taking expert opinions, the questions in the form were finalized and used in the study.

2.6 Data Analysis

In order to determine which statistical tests should be used before analyzing the scores obtained by the students from the data collection tools, it was checked whether the total scores obtained in the pre-test and post-test were normally distributed (normality test). According to the results of the normality tests, the test types used in the analysis were determined.

The skewness and kurtosis values indicating the normality value of the pre-test and post-test scores of the experimental and control groups regarding the aggression scale are shown in Table 5.

Table 5: Results of normality tests for the aggression scale of the experimental and control groups

Groups	Test Type	Skewness	Kurtosis
Experimental Group	Pretest	,718	,294
	Posttest	,901	,067
Control Group	Pretest	,996	,297
	Posttest	,961	-,006

According to George and Mallery (2003), the skewness and kurtosis values of a scale between -2 and +2 indicate that it is in a normal distribution. In the research, when the reference mentioned above is taken into consideration, it is seen that the skewness and kurtosis values of the experimental and control groups show a normal distribution.

In this study, in which the effect of violent children's literature works on students' tendencies to violence was examined, "SPSS 18" statistical package program was used to understand whether there was a significant difference between the experimental group and the control group students in terms of pre-test and post-test. Independent groups t test was used to determine the difference between experimental and control groups. Significance level was accepted as at least 0.05.

The qualitative data of the research were analyzed through content analysis. The 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, 2016). In this analysis process, firstly, the opinions of the students were listed, the codes were extracted and the code numbers were calculated. Later, the codes and student responses related to the codes were given in tables and interpreted. For the reliability of the content analysis, the answers given to the questions were coded by two coders. The reliability coefficient between the coders was calculated as 0,92 by the formula of Miles and Huberman (1994). Reliability = Consensus / (Consensus + Disagreement). Based on this formula, the result was $23 / (23 + 2) = 0,92$.

3. Results

Findings of the statistical analysis of the data obtained from the research are given below.

3.1 Findings for the first question of the research

The results of the independent measurements t-test indicating the difference between the pre-test averages of the scores obtained by the students in the experimental and control groups from the aggression scale are given in Table 6.

Table 6: Results regarding the pre-test scores that the experimental group and control group students got from the aggression scale

Grups	n	\bar{X}	SD	df	t	p
Experiment	25	65,76	9,33	48	,156	,877
Control	25	65,28	12,23			

As a result of the analysis, no statistically significant difference was found between the experimental group students' pretest mean score ($\bar{X} = 65.76$) and the control group students' average score ($\bar{X} = 65.28$) [$t(48) = .156$ ($p = .877$)]. According to the pre-test results, it can be said that the aggression tendencies of the experimental and control groups are close to each other before the application. The results of the independent measurements t-test indicating the difference between the post-test averages taken by the students in the experimental and control groups from the aggression scale are given in Table 7.

Table 7: Results regarding the post-test scores that the experimental group and control group students got from the aggression scale

Grups	n	\bar{X}	SD	df	t	p
Experiment	25	64,16	7,987	48	,282	,779
Control	25	63,44	9,937			

As a result of the analysis, no statistically significant difference was found between the experimental group students' post-test score average ($\bar{X} = 64.16$) they got from the aggression scale and the control group students' mean score ($\bar{X} = 63.44$) from the aggression scale [$t(48) = .282$ ($p = .779$)]. This shows that the experimental group students' tendency to violence does not increase after reading violent books.

3.2 Findings for the second question of the research

This section includes content analysis of the opinions taken from the experimental group students in order to evaluate the books they read. In the study, 5 open-ended questions were asked to the students, and themes and codes were obtained from the answers given by the students. The results obtained in this way are presented in a table and examples of the answers given by the students to the questions are given. In order to get students' opinions about which works they prefer more, first of all, the following questions has been asked: "Which features do you look for in the books you read, what kind of books do you like more?". In this direction, the answers given by the students to the questions are shown in Table 8.

Table 8: Students' opinions about the features of the books they like

Student Views	f	%
It should include action and mystery	8	32,0
It should be interesting	7	28,0
Its content should be good	4	16,0
The way of expression should be good	2	8,0
Should be clear	2	8,0
Must be emotional	2	8,0
Total	25	100

As seen in Table 8, based on the answers given by the students to the above question, six categories were created. These can be listed as “should include action and mystery (32,0%)”, interesting (28,0%), good content (16,0%), good expression (8,0%), understandable (8,0%), must be emotional (8,0%)”. According to the data obtained, it is seen that students like interesting books with more action and mystery. Some of the students stated that they liked the books with good content and expression and in which emotional subjects were told. In this context, some students' views are as follows:

Of the books I have read, I like to read the most action and mystery books. Because these are among the books that touch me the most. (Ö5).

I am impressed that the books I read are interesting. (Ö12).

If there is a good content in a book it is worth to read. Because I like books about love, friendship and friendships more. (T8).

I look at the way of expression. I always read the ones with good narration. (Ö9).

I like clear ones. I get tired of the books I don't understand (T4)

I am an emotional person. I would be impressed if I read emotional books. (S13)

During the implementation process, four violent books were read to the experimental group students. In order to get the opinions of the students about the first book they read called Falaka, the following question has been asked: “What are your thoughts about the book called Falaka? Can you explain?”. In this direction, the answers given by the students to the questions are shown in Table 9.

Table 9: Students' views about the book called Falaka

Student Views	f	%
Beautiful	10	40,00
Exciting	7	28,00
Full of violence	4	16,00
Distressing	3	12,00
Depressing	1	4,00
Total	25	100

As seen in Table 9, based on the answers given by the students to the above question, five categories were created. These can be listed as beautiful (40,00%), exciting (28,00%), violent (16,00%), saddening (12,00%), depressing (4,00%). The data obtained show that most of the students liked the book called Falaka and thought it was beautiful and exciting. Some students stated that the book was violent, distressing and depressing. In this context, some students' views are as follows:

It was a nice book, I read it right away. I can recommend it to others. The thing that draws my attention about the book is that the child is afraid of the teacher, in fact, there was no need for this fear (T2).

Falaka is a very exciting and mysterious book. That's why I liked the book Falaka. I read it fondly because I had read it before (T5).

I liked the book. He was generally excited. Actually, it could have been a little more thrilling. I think there should be constant action. It is more enjoyable (T6).

There is a lot of violence in the book. Hodja always punish students by bastinado. This is not good at all. I don't think it's fun (T15).

I was very upset while reading the book. Students are always beaten. I think it should not be like this, bastinado is not good (S6).

I didn't like the book. To tell you the truth, I was very depressed. Students were beaten (T13).

It is seen that the majority of the students used positive expressions about the book called Falaka. Students describe the violent incidents in the book as excited and mysterious. In addition, it is observed that the students are not affected by the violent scenes in the book.

In order to get the opinions of the students about the another book called "Ömer's Childhood?", they have been asked "What are your thoughts on the book "Ömer's Childhood?" Can you explain?" In this direction, the answers given by the students to the questions are shown in Table 10.

Table 10: Students' opinions about the book named Ömer's Childhood

Student Views	f	%
Fluent	7	28,0
Beautiful	7	28,0
Full of adventure	4	16,0
Depressing	4	16,0
Boring	3	12,0
Total	25	100

As seen in Table 10, based on the answers given by the students to the above question, five categories were created. These can be listed as fluent (28,00%), beautiful (28,00%), full of adventure (16,00%), distressing (16,00%), boring (12,00%). The data obtained show that the majority of the students liked the book named Ömer's Childhood and stated that the book was beautiful and full of adventure. Some students stated that they did not like the book and that they were sad and bored while reading. In this context, some students' views are as follows:

Ömer's Childhood book was good, I liked the book and its fiction was good (T6).

The book was good. I finished in a day. I found the part where the dog attacked Ömer excited (T4).

I think Ömer's Childhood was an adventurous book. I love such adventurous ones (T11).

The book was not good. I was upset while reading the book. I was saddened by what happened to Omer (T5).

The book was boring. I think it could have been a little more exciting (T9).

Students mostly gave positive opinions about the book named *Ömer's Childhood*; They stated that they liked the book, were impressed by it, and found it fluid and full of adventure. Considering these views, it is seen that the students are not affected by the violent events much, but they find these events exciting, fluent and adventurous.

In order to get the opinions of the students about Tom Sawyer, another book that they read, firstly, the question of "What are your thoughts on the book Tom Sawyer? Can you explain?" has been asked. In this direction, the answers given by the students to the questions are shown in Table 11.

Table 11: Students' views about the book named Tom Sawyer

Student Views	f	%
Full of adventure	8	32,00
Exciting	6	24,00
Fluent	5	20,00
Boring	3	12,00
Containing violence	3	12,00
Total	25	100

As seen in Table 11, based on the answers given by the students to the above question, five categories were created. These can be listed as adventurous (32,00%), exciting (24,00%), fluid (20,00%), boring (12,00%), violent (12,00%). According to the data obtained, most of the students stated that they liked the book named Tom Sawyer and found it full of adventure, exciting and fluent. Some students, on the other hand, stated that they did not like the book, that they were bored while reading, and that there were violent scenes in it. In this context, the views of some students in the study group are cited below:

I liked the book. An adventurous book. Tom's days are always eventful. I like such books very much (T3).

I think the exciting parts were very good. It was an exciting book. I think there should always be action in the books (T4).

Tom Sawyer was both beautiful and fluent. I especially liked Tom's mischief. The writer thought well (T15).

Tom Sawyer drew my attention and I read it with enthusiasm. Because the adventure was too much. Something caught my attention in the book. At the end of the book, if the Native American Joe had not been stuck in the cave and had not died, it would have been better if Tom and his friend set up a trap and catch him instead (T7).

The book was boring to me. There was no incident in it. I think I expected it to be a little more exciting and I didn't like the story as it is (T9).

I do not like. There is always evil. They kill each other. There is violence. I think there should be more good people. Tom must be a nice guy. It should help people (T6).

Students mostly gave positive opinions about Tom Sawyer. The students stated that the book was full of adventure, exciting and fluent. Some students stated that they found the book boring and did not like the scenes of violence. In this context, it was observed that most of the students were not affected by the violent incidents in the work.

Another book that the students read was Kemalettin Tuğcu's work called Kuklacı. In order to get the opinions of the students in the study group about the work named "Puppeteer," what are your thoughts about the piece named "Puppeteer? Can you explain?" The question has been asked. In this direction, the answers given by the students to the questions are shown in the table below.

Table 12: Students' views about the book called Kuklacı

Student Views	f	%
Exciting	7	28,00
Fluent	6	24,00
Beautiful	4	16,00
Distressing	4	16,00
Depressing	2	8,00
Violent	2	8,00
Total	25	100

As seen in Table 12, based on the answers given by the students to the above question, six categories were created. These can be listed as exciting (28,00%), fluid (24,00%), beautiful (16,00%), saddening (16,00%), depressing (8,00%), violent (8,00%)) are listed as. The data obtained show that most of the students liked the book called Puppeteer and thought the book was beautiful, exciting and fluent. Some students stated that the book was distressing, depressing and containing violence. Some students' views about the book are given below:

The Puppeteer was a very exciting book. I liked this book. The events were very exciting, I think the fiction is good (T25).

I liked the book. It's a fluent book. I like such books. I never wanted to leave the book (T18).

I think it was a good book. It wasn't boring. I read it to the end because it is well written (T3).

I didn't like the book very much. People in the family say very bad words. They don't like each other. I got sad while reading the book (T6).

I never liked the book. I was very depressed while reading the events between them. They work behind each other. They are yelling and calling (T9).

I don't think the book is beautiful. The man hits the woman and blood flows from his lips. I do not like such books (T23).

It is seen that the majority of the students used positive expressions about the book called The Puppeteer. The students stated that they liked the events in the book and found them excited. In addition, it was observed that a great majority of the students did not mention the parts in the book containing physical and psychological violence.

4. Discussion and Conclusions

This study, in which it was tried to determine whether children's books with violence content were effective on the violent tendencies of 7th grade students, had both quantitative and qualitative results.

According to the quantitative results of the study, no significant difference was found between the scores of the experimental and control groups in the post-test of the aggression scale at the end of the application. This result revealed that violent children's books are not effective on 7th grade students' violent tendencies.

After the students in the experimental group read the violent books, their opinions were taken through the interview forms and various qualitative results were obtained. In this context, it was determined that the students mostly liked the children's books containing violence, they found them exciting, fluent and beautiful. It was concluded that some students did not like the books, found them distressing, depressing and boring. The aforementioned results led to the opinion that the violence did not affect students in this age group very much.

It is thought that the fact that 7th grade students in the study group liked and find the violent books they read as exciting is related to their developmental period and age group. Because, as Güneş (2007) stated, children in this age group are interested in shows of toughness and tend to adventure books. Çakır (2013) also used similar expressions and stated that students in this age group especially liked books about adventure.

Bayat and Çetinkaya (2018) determined in their study with middle school students that most of the students preferred books containing adventure, fear, and murder. The findings obtained from the aforementioned studies coincide with the results of this research.

On the other hand, in the study conducted by Kayman (2020) with middle school 5th grade students, students stated that they did not like violent works and they did not want to read these works. It is thought that this is due to their age group. Although the results obtained by Kayman in his study do not coincide with the results of this study, the fact that 5th grade students are easily affected by their age (Yavuzer, 1987) and very quickly affected by violent books may have prompted them to react.

Another reason for these students not to be affected by the violent works may be that they think that the events and scenes of violence in the works they read are fictional due to their age. Because, in some of the student views quoted above, it is stated by the students that the scenes of violence in these books are fictions.

Based on the findings obtained from this study, it is possible to conclude that if children's books are read to children of the appropriate age group, the violence contained in these books does not drive them to aggression and does not lead to violence.

As a result, attention should be paid to how violence is included in the books, as Sever's (2002) stated. In these books, it is of great importance for the child reader to make a healthy reading that the violence should not be affirmed and the hero should not reach his goal by using violence. However, considering the age groups, the gradual exposure of children to violent works will help them gain experience and prepare for some negative situations they may encounter in daily life.

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Social Sciences Teachers' Views About Distant Education in the Covid 19 Process

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Abstract

The aim of this study is to determine the views of Social Studies teachers on distant education during the COVID-19 process. The case study design, which is frequently used in qualitative research, was used in the study. A semi-structured interview form was used to determine the views of Social Studies teachers on distant education. The data were collected in the spring semester of the 2020-2021 academic year and the content analysis method was used in the analysis of the data. The study group consists of 21 Social Studies teachers working in secondary schools affiliated to Afyonkarahisar center. The teachers generally have stated that they saw distant education as the best method to be applied in this process. In addition, teachers stated that they did not generally make use of distant education before the epidemic process, found face-to-face training sufficient, saw distant education as necessary and benefited during the epidemic process, and that they would not benefit from distant education because of the problems experienced and did not think it was effective after the epidemic process. Teachers have stated the general problems as lack of technical equipment, infrastructure and motivation. Some suggestions have been made in the light of the findings obtained in line with this research.

Keywords: Distant Education, Covid-19, Social Studies

1. Introduction

The Covid-19 outbreak, which negatively affected all countries around the world and was classified as pandemic by the World Health Organization (WHO), first appeared in Wuhan, China in December 2019. Since then, all aspects of life have been adversely affected worldwide, and social anxiety and concern have reached high levels in many countries (Lin, 2020; Tesini, 2020; Üstün & Özçiftçi, 2020). The epidemic process, which adversely affected many sectors, social life and economy all over the world, also negatively affected the education systems. In this process, educational activities were stopped in order to prevent the spread of the epidemic in many countries and these countries started to benefit from distant education (Agnoletto & Queiroz, 2020; ILO, 2020; TAoS, 2020; Zhong, 2020). In order to ensure effective teaching and learning Turkey has also tried to manage this period with distant learning like other countries.

Distant education has been integrated into the education system in order to eliminate the disruptions and restrictions in face-to-face education during the epidemic process. Distant education is an education system that offers many learning activities to its users without time and space limitations through electronic or non-electronic systems, and today, technology has been integrated into it by various hardware and software. Clark reminds that distant education has been carried out by means of letters, radio, books and newspapers since the past, and therefore states that distant education is not a concept that has emerged in recent years and that the development of information and communication technologies diversifies the environments in which distant education is offered. In this respect, the distant education system is not an unfamiliar system.

In Turkey, the open education model implemented in high schools and universities, online education and certification programs used in many years of foreign language education is carried out as part of distant education. However, it can be said that with the closure of schools due to the epidemic, distant education has become more widespread and that teachers and students have to deal with educational technologies more closely in this process.

When the literature is examined, it is seen that there are various advantages and disadvantages of distant education. Distant education has a different learning environment compared to face-to-face education. Studies show that distant education is advantageous in terms of economy and accessibility, appeals to a wider audience, can be shaped according to the speed and method of learning of the individual and provides equal opportunity (Traxler 2018; Arat & Bakan, 2014; Odabaş, 2003). However, in distant education, especially in this period, some disadvantages such as limited interaction between learners, difficulty in communicating, lack of motivation, its creating a feeling of constraint, weak internet and technological infrastructure, and anxiety of not catching up with the curriculum are mentioned (Burke & Dempsey, 2020; Çetin and others, 2004; Hilli, 2020; Uzoğlu, 2017). From this point of view, and considering that distant education is an indispensable part of the education system during the epidemic process, it is very important to identify the problems experienced and to develop solutions to these problems quickly. For this purpose, it is important to investigate the Covid-19 outbreak process in terms of education and to get the opinions of teachers, one of the most important stakeholders of education, on the process for a healthy functioning of the process. When the literature is examined, it is seen that the studies conducted are mostly in the field of health (Çalışkan Pala & Metintas, 2020; Çetintepe & İlhan, 2020; Sahu, Amrithanand, Mathew, Aggarwal, Nayer, Bhoi, 2020). In the field of education, studies that include the views of Social Studies teachers on distant education during the Covid-19 outbreak are especially quite limited (Özkaral & Bozyiğit, 2020; Osmanoğlu, 2020). It is thought that determining the opinions of Social Studies teachers about distant education during the COVID-19 process, which is the main purpose of this study, will contribute to the field.

For this purpose, answers to the following questions were sought.

1. What are your thoughts on distant education?
2. Did you benefit from distant education before the Covid 19 process? How?
3. Have you benefited from distant education during the Covid 19 process? How?
4. Do you plan to benefit from distant education after the Covid 19 process?
5. What are the problems you have encountered in distant education during the Covid 19 process?
6. What are your solutions to the problems you have encountered in distant education during the Covid 19 process?

2. Method

In this study, which aims to determine the views of Social Studies teachers on distant education during the COVID-19 process, the case study design, one of the qualitative research methods, was used. Case study is a research method that is carried out in a natural environment and aims at the holistic interpretation of the environment or events that are the subject of the study (Yıldırım & Şimşek, 2016).

2.1 Study Group

The working group of the research consists of 21 Social Studies teachers working in secondary schools affiliated to Afyonkarahisar in the 2020-2021 academic year. For this reason, the sample group was chosen from among the teachers working in secondary schools with the criterion sampling method, which is one of the purposeful sampling methods, in accordance with the design of the research. Of the 21 teachers participating in the study, 7 are male and 14 are female.

2.2 Data collection tool

A semi-structured interview form was used to determine the views of Social Studies teachers on distant education during the COVID-19 process. In order to prepare the interview form, the relevant literature was scanned and an item pool was created in the light of the obtained information.

While preparing the form, the opinions of three field experts, one of whom are educational sciences and two of them are social studies educators, were taken. After the form was prepared, pre-application was made to three teachers outside the study group. At the end of the pre-application, some corrections and additions were made and the form was finalized. The interview form consists of six questions in its final form and is answered in about 30 minutes.

The research was completed in accordance with the rules of publication ethics. Within the framework of the research carried out, ethical permission was obtained from Afyonkocatepe University Scientific Research and Publication Ethics Committee (Ethics Committee Decision dated 19.03.2021 and subject 2021/157).

2.3 Data Collection and Analysis

In this study, data were obtained through a semi-structured interview form in order to determine the opinions of Social Studies teachers on distant education during the COVID-19 process. First of all, ethical permission was obtained from Afyonkocatepe University Scientific Research and Publication Ethics Committee. Then, the social studies teachers in the study group were determined and the participation in the research was discussed with the teachers. The teachers were informed about the purpose and scope of the research, the informative text was read to the parties and their voluntary participation was ensured. The interviews were held in March of the 2020-2021 academic year. The interviews were conducted during the breaks or during the empty lessons of the teachers. Each interview lasted approximately 20-30 minutes. The interview was conducted as a face-to-face meeting and the statements of the participants on the subject were written down. At the end of the interview, the data were re-read to the participant and it was determined whether their thoughts were reflected correctly. Content analysis method was used in the analysis of the data obtained in the study, and quotations were made from the expressions of the participants from time to time. According to Yıldırım and Şimşek (2016), the main purpose of content analysis is to reveal the real facts in the collected data. For this, the operations performed in content analysis are to collect similar data under the determined themes and to organize and interpret them in a way that the reader can understand. The collected data were analyzed separately by two people and the results of the analysis were compared. Teachers participating in the study were shown coded as T1, T2, T3.... The reliability of the research data was calculated with the formula of $\text{Consensus} / (\text{Consensus} + \text{Disagreement}) * 100$ put forward by Miles and Huberman (1994), and a consensus of 93% was achieved.

3. Findings

Social Studies teachers' views on distant education

Social Studies teachers' views on distant education have been given in Table 1.

Table 1: Social Studies teachers' views on distant education

Social Studies teachers' views on distant education	Positive Views	I find it useful
		The most suitable solution in this process.
		The use of technology attracts the attention of students.
		Many activities can be given.
		Students can be reached in many different ways.
		Quick feedback can be provided
		Distant education is very comfortable and it provides flexibility.
	Negative Views	Technology can be used more effectively.
		It allows you to repeat.
		Lessons can be customized.
		The student cannot give himself
		The student is not motivated
		There are frequent technical problems
		No interaction with the student
Negative Views	Students are very indifferent	
	Student and learning differences cannot be taken into account	
	Participation in the lesson is very low	
	Less interest when attendance is not compulsory	

As can be seen in Table 1, the opinions of Social Studies teachers on distant education have been grouped under 2 themes as positive and negative views.

Teachers' positive opinions are as follows: I find it useful, the most appropriate solution in this process, the use of technology attracts students, many activities can be given, students can be reached in many different ways, rapid feedback can be provided, distant education is quite comfortable and it provides flexibility, technology can be used more effectively, repetition is possible, lectures can be arranged according to demand.

Regarding the positive views, the teacher Ö2, who has the view of "the most appropriate solution in this process," expressed his opinion as follows:

"It is one of the most appropriate solutions that can be applied in this process in terms of students not being behind their lessons in a period when even going to the market is difficult, let alone going to the school..."

The teacher Ö9, who has the view that students can be reached in very different ways expressed his opinion as follows:

"In this troubled period, distant education should be used very much, very effectively in terms of education. We can reach students in many different ways (EBA, Whatsapp etc.)."

The negative thoughts of the teachers are as follows: the student cannot give himself / herself, the student is not motivated, there are frequent technical problems; there is no interaction with the student, students are quite indifferent, student and learning differences cannot be taken into account, participation to the lesson is very low, there is little interest when attendance is not compulsory.

Regarding the negative views, the teacher Ö4, who has the view that "technical problems are encountered frequently," expressed his opinion as follows:

"Though the thought is good, the implementation is not in the best direction, we are experiencing many technical problems, the disconnection in half an hour lesson is countless ..."

The teacher Ö18, who has the view that “participation in the lesson is very low,” expressed his opinion as follows:

“When we are not face to face with the students, participation in the lesson is low, asking questions and getting answers are all troublesome. Some people log into online class and walk away from the computer.”

Social Studies teachers' views on using distant education before the Covid 19 process.

The opinions of Social Studies teachers about benefiting from distant education before the Covid 19 process are given in Table 2.

Table 2: Social Studies teachers' views on using distant education before the Covid 19 process.

Social Studies teachers' views on using distant education before the Covid 19 process	Yes	I was sending homework and activities via EBA. Sometimes I was asking and answering questions over whatsapp.
	No	I usually taught face to face in class and at school. I was not using it. I was training face to face.

As can be seen in Table 2, the opinions of Social Studies teachers about benefiting from distant education before the Covid 19 process were grouped under 2 themes as yes and no.

The teachers who stated their thoughts as yes stated that they sent homework and activities via EBA and sometimes asked and answered questions over WhatsApp.

Regarding the views favoring yes, the teacher Ö5, who has the view that he was sending homework and activities via EBA", expressed his opinion as follows:

“EBA is actually a platform that we should use in normal times, that’s why sometimes I was sending homework, activity etc.”

Having the view that "Sometimes I was asking and answering questions on whatsapp," the teacher Ö11 expressed his opinion as follows:

“Yes, I was actually using it. We were solving questions with students over WhatsApp, I was sending them questions and answering them.”

The teachers who stated their thoughts as no stated that they were teaching face to face in class and at school, they did not use it.

Regarding the views favoring no, the teacher Ö9, who has the view that he was teaching face to face in class and at school in general, expressed his opinion as follows:

“In general, I was doing educational activities face to face in class, at school.”

The teacher Ö18, who has the view that he did not use it, expressed his opinion as follows:

“I wasn't using it. I would usually teach in class, assign homework where necessary and check it the next week.”

Social Studies teachers' views on using distant education in the Covid 19 process

The opinions of Social Studies teachers about benefiting from distant education in the Covid 19 process are given in Table 3.

Table 3: Social Studies teachers' views on using distant education in the Covid 19 process

Social Studies teachers' views on using distant education in the Covid 19 process	Yes	I continued to send homework and activities via EBA I have always done live lessons from EBA I have taught on the ZOOM program We have shared homework and activities from Whatsapp groups. We asked students to watch the lessons from EBA TV. I shared videos on Whatsapp
	No	-

As can be seen in Table 3, the opinions of Social Studies teachers regarding the use of distant education in the Covid 19 process were gathered under a theme as yes.

The teachers, who stated their opinions as yes, had the following views: I continued to send homework and activities via EBA, I constantly did live lessons from EBA, I did lessons on the ZOOM program, we shared homework and activities from whatsapp groups, we asked students to watch the lessons from EBA TV, I shared a video from whatsapp.

Regarding the views favoring yes, the teacher Ö6, who has the view that he has taught through the ZOOM program, expressed his opinion as follows:

"I have been doing live lessons on ZOOM since face-to-face education was suspended."

The teacher Ö12, who has the view that he did live lessons from EBA, expressed his opinion as follows:

"At first, I shared activities, questions etc. Especially after the new term has started, I enter my classes to EBA and give live lessons."

Social Studies teachers' views on using distant education after the Covid 19 process

The opinions of Social Studies teachers about benefiting from distant education after the Covid 19 process are given in Table 4.

Table 4: Social Studies teachers' views on using distant education after the Covid 19 process

Social Studies teachers' views on using distant education after the Covid 19 process	Yes	I will continue to send homework and activities via EBA I can continue to share homework and activities from Whatsapp groups.
	No	Although distant education is necessary for this process, face-to-face training will be sufficient afterward. I do not think it is useful It takes too much time I can't spare time for myself and my family I'm running into a lot of trouble, it's stressing me out

As can be seen in Table 4, the opinions of Social Studies teachers regarding the use of distant education after the Covid 19 process are grouped under 2 themes as yes and no.

The teachers who stated their opinions as yes stated that they would continue to send homework and activities via EBA, and they can continue to share homework and activities from Whatsapp groups.

Regarding the views favoring yes, the teacher Ö20 who has the view that he will continue to send homework and activities via EBA expressed his opinion as follows:

"Anyway I was doing some stuff over EBA before, and after this process, I may continue to send homework via EBA ..."

Having the view that he can continue to share homework and activities from Whatsapp groups, the teacher Ö18 expressed his opinion as follows:

"We live in a period in which technology is at the forefront, I may continue to use these technologies after this period, at least I will continue to send events from Whatsapp groups."

Teachers who stated their thoughts as no presented opinions as follows: although distant education is necessary in this process, face-to-face education will be sufficient afterwards, I do not think it is beneficial, it takes too much time, I cannot spare time for myself and my family, I encounter a lot of problems, it puts me under stress. Regarding the views favoring no, the teacher with the "I do not think it is useful" view expressed his opinion as follows:

"I do not think that distant education is very useful, it does not help as students attend classes just for the sake of being there ..."

The teacher Ö2, who has the view that he is facing a lot of problems, it makes him stressful, expressed his view as follows:

"Since the distant education infrastructure is not sufficient, I encounter a lot of problems such as disconnections, sound-related problems and these problems stress me out."

Social Studies teachers' views on the problems they encountered in distant education during the Covid 19 process

The opinions of Social Studies teachers regarding the problems they encountered in distant education during the Covid 19 process are given in Table 5.

Table 5: Social Studies teachers' views on the problems they encountered in distant education during the Covid 19 process

Opinions on the problems they encountered in distant education during the Covid 19 process	Not everyone has an internet connection or they have an inadequate one
	Disconnection
	Unable to open uploaded assignments
	Sound and visual problems in lessons
	Inadequate phone connection
	EBA infrastructure inadequacy
	Being unfamiliar with the technologies used
	Students' intervention in the system in live lessons
	Little to no attendance
	Difficulty controlling the lesson
	Lack of sufficient course content and materials regarding distant education
	Lack of covering all students
	Adapting to the course is difficult for both students and teachers
	Not being able to observe student differences
	Not paying attention to the lesson because attendance is not compulsory

As seen in Table 5, Social Studies teachers made their views on the problems they encounter in distant education during the Covid 19 process as not everyone having internet connection or insufficient connection,

disconnection, inability to open loaded homework, audio and video problems in lessons, insufficient phone connection, lack of EBA infrastructure. being unfamiliar with the technologies used, students' intervention in the system in live lessons, low participation in the lesson, difficulty in controlling the lesson, not having enough course content and materials for distant education, not being able to cover all students, adaptation to the lesson is difficult for both students and teachers, failure to pay attention to student differences and students' giving no importance when attendance is not compulsory.

Regarding the solution suggestions for the problems encountered in distant education in the Covid 19 process, the teacher Ö9, who had the opinion of "disconnection," expressed his opinion as follows:

"The process sometimes may go so problematic like the connection gets broken when you are so much focused on the subject and time runs out while trying to reconnect."

Ö11 coded teacher who has the view that "the loaded homework cannot be opened" expressed her opinion as follows:

"Of course, we encounter many problems in this process. For example, when I upload an assignment or an activity, sometimes a message is received from the student saying he/she cannot open the homework I sent ... "

The teacher Ö17, who has the view of "difficulty controlling the lesson," expressed his opinion as follows:

"This process is a bit difficult for teachers with little technology knowledge. For example, I start the lesson and the student is doing his best to sabotage the lesson. Meaningless messages from the message part of the program start coming interfering with the main screen. I sometimes do not know whether I should teach a lesson or deal with them."

Social Studies teachers' opinions on the solution suggestions for the problems they encountered in distant education during the Covid 19 process

The opinions of Social Studies teachers regarding the solution suggestions for the problems they encounter in distant education during the Covid 19 process are given in Table 6.

Table 6: Social Studies teachers' opinions on solutions to the problems they encounter in distant education during the Covid 19 process

Opinions on solutions to problems they have encountered in distant education in the Covid 19 process	Internet infrastructure should be strengthened
	Both students and teachers should be made aware
	EBA infrastructure should be strengthened
	Measures should be taken to increase attendance to lessons.
	Content and materials that can be used in the distant education process should be prepared
	Internet and technology support should be provided for distant education
	Supervision should be done in terms of good management of the process
	Seminars should be given about the educational technologies used

As can be seen in Table 6, Social Studies teachers' opinions about solutions to problems encountered in distant education during the Covid 19 process are as follows: internet infrastructure should be strengthened, both students and teachers should be made aware, EBA infrastructure should be strengthened, measures should be taken to increase participation in lessons, content and materials that can be used in the distant education process should be prepared, Internet and technology support required for distant education should be provided, supervisions should be carried out for good management of the process, seminars should be given about the educational technologies used.

Regarding the solution suggestions for the problems encountered in distant education in the Covid 19 process, the teacher Ö1, who has the view that "Both students and teachers should be made aware," expressed his opinion as follows:

"I don't know how, but everybody needs awareness in this process, neither the student nor the teacher is aware of the situation. Everyone is doing something just for show, but our future is getting out of hand and nobody realizes that. "

Having the view that "seminars should be given about the educational technologies used," the teacher Ö16 stated his opinion as follows:

"Many of the teachers do not know about the technologies used. For this reason, we encounter many problems in the lessons. I think it would be nice if a training seminar was organized on this topic."

The teacher Ö21, who has the view that "Internet and technology support required for distant education should be provided" expressed his opinion as follows:

"Yes, we are trying to do something with distant education, but it is not enough. Some do not have a computer, some lack internet. Measures that will benefit in these matters should be taken urgently. "

4. Conclusion Discussion and Suggestions

In this study, it is aimed to reveal the views of Social Studies teachers regarding distant education in the Covid 19 process. For this purpose, the opinions of Social Studies teachers on distant education were divided into three phases as before the Covid 19 process, during the Covid 19 process and after the Covid 19 process. The opinions of 21 teachers were consulted in order to discuss the problems they encountered in distant education during the Covid 19 process and their solution suggestions for the problems they encountered in distant education during the Covid 19 process.

Teachers' views on distant education were grouped under 2 themes as positive and negative views. Teachers who gave positive opinions stated that they found it useful; that it was the most suitable solution in this process; the use of technology attracted the attention of students; many activities could be given; students could be reached in many different ways; rapid feedback could be provided; distant education provided very comfortable and flexible; technology could be used more effectively; it gave the opportunity to repeat; the lessons could be arranged according to wishes. Teachers who stated a negative opinion, on the other hand, stated that the student could not give himself; the student was not motivated; frequent technical problems occurred; there was no interaction with the student; the students were quite indifferent; student and learning differences were not taken into account; participation in the lesson was very low and there was little interest when attendance was not compulsory. When these opinions are evaluated in general, although there are negative opinions, it can be said that the views of most of the teachers are that distant education is the best method to be used in this process and it will be beneficial and have a positive effect if it is used effectively. These findings obtained from the data of the study are similar to the studies conducted by Barış and Çankaya (2016), Taşlıbeyaz, Karaman and Göktaş (2014), Şenyuva (2013), Adams and Timmis (2006), Gömlekçi and Pullu (2020), Paydar and Doğan (2019) and Özgül and Uysal (2016). In the study conducted by Barış and Çankaya (2016) with lecturers, the positive aspects of distant education were emphasized as being independent from time and place, providing the opportunity for repetition, and the negative aspects as lack of interaction and less participation in the lesson. Taşlıbeyaz, Karaman, and Göktaş (2014), in their study with primary school teachers, revealed that some teachers find remote in-service training practices to be preferable in terms of providing freedom of time and space, being interesting and accessible, and some view them negatively due to technical problems. Şenyuva (2013), on the other hand, in his study with nurses, concluded that the majority of nurses stated that they could attend distant education classes due to reasons such as being easy to adapt to their working hours and not being able to continue face-to-face education. Adams and Timmis (2006) emphasized in their study that the necessary trainings can be received through distant education in the time spent in face-to-face education. In the study conducted by Gömlekçi ve Pullu (2020) with vocational school students, it is seen that the students have positive

feelings because they will return to their hometown and their education will not be interrupted, while some are worried and have negative feelings. Paydar and Doğan (2019), on the other hand, concluded in their study that prospective teachers find distant education applications useful and that they are willing for distant education. Özgül and Uysal (2016), in their study with undergraduate and graduate students, concluded that students find summer school programs with distant education more efficient than summer school programs with face-to-face education.

When looked at the opinions of teachers about the use of distant education before the Covid 19 process, during the Covid 19 process and after the Covid 19 process; we see most of the teachers stating that they did not benefit from distant education before the Covid 19 process, sometimes they sent homework and activities via EBA, and during the epidemic, all of them benefited from distant education. After the Covid 19 process, again, most of the teachers stated that they would not benefit from distant education, they would send activities via EBA at most and face-to-face education would be sufficient. When these opinions are evaluated, although most of the teachers state that they use distant education as it is the most effective way during the epidemic period, it can be said that they did not use distant education before the epidemic period and do not think to use it after the epidemic period. These findings obtained from the data of the study show similarity with the studies done by Gömlekçi and Pullu (2020), Genç and Gümrükçüoğlu (2020), Bakioğlu and Çevik (2020), Bayburtlu (2020), Paydar and Doğan (2019), Özgöl, Sarıkaya and Öztürk (2017), Atabey (2016). Bayburtlu (2020) stated in his study that Turkish teachers participating in the study tried to teach Turkish lessons during the pandemic period so that students would not be disconnected from the lesson. In the study conducted by Genç and Gümrükçüoğlu (2020) with the students of the Faculty of Theology, it was concluded that the students did not find distant education efficient and understood the importance of face-to-face education. Paydar and Doğan (2019), on the other hand, concluded that distant education applications are not suitable for every course. Similarly, Özgöl, Sarıkaya, and Öztürk (2017) concluded that distant education was insufficient in applied courses in their studies. Finally, Atabey (2016) found in his study with vocational school students that students preferred face-to-face education instead of distant education.

Teachers stated the problems they encountered during the Covid 19 process as technical, infrastructural and motivational ones such as not everyone having internet or having insufficient internet connection, disconnection, inability to open loaded assignments, sound and video problems in lessons, inadequate phone connection, inadequate EBA infrastructure; being unfamiliar with the technologies used, students' intervention in the system in live lessons, low participation in the lesson, difficulty in controlling the lesson, lack of sufficient course content and materials for distant education, not being able to cover all students, adapting to the lesson is difficult for both students and teachers, student differences cannot be observed, not paying attention to the course when attendance is not compulsory. Teachers have listed their solution suggestions for the problems they encountered as follows: Internet infrastructure should be strengthened, both students and teachers should be informed, EBA infrastructure should be strengthened, measures should be taken to increase participation in lessons, content and materials that can be used in distant education should be prepared, necessary internet and technology support should be provided for distant education, supervisions should be made in terms of administration, seminars should be given about the educational technologies used. These findings obtained from the study are similar to the studies conducted by Gömleksiz and Pullu (2020), Burke and Dempsey (2020), Karahan, Bozan and Akçay (2020), Bayburtlu (2020), Karakuş, Ucuşsatar, Karacaoğlu, Esendemir and Bayraktar (2020), Özkaral and Bozyiğit (2020), Bao (2020), Sintema (2020), Kırmacı and Acar (2018), Atabey (2016), Bakioğlu and Çevik (2020), Özgöl, Sarıkaya and Öztürk (2017), Hong (2016) and Birişçi (2013). Gömleksiz and Pullu (2020) expressed the problems experienced by students as problems stemming from systemic and technological infrastructure in their study. Burke and Dempsey (2020) stated in their report that teachers working in Ireland do not have sufficient distant education skills and have various problems related to hardware, software and technological skills. Birişçi (2013), in his study with sociology students, stated that the technical problems experienced in the video conferencing system constitute an obstacle in communicating during the course. The students stated that these problems caused a decrease in interest and motivation in the lesson. This situation is also stated in the studies of Doggett (2008) and Roberts (2009). Similarly, Karahan, Bozan, and Akçay (2020), in their study with university students, mentioned the problems arising from the insufficient internet quotas and technological infrastructure. Kırmacı and Acar (2018) stated in their study that some students had problems due

to their internet access status and could not attend live classes. Atabey (2016) concluded in his study that vocational school students' computer skills were low, so lessons were inefficient. Likewise, Özgöl, Sarıkaya and Öztür (2017) and Bakioğlu and Çevik (2020) stated in their studies that students are unfamiliar with the system and have problems due to the internet problem. Hong (2016), in his study with Social Studies teachers, mentions that there is not enough technological equipment, the teachers do not have sufficient knowledge and talks about connection problems. In their study, Kırmacı and Acar (2018) talked about the problems students experienced in terms of lesson time, the problems they had in accessing the system by phone, and the problems they experienced in audio-video. Finally, Bayburtlu (2020) pointed out in his study that teachers stated that the textbooks should be interactive with the EBA education network, and that it would be beneficial for teachers to receive training on digital content development.

Based on the results obtained in line with the opinions of the teachers, the following suggestions can be made:

- Distant education can be made a part of the education system, taking into account the developing technologies, and its use can be expanded.
- Teaching materials for distant education can be prepared, access to these materials can be provided and the teaching environment can be enriched.
- In-service training can be given to teachers for distant education systems.
- Distant education infrastructure can be developed and solutions can be produced for the problems experienced.
- This study was conducted only with Social Studies Teachers. Studies can also be conducted with other branches, school administrators, students and parents.
- Experimental studies can be conducted on the effect of distant education on success.

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The Knowledge and Awareness Levels of Gifted Children on Nanotechnology

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Abstract

The purpose of the study is to determine the knowledge and awareness of gifted children receiving education in the Science and Art Center on nanotechnology. The descriptive survey model was used in the study. The purposeful sampling method was chosen and a total of 160 students receiving education in two Science and Art Centers located in the city of Antalya in the 2018-2019 academic year were included in the study. The students consisted of 5th, 6th, 7th, and 8th-grade students. The study tested whether the nanotechnology knowledge levels of gifted students differ according to the variables of students' gender, grade level, knowledge source, parents' education level, and occupation. According to the findings, while the students' knowledge and awareness of nanotechnology did not create a significant difference in terms of the gender variable, it was determined that as the grade level increased, the knowledge and awareness level also increased. Also, it was determined that as the parents' education level increased, the students' knowledge on nanotechnology increased and that the knowledge and awareness of students whose parents are engineers or doctors were higher compared to the other students.

Keywords: Gifted Students, Nanotechnology, Awareness, Knowledge

1. Introduction

In the 21st century, the speedy development in science and technology guides the global economy and increases international competition. One of the developments is experienced in the area of nanotechnology. This technology is rapidly developing and spreading and almost all countries are making big investments in these areas. The nano represents research areas in science and technology. Nanoscience expresses the structure science which ranges between 1-100 nanometers (NNI, 2001) and is the study area that aims at designing and producing new nanostructures or adding new and extraordinary characteristics to existing structures as a result of designing and organizing objects in the nanometer scale and their physical, chemical and biological properties in various ways (Enil and Köseoğlu, 2016). Nanotechnology can be applied to numerous areas such as information technology, biotechnology, and cognitive science because it is the skill of processing materials on the smallest scale possible (Nikalje, 2015). The effect of nanotechnology gives direction to the industrial and state policies of

competing countries in the present time. As this technology known as nanomanufacturing in the production industry entered the market, the first generation “passive nanostructures” have emerged in 2001 (for instance, in nanoparticles, coating). Since most living beings operate at the nanoscale level, there is a need for many naturally emerging nanomaterials (Doyle, 2006). In 2005, the new nanomanufacturing wave emerged called the second generation “active nanostructures” (for instance, in medicine, transistors). The 3-D nanosystems and system systems” defined as third-generation (for instance, heterogenous nano components) have continued until 2010. Today, it is expected for the wave named “molecular nanosystems” which will be defined as the fourth generation to have more place in our lives as of 2020 (Kumar and Scarola, 2006; Roco, 2008; Yurik, 2011). In the 21st century, nanotechnologists have started using nanomaterials naturally formed or produced in numerous areas (Zhang & Feng 2006). Since nanomaterials are more advantageous compared to macromolecules and have wider surface areas /volume rates and advanced characteristics, they have been used in the health area, for instance, to produce images of areas with cancer tumors. Nanocomposite polymers increase certain improvements such as endurance, antimicrobial properties, and resistance to harsh weather conditions (Doyle, 2006). Due to this property, they are used frequently in the food packaging industry. The use of nanotechnology in this area provides the opportunity to increase the shelf-life of food products (Mei, McClements, Wu & Decker, 1998). Also, nanotechnology is often used in Technologies that are biology-based in the area of agriculture. Nanotechnology has been used to manipulate plants’ genetic materials to increase variety which is resistant to diseases and can ripe faster (Lagaron, Cabedo, Cava, Feijoo, Gavara, & Gimenez, 2005). This technology can be applied in all areas of human life from health to agriculture and security. Lastly, nanotechnology will change the regenerative medicine sector, medicine researches, and stem cell researches (Nikalje 2015).

1.1. Importance of the Integration of Nanotechnology to Curricula

A method of increasing the participation of students studying nanotechnology is to integrate nanoscience into educational curricula. However, there are some barriers against the efficient integration of nanotechnology into K-12 curricula. The primary barrier is the representation of nanometer length scale and conceptualization. Researches show that students, even at the post-graduate and doctorate level in the area of chemistry have difficulty in visualizing and understanding objects and processes on the nanoscale (Hutchinson, Bodner & Bryan, 2011). Another difficulty is that nanotechnological concepts and processes cannot be easily understood until students are introduced to concepts of atoms, molecules, and chemical interactions. The studies carried out in this area make different teaching methods necessary for students o each level. Before students learn the subject of nanotechnology, their teachers should gain experience in teaching the concept in this area or at least reach a level of preparedness. However, nanotechnology applications are only a part of university education at the engineering or physics, chemistry graduate level. Sufficient places to these areas are not given place to teacher candidates who are to educate students in this area (Kulinowski, 2006). Nanotechnology cannot be and should not be taught as another subject due to its interdisciplinary nature in science lessons. Learning nanoscience requires integration with all the aspects of the science it embodies (Tessman, 2009).

When the literature is reviewed, many academic studies can frequently be seen which underline the importance of starting nanoscience education at early ages to increase nanoscience literacy (Laherto, 2012). Also, it can be seen that various projects have been initiated which aim at including nanotechnology in primary and middle-school curricula in different countries (Sweenay & Seal, 2008). Kumar (2007) underlined the lack of nano knowledge in science teacher candidates and nano perception in society in his study. He applied a survey of 10 items to 100 teacher candidates which evaluated different aspects of nanoscience and nanotechnology such as etymology and physical scale. The results show that the teachers of the future do not have sufficient 21st-century knowledge to be able to teach contemporary science in their lessons (Kumar, 2007). The researcher suggested increasing the knowledge of science teachers in this area by in-service training. Floyd-Smith et al. (2009) and Jones, Broadwell, Falvo, Minogue, and Oppewal (2005) presented examples as to how nanotechnology can be taught in the primary, middle and high-school levels. Floyd-Smith et al. (2009) have implemented a social help activity on nano cloths and some nano subjects related to the basic principles of nanotechnology. After the application, it was determined that the conceptual understanding of middle and high-school students has

increased by 20-52%. In another study in this area in which Jones et al. (2005) presented how nano cloth could be discovered at primary school level and naturally integrated into the current science curriculum with 5th-grade students, the researchers carried out an activity which tested nano processed cloth claimed to push stains and water. Since the subject of clothing made of nanotechnological cloths is related to the lives of the students, it was concluded as a result of the study that it had a positive effect on their interest in science and understanding of concepts.

Kumar and Scarola (2006) underlined that education on nanotechnology being more widespread in the level following middle-school education is not right and that educators have to teach nanotechnology subjects with insufficient resources. The researchers stated that this needs to be corrected because students make their academic decisions at the middle-school level and their attitude and perception develops at this level (Simpson et al., 1994); if there is a lack of curricula that support the application of nanotechnology in K-12 classes (Kumar and Maslin-Ostrowski, 2008), the students will probably not be interested in the subject of nanotechnology or careers related to it.

Nanotechnology has the potential to change the world and redefine our lifestyle. Nanotechnology will inevitably be a part of a majority of 21st-century occupations. It has been estimated that to sustain the nano industry until 2015, 2 million strong workforces would be required (Roco and Bainbridge, 2001), but unfortunately sufficient human resources could not be created. Therefore, it is necessary that K-12 classes rapidly integrate nanotechnology into the current curricula (Bowles, 2008; Floyd-Smith et al., 2009; Kumar and Kerr, 2008; Kumar, Lapp, Marinaccio and Scarola, 2008). This education can start at an early age. Kumar and Kerr (2008) argue that primary school level students can discover nano sub-screens: it is a subject related to the lives of primary school children and this is meaningful and purposeful participation. As for high-school-level chemistry classes, the importance of giving place to more complex nanotechnology subjects such as nano fuel cells.

As a result, countries needed a fluent workforce in the current economy and technologies which guide the global economy to protect their competitive power. Superpowers such as the USA or China need to comply with the workforce demands of the society and if necessary, to train science teachers on nanotechnology and integrate nanotechnology into the current science curricula to secure their future. In our country, Nanotechnology is among the prioritized subjects in TUBITAK's (Scientific and Technological Research Council of Turkey) Vision 2023 program. As it is stated in this program, although our nanotechnology studies have entered a period of reconstruction with EU's 6th Framework Program, nanoscience and nanotechnology are taught only in a few lessons and in a very limited manner in secondary education. In the middle and primary school levels, there are no nanoscience and nanotechnology education programs (Aslan and Şenel, 2015).

The purpose of this study is to determine the knowledge level of middle-school students receiving education in BILSEM on nanotechnology. In today's world, nanotechnology has strategic importance, besides the students receiving education in BILSEM being an important source for the future of our country. Therefore, since today's students will be the future's potential nanotechnology producers and consumers with their knowledge levels on the concept of nanotechnology, the obtained findings will shed light on the efficiency of the National science curriculum in the global world.

For this purpose, the study also tested whether the nanotechnology knowledge levels of gifted students differ according to the variables of students 'gender, grade level, knowledge source, parents' education level, and occupation.

2. Method

2.1. Research Design

In this study, a descriptive survey was used. A survey model is a research approach that aims at describing a past situation or a situation that still exists as it is. These are studies in which the vies, attitudes, and skills of the participants related to a subject or event are determined. These types of researches, in general, make it possible

to find answers to questions such as “at which level, at which stage, when” and determine the characteristics of large masses (Creswell, 2012).

2.2. Sample

The criterion sampling method was chosen among the purposeful sampling methods for the problems for which answers are sought within the scope of the study. Purposeful sampling methods focus on rich events and phenomena which can shed light on a problem. This sampling method is different from the probabilistic sampling method in terms of obtaining deeper knowledge (Patton,2014). In line with the purpose of the study, which was carried out in the light of this information, this sampling method was preferred since it was only focused on the views of gifted children on the subject area. In this context, the study was carried out with 160 students receiving education in two Science and Art Centers in the 2018-2019 academic year in the city of Antalya. 76 of these students were female and 84 were male. The students consisted of 5th, 6th, 7th, and 8th-grade students. 48 of these students were 5th, 34 of 6th, 32 of 7th and 46 of 8th-grade students.

The descriptive analyses related to the frequency and percentage distribution of the students' socio-demographic characteristics in the study are given in Table 1.

Table 1: Findings on the Socio-Demographic Characteristics of the Students

Variables	Frequency	Percentage (%)
<i>Gender</i>		
Female	76	47.5
Male	84	52.5
<i>Grade Level</i>		
5th grade	48	30
6th grade	34	21.25
7th grade	32	20
8th grade	46	28.75
<i>Mother's Education Level</i>		
Primary school	6	3.8
Middle-school	34	21.3
High-school	36	22.5
University	84	52.5
<i>Father's Education Level</i>		
Primary school	6	3.75
Middle-school	6	3.75
High-school	48	30
University	100	62.5
<i>Mother's occupation</i>		
Teacher	32	20
Doctor	8	5
Engineer	6	3.8
Workman	14	8.8
Civil servant	30	18.8
Free-lance (trade)	14	8.8
Other	56	35

Continuation of Table 1: Findings on the Socio-Demographic Characteristics of the Students

<i>Father's occupation</i>		
Teacher	20	12.5
Doctor	12	7.5
Engineer	10	6.3
Workman	24	15
Civil servant	34	21.3
Free-lance (trade)	34	21.3
Other	26	16.3

When Table 1 is analyzed, it can be seen that the students' mothers' education level is a university with a maximum of 84 individuals (52.5%) and fathers' education level is a university with 56 individuals (70%). When the mothers' and fathers' occupations are analyzed, it can be seen that the category others is the highest in mothers' occupation with 56 individuals (35%) and the category of a civil servant and free-lance (trade) is the highest in fathers' occupation with 34 individuals (21.3%).

2.3. Data Collection Tools

In the study, the personal information form and Nanotechnology Questions Form were used.

In the personal information form, there are questions about the students' gender, mother's education level, father's education level, mother's occupation, father's occupation, and whether the student has heard about the concept of nanotechnology before or not. To measure the students' knowledge of nanotechnology, a question form consisting of 11 questions was used. The question form was prepared by Alpat, Uyulgan, Şeker, Altaş, and Gezer (2017) through the analysis of the studies in the literature on nanotechnology. The first 5 of the nanotechnology questions related to the subject were determined as the attention-grabbing questions for the students. The remaining 5 questions were formed as Knowledge Test on Nanotechnology. The gains of the 6 questions about the Academic Success test know the concept of nanotechnology, being able to explain the purposes of applying nanotechnology, being able to form the connection between nanotechnology and the branches of science it is related to, being able to associate the subject of nanotechnology with Daily life, being able to explain the pros and cons of nanotechnology and being able to create/present different ideas about the development of nanotechnology.

2.4. Analysis of the Data

In the analysis of the questions related to the knowledge test on nanotechnology, scoring was done by categorizing the answers as full comprehension, partial comprehension, and no comprehension. If the students give full answers to a question, that question is evaluated in the full comprehension category and receives 2 points. If the student gives a partial answer, then it is evaluated in the partial comprehension category and receives 1 point. If the student gives an unrelated answer or leaves it blank, it is evaluated in the no comprehension category and receives 0 points.

SPSS was used in the analysis of the data. First, the t-test for independent samples and ANOVA tests were applied in cases where the distribution of the research data was normally distributed, while the Kruskal Wallis tests were applied when they did not show normal distribution. In cases where a significant difference is determined, the cohen d effect size value was calculated with the formula Z/\sqrt{N} . It is expressed as small if the effect size value is less than 0.2, medium if it is between 0.2 and 0.8, and large if it is higher than 0.8 (Cohen, 1988).

3.Results

The analysis of the knowledge test on nanotechnology scores in terms of the students' gender was done through the independent samples t-test. The finding related to the test is given in Table 2.

Table 2: Findings on the Knowledge Test on Nanotechnology Scores in terms of the Gender Variable

Gender	N	X	SD	t	p
Female	76	4.00	2.27	1.027	.308
Male	84	3.50	2.07		

When Table 2 was analyzed, a significant difference between the gender variable and the knowledge test on nanotechnology scores as a result of the analyses in which the change in the knowledge test scores in terms of the students' gender was analyzed ($t=1.027$, $p>.05$). Although there was no significant change, it was seen that the female students' knowledge test on nanotechnology scores was higher than the male students' scores.

The analysis of the students' knowledge test on nanotechnology scores in terms of the grade variable was done through ANOVA. ANOVA findings of the knowledge test on nanotechnology scores in terms of the grade variable are given in Table 3.

Table 3: ANOVA findings on the Knowledge Test on Nanotechnology Scores in terms of the Grade Variable

Grade	N	X	SS	F	p	Significant Difference
5 th grade	48	2.85	2.03	14.653	.000	5 th grade – 8 th grade 6 th grade – 7 th grade 6 th grade – 8 th grade
6 th grade	34	2.65	1.04			
7 th grade	32	4.45	2.23			
8 th grade	46	5.05	2.25			

When Table 3 was analyzed, a significant difference was found between the knowledge test on nanotechnology scores according to the grade variable as a result of the analyses in which the students' knowledge test on nanotechnology scores were analyzed according to the grade variable [$F_{(156)}=14.653$, $p<.05$]. As a result of the Tukey multiple comparisons test done to determine between which groups the significant difference resulted from, it was determined that this difference results between 5th-8th grades, 6th-7th grades, and 6th-8th grades. When the effect sizes were calculated, it was found to be medium in size. It can be said that the differences are medium in size.

Kruskal-Wallis findings of the knowledge test on nanotechnology scores according to the students' mothers' education level and occupation are given in Table 4.

Table 4: Kruskal-Wallis findings of the knowledge test on nanotechnology scores according to the students' mothers' education level and occupation

<i>Mother's education level</i>	N	Mean Rank	sd	X ²	p	Significant difference
Primary school	6	68.50	3	23.138	.011	Middle-school- university High-school- university
Middle-school	34	64.38				
High-school	36	61.39				
University	84	98.62				

Continuation of Table 4: Kruskal-Wallis findings of the knowledge test on nanotechnology scores according to the students' mothers' education level and occupation

<i>Mothers' occupation</i>						
Teacher	32	96.16	6	34.246	.008	Teacher-other
Doctor	8	110.63				Engineer-workman
Engineer	6	131.33				Engineer-other
Workman	14	98.00				Engineer- Civil
Civil servant	30	90.83				servant
Free-lance (trade)	14	70.64				Workman-other
Other	56	56.00				Doctor-other
						Civil servant-other

When Table 4 was analyzed, a significant difference was observed between the knowledge test scores in terms of the mothers' education level according to the Kruskal-Wallis test done to see whether there was a difference between the knowledge test scores in terms of the mothers' education level [$X^2_{(3)}=23.138$, $p<.05$]. As a result of the Mann-Whitney U test done to determine between which groups this significant difference resulted from, it was found that the difference was between middle-school-university and high-school-university groups. When the effect sizes were calculated, it was found to be medium in size. It can be said that the differences are medium in size. As a result of the analyses in which the knowledge test scores were analyzed in terms of the mothers' occupation, a significant difference was determined [$X^2_{(6)}=34.246$, $p<.05$]. As a result of the Mann-Whitney U test done to determine between which groups this significant difference resulted from, it was found that the difference was between teacher-other, engineer-other, engineer-workman, Engineer- civil servant, doctor-other, workman-other, and civil servant-other occupation groups. When the effect sizes were calculated, engineer-other, engineer-workman, Engineer- civil servant, doctor-other group differences were large. The other differences were found medium in size.

Kruskal-Wallis findings of the knowledge test on nanotechnology scores according to the students' mothers' education level and occupation are given in Table 5.

Table 5: Kruskal-Wallis findings of the knowledge test on nanotechnology scores according to the students' mothers' education level and occupation

<i>Father's Education Level</i>						
	N	Mean rank	sd	X ²	p	Significant difference
Primary school	6	30.50	3	15.552	.053	-
Middle-school	6	55.33				
High-school	48	70.92				
University	100	88.20				
<i>Father's Occupation</i>						
Teacher	20	103.15	6	29.158	.028	Doctor-workman
Doctor	12	121.42				Doctor-civil
Engineer	10	82.60				servant
Workman	24	67.63				Doctor-other
Civil servant	34	80.00				Teacher-other
Free-lance (trade)	34	90.91				Civil servant-
Other	26	50.45				other
						Free-lance
						(trade)-other

When Table 5 was analyzed, a significant difference was not observed between the knowledge test scores in terms of the fathers' education level according to the Kruskal-Wallis test done to see whether there was a

difference between the knowledge test scores in terms of the fathers' education level [$X^2_{(3)}=15.552, p>.05$]. As a result of the analyses in which the knowledge test scores were analyzed in terms of the fathers' occupation, a significant difference was found [$X^2_{(6)}=29.158, p<.05$]. As a result of the Mann-Whitney U test done to determine between which groups this significant difference resulted from, it was found that the difference was between doctor-workman, doctor-civil servant, doctor-other, teacher-other, civil servant-other, and free-lance (trade)-other occupation groups. When the effect sizes were calculated, doctor-other difference was found large. Other differences (doctor-workman, doctor-civil servant, teacher-other, civil servant-other, and free-lance (trade)-other occupation) were found medium in size.

Findings related to the Kruskal-Wallis analysis done to determine whether the students' answers about where they heard the word nanotechnology before affected the knowledge test scores are given in Table 6.

Table 6: Kruskal-Wallis findings on knowledge test on nanotechnology scores

	N	Mean Rank	sd	X ²	p	Significant difference
Newspaper/magazine	42	84.00	4	13.220	.136	-
TV program	44	95.82				
Internet	30	80.53				
Textbook	12	67.17				
Other	32	63.19				

When Table 6 was analyzed, a significant difference between the knowledge test scores in terms of where the students' heard about the concept of nanotechnology as a result of the analyses in which the knowledge test scores of the students were analyzed in terms of where they heard about the concept of nanotechnology [$X^2_{(4)}=6.990, p>.05$]. The analysis of the students' answers to questions asked to attract the attention of the students to the subject of nanotechnology is given in Table 7.

Table 7: Findings on questions to attract attention

Question 1	Theme	f	%	Answer examples
	Possible	110	68.75	* As a reward of nanotechnology, printing on smaller objects can be possible.
	Not possible	40	25	* Although technology is developed, printing on such a thin object is not possible.
	Undecided	10	6.25	
Question 2	Theme	f	%	
	Closet	80	50	* This shape reminds me of a closet.
	Microorganism	20	12.5	* A black and white photograph of a fountain
	Microscope view	30	18.75	* Looks like a microorganism visual.
	A nanotechnological tool	10	6.25	* Visual of a nanotechnological tool
	An object	10	6.25	
	A fountain	10	6.25	
Question 3	Theme	f	%	
	Nanotechnology	40	50	* Produced through chemical tests.
	Through experiments and tests	16	20	* Produced as a result of nanotechnology. * Produced as a result of people's problems.
	Through short pieces of thread	8	10	* Produced by joining very small pieces of thread.
	About a problem	8	10	
	By covering with wax	8	10	

Continuation of Table 7: Findings on questions to attract attention

Question 4	Theme	f	%	
	By coating with a special fluid	24	25.53	* We can protect it by covering it on rainy and cold days.
	By covering them	32	34.04	* I would build a greenhouse and put a heater inside.
	By covering with silicone through nanotechnology	24	25.53	* I would use nanotechnological tools to build it and put a protective object inside.
	By covering with silicone	8	8.51	
	Through greenhouses	6	6.38	
Question 5	Theme	f	%	
	<i>Dimension</i>			
	Dimension in mm	24	24	* I think it must be 1mm, because when people can break down atoms, why shouldn't it be possible to create such a small statue? It is in Turkey.
	1 meter	8	8	
	Dimension in cm	22	22	
	nanometer	14	14	* It is 1 meter and located on Earth.
	At a level that can only be seen with a microscope	32	32	
	<i>Where is it?</i>			
	Outside of Earth	14	20	
	Inside a computer	8	11.43	
	Turkey	36	51.42	
	Other Countries	12	17.14	

When Table 7 was analyzed, it was seen that the gifted children answered the first question, "Is it possible to print a cartoon strip on a strand of hair?" as possible at a high rate (68.75%). In the 2nd question, the students resembled the visual to a closet (f=80). It was determined that a low number of students answered as a nanotechnological tool (6.25%). In the 3rd question, it was determined that a high number of students answered inventions such as non-crease pants are possible through nanotechnology (30%). When the students' answers were analyzed about how a statue can be protected in the 4th question, it was seen that the rate of the students who answered through nanotechnology was 12.25%. In the 5th question, it was seen that only 14 of the students answered as nanometer about the dimensions of the statue.

4. Conclusion and Discussion

As a result of the analyses in which the knowledge of the students on nanotechnology in terms of their gender was analyzed, a significant difference was not found between their knowledge of nanotechnology in terms of gender. However, it was seen that the female students' average scores were higher compared to the male students. Alpat et al. (2017) determined in their study that there is no significant difference between knowledge on nanotechnology and female and male students. İpek et al. (2020) concluded in their study that there is a difference between the knowledge of males and females on nanotechnology, but that awareness of the males was higher compared to the females.

Another finding obtained as a result of the study was that knowledge of the students on nanotechnology in terms of gender created a significant difference. It was observed that as grade level increased, the students' knowledge of nanotechnology also increased. This finding is parallel to the study of Floyd-Smith et al. (2009). Atabaş (2012) in his study underlined that the cognitive development levels of students should be taken into consideration during the process of including nanotechnology in the curriculum and the difficulties in teaching the concept of nanotechnology to the students before the abstract thinking stage. A majority of concepts related

to nanotechnology being abstract and the lack of knowledge of young age group children on physics and chemistry are the greatest barriers to lack of knowledge. However, in Sagun-Gököz and Akaygün's (2013) study, the researchers expressed that the workshop activity on nanotechnology training was found informative, effective, and fun by the students.

In some studies, it was concluded that the education level and occupation of the parents are influential in terms of the introduction of the concept of nanotechnology to the students' or TV, newspapers, and magazines at home are effective on the students' knowledge on nanotechnology (Atabaş, 2012). In our study, it was determined that the education level of the parents has a significant effect on the knowledge of the students on nanotechnology as well. It was determined that the knowledge level of students whose mother-father are engineers, teachers, and doctors are higher compared with other occupations. Also, a majority of the students stated that they heard about the concept of nanotechnology on TV. In support of this finding, in Ekli (2010)'s study, it was determined that the students have positive views on nanotechnology, they do not hear much about nanotechnology, and that they mostly hear about nanotechnology and have pre-knowledge from TV programs. Similarly, in Enil and Köseoğlu's study (2016), it was concluded that teacher candidates mostly acquire information about nanotechnology from radio and Tv programs. In most studies, it has been observed that awareness of nanotechnology has not been created and individuals have insufficient knowledge about it (Elmarzugi et al.,2014; Enil and Köseoğlu, 2016; Şenocak, 2014). It may be beneficial to have visual and written media support or to use social media which has become popular in recent times to create awareness in individuals and increase their general knowledge level on nanotechnology. Knobel, Murriello, Bengtsson, Cascon, and Zysler (2010) emphasize the connection between the concepts related to science students learn in school and science in society. In his study which aimed at determining the understanding of international primary, middle school, and high-school students of nanotechnology and nanoscience, the researcher reported that about 60% of the students mentioned nanotechnology or nanoscience terminology and only 18% of these students expressed that they have heard these terms in school, while 31% expressed that they heard these terms outside of school.

According to the findings of this study, nanotechnology's being a current technology necessitates it to be included in curricula. Also, students finding this subject interesting and informative support the idea that the subject should be taught in an integrated manner with science curricula in primary and middle school and with physics and chemistry curricula in secondary education. However, studies report that nanotechnology and nanoscience concepts should be integrated with concepts unique to a specific subject and scientific events and that this will allow nanotechnology to be taught with an interdisciplinary approach (Ak, 2009; Daly, Hutchinson and Bryan, 2007; Stevens, Sutherland, Schank and Krajcik, 2007).

In a conclusion, the human resources need in the area of nanotechnology will increase in the future and today's students will have a workforce in these areas. Nanoscience and nanotechnology education should be developed not only in middle schools and high schools but at all levels of society by targeting the human resources at each level. Teaching an area of science and technology in formal and informal learning environments at a level required by our age will have significant contributions to the education of targeted human resources.

5. Suggestions

- Giving more place to new technologies such as nanotechnology in curricula may increase students' knowledge on this subject.
- Awareness activities such as short and long-term workshops, summer schools, exhibitions, promotions, museum exhibitions, multimedia activities can be organized for students in line with their age levels.
- Due to the interdisciplinary characteristic of nanotechnology, this subject can be given a place in other lessons and textbooks besides science lessons in middle schools, and students' awareness and knowledge levels can be developed.
- In schools which gifted students receive education, workshops can be organized on nanotechnology and students' awareness and interest can be increased.

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The Problems Faced by Refugee Students in The Education Process

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Abstract

This study aims to investigate the problems faced by refugee students during the education process. This research was conducted in qualitative research model and phenomenology pattern. An interview form was used to determine the opinions of students, parents, teachers and administrators. The study group of the research consists of 18 refugee students in 11 primary schools in Osmaniye Province in 2017-2018 academic year, 18 parents of refugee students, 26 teachers and 21 school administrators. The study group was determined by the criterion sampling method. Descriptive analysis was used in the data analysis. Expert opinion was used to ensure content validity reliability of data collection tool. It was observed that students experienced aggressive behavior, exclusion, communication and adaptation problems. Perceptions of teachers and administrators about refugee students in their institutions are positive. They support each other in problems with refugee students. Students and parents receive support from teachers and administrators in case of problems.

Keywords: Refugee Student, Primary School, Problems, Parent, Teacher, Administrator

1. INTRODUCTION

1.1. The Concept of Immigration

Defined as the most fundamental element of society, human beings are not content with what they have, and strive for more and better (Ağaoğlu, 2013). Making an effective definition of migration requires knowledge on the place, cause, duration and direction of migration (Coşkun & Yolcu, 2016). When migration is examined, we come across the idea of people changing their positions in order to reach a better standard than their current situation. Although most of the migrations in the world are based on such reasons as life safety, it is an undeniable fact that there are migrations made to reach more or the better.

Throughout history, migrations have been a phenomenon that shaped societies in social, economic and cultural terms. Today, major migration movements are taking place as people escape from civil war for safety reasons,

leaving all their wealth in their country (Harunoğulları, 2016). As a result of mass migration, citizens of the countries receiving immigration and immigrants themselves face great problems. (Sezgin & Yolcu, 2016).

1.2. The Problems of Refugees in the World

According to Measham et al. (2014), immigrants face many problems after migration. The problem of adaptation to the society they migrated to, states causing difficulties in accessing social services, exclusion from social life and discrimination, difficulty in speaking the language of the migrated society, children not being able to have education are some of the problems faced by immigrants (as cited by Mercan-Uzun and Bütün, 2016). Social adaptation problems are at the top of the problems experienced by refugees worldwide (Kızıl & Dönmez, 2017).

According to Cesariye (2006), refugees experience serious psychological trauma. While hoping to return to their countries when the conflicts in their countries are over, many are uncertain about what will happen in the future. The dilemma caused by this uncertainty not only delays the refugees setting their lives in order in the host country but also slows down social harmony and assimilation. As a result of the major changes in the lives of refugees in the wake of migration, an increase is observed in the number of children who quit their education for economic reasons and start working life (Harunoğulları, 2016).

The increasing in immigration in recent years has convinced states that the necessity of integration should be taken into account. They attached importance to education as their strongest weapon in the face of this fear. In social sciences research, while individuals who come to the host country as a child or at a young age and receive some or all of the schooling process in the new society are called generation 1.5, the individuals born in the host society and receive education services in the society where their family is an immigrant are called the second generation. About a quarter of young people in the Netherlands, Sweden and the USA, and one-sixth of the young in France and England constitute the generations 1.5 and 2nd (Alba and Holdaway, 2017).

Many studies in the literature have shown that countries approach developing educational policies regarding refugee education reactively. The underlying reason for the reactive approach is that socially advantageous individuals want to give advantage to the children of their own society, especially their own children. As consequence of all these efforts, inequality in education is increasing. This makes it difficult for refugee children to become a part of society in the future. Since education continues at home and in the society after school, refugee parents who do not know the language of the host country are not able to deal with their children's education life adequately. This situation delays refugee students from overcoming the language problem. One of the practices that yielded positive results regarding the solution of this problem is to increase the extra time spent by the refugee student at school. In this way, the student has extra opportunities and possibilities to reduce his/her disadvantage. Another practice is to prevent communication problems by communicating with the help of a translator in contact meetings so that the family is more involved in the education process. Schools attended by refugee students are in many ways poorer quality schools than children of middle-class families. This means that refugee students are negatively affected by inequalities in schools. Among these qualifications are school funding, teachers' skills and classroom environment.

1.3. The Circumstances of Refugees in Turkey

Republic of Turkey, based on its geographical location and its experiences throughout history, consider those coming from outside of Europe as people who are to migrate to Europe. Therefore, it signed the Geneva Convention on the Legal Status of Refugees, signed in 1951, but placed a geographical limitation. According to the said geographical limitation, the Republic of Turkey only accepts those coming from European countries as refugees. Turkey's functioning as a bridge between East and West due to its geographical location has caused it to be a country where the discriminating between refugees is actively done (Aykut, 2016). Syria's neighboring countries, particularly Turkey, which hosts the greatest migration movement of recent years, do their duties imposed by international law and humanity in the best manner (Kızıl and Dönmez, 2017). As a result of the instability and civil war in Syria, many Syrians have immigrated to other countries. From the start of the events in 2011, the State of the Republic of Turkey has been the country that accepted the most of the asylum seekers

(Harunoğulları, 2011). According to immigrant behavior, Anatolia is just a transit route. Republic of Turkey, based on its geographical location and its experiences throughout history, consider those coming from outside of Europe as people who are to migrate to Europe. Therefore, it signed the Geneva Convention on the Legal Status of Refugees, signed in 1951, but placed a geographical limitation. According to the said geographical limitation, the Republic of Turkey only accepts those coming from European countries as refugees. Turkey's functioning as a bridge between East and West due to its geographical location has caused it to be a country where the discrimination between refugees is actively practiced (Aykut, 2016).

Even though the determination of the actual number is impossible due to various reasons, according to the data of many official institutions, such as Coast Guard Command and Directorate General of Migration Management, Syrians constitute the largest proportion of asylum seekers in Turkey (Aykut, 2016). Republic of Turkey carrying out the open door policy for those fleeing from the war in Syria and illegal crossings taking place apart from not being able to keep an account of refugees accurately have caused inability to know the exact number of Syrian refugees in our country (Mercan, Uzun and Bütün, 2016). There are no certain data obtained or a comprehensive report on Syrians living outside the camps in Turkey (Aykut, 2016). Despite this, asylum seekers were provided with residence permits, health services, education services and job opportunities, so that they adapt to their new lives and gain their self-confidence (Yıldız, 2013).

The educational planning of Syrian migrants, based on the assumption that they will return to their countries in a short time as a result of the end of civil war, has been changed many times with the prolongation of the refugees' visiting time (Kızıllı & Dönmez, 2017). In order to alleviate difficulties caused by civil war and immigration Syrian refugees experience, Republic of Turkey, by means of Turkish Red Crescent, meet their social needs like psychological therapy in addition to their basic needs such as food and shelter (Aykut, 2016). The most important source of motivation for Syrian refugees in the social adaptation and acceptance process is that they are provided with the access to educational activities (Sezgin & Yolcu, 2016). Because it is assumed that education will enable young people to gain cultural flexibility and increase their adaptation to the conditions they live in due to the constant change of cultural structure and values (Güven, 2011). As a result of international agreements and migrations, cross-cultural interaction is assumed. Changing the way states define the concept of citizenship, it paved the way for multicultural education studies (Cırık, 2008). The general purposes of Turkish national education have been arranged to cover all members of the society, and it has been clearly stated that every individual has the right to education, that they can benefit from this right, educational opportunities and equality of opportunity in education (Gül, 2018). 'All members of the society without any distinction of origin' is emphasized.

In international agreements, the right to education is one of the most fundamental rights of refugees (Kızıllı & Dönmez, 2017). The principle of universality and equality is one of the basic principles of Turkish National Education. According to this principle, no discrimination can be done in educational institutions in terms of language, race, gender and religion. Everyone benefits from educational institutions and educational rights equally. No privilege is given to anyone, any group or any class in educational services (Konan, 2002).

Taking care of the needs of the individual and society is another of the basic principles of national education. National education services designed according to the demands, expectations and needs of the society also take into account the capabilities of the citizens (Konan, 2002). Although the asylum seekers are not citizens, the fact that most of them acquire citizenship in the following years and this expectation is high in our country should be taken into account in academic studies on asylum seekers. Besides, the adaptation of asylum seekers to the society is a need of both the asylum seekers and Turkish citizens. The way to meet this need of the individual and society is through education. Based on this premise, the problems that may be encountered in the future should be anticipated today and necessary education services should be provided to refugee children in order to meet the needs of the individual and the society to eliminate these problems.

1.4. The Problem of the Research

Migration has a structure that includes many economic, social, psychological and cultural problems (Sağlam, 2006). One of the most important reasons for migration is that immigrants leave their country with their relatives in order to achieve a quality life (Lordoğlu, 2015). Republic of Turkey is located on the transition routes of three continents. Since it is located on these transit routes, it contains many different immigrant communities within itself (Yılmaz, 2014). Turkey has become a country with rapidly growing immigrant population after the second millennium (Topçuoğlu, 2014).

Although developed countries seem to be taking responsibility for the refugee and asylum problem, the main burden is imposed on developing countries. As with many countries, the phenomenon of migration affects the Republic of Turkey's socio-cultural, economic and demographic structure. In addition, it creates problems in public order and security. (Directorate General of Migration Management, 2017).

As a result of the civil war in Syria, a large migration movement towards Turkey took place (GNAT Human Rights Inquiry Committee, 2014). At the end of this civil war, at least 400 thousand people, including children and civilians, lost their lives. 13.5 million people, more than half of the 20 million Syrian population, got in need of the help of other countries. More than 6 million people had to emigrate from their homeland. 4.8 million people that are the majority of these people took refuge in neighboring countries, primarily the state of Turkey. (DEMP, 2017). According to the authorities of the Republic of Turkey, in the course of time, these events once seen as a temporary situation have become a problem that cannot be solved for many years. Since 2011, millions of Syrians have involved in the social life in Turkey, got into the working life and made efforts to get their lives in order in Turkey. According to the data of 2016, in foreigners with residence permits in Turkey, Syrians rank first with 48.738 people. Again, according to the data of 2016, it is seen that most of the irregular migrants apprehended were Syrians with 69,755 people (DGMM, 2017). Besides that, it is a prevailing opinion that apart from Syrians who fled from the war and came to Turkey as refugees the number of the ones who came illegally is much higher than the registered ones (Boyras, 2015). It is believed that about half of the number of Syrian refugees are in Turkey (Göker and Keskin, 2015). Because of the open door policy which is the method by which refugees who fled from the war environment in Syria and are looking for a safe place are hosted in our country with vast opportunities, the practice way of this method, and rules that are not carried out, the record of many refugees could not be kept. (Mercan-Uzun and Bütün, 2016).

Children are inherently attached to and dependent on adults. As a natural consequence of this situation, children are more susceptible to physical injuries, epidemics and emotional trauma (Gürle, 2012). The education lives of young people and children were what were affected the most by the conflicts and civil war in Syria (Seydi, 2014). According to the International Convention on the Rights of the Child, by providing free primary education, all states subject to the treaty accept that every child has the right to receive education (WEB1). Turkey has to take some steps in accordance with international agreements. The inability of refugee children to have sufficient opportunities in the primary education process can be accepted as an indicator of this (Kartal & Başçı, 2014). Not making the education of refugee children compulsory is effective in them keeping away from education (Güneş, 2012). There are not enough opportunities in today's education system for the masses we call immigrants or asylum seekers who were brought up in globalization, our rapidly changing values, communication problems, the problems caused by migration in society, economic problems, cultural conflicts, and who are the most affected ones from these events to become happy, successful individuals who are able to express themselves, who have found themselves and who do not have identity problems (Nalbur-Taşdemir, 2013).

The insufficient attention paid to the services provided to refugees and asylum seekers before the Syrian-centered migration movement and these people remaining in the background is an indication of not being ready for new cases that are faced. Republic of Turkey aims to eliminate the negative effects of Syria-centered migration events. The aim of this study is to contribute to the process of refugee children receiving education in better conditions. In this context, it is predicted that identifying the problems refugee students studying at primary school level face in their education process, and determining what can be done with the perspectives of

students, teachers, parents and administrators in order to eliminate these problems will contribute to making healthier decisions.

1.5. The Significance of the Research

The phenomenon called migration is an undeniable reality of the world countries. People who migrate from their countries for different reasons affect not only their own lives but also the order of the countries they migrate to. At this point, it is important to examine the effects of the currently experienced migration waves from Syria to Turkey. After the migration waves, comes the need for education with the fulfillment of primary needs (food, shelter, health, clothing, etc.). It is inevitable that some problems will occur during the integration of an individual from a different country into the new country. Determining these problems is important for the integration of refugee students into the society. It is aimed to achieve an effective refugee education in our country by identifying and eliminating the problems in the education given to refugee children. This study will contribute to the literature and education policies for refugee students.

The scarcity of studies on the education life of Syrian refugee children at primary school level in the literature and theses suggests the need for this study.

1.6. Purpose of the Research

The purpose of this research is to identify the problems that refugee students encounter in the education process. In accordance with this purpose, answers to the following questions were sought:

1. What are the problems that refugee students face in their education process according to refugee students, parents of students, teachers and primary school administrators?
2. What can be done to solve the problems that refugee students face in the education process according to refugee students, parents of students, teachers and primary school administrators?
3. What are the opinions of refugee students and parents of students regarding the support of teachers and administrators?
4. What are the opinions of refugee students and parents of students on the education they receive in Turkey and in Syria?
5. What are the opinions of teachers and school administrators regarding refugee students?
6. What are the opinions of the teachers regarding the support of school administrators and the opinions of school administrators regarding the support of teachers?

1.7. Assumptions

1. It was assumed that the students included in the study gave correct and sincere answers to the interview forms.
2. It was assumed that the parents included in the study gave correct and sincere answers to the interview forms.
3. It was assumed that the teachers included in the study gave correct and sincere answers to the interview forms.
4. It was assumed that the managers/administrator included in the study gave correct and sincere answers to the interview forms.
5. The interview form is sufficient to determine the opinions of students, parents, teachers and administrators.

1.8. Limitations

1. The data of the research is limited to 18 refugee students, 18 parents of refugee students, 26 teachers and 21 school administrators in the city center of Osmaniye in the 2017-2018 academic year.
2. The data collection tool used in the study is limited to the questions in the semi-structured interview form.

2. METHOD

2.1. Research Model

The qualitative research method was used in this study. The qualitative method is a scientific research method based on non-numerical data, aiming to explore, providing new hypotheses and theories (Johnson & Christensen, 2014). In the qualitative method, the participants participate in the study in their natural environment. The researcher is involved in the process of data collection. They do not have to use scales made by different researchers. Qualitative studies offer a wide variety of data sources (Creswell, 2014). Through qualitative research, the opinions of the participants are presented, the researcher has the opportunity to follow the process in a real environment, working in-depth with a small number of groups is enabled, the data consists of different perspectives and opinions, and these opinions are enabled to be compared (Creswell, 2017).

In this study, phenomenology design, one of the qualitative method types, was used. Phenomenology design, which is the most used qualitative research type, reveals the opinions and perspectives of the participants regarding a phenomenon (Johnson & Christensen, 2014). Phenomenology is the first approach used in qualitative research. This pattern is concerned with what is the consciousness formed in people's experiences, regarding the phenomenon. In-depth interviews are conducted to reveal this consciousness or perspective. The researcher reveals the essence of these experiences from the data he/she collects. Researchers working with phenomenology examine the similarities of the emerging data (Seggie & Bayyurt, 2015). According to Giorgi and Moustakas (1994), philosophy and psychology are based on phenomenology. The essence of the phenomenon is obtained from the opinions about the experiences related to the phenomenon that is the subject of the study through the interviews (Creswell, 2014).

2.2. Study Group

The study group of the research consists of 18 Syrian refugee students who study at 11 primary schools in the province of Osmaniye in the 2017-2018 academic year, 18 Syrian refugee student parents, 26 teachers and 21 administrators that are 83 people in total. The criterion sampling model was used to determine the study group. The following criteria were taken into account in determining the study group:

1. The students participating in the study were chosen from Syrian refugees.
2. All of those Syrian refugee students receive education in the province of Osmaniye.
3. All of the Syrian refugee students selected receive education at primary school level.
4. The criteria for parents participating in the study was determined as refugee parents whose students attend public schools at primary school level.
5. The criterion was that students and parents know the Turkish language enough to answer the questions.
6. The criteria for teachers who participated in the study had Syrian refugee students in their classes.
7. The criterion was that the administrators participating in the study were school administrators having Syrian refugee students in their schools.

According to the demographic data obtained from the student interview forms, the average age of the 18 students interviewed was found to be 10.16. Also, one of these 18 students is in the 2nd grade, 13 of them are in the 3rd grade, and 4 of them are in the 4th grade. The nationality of all the refugee students in Syria. According to the demographic data obtained from the parent interview forms, the average age of the 18 parents interviewed was found to be 34. Also, the nationality of all of the parents in Syria. According to the demographic data obtained from teacher interview forms, the average age of 26 teachers interviewed was found to be 41.92. Also, 6 of 26 teachers teach in 1st grade, 7 in 2nd grade, 7 in 3rd grade and 6 in 4th grade. The average number of Syrian refugee students in teachers' classes was found to be 6.69. According to the demographic data obtained from the administrator interview forms, the average age of 21 school administrators interviewed was found to be 42.61. In addition, 7 of the school administrators are principals and 14 are vice principals. The average of Syrian refugee students that school administrators care for was found to be 77.23.

2.3. Data Collection Tools

4 types of measurement tools were used in collecting research data. They are noted below.

1. Student Interview Form
2. Parent Interview form
3. Teacher Interview Form
4. Administrator Interview Form

Student Interview Form is a semi-structured interview tool developed by the practitioner in order to determine the problems that refugee students encounter in the education process. While preparing the interview forms, care was taken to ensure that the questions were open-ended, understandable, simple and clear, not directing the participant, and conforming with opinion measurement principles. Interview forms were applied to students who could speak Turkish. The answers given by the participants were approved by reading them again. After the interview form is prepared by the researcher, it is presented to an expert who knows the subject of the study for opinion. The expert examines the forms without participating in the research and provides guidance within the scope of grammar, subject relevance or principle of clarity (Glesne, 2013). While preparing this form, necessary arrangements were made by taking expert opinion. Form consists of four questions. The form is presented in Annex-2.

Parent Interview Form is a semi-structured interview tool developed by the practitioner in order to determine the problems that parents of refugee students encounter in the education process. While preparing the interview forms, care was taken to ensure that the questions were open-ended, understandable, simple and clear, not directing the participant, and conforming with opinion measurement principles. Interview forms were applied to parents who could speak Turkish. The answers given by the participants were approved by reading them again. After the interview form is prepared by the researcher, it is presented to an expert who knows the subject of the study for opinion. The expert examines the forms without participating in the research and provides guidance within the scope of grammar, subject relevance or principle of clarity (Glesne, 2013). While preparing this form, necessary arrangements were made by taking expert opinion. The form is presented in Annex-3.

Teacher Interview Form is a semi-structured interview tool developed by the practitioner in order to determine the problems that teachers of refugee students encounter in the education process. While preparing the interview forms, care was taken to ensure that the questions were open-ended, understandable, simple and clear, not directing the participant, and conforming with opinion measurement principles. After the interview form is prepared by the researcher, it is presented to an expert who knows the subject of the study for opinion. The expert examines the forms without participating in the research and provides guidance within the scope of grammar, subject relevance or principle of clarity (Glesne, 2013). While preparing this form, necessary arrangements were made by taking expert opinion. The form is presented in Annex-4.

Administrator Interview Form is a semi-structured interview tool developed by the practitioner in order to determine the problems that administrators who have refugee students in their schools encounter in the education process. While preparing the interview forms, care was taken to ensure that the questions were open-ended, understandable, simple and clear, not directing the participant, and conforming with opinion measurement principles. After the interview form is prepared by the researcher, it is presented to an expert who knows the subject of the study for opinion. The expert examines the forms without participating in the research and provides guidance within the scope of grammar, subject relevance or principle of clarity (Glesne, 2013). While preparing this form, necessary arrangements were made by taking expert opinion. The form is presented in Annex-5.

2.4. The Process of Data Collection

Necessary permissions were obtained from the Osmaniye Directorate of National Education for the implementation of the data collection tools used in the study in primary schools affiliated to the Osmaniye Provincial Directorate of National Education in the 2017-2018 academic year. The permission of the relevant research is provided in Annex-1. In the application process, student, parent, teacher and administrator interview

forms prepared were applied to the participants selected with the criterion sampling model. The interviews lasted approximately 30 minutes. All applications were completed within 2 weeks. The interviews were held at the date and time determined with the participants. During the interviews, it was emphasized to students, teachers, parents and administrators that the answers being correct and sincere was crucial for the research. In addition, it was stated that the answers given by students, parents, teachers and administrators would be confidential and they contributed to a scientific study. All interviews were done face to face. The interviews were recorded without changing the answers given by the researcher to the relevant forms. These forms were then analyzed.

2.5. Data Analysis

In this study, where data were collected using the interview technique, descriptive analysis and content analysis were performed for the analysis of the data, and the findings were presented with their frequencies in the relevant places. The purpose of descriptive analysis is to systematically interpret and present the data obtained by interview or observation technique. The data are classified and interpreted, taking into account the predetermined themes. Comparisons are made with cause-effect relationship (Yıldırım & Şimşek, 2008).

Content analysis is to obtain concepts and relationships from the findings of the study conducted towards the goal we want to achieve. Undiscovered concepts and themes are achieved thanks to content analysis, which makes a deeper examination than descriptive analysis. Content analysis is based on a stepwise working system. In the first step, concepts are obtained from data. Secondly, concepts are systematized in a logical way and appropriate themes are created accordingly. Content analysis was carried out in 4 stages. First, the data obtained from the interview were coded. Secondly, the common codes were combined, and the themes were achieved. In the third stage, the codes and themes were systematized. Finally, the findings obtained were interpreted (Yıldırım & Şimşek, 2008). In the coding process, the data is read in detail and the codes are obtained from the raw data. Considering the common aspects of the codes, they are combined, and the themes are achieved. Then, the themes are interpreted, and the result is achieved (Creswell, 2017).

The validity and reliability of the data collected with qualitative data collection tools were examined. The peer assessment strategy was used for the accuracy of expression and validity of the findings obtained from the student interview form, parent interview form, teacher interview form and manager interview form. Peer assessment is ensured to be included in the study with the comments of the expert who has information about the project or study, thus the validity is increased. For the reliability of the findings, the analyzes were controlled, the defined codes were reviewed and their accuracies were compared, and the compatibility between the coders was examined (Creswell, 2014).

3. CONCLUSION AND DISCUSSION

3.1.1. Results Regarding the First Sub-Purpose

As a result of the analysis of the findings obtained regarding the first sub-purpose, which investigates the problems that refugee students face in the education process according to the refugee students, parents of students, teachers and primary school administrators, the students made statements within the scope of the sub-themes of aggressive behavior and exclusion. In this case, it is seen that refugee students studying in primary schools are not accepted by Turkish students. It can be said that refugee students experience peer bullying during their education. In the data obtained from the interview forms of some students, it was seen that the refugee students were exposed to peer bullying not only from Turkish students but also from other refugee students.

According to the parents of refugee students, subthemes of not having problems, aggressive behavior, teacher pressure, language problem and exclusion, with frequency order, were created in the theme of problems related to the problems faced by refugee students in the education process. Parents answered the most under the sub-theme “no problem.” Parents, according to the problems they stated, showed similarities with the students with the answers they gave in the subthemes of aggressive behavior and exclusion. It can be said that the fact that most of the parents fall into the sub-theme of no problem is related to the fact that they do not take great interest in school. Some parents stated that refugee students were oppressed by teachers.

According to the teachers of the refugee students, according to the data of the problems encountered by the refugee students in the education process, subthemes of communication-adaptation problem, aggressive behavior, psychological problems, absenteeism problem, exclusion problem and financial problems, by the order of frequency, were created. The sub-theme of communication-adaptation problem was the most stated sub-theme by teachers. Teachers have similar statements with parents in terms of the problems they stated regarding communication-adaptation, and with students in terms of aggressive behavior and the exclusion problem.

According to the school administrators in the schools where the refugee students study, the subthemes of communication-adaptation problem, aggressive behavior, psychological problems and academic deficiency, by the order of frequency, were created in the theme of problems related to the problems that refugee students face in the education process. The sub-theme of communication-adaptation problem was the most stated sub-theme by administrators. Administrators made similar statements with the students, parents and teachers in the sub-theme of communication-adaptation problem, and with the teachers in the sub-theme of psychological problems.

Regarding these results, findings that refugee students are exposed to discrimination, have difficulties in language and self-expression, are ridiculed and excluded by others, have difficulties in language learning and adaptation since Turkish is not spoken at home in the study of Nar (2008) titled "The Effects of Migration on Education and Education Management" coincide with the results of this study. Findings that children experience problems in the process of adapting to school, have difficulties in making friends, have communication problems, and their school achievement is lower than other children, in Han (2013)'s thesis titled "Adaptation Problems Faced by Children of Migrant Families in Education" coincide with the results of this study. According to the study titled "Teachers' views on the problems faced by Syrian refugee children in preschool education institutions" conducted by Mercan-Uzun and Bütün (2016), the findings that children have language and communication problems, they are unable to socialize as a result of that, and that they have problems in terms of basic needs such as nutrition, shelter and cleaning coincide with the results of this study. According to the study prepared by Levent and Çayak (2017), titled "Opinions of School Administrators on the Education of Syrian Students in Turkey," the findings regarding the fact that communication problems about refugee students occur have significant similarities with the findings of this thesis study. According to the research prepared by Topsakal, Merey and Keçe (2013) titled "A qualitative study on the education right and problems of children of immigrant families," its findings that children experience cultural conflicts and have problems in adjusting to school coincide with the findings of this study.

3.1.2. Results Regarding the Second Sub-Purpose

According to refugee students, parents of students, teachers and primary school administrators, as a result of the analysis of the findings obtained regarding the second sub-purpose of investigating what can be done to solve the problems faced by refugee students in the education process, sub-themes of positive communication/behavior expectation, not expressing suggestions, teacher assistance expectations, solving the problem on their own, moving away and wishing to die, by the order of frequency of students' answers were formed. The sub-theme of positive communication/behavior expectation was the most expressed solution suggestion. It was seen when the solution suggestions of the students were examined that peer bullying was asked to be eliminated by their friends. Some students, by approaching indirect solutions rather than doing it by themselves, asked their teachers to solve the problems. In this case, it can be said that these students seek support for themselves in the school environment. In a different way, in the case of a student, there was the expression of wishing to die as a solution to the problems. It can be said that this student has severe psychological pressure.

The theme of solutions for the solutions to the problems faced by refugee students in the education process includes sub-themes of language and notion education suggestion for the student, not giving suggestion, language and notion education suggestion for the parents, summer course suggestion and attention expectation by the frequency order of the parents. The sub-theme of language and notion education suggestion for the student was the sub-theme most expressed by the parents in the theme of solutions. While parents focused more on the sub-theme of no problem in the theme of problems, they made suggestions about language in the theme of

solutions. Some parents wanted to support the educational activities of their children by asking for language and notion education not only for the students but also for themselves.

In the study by Erdem (2017) titled "The educational problems of classroom teachers with refugee students in their class and their suggestions on solutions," the findings regarding the fact that a language problem is experienced and the teachers think language education should be provided before school coincide with the results of this study. In the research titled "Teachers' Views on the Education of Syrian Refugees" by Kardeş and Akman (2018), the findings that refugee students have problems in learning languages and adapting to school, and that preschool education is necessary to overcome these problems coincide with the findings of this study. According to the article titled by Sakız (2016) "Immigrant children and school cultures: An integration proposal," the findings of providing education to immigrant children in a separate school coincide with the findings of this study.

3.1.3. Results Regarding the Third Sub-Purpose

Supportive attitude and educational support sub-themes were the sub-themes related to the situation of receiving equal attention from the students and the most attention from the teacher and the administration. There are no students who expressed negative expressions about the state of being cared by the teacher and the administration. Students are very contented with the attention of teachers and administrators who prevent peer bullying in the school environment with a supportive attitude. Some students have received support from the teacher and the administration concerning financial difficulties.

The sub-themes of effective parent communication, academic interest, indifferent, positive response and general support belief, by the order of frequency, were created in the theme of the perception of support regarding the state of getting attention from the teacher or administration in problems experienced according to the parents of refugee students. Effective parent communication sub-theme has been the most expressed one by parents. The indifference sub-theme regarding the perception of support may indicate that parents might have created a negative perception for teachers and administrators.

3.1.4. Results Regarding the Fourth Sub-Purpose

The sub-themes of satisfaction in Turkey, satisfaction in Syria, and equal satisfaction were created in the analysis of the findings regarding the sub-purpose investigating the opinions of refugee students and parents of students concerning the education they receive in Turkey and Syria. Most of the students replied in the sub-theme of satisfaction in Turkey. In this case, it was revealed that refugee students receiving education in primary schools in Turkey are more satisfied with the education system and school environment of Turkey in comparison with Syria. Some students, on the other hand, have never been in the educational environment in Syria. In addition, some students stated that the education processes and school environments of the two countries were equal.

The sub-theme of satisfaction in Turkey was the one expressed the most by parents. Parents stated that they were more satisfied in Turkey than Syria in terms of facilities and academic qualifications offered by the education system and the school environment in Turkey. Parents made similar statements with their students in the theme of satisfaction perception regarding countries.

3.1.5. Results for the Fifth Sub-Purpose

In the analysis of the findings obtained regarding the sub-purpose investigating the opinions of teachers and school administrators about refugee students, according to the data of teachers' feelings regarding having refugee students in their classrooms, the sub-themes of positive perception and feeling discomfort, by the order of frequency, were formed in the theme of perception regarding the refugee student. Positive perception sub-theme was the most expressed sub-theme by teachers. It can be said that teachers' perceptions of refugee students are at a positive level.

Regarding the perceptions of administrators on having refugee students in their schools, the sub-themes of positive perception and feeling discomfort, by the order of frequency, were created in the theme of perception of the refugee student. Positive perception sub-theme was the most expressed sub-theme by the administrators. Administrators' perceptions of refugee students are positive. Administrators and teachers made similar statements in this regard.

According to the thesis titled "Researching the experiences of education stakeholders in a public school in Mamak, regarding refugee education" by Erçakır-Kozan (2019) regarding this result, the findings regarding communication problems with refugee students and their parents, teachers experiencing problems arising from the large number of refugee students and wanting to increase their professional development, educators having positive attitudes towards refugee students, and refugee families' satisfaction with the education they have accessed coincide with the results of this study.

3.1.6. Results for Sixth Sub-Purpose

In the analysis of the findings obtained regarding the sub-purpose investigating the opinions of the teachers regarding the support of school administrators and school administrators regarding the support of teachers, the sub-themes of getting support from the administrator and not being able to get support from the administrator, by the order of frequency, were created in the theme of support between the teacher and the administrator regarding the status of teachers of refugee students in finding support from the school administrators in the face of problems experienced. The sub-theme of getting support from the administrator was the most expressed sub-theme by the teachers. In this case, teachers work on the problems of refugee students in cooperation with the administration.

According to the school administrators in the schools where the refugee students are studying, sub-themes of getting support from the teacher and not being able to get support from the teacher, by the order of frequency, were created in the theme of support between the teacher and the administrator regarding the status of administrators in finding support from the teachers in the face of problems. The sub-theme "I can get support from the teacher" was the most expressed sub-theme by the administrators. Teachers and administrators made statements supporting each other in the theme of support between the teacher and the administrator and stated that the relations between the administrators and the teachers in their schools were positive.

3.2. Suggestions

1. The Ministry of National Education should open support courses for students and parents in order to solve the language problem regarding the adaptation of refugee students and their families to Turkey.
2. In order for refugee children and their families to benefit fully from the guiding in education, in-service training should be provided to administrators and teachers, families and students should be informed and made aware of this subject.
3. Adaptation programs specific to refugee families and their children should be organized and implemented. Help should be sought from the Guidance Research Center (GRC), Provincial Directorate of Family and Social Policies and universities on this subject.
4. Studies should be conducted in other provincial examples regarding the problems of refugee students and the results obtained by comparing with this study should be generalized.
5. In order for refugee students and other students to adapt to each other, teachers and administrators should receive orientation training and arrange the practices for children.

Acknowledgement: This article is produced from the thesis of "The Problems Faced by Refugee Students in The Education Process".

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Investigation of the Relationship Between Mothers' Attitudes Towards Disabled Individuals and Their Children's Acceptance Levels

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Abstract

Early childhood is a critical process that plays a key role in the shaping of individuals, and therefore, societies. Important duties fall to parents so that this process can be managed successfully. Parents directly or indirectly relay their attitudes toward many topics not only with their childrearing attitudes but also through the interaction with their children. The child starts certain preliminary acceptance both about himself/herself and others through the interaction between mother and child. The child is most likely to use this preliminary acceptance that he/she requires especially in early childhood throughout his/her life as a mental template. In this context, it is aimed to investigate the relationship between mother's attitude toward disabled individuals and their children's acceptance levels. Data were collected from 60 mothers of 3-5-year-old children by using Demographic Form, Attitude toward the Disabled Scale and The Acceptance Scale for Kindergarten- Revised. According to the research findings, there was a positive and moderate relationship between family attitudes, family life, and efficacy subdimensions. There was no relationship in the educational environment, working life and interpersonal relationships subdimensions.

Keywords: Mothers, Attitude Towards Disability, Early Childhood, Acceptance

1. Introduction

1.1 Introduce the Problem

Young children are expected to develop their social skills through their interactions with their peers in their early childhood education (Scott-Little, Kagan, & Frelow, 2006). Children are positively or negatively affected by the communication they establish with their peers (Bierman, 2004). Negative peer relationships in early childhood have been found to be associated with negative behavioral outcomes such as class participation, peer rejection and problems with teachers in the future (Holmes, Kim-Spoon, & Deater-Deckard, 2016; Ladd et al., 1999).

In early childhood, parents are one of the important socializing tools of children. Parents can transfer their attitudes to their children through interaction. This situation also manifests itself in the specific needs of individuals and disabilities (Bigler & Liben, 2007). Peck, Carlson, and Helmstetter (1992) observed that children with parents who believe that mainstreaming is good for children with disabilities are more agreeable for peers with special needs, are more aware of the needs of other people and are more comfortable when people with disabilities are around. Similarly, Okagaki, Diamond, Kontos and Hestenes (1998) found that children with parents who encouraged their children to support their peers with special needs were more likely to interact with peers with special needs in the pre-school class. There are many factors that affect children's peer relations. One of the most important of these is the family. Guyer et al., (2015) found in one of their research that family relationships are related to children's peer relations. The relationship between parents and their children's attitudes towards disabled individuals is influenced by the child's age (Rosenbaum, Armstrong & King 1988). Parents are important factors on children's interaction with their peers in early childhood.

1.2 Explore Importance of the Problem

Establishing relationships with peers in early childhood is an important developmental goal (Gottman & Mettetal, 1986; Sroufe, Egeland, Carlson, & Collins, 2005). In early childhood, peer interaction is important for supporting social skills, cognitive skills, academic skills, emotion regulation, and mutual communication skills (Buhs & Ladd, 2001; Guralnick, Neville, Hammond, & Connor, 2007; Ladd, Birch, & Buhs, 1999; Martin, Fabes, Hanish, & Hollenstein, 2005; Malecki & Elliot, 2002). Positive peer interaction in the pre-school period supports children's readiness to school, academic and social skills, emotional regulation and cognitive development (Deater-Deckard, Pike, Petrill, Cutting, Hughes, & O'Connor, 2001; Ladd, Birch, & Buhs, 1999; Spangler Avant, Gazelle, & Faldowski, 2011). Peer relations serve as a stepping stone in the development of social skills as a model for the emergence of new relationships as cognitive and emotional resources (Klima & Repetti 2008). Peer relations will provide children lots of experience and opportunity to develop social relationships. In other words, the interaction that children have with their peers influences many life experiences, including social and emotional skills (Berndt, 1996). Through these interactions with peers, children develop their behaviors, skills, and experiences in a wide range of contexts.

Early childhood is a critical process that plays an important role in shaping the individual and therefore the societies. Parents have important tasks to be able to manage this process well. One of the important theories of developmental psychology, attachment theory suggests that children's relationships with their mothers from an early age are a lifelong guide (Bowlby, 1969). The result of this relationship is thought to be a mental scheme given the theory of the inner functioning model. This intrinsically functioning models shape the expectations of the individual towards herself/ himself and her/his environment. It provides a mental template that helps the person determine how much s/he deserves to be loved, how much s/he can trust both to the environment and to the world. In other words, if the mother-infant relationship progresses in a positive way, such as the baby's feeling of safety, the elimination of needs, the expectation of emotional closeness, the baby will feel that it is important to consider herself/himself worthy of being loved and approved, and at the same time, and will perceive others and the world as a positive place. Rees (2007) states this secure base forms the basis for the development of positive models for oneself and others, and these models are conceptualized as 'internal working models' or 'mental presentations.' While the key point of the inner working models of the world is creating expectations about who the binding figurine is, where it can be found and how it will react, the key point of the self-functioning internal working models is the representation of whether it is acceptable for the binding figurine itself. While the internalized representations of oneself are important in the acquisition of a persistent, realistic and positive identity, representations about others have a critical prescription for the establishment of persistent interpersonal relationships. In addition to these, the internal working models have a decisive influence on what kind of information individuals will tend to pay attention to, how they will interpret events in the world, and what they will remember and forget. In this context, it can be said that the parent-child relationship provides a template for the lifelong interpersonal relationships for children. Parents, directly and indirectly, transfer their attitudes about many issues, not just about childrearing attitudes, through the interaction they have with their children. Through the interaction between the mother and the child, the child is beginning to make some

assumptions about herself/himself and others. Especially in early childhood, these preliminary assumptions given by the child are highly likely to be used as a mental template for life.

Within the classroom, including early childhood period, children with special needs from early ages, and children without special needs are co-educated. Differences can be seen when peer relations with children with special needs and children without special needs are examined. For example, even if children with normal development become friends with children with special needs (Buysse, Goldman, & Skinner, 2002), they prefer them less as playmates compared to their normally growing peers (Brown, Odom, Li, & Zercher, 1999).

There are several factors for building peer interaction with children with special needs. For children with normal development to interact with their peers with special needs, it is thought that in addition to the perceptions of the competence of the individual with special needs, the context is also important (Diamond & Hestenes, 1996; Diamond & Hong, 2010; Diamond & Tu, 2009; Magiati, Dockrell, & Logotheti, 2002). In addition, the characteristics of the child, the peers with disabilities, and the class are examined on the acceptance of the peers with disabilities in general are important factors (Boer, Pijl, Post & Minnaert, 2013). How often the children meet with their peers also has a significant impact on the positive attitudes of children toward peers with disabilities (MacMillan, Tarrant, Abraham & Morris, 2014). Besides, children with special needs may not interact sufficiently with children without disabilities as they may not be prone to initiating social interactions (Odom, Zercher, Li, Marquart, & Sandall, 2006). Therefore, it can be said that the attitudes of children with normal development to their peers with special needs may play a critical role in the increase of social interaction between children with special needs and children with normal development in the pre-school education institutions.

In addition, it has been shown that attitudes towards individuals with disabilities can be differentiated according to culture (Nikolarazi & Reybekiel, 2001). It is clear that the existing studies are directed towards Western cultures (Nikolarazi & Reybekiel, 2001; Okagaki, Diamond, Kontos & Hestenes 1998). Similar studies are needed for Eastern cultures. In this research, it is thought that it is useful to determine the perceptions of the mothers who have children in the pre-school period and the levels of their children's peer acceptance. The study aims to examine the relationship between the attitudes of the mothers towards the disabled individuals and the acceptance levels of their children.

2. Method

The research was designed as a relational survey model. The participants were sampled with the convenience sampling method which is a purposive sampling method. Convenience sampling method suggests that the sample is selected from accessible and applicable units due to limitations of time, money, and workforce (Büyükoztürk, Kılıç, Akgün, Karadeniz, & Demirel, 2009).

2.1 Participants

The sample of the study consisted of 60 children who attended different preschool institutions in the central district of Muğla in the academic year of 2016-2017 and their mothers. 61.7% (n = 37) of the children participated in the study consisted of male, while 38.3% (n = 23) of them were female children. Age of the children varies between 60 and 87 months and the mean age is 75.06 months (SD = 7.18). While 81.7% (n = 49) of the children have integration students in the school, 18.3% (n = 11) of them did not have any integration student. 10% (n = 6) of the mothers graduated from primary school; 8.3% (n = 5) graduated from middle school; 30% (n = 18) graduated from high school; while 45% (n = 27) have a bachelor's degree and 5% (n = 3) graduated from post-graduate program.

2.2 Data Collection Tools

60 children with no special needs who are in their early childhood and their mothers participated in the research. Demographics of the mothers were obtained with the "Demographic Information Form" developed by the researchers. The Acceptance Scale for Kindergarten- Revised (ASK-R) was used for assessing the children's levels of accepting disabled individuals. The scale was first developed by Favazza and Odom (1996) and revised by Favazza, Philipsen, and Kumar (2000) for its final version. It was adapted into Turkish by Tekin-Ersan, Ata, and Kaya (2017). There are 15 items on this one-factor scale. The scale is applied to children face-to-face. Cronbach's Alpha internal consistency coefficient of the scale is .91 and its test-retest reliability coefficient is reported as .78.

In the study, *the Attitude Scale for the Disabled* was used to measure the attitudes of the parents towards the disabled individuals. The Likert type scale was developed within the project named "How does society perceive disability?" (2009) conducted by Prime Ministry Administration for Disabled People with Kaner, Ögülmüş, Büyüköztürk and Dökmen. There are 6 sub-dimensions and 43 items, including attitudes towards the educational environment, interpersonal relationships, working life, family life, personal traits and competence-independent living subscales at the scale. Cronbach's Alpha internal consistency coefficient of the scale was found to be .90. Finally, two personal information forms were used to determine the demographic characteristics of the participants, the children, and the parents.

2.3 Data Collection

The data of the study were collected from the schools in Mugla during the academic year of 2016-2017. Participation in the research was voluntary. Schools and families have been informed and approvals were received before the research. In the study, the data for determining the attitude of the mothers were obtained by sending the data collection tool in the form of a paper to the families and then the forms were collected. For the data to determine the level of acceptance of the children, an individual test was applied to the children. Accordingly, cooperation has been achieved by verbal approval of the child. Then the questions were read to the child in an appropriate class (sound, light, etc. in the school) and the responses were recorded by the test practitioner. This test applied to children lasted approximately 10 minutes. Pre-school teachers were the source for filling demographic information for the child. The test practitioners for testing the children were selected from pre-school prospective teachers who had previously been trained and experienced in applying the test.

2.4 Data Analysis

In the analysis of the data, participants' scores on the tests were included. Subsequently, the obtained data were examined according to their skewness and kurtosis values, which showed normal distribution. Comparisons between variables in the study were calculated by Pearson momentum correlation coefficients.

3. Results

In this section, in accordance with the aim of the research, mothers' attitudes towards disabled individuals and the acceptance levels of children towards disabled individuals; followed by relationship between the mothers' attitudes towards disabled individuals and the acceptance levels of the children are presented. Table 1 contains descriptive findings regarding the mothers' attitudes towards disabled individuals and their children's acceptance levels for children with disabilities.

Table 1: Descriptive findings regarding mothers' attitudes towards disabled individuals and their children's acceptance levels for children with disabilities

<i>Scales</i>	<i>Sub-dimensions</i>	\bar{x}	<i>SD</i>	<i>n</i>
The Attitudes of Mothers Towards Disabled Individuals	Educational environment	13.55	1.53	60
	Interpersonal relationship	40.00	3.62	
	Working life	39.78	3.60	
	Family life	10.43	2.15	
	Personal traits	29.83	3.31	
	Competence	47.71	4.17	
	Total	185.93	12.08	
Children's Acceptance Levels for Children with Disabilities		20.80	4.04	60

According to Table 1, the mean scores of the educational environment subscale were 13.55 ($SD = 1.53$), the mean scores of interpersonal relationships subscale were 40.00 ($SD = 3.62$) mean scores for working life subscale were 39.78 ($SD = 3.60$), mean scores for the family life subscale were 10.43 ($SD = 2.15$), mean scores for the personality traits subscale were 29.83 ($SD = 3.31$), mean scores for the competence subscale were 47.71 ($SD = 4.17$) and the total mean scores of mothers' attitudes towards disabled individuals were 185.93 ($SD = 12.08$).

Table 2: Relationships between mothers' attitudes towards disabled individuals and their children's acceptance levels for children with disabilities

	ASK-R Total	Mothers' Attitudes Total	Educational Environment	Interpersonal Relationships	Working Life	Family Life	Competence
ASK-R Total	1	.38**	.22	.08	.12	.42**	.30**

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

Table 2 shows the relationships between mothers' attitudes towards disabled individuals and their children's acceptance levels for children with disabilities. There appears to be a moderate, positive, and significant relationship between the children's acceptance levels for children with disabilities and mothers' attitudes towards disabled individuals ($r = .38$, $p < .05$). There is a moderate, positive, and significant relationship between the children's acceptance levels for children with disabilities and family life ($r = .42$, $p < .01$). Finally, the children's acceptance levels for children with disabilities were found to be moderate, positively and significantly related to competence ($r = .30$, $p < .05$). However, no significant relationship was found between the children's acceptance levels for children with disabilities and the educational environment, interpersonal relationships and working life sub-dimensions.

4. Discussion

In this research, it is aimed to examine the relationships between mothers' attitudes towards disabled individuals and their children's acceptance levels for children with disabilities. According to the research results, there is a moderate and positive relationship between mothers' attitudes and their children's acceptance levels. While the children's acceptance levels for children with disabilities are related to family life and competence in a moderate and positive way, there is no relation in the educational environment, working life and interpersonal relationships sub-dimensions.

Regarding the results, there are different findings in the literature. Some studies have suggested that there is no relationship between parents' attitudes and their children's acceptance levels (Roberts & Lindsell, 1997; Rosenbaum, Armstrong & King, 1988) while others have suggested positive relationships (Okagaki, Diamond,

Kontos & Hestenes, 1998; Peck, Carlson & Helmstetter, 1992). Studies in the literature show that the studies and the participants are mostly from different cultures.

The influence of parents in creating stereotypes and attitudes that occur in early life is seen as an important component (Bigler & Liben, 2007). Attitudes that parents have can affect the approach, acceptance level or attitude of children towards disabled individuals. It has been suggested that families transmit their attitudes and approaches to their children as a model, or by talking about other people, or in the presence of negative attitudes, by preventing or hindering the opportunity for children to meet disabled individuals (Dunn, 1993). In this study, the relationship between the attitudes of the families and the level of acceptance of the children can be explained by this transfer. According to Hong, Kwon, and Jeon (2014), the types of attitudes of families can also influence whether or not they will be transferred to children. In this study, the relationship between the family life, including the relation of the disabled individuals to the family and the competence sub-dimensions, including the relation with the society can be interpreted as the transfer of the attitudes of the parents more intensely to their children in these areas but the transfer in the other areas is less or not realized.

This study was conducted with children in the early childhood period (Mean age: 75.06 months) and their families. Participating children do not consist of very young children and also, they are not at their late ages as in the uppermost parts of early childhood. This helps us to explain the results of the study more accurately. Children are not affected by the attitudes of their parents at very young ages, but as their age increases, they are affected more by their family attitudes (Rosenbaum, Armstrong & King 1988). This can be explained both by the opportunities for parents to teach their children and by the level of children's understanding. Authors suggest that this study may be conducted with participants from different age groups in the future studies to get a better understanding of age on attitudes.

The number of participants in this study is one of the limitations of this research. So, increasing the numbers of participants may be suggested for future research. In addition to this, it can be suggested to repeat the study with different sample groups. As to the authors, another important point is teacher attitudes. It is thought that the inclusion of teacher attitudes as well as family attitudes in further studies is expected to contribute to the literature. Interventions in early childhood need to be established so that students without special needs and those with special needs can receive education, both groups benefit from it at the highest level and the level of acceptance for individuals with disabilities in the society is increased. This study suggests that families as a component should be included in the interventions. In addition to making the family's attitudes towards disabled people more positive, they need to be supported on how to transfer positive attitudes to their children. In addition, the inclusion of this issue in the family trainings within the scope of pre-school education and the support of the families in this regard may bring positive results

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Sportsmanship Behaviors Related to Gender and Family Attitude of Secondary School Students

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Abstract

A Sportsmanship is a concept defined as the awareness of having the values required by sports and the golden key of sports activities. Family attitude and gender are thought to be among the concepts that affect sportsmanship. In this study, it was aimed to examine sportsmanship behavior with family attitude and gender characteristics. The research group consisted of 300 students randomly selected from the secondary schools in the city center of Antalya in the 2018-2019 education year, with a mean age of 12.48 ± 79 . In the research conducted with the screening model, the "Physical Education Course Sportsmanship Behavior Scale (BEDSDÖ)" developed by Koç (2013) and a personal information form were used as data collection tools. In the analysis of the data, frequency, percentage, arithmetic mean and standard deviation were used as descriptive statistics methods for personal information. As the data showed normal distribution, the t-test for paired groups and the Anova test for multiple comparisons was used. According to the findings, it was determined that the sportsmanship behaviors of the students were at a high level. A statistically significant difference was found in favor of female students in the sub-dimensions of displaying appropriate behavior according to gender and avoiding inappropriate behavior and in the total of the scale. While there was no statistically significant difference in the dimension of exhibiting appropriate behavior according to the family attitudes of the students, the scores of the students who showed democratic family attitude were higher than the scores of the children of the families with free attitudes in the dimension of avoiding inappropriate behavior and in the total of the scale. When the sportsmanship behavior scores of secondary school students were examined, it was observed that the scores of the female students were higher than the male students. It is thought that changing family attitudes will improve the sportsmanship behaviors of the society.

Keywords: Family Attitude, Gender, Sportsmanship Behavior

1. Introduction

Sport is a phenomenon that reflects the values and norms of our society. For this reason, attention should be paid to the lessons that our youth learn during sports activities. It is very important that the idea that winning fairly is

the most honorable form of victory is supported by all the participants. Therefore, sportsmanship ideals must be judged above many other aspects of the sport. Among the definitions of sportsmanship, there are elements such as playing fairly, obeying the rules of the game, respecting the decisions of the referees and officials, and treating the competitors with respect. Today, sportsmanship is defined as the "golden rule" of sports. We can demonstrate good sportsmanship by treating the people we play as we would like to be treated, and we can demonstrate sportsmanship behavior when we respect ourselves, our teammates and competitors, the coaches and referees on both sides, and other officials. But sportsmanship is not unique to people on the field. All participants, fans and parents should also be aware of how they behaved during the competition. Although physical education and play teaching programs emphasize the importance of sportsmanship in children and this combination of attitude and style may not produce the expected results without the support and assistance of parents. For this reason, the sportsmanship attitude must have an aspect that requires the support of the family together with the child. Sportsmanship is a style and demeanor and will have an impact that can be welcomed by everyone around us. Considering the developmental stages of Fleishman (1964), the process in which honesty, team spirit and group consciousness come to the fore in terms of personal and social development (Middle Childhood, 8-9 years) should be evaluated in terms of sportsmanship education. Sportsmanship should be displayed in the whole flow of life, starting from childhood games up to international encounters. However, according to the results of many researches conducted in physical education classes, it is emphasized that students are not encouraged to be sportsmanship, they do not have knowledge and experience on the concept of sportsmanship, and that students are proud even when they win by violating the principles of sportsmanship (Kaehler, 1985; Bucher, 1987). Sport, which is seen as a different area of the social society we live in together, causes an increase in the tendency to use violence and to exhibit unsportsmanlike behavior due to the increasing competitive tendencies. Unfortunately, parents and educators sometimes put too much pressure on athletes and emphasize winning at all costs. So while being a champion is great, the importance of enjoying the process of reaching the top must be emphasized. Established in 1926 to spread the principles of sportsmanship throughout life beginning from children's games up to international competitions, the International Sports Association established certain rules. These are; sticking to your teammates, keeping yourself fit, controlling your anger, keeping your game away from violence, not boasting when you win, not collapsing in a loss, being firm-spirited and open-minded for a healthy body (Keating, 2007).

For this reason, it is necessary to offer trainings that encourage sportsmanship and to identify new training models and popular opinions within sports activities. This approach should be created by considering the ethical foundations of sports.

2. Method

2.1 Model of the Research

In the research, scanning model was used. The survey model is "a research model that aims to describe a past or present situation as it is and tries to define the subject, event or object in its own conditions" (Karasar, 2008; Büyüköztürk, Kılıç-Çakmak, Akgün, Karadeniz & Demirel 2014). In this study, it was tried to determine the relationship between the sportsmanship behavior levels of secondary school students in physical education lesson with gender and family attitude values.

2.2 Population and Sampling

The population of the research consists of volunteer students who continue their education in public schools in Antalya. The sampling consists of 300 students selected from this population by random sampling method. The data were applied face to face using a questionnaire and the questions encountered during the application were answered.

2.3 Data Collection Tool

In this study, the "Physical Education Course Sportsmanship Behavior Scale (BEDSDO)" developed by Koç (2013) was used to collect data. In addition, a personal information form was used for the students to determine their gender and family attitude.

2.3.1 Physical Education Lesson Sportsmanship Behavior Scale (BEDSDO)

Physical education lesson sportsmanship behavior scale prepared for secondary school students, developed by Koç (2013) as a result of the examination of the scales and questionnaires in the literature and physical education curriculum and the opinions of the relevant students, teachers and experts is a 5-point Likert type scale.

The scale consists of 22 items and two sub-sections named "Displaying Appropriate Behaviors" (UDS) and "Avoiding Inappropriate Behaviors" (IAC). The lowest score that can be obtained from the scale is 22 and the highest score is 110. Internal consistency reliability (Cronbach Alpha) of the whole scale was calculated as 85. Increasing scores on the scale, means that students' levels of sportsmanship behavior are better (Koç, 2013).

2.4 Data Analysis

In the analysis of the data, frequency, percentage, arithmetic mean and standard deviation were used as descriptive statistics methods for personal information. As the data showed normal distribution, t-test in paired groups and ANOVA test in multiple comparisons were used.

3. Findings

Table 1: Descriptive statistics for students' personal data

Variability		N	%
Gender	Female	147	49,0
	Male	153	51,0
Class	Class 6	37	12,3
	Class 7	205	68,3
	Class 8	58	19,4
Family Attitude	Domineering	28	9,3
	Demokratik	228	76,0
	Free	44	14,7
License	License available	60	16,7
	License n/a	240	83,3

Looking at Table 1, it is seen that 49 % of the students are female (n = 147) and 51% are male (n = 153). 12.3 % of these students are 6th class (n = 37), 68.3 % of them are Class 7 (n = 205), 19.4 % of them are class 8 (n = 58) secondary school students. 16.7 % of the students participating in the study were licensed sports students (60), and 83.3% were students who did not have a license (n = 240).

Table 2: Min, max values and average of BEDSDO scores of secondary school students

Scale	N	Min	Max	X	SS
Displaying appropriate behavior	300	2,50	5,00	4,12	,66
Refrain from inappropriate behavior		1,00	5,00	4,30	,77
BEDSDÖ		2,36	5,00	4,21	,59

Table 2 shows that the average scores of the candidates exhibiting appropriate behavior in the alternative sub-dimension of the scale are the highest (\bar{x} item = 4.12), then avoiding appropriate behavior (\bar{x} item = 4.30) and the scale total (\bar{x} item = 4.21). It can be said that the sportsmanship behavior of the candidates is good and at a

high score level. In the study, a t-test was conducted to determine the change of sportsmanship behavior levels according to gender and, the results are presented in Table 3.

Table 3: Comparison of Students' Scale Scores According to Gender (t-test results)

Scale	Gender	N	X	SS	t	p
Displaying appropriate behavior	Female	147	4,20	,62	2,015*	,045
	Male	153	4,04	,69		
Refrain from inappropriate behavior	Female	147	4,58	,51	6,893*	,000
	Male	153	4,02	,83		
BEDSDO	Female	147	4,39	,47	5,571*	,000
	Male	153	4,03	,64		

p<0.05

Table 3 shows a statistically significant difference in the appropriate behavior of the subjects according to their gender ($t = 2.015$, $p = .045$), and a statistically significant difference was determined in refraining inappropriate behavior ($t = 6.893$ $p = .000$) and physical education lesson sportsmanship scale ($t = 5.571$, $p = .000$). The average point of sportsmanship behavior of female students is higher than that of male'. Anova results regarding the physical education course sportsmanship behavior scale scores of secondary school students according to their family attitudes are given in Table 4.

Table 4: Comparison of Students' Scale Scores according to Family Attitudes (Anova results)

Scale	Attitude	N	X	SS	F	P	Difference
Displaying appropriate behavior	1- Domineering	28	3,99	,70	1,344	,262	
	2- Democratic	228	4,15	,62			
	3-Free	44	4,01	,84			
Refrain from inappropriate behavior	1- Domineering	28	4,22	,70	6,276*	,002	2-3
	2- Democratic	228	4,37	,71			
	3- Free	44	3,94	1,00			
Scale Total	1- Domineering	28	4,11	,57	4,938*	,008	2-3
	2- Democratic	228	4,26	,55			
	3- Free	44	3,98	,76			

p<0.05

No significant difference was noted in displaying appropriate behavior from sportsmanship behaviors of secondary school students according to their family attitudes ($F = 1,344$, $P = ,262$) but according to the free family attitude of the democratic family attitude, there is a significant difference in refraining inappropriate behavior ($F = 6,276$, $P = ,002$) as presented in Table 4. When the democratic family attitude was compared with the free family attitude, a statistically significant difference was found ($F = 4.938$, $P = .008$) in the total scale.

4. Discussion

According to the results obtained in the study conducted with the aim of examining the sportsmanship behaviors of secondary school students in physical education lesson in terms of gender and family attitude variables, it can be said that the total scores of the sportsmanship behavior scale in physical education classes are high. Similar to the findings of the study, Altun and Güvendi (2019) reported that secondary school students display sportsmanship behaviors of students considering the general average results of sportsmanship behaviors in physical education classes (Altun & Güvendi, 2019). Unlike our research findings, Karafil et al. (2017) stated that, the sportsmanship scores of the students in a study they conducted with middle school students aged 10-15 as medium is in average level (Karanfil, Altay, Ulaş & Melek, 2017).

When the sportsmanship behavior of the students was examined according to the gender variable, a statistically significant difference was found in favor of female students in displaying appropriate behavior, refraining

inappropriate behavior and in the total of the scale. The findings obtained in the study are in parallel with the findings of the literature (Ekinici & Koç, 2020; Gürpınar, 2014). Turkmen and Varol (2015), in their study with secondary school students reported that, female students have higher levels of sportsmanship compared to male students and that female students avoid unsportsmanlike behaviors (Türkmen & Varol, 2015). Altun and Güvendi (2019), in their study with middle school students reported that, according to gender variable, the total scores of sportsmanship of female students were significantly higher than the scores of male students. Certel et al. (2020), in their research with middle school students found that, female students' mean scores for sportsmanship behavior were higher than male students. Similarly, Esentürk et al. (2015) and Tsai and Fung (2005) reported in their study that the total scores of the sportsmanship behavior scale in physical education lesson of female students were higher than that of male students. Differing from the research findings, there are also studies reporting that male students' sportsmanship behavior scale scores are higher than female students (Karanfil et al., 2017; Dorak, 2015; Kayışoğlu, Altınkök, Temel & Yüksel, 2015).

In addition, there are studies reporting that male and female students get similar scale scores according to the gender variable (Hacıcaferoğlu, Selçuk, Hacıcaferoğlu & Karataş, 2015). Unlike our research findings, when the sportsmanship behavior of students is examined according to gender variable, it is seen that there are studies that do not find a statistically significant difference (Miller, Roberts & Ommundsen, 2004; Shields, La Voi, Bredemeier & Power, 2007).

While there was no statistically significant difference in the dimension of students exhibiting appropriate behavior according to their family attitudes, in the dimension of refraining inappropriate behavior and in the total of the scale, the scores of the students showing democratic family attitude were higher than the scores of the children of families with free attitudes in the study. Similar to the findings of our research, Certel et al. (2020), in their research with middle school students reported that children of families with a democratic family attitude had higher mean scores for refraining inappropriate behavior and sportsmanship than students with a free family attitude. The concept of sportsmanship contains many meanings. Sportsmanship helps to make all competitive games fun and enjoyable. It enables to be a good sportsperson and develops good habits and positive life skills inside and outside sports games. It should be taken into consideration that sportsmanship is more than just being kind to others. There are several essential qualities that contribute to athlete behavior. These are; to be supportive; If you are losing, it is best not to exploit your frustration on your teammates. Being a team player requires showing support to other teammates. In a game, all of the players strive for performing their best and to win. In such situations, positive reinforcement also plays a key role that leads higher productivity. A few words of encouragement or a clap can sometimes be all a person needs to get their thought back into the game. Maintaining a positive attitude. Having a negative attitude to the game can lead the whole team down. This may result in less enjoyable tournament for everyone. Positivity is an essential feature, particularly while playing team sports. Moreover, the match result regarding winning or losing is better not to affect any behavior like being disrespectful to both teammates and opponent players. Sportsmanship requires avoiding being aggressive or insulting the opponent teams during or after the game. Whining about calls or arguing with the referees, can also be considered as unsportsmanlike behavior. Inspiring the spirit of the game and desiring to learn are great ways to attain a sportsmanship. For athletes showing sportsmanship behavior, learning from their mistakes is preferred approach instead of thinking about revenge from the opponents. For example, if you push too hard during a tennis match and make a mistake, practice "spinning the balls back" that has you the most challenge. To practice self-regulation. Moreover, games may be emotional yet, players are better to make a conscious effort to control their emotions and focus on the game. Damaging sports equipment is not a proper behavior considering an athlete with sportsmanship (<https://www.masterclass.com/> Date of access, 25.03.2021).

Good sportsmanship is essential since it makes competitive play more favourable and fun for each player. Bad sportsmanship creates a negative climate and can take fun out of the game. For this reason, it is necessary to offer trainings that encourage sportsmanship and to identify new training models and popular opinions within sports activities. This approach should be created by considering the ethical foundations of sports.

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The Effect of Syrian Secondary School Students' Reading Habits on Their Vocabulary Learning Motivations

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Abstract

The purpose of this study is to reveal the effect of the reading habits of Syrian students studying at secondary schools on their vocabulary learning motivation. The mixed research model was used in the study. The universe of the study consists of Syrian secondary school students studying in Kilis. The sample consists of 164 Syrian secondary school students studying at Hoca Ahmet Yesevi Imam Hatip Secondary School. Research data were collected using the "Book Reading Habit Attitude Scale" and "Word Learning Motivation Scale." In addition, a semi-structured interview form was used to identify students' ways of learning vocabulary. In the analysis of quantitative data, SPSS was used and independent groups t-test, ANOVA and Pearson correlation analysis were used. Content analysis was used in the analysis of qualitative data. As a result, appeared that Syrian secondary school students had a moderate reading habit, gender did not have an effect on their attitudes towards reading habits and their motivation to learn vocabulary, but grade level was effective in both their attitudes towards book reading habits and their motivation to learn vocabulary. In addition, it was found that students mostly used audio-visual tools and reading materials while learning vocabulary.

Keywords: Syrian Student, Reading Habit, Motivation, Vocabulary Learning Motivation

1. Introduction

One of the prominent elements in the education and training process is the learner motivation. Motivation, which is defined as the desire or need (Seifert, 1991; Dilts, 1998), which activates, sustains and directs the individual at the point of achieving a goal; is very important in language learning as in all learning processes (Gardner, 2001a; 2001b). Considering that learning is an intentional process, it is possible to say that there is a important relation between motivation with learning (Niederhauser, 1997).

Motivation has various sources. These are internal motivation and external motivation. If the factors that cause the occurrence of behavior are outside of the individual and originate from the environment, it is external motivation, and if the factors that cause the behavior originate from the individual and the needs of the individual, it is internal motivation (Wu, 2003). The main difference that separates internal and external

motivations is related to the situations that cause the behavior. In internal motivation, the control is in the individual, while in the external motivation the control is in the environment (Yazıcı, 2009, p.37).

There are many theories that analyze motivation and explain and support the internal and external aspects of motivation. These generally emerged from fields such as sociology, psychology, and learning psychology (Çiftınar, 2011, p.176).

Behaviorists argue that motivation is an external process. According to them, the individual is constantly under the influence of external stimuli. For this reason, behaviorists claim to be motivated by external stimuli. It is possible to do this by getting students to have positive experiences and giving reinforcements. According to another theory, social learning, one of the main sources of motivation is the individual's expectations for the future. Apart from that, there are three basic elements that affect motivation. It is possible to list them as the value of the purpose, the expectation of the individual and the emotional response of the individual. According to the humanistic approach, the needs of the individual must be satisfied in order to be motivated (Ergür, 2002, p.38; Yazıcı, 2009, p.37).

Based on the theories above or as a result of their independent studies, scientists determined that there are various elements that affect motivation. According to Pintrich and De Groot (1990), these are the individual's expectation of reaching the aim, the worth of the aim and the individual's emotional approach to work; and these are, according to Chambers (1994), internal causes, instrumental causes and integrative causes.

Oxford and Shearin (1994) also stated that there are various factors that affect motivation. These can be listed as follows (Cited in Çiftınar, 2011, p.175):

- Attitudes (feelings towards environment and goal)
- Self-belief (individual's curiosity, expectations)
- Goals (relationship of goals with learning purpose)
- Participation (actively participating in the learning process)
- Support (support from the environment)
- Personal Variables (Ability, interest, age, gender and previous knowledge etc.)

When theories' approach to motivation, factors affecting motivation and sources of motivation are analyzed, it is revealed that motivation has a very major part in education. As in all fields of education, motivation is central in foreign language education along with language learning ability (Acat & Demiral, 2002, p. 314). Therefore, the effect of affective characteristics of students is a matter of concern (Erdem & Gözüküçük, 2013). Because it is observed that students who learn foreign languages and have high motivation have a high interest in learning. (Husain, 2014, p.10).

To learn a foreign language and communicate with people, it is necessary to know enough words and be able to use those words. Word learning is one of the purposes of foreign language acquisition studies. The richness of the vocabulary that students have enables them to understand what they read, to convey their thoughts and thus to express themselves easily (Karatay, 2007). Students who can express themselves easily also achieve success by establishing an effective communication in school life (Kurudayıoğlu, 2005). It is very important for students to choose and use the right words in order to express themselves and achieve success both in their education and social life (Çevik et al., 2018, p. 797). Therefore, one of the important activities that can be done with students who learn Turkish is vocabulary teaching. However, in order for vocabulary teaching to be efficient, students' motivation to learn vocabulary must be high.

According to Tseng and Schmitt (2008), motivation is of great importance in the success of students while learning vocabulary. For this reason, knowing the motivation of students towards vocabulary learning will enable the review and redesign of vocabulary teaching studies (Genç Ersoy & Belet Boyacı, 2018, p. 259). One of the element that influences students' motivation to learn words is reading books.

Reading books enables individuals to improve themselves and thus to use language effectively (Kurudayıoğlu & Çelik, 2013). However, the success of students in reading skill is related to their knowledge of the language and the presence of words in the language. The success of the students who learn Turkish and who study in Turkish schools both in their academic life and being able to use the language effectively is related to their success in reading skills. Success in this skill is closely related to the breadth of Turkish vocabulary. According to Özbay (2007), the more vocabulary foreign students have, the more their reading comprehension skills can improve. Reading skill is the most important factor in the development of vocabulary (Stahl, 1998).

1.1 Related Literature

When the literature is analyzed, it is seen that there are many studies on reading habits or vocabulary learning. Accordingly, there are studies that analyze students' attitudes towards reading habits or their views on reading habits (Alan, 2020; Arı & Okur, 2013; Balcı & Melanlıoğlu, 2016; Balcı, 2009; Biçer & Alan, 2017; Can, Deniz & Çeçen 2016; İşeri, 2010; Karatay, 2010; Maden & Dincel, 2017; Okur, Yardım & Yücelşen, 2020; Özer & Doğan, 2013; Uzun, Bozkurt & Erdoğan, 2011). There are also studies on students' motivation to learn vocabulary, word learning strategies and methods, and materials used in vocabulary teaching (Baş, 2010; Cesur, 2005; Çıplak, 2005; Çiftçi, 1991; Eyüp & Demirel Yıldırım, 2019; Güzel, 2006; İnce, 2007; İpekçi, 2005; Karadağ & Kurudayıoğlu, 2010; Maden, 2020; Özbay, Büyükkiz & Uyar, 2011; Uçgun, 2006; Yıldız & Okur, 2010). However, when studies on students' reading habits and vocabulary learning are analyzed, it is seen that these are mostly conducted with students whose native language is Turkish. It was seen that research with foreign students was conducted with university-age students. There is no study aimed at revealing neither the reading habits nor the motivation for word learning of foreign students at the secondary school level. For this reason, it is thought that the study will contribute to the literature in terms of revealing both the attitudes of Syrian secondary school students towards reading habits and their attitudes towards vocabulary learning motivation.

1.2 The Purpose of the Study

The purpose of this study is to determine the relationship between the reading habits attitude and motivation to learn vocabulary of Syrian students studying at secondary schools. For this purpose, answers to the following questions were sought:

1. Is there a significant difference between Syrian students' gender and grade levels and their attitudes towards reading habits?
2. Is there a significant difference between Syrian students' gender and grade levels and their motivation to learn vocabulary?
3. Is there a relationship between Syrian students' attitudes towards reading habits and their motivation to learn vocabulary?
4. What are the views of Syrian secondary school students on ways of learning vocabulary?

2. Method

2.1 Research Design

The mixed research method was used in this study, which was conducted to determine the motivation to learn words of Syrian students. In this method, the data of qualitative and quantitative research are combined and presented in a holistic way (Creswell, 2013, p.14). In the study, qualitative data and quantitative data were used together.

2.2 Participant

The universe of research comprises Syrian students studying in Kilis. The sample is composed of 164 Syrian students studying at Hoca Ahmet Yesevi Imam Hatip Secondary School. The appropriate sampling method was chosen for the ease of implementation while selecting the sample. According to Merriam (2013), this method can

be chosen by considering factors such as time, money, place and location. Information about the students in the research group is given in Table 1:

Table 1: Information about the students in the research group

		<i>f</i>	%
Gender	Boy	76	46.34
	Girl	88	53.65
	Total	164	100
Grade Level	5	47	28.65
	6	35	21.34
	7	43	26.21
	8	39	23.78
	Total	164	100

2.3 Data Collection

The Word Learning Motivation Scale improved by Genç Ersoy and Belet Boyacı (2018) was used in the study to determine Syrian secondary school students' motivation to learn vocabulary. This scale was prepared in a triple Likert type with 24 items after validity and reliability analysis were done by the researchers. The Cronbach Alpha reliability coefficient of the scale was determined as .85 (Genç Ersoy & Belet Boyacı, 2018). In this study, it was determined as .82 by the researcher.

In order to determine the attitudes of Syrian secondary school students towards reading habits, the 30-item "Attitude Scale Regarding Reading Habits," improved by Gömleksiz (2004) and adapted to the level of secondary school students by Balcı (2009), was used. The Cronbach Alpha reliability coefficient of the scale was determined to be .92 (Balcı, 2009). In this study, it was determined as .90 by the researcher. Since both scales were over the specified limit (McMillan & Schumacher, 2010), it was concluded that these scales were appropriate to be used in the study.

A semi-structured interview form prepared by the researcher was used to collect the qualitative data of the research. During the preparation of the scale, two academicians who are experts in the field of Turkish education were consulted.

2.4 Data Analysis

The SPSS was used to analyze the quantitative data. Negatively worded items in the scales were reversed. For the analysis, first of all, Kolmogorov-Smirnov test was performed to calculate the normality distribution of the data and it was observed that the data fit the normal distribution. Therefore, parametric tests were used. Then T-test, ANOVA and Pearson correlation analysis were used in the analysis of quantitative data.

Content analysis, one of the qualitative data analysis methods, was used in the data obtained from the students' opinions in the study. In content analysis, data that are similar to each other are brought together within the framework of certain concepts and themes (Yıldırım & Şimşek, 2016). In the study, the data obtained from the students' opinions were given in codes and direct quotations were made from the student views. Thus, the reliability of the data was ensured. In the study, in order to ensure coding reliability, an expert besides the researcher also analyzed 8 interview forms randomly selected from the sample. In order to calculate the reliability of the resulting data, the fit between the analysts was ensured. As a result of the calculation made using the Miles and Huberman (1994) formula, it was seen that the value of agreement among the analysts was .81. Since it is considered sufficient to be .70 and over (Miles & Huberman, 1994), the analysis made in the research is considered to be reliable.

3. Results

3.1 Quantitative Results

Table 2: Arithmetic mean and standard deviation values of attitude scores towards book reading habits

Dimensions	\bar{X}	ss
Love	2.75	.684
Habit	3.10	.767
Necessity	2.87	.738
Desire	3.21	.748
Benefit	3.33	.776
General	3.06	.647

Table shows the mean of the Syrian students' attitude scores towards their reading habits. Accordingly, the average of the "love" and "necessity" dimensions, which are the sub-factors of the scale of attitude towards book reading habits, is below the middle level; It is seen that the average of "habit," "desire" and "utility" dimensions is above the middle level. Based on these, it is understood that the general average is slightly above the middle level. According to these data, Syrian students' attitudes towards their reading habits are at a moderate level.

Table 3: Data obtained on the relationship between attitudes towards book reading habits and gender

Gender	N	\bar{X}	ss	t	p
Boy	76	3.13	.68	1.289	.199
Girl	88	3.00	.61		

The t value ($t = 1.289$, $p > 0.05$) of the difference between the students' attitude scores towards reading habits according to the gender was not found to be significant. According to these results, the gender of the students does not have any discriminating impact on the attitudes of Syrian students towards reading habits.

Table 4: Variance analysis of students' attitudes towards reading habits according to grade variables

Grade	N	\bar{X}	SS	VK	KT	sd	KO	F	p	Difference
5	47	2.60	.346	BG	18.517	3	16.619	143.597	.000	8- 5,6,7
6	35	2.51	.300							
7	43	3.24	.375	WG	49.856	160	.116			
8	39	3.90	.324	T	68.372	163				

Syrians made by middle school students of class variables in order to determine whether the differences between attitudes towards reading habit in the one-way analysis of variance ($F = 143.597$, $P < 0.05$), a statistically significant difference was detected. As a result of the Scheffe test conducted to determine the source of this difference, the direction of the difference was found as 8th grade- 5th, 6th and 7th grade. According to these results; We can comment that Syrian students studying in the 8th grade have a more positive book reading attitude than the Syrian students studying in the 5th, 6th and 7th grades.

Table 5: Data obtained on the relationship between vocabulary learning motivation and gender

Gender	N	\bar{X}	ss	t	p
Boy	76	1.79	.47	.257	.798
Girl	88	1.78	.38		

The t value ($t = .257$, $p > 0.05$) of the difference between the scores of students' motivation to learn vocabulary according to gender ($t = .257$, $p > 0.05$) was not found to be significant. This result shows that there is no

difference between students' scores of vocabularies learning motivation according to gender. According to the table, the arithmetic mean (= 1.79) of the boys' scores for vocabulary learning motivation is slightly higher than the girls (= 1.78). This did not reveal a significant difference.

Table 6: Variance analysis of students' attitudes towards vocabulary learning motivations according to the grade variable

Grade	N	\bar{X}	SS	VK	KT	sd	KO	F	p	Difference
5	47	1.46	.293	BG	8.175	3	7.092	138.813	.000	8- 5,6,7
6	35	1.41	.236							
7	43	2.03	.188	WG	21.276	160	.051			
8	39	2.26	.146	T	29.451	163				

A statistically significant difference was found in the one-way analysis of variance ($F = 138.813$ $p < 0.05$) conducted to determine whether there was a difference between the attitudes of Syrian secondary school students towards their motivation to learn vocabulary according to the grade variable. As a result of the Scheffe test conducted to determine the source of this difference, the direction of the difference was found as 8th grade- 5th, 6th and 7th grade. These results may allow us to comment that 8th grade Syrian students have a more positive motivation to learn vocabulary than students at other grade levels.

Table 7: The relationship between Syrian secondary school students' book reading habit score and vocabulary learning motivation score

Book Reading Habit Score		Vocabulary Learning Motivations Score
Book Reading Habit Score	r	.774**
Vocabulary Learning Motivations Score	r	.774**

** $p < 0.05$

The correlation value between Syrian secondary school students' attitude scores towards reading habit and their vocabulary learning motivation score was .774, which was significant at $p < 0.05$ significance level. This result shows that there is a positive relationship between the book reading habit score and the vocabulary learning motivation score. As a result, as the reading habit increases, the motivation to learn words increases, too.

3.2 Qualitative Results

Table 8: Ways to Learn Vocabulary

Item	Frequency
Using audio-visual tools	16
Reading book	12
Communicating	10
Using dictionary	6
Studying lesson	4
Using the internet	3
Translating	1
Doing activity	1
Associating with previous knowledge	1

In the table, the answers to the question, "Which ways do you use to learn vocabulary?" are seen. Accordingly, it is seen that students mostly benefit from audio-visual tools such as television, radio, music, and computers. According to the students, watching movies, TV series and listening to music contribute to their vocabulary learning. Some of the student views are as follows:

I watch TV series and movies to learn words (S8).

We watch TV series and listen to songs to learn words (S14).

Learning from TV series and movies is very useful and fun (S27)

The second of the ways students use the most is to learn words by reading a book. Accordingly, 12 students stated that they were reading books to learn words. Some of the answers given are as follows:

I read a book to learn words (S2).

Reading books is very useful for learning new words. But it will not be a boring book (S13).

I try to read magazines and books (S24).

Contacting people is another way to learn words. 10 students stated that they learned words when they talked to their friends, neighbors or shopkeepers. Some views are as follows:

I talk to my neighbors (S4).

I communicate and learn easily (S10).

I learn words by talking to the people around me (S11).

I chat with my Turkish friends (S13).

Students also stated that using the dictionary is a good way to learn words. 6 students learn vocabulary by using a dictionary. One opinion is that:

I sometimes use a dictionary to learn words (S8)

There are students who learn vocabulary by repeating the topics they have learned or by doing research on the topics they will learn. Some of the answers given by the students about studying, which is one of the ways of learning vocabulary, are as follows:

I usually work in quiet places and memorize the words (S23).

If there are new words, I take notes (S14).

In general, I can memorize by writing and saying aloud several times (S23).

The internet, which includes many sources such as social media and news sites, is one of the vocabulary learning tools. 3 students use the internet to learn words. Some answers are:

I use Facebook (S5).

I learn words by doing research on the internet (S19).

I learn words using Google (S22).

Translating, doing activities and associating with prior knowledge is also a way of learning vocabulary. The responses of the students who agree with these views are as follows:

I try to translate short stories and news between Turkish and my native language (S24).

I learn words by doing activities (S20).

I try to connect with another word in my mind in order not to forget the words (S7).

4. Discussion

In this study, attitudes towards reading habits and motivation to learn vocabulary of Syrian students studying in secondary schools in Turkey were sought and the relationship between these was tried to be found.

When the attitude scores of Syrian secondary school students towards book reading habits were analyzed, it was found that the students had a reading attitude above the intermediate level. In the analysis made in the sub-dimensions of the scale, it was below the middle level in love and necessity dimensions; in the dimensions of habit, desire and benefit, it was found that they had a reading attitude around the middle level. In the article prepared by Maden and Dincel (2017), it was concluded that foreign students have the habit of reading Turkish

books. In addition, Arı and Okur (2013), Balcı (2009), Balcı, Uyar and Büyükkiz (2012), Başaran and Ateş (2009), Can, Deniz and Çeçen (2016), İşeri (2010) also found that students' reading habits were at good level. In addition, in the article prepared by Okur, Yardım and Yücelşen (2020), it was revealed that the reading attitudes of foreign students were inversely proportional to their grade level.

As a result of the analysis conducted to determine whether the students' reading habits differed according to gender and grade variables, it was revealed that the gender variable had no effect on reading habits. However, there was a significant difference between students' grade level and reading habits. Accordingly, 8th grade Syrian gender variable had no effect on reading habits students have a more positive attitude than other students. In line with the conclusion that gender variable does not have an effect on reading habits in the study, Akyol (2005) also states that gender is not a determining factor on book reading habits. However, in the article prepared by Biçer and Durukan (2014), it is seen that there is a significant difference in favor of girls regarding the reading attitude of elementary school students. In addition, in the studies conducted by Akkaya and Özdemir (2013), Alan (2020), Balcı (2009), Başaran and Ateş (2009), Biçer and Alan (2017), Can et al. (2016), Kuzu (2013), Özbay, Balcı and Uyar (2008), Sallabaş (2008) and Yalınkılıç (2007), it was found that gender had an effect on reading habits.

Both the acquisition of four basic language skills and the success of students in these skills are closely related to the vocabulary that students have (Karatay, 2004). Therefore, students' motivation to learn vocabulary is very effective for them to be successful in their education life. According to the analysis in research, conducted to reveal the vocabulary learning motivation of Syrian secondary school students, it was found that the students' motivation to learn vocabulary was below the middle level. In addition, in the analysis made to determine the effect of gender variable on vocabulary learning motivation, it was revealed that this variable did not have an effect vocabulary learning motivation. However, Maden (2020) revealed that Turkish students had high motivation to learn vocabulary and gender had an effect on their motivation to learn vocabulary.

In the analyzes made to reveal the effect of the classroom variable on vocabulary learning motivations, results in favor of 8th grade students were obtained. These data show that Syrian secondary school students in the 8th grade have a more positive motivation to learn vocabulary than Syrian secondary school students at other grade levels. In the article prepared by Fontecha and Gallego (2012), it was concluded that students studying in lower grades have lower motivation to learn vocabulary. However, in the research conducted by Maden (2020), it was found that the grade variable had no effect on motivation.

Correlation analysis was conducted to determine the relationship between Syrian secondary school students' reading habits and their motivation to learn vocabulary, and it was understood that there was a positive relationship between them. This information shows that Syrian students' reading habits and their vocabulary learning motivations act in coordination with each other.

The results obtained from the qualitative part, which is the second dimension of our study, also show that; students mostly do vocabulary learning exercises through audio-visual tools. The variety of materials to be used at the point of serving the purpose will both facilitate and make learning permanent. For this reason, ways such as using audio-visual tools that are more oriented and within life, learning vocabulary by reading, learning vocabulary through communication, participating in activities, associating with prior knowledge are preferred more. Balcı and Melanlıoğlu (2016) also revealed in their studies that foreign students used TV series and movies, read books and talk to their friends in order to learn words.

As a result of the study, it was revealed that the reading habits of the students were above the medium level, but their motivation to learn words was below the medium level. In addition, students stated that they used different ways to learn words, but they learned more efficiently through activities, audio-visual tools and attention-grabbing activities. Both the other results of the study and the students' opinions and suggestions on these issues will guide vocabulary teaching studies in terms of revealing their interests, attitudes and needs.

As a result of the research, the followings can be suggested:

The study revealed that there is a positive relationship between Syrian middle school students' reading habits and their motivation to learn words. In this respect, the importance of reading books in increasing foreign students' motivation to learn vocabulary and improving their language skills should not be forgotten. The guidance should be provided to the students and they should be encouraged to read more books. The number of audio-visual materials that will enable students to learn words more easily should be increased. Studies should also be conducted on other factors that will affect foreign students' motivation to learn vocabulary.

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An Investigation of the Effect of 12-Week Gymnastics and Ballet Training on Balance and Flexibility Skills in Preschool Children

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Abstract

The aim of this study is to examine the impact of a 12-week gymnastics and ballet training on the balance and flexibility skills in pre-school children. The study was conducted with a total of 23 girls who had just started gymnastics (n = 11) and ballet (n = 12) in private sports clubs in Erzurum, Turkey. The verbal provocation method was used during the tests and exercises since the children aged 5-6 years may have low attention span. Also, some alternative methods (i.e. educational games) were used in cases where children were distracted. Flexibility of the children was measured on the sit-and-reach box, and their static balance was measured with the flamingo balance test. First, the pre-tests and then, after 12 weeks of training, the post-tests were administered, upon which the difference between the pre-test and post-test scores was estimated. Mann-Whitney U Test was used to examine the relationship between pre-test and post-test values. No statistical significance ($p > 0.05$) was found between the balance pre-test and post-test scores after 12 weeks of training, while a statistical significance ($p < 0.05$) was found in terms of the flexibility scores. As a result, it turned out that the training did not affect the stabilization between the two branches, but it increased the flexibility development in gymnasts in comparison to ballerinas. This can be explained by the different development rates of balance and flexibility in children, and also by the fact that gymnastics and ballet develop children's bio-motor characteristics at different rates.

Keywords: Ballet, Gymnastics, Static Balance, Flexibility, Pre-school

1. Introduction

In the modern era, interest in sports is increasing day by day and being engaged in a sport is growing in importance among people. Taking up sports in childhood is essential to establish a healthy relationship between an individual and the society, help children to become self-confident and kind-hearted individuals, get rid of harmful habits, and thereby building a healthy society. In this regard, attention has long been turned to children's

sports activities in developed countries since sport helps children not only from a physical development standpoint, but also in terms of their development as a whole. Children engaged in sports have healthy physical and mental characteristics as well as social skills such as mutual aid, respect for rules, and sense of responsibility (Mengütay, 1998). One of the aims of education and training is to develop teaching behaviors (Çağlayan Tunç & Günay 2020). Daily life habits, physical activity level, age emotional reactions do not directly affect behaviors (Çağlayan Tunç, 2021). Aerobic strength tasks, physical and physiological characteristics are factors that affect success (Uca 2019). This results in better sports performance (Alizadeh Ebadi & Çetin 2018). Improving mental wellbeing and socialization, and leading a quality life are closely related to physical activities (Daley, 2002). In developed societies, the attention paid to the mental wellbeing of children is also paid to their physical wellbeing, and relevant methods that help develop these two domains are used in education. Numerous research studies have been conducted to encourage children to take up at least one branch of sports as far as their interests are concerned. (Çelik & Şahin, 2013). The pre-school period is the fastest period of the growth and progress in children. During this period, children begin to develop permanent behavioural changes in their lives depending on the quality of the education they receive (Bulut, 2019; Şahin, 200).

According to Gallahue (1982), motor development in children consists of three phases: rudimentary movements, fundamental movements, and sports-related movements. Children's motor development is regarded as skills such as reflexes, postural movements, walking, running, and jumping. In addition to these skills, movements such as running, jumping and rolling in gymnastics improve flexibility. Also, flexion and extension movements are the fundamental exercises that directly influence the psychomotor development of children.

It is crucial that children learn how to use and control their bodies to support their cognitive and social development (Mülazımoğlu, 2006). Since the essence of gymnastics is multi-muscle movements and harmony, it requires basic motor skills such as coordination, attention, balance and flexibility. Also, gymnastics adds functionality to the motor skills. It allows muscles and joints to function, and develops physical and mental capacity at the same time (Bencke et al., 2002).

As an academic dance technique, the rules are clear in ballet, and when combined with other artistic elements, it turns into a stage performance. Ballet also stands out among the visual arts as it is fun to watch and is influential, as well as triggering children's imagination. Yet, it requires discipline and sacrifice. In ballet education, balance, coordination, attention, and flexibility are of the greatest importance. The reason for this is that these skills are the fundamental movement elements of ballet (Ayvazoğlu, 2015). In other words, ballet is a dance that promotes children's healthy development by supporting their muscle development, proper bone development, and physical flexibility. An early age to start dancing is important, both because it is a suitable period for shaping the body structure and organization in order to perform ballet art correctly, and because it will allow the child to develop a flexible, coordinated and balanced body with the help of ballet. These processes support each other bilaterally (Ayvazoğlu, 2015).

It is necessary to choose suitable branches of sport for the optimum development of children. In this respect, gymnastics is very important in terms of extension and stretching exercises. Ballet training is defined as a branch of sports that affects the development of balance and joint mobility. (Kabakcı, et al., 2017). Flexibility is an important criterion for the healthy development of children and of mobility. (Ünusan, 2003). Maintaining the balance and improving the balance ability can ensure that the learned movement will be sustainable with the same high quality. The ability to move in a straight line, maintain a technical position, or a steady posture over a period of time is the basis of physical activities, which play an important role in all stages of children's lives starting from childhood.

Children with athletic ability can control their bodies after being able to coordinate them, as well as maintaining balance and attention, and moving their bodies in harmony. This sense of control increases children's self-confidence. Children should, therefore, be encouraged to participate in sports and physical activities at appropriate ages in order to form the basis of a healthy life at an early stage (Orhan, 2019). The contribution of physical activities to individuals should not be limited to the development of sports (Karaküçük, 2009).

Research based on scientific data in contemporary sports education is expected to bring permanent success in the short term. In this respect, conducting research is critical in order to set the goals in sports, achieve them, and make the necessary plans. The relevant literature shows that there are very few publications on the roles of gymnastics and ballet that help pre-school children improve their motor characteristics (Kesmiş, 2016). From this point of view, this study has aimed to examine the effects of a 12-week ballet and gymnastics training on the flexibility and balance skills of pre-school children.

2. Materials and Methods

2.1. Sample Group and Model

The present study included a total of 23 girls, who were receiving gymnastics and ballet trainings in private sports clubs in Erzurum, Turkey, and participated in this study voluntarily with the permission of their families. Eleven of the girls had just started gymnastics, and 12 of them had just started ballet. The study was conducted in line with the pre-test and post-test method, and the verbal provocation method, which particularly aimed to maintain the children's attention during the tests and exercises since the attention levels of children aged 5-6 are often low. Alternative methods (educational games, etc.) were also used in cases where children seemed distracted. The tests and exercises were carried out by people with pedagogical training and field knowledge. The pre-test phase included height and body weight measurements as well as flexibility and flamingo static balance tests. The difference between the pre-test and post-test scores was examined after the post-test values were obtained after the 12 weeks of training, twice a week for 40 minutes per day.

2.2. Data Collection Tools

2.3. Measurement of Height

Measurements were made with an accuracy of 0.01 cm when the participants were bare feet, standing on an electronic scale.

2.4. Measurement of Body Weight

The participants were weighed in kilograms with an accuracy of 0.01 kg when the participants were bare feet and wearing tights and a T-shirt, standing on an electronic scale.

2.5. Measurement of Flexibility

A sit-and-reach box was used to measure the children's flexibility. In the sitting position on the floor, the soles of the feet were placed to the sit-and-reach box with the legs fully extended. Without bending the legs, hands were extended forward towards the box with both hands on top of each other, and the score was recorded in cm after waiting for 2 seconds at the last point. The better score was recorded upon two repetitions.

2.6. Flamingo Balance Test

The flamingo balance test was conducted to measure the static balance of the participants, who tried to stay balanced for 1 minute on a wooden balance beam of 50 cm length, 4 cm height, and 3 cm width. The time was stopped when they lost their balance (in case of putting a foot down, falling off the board, touching the ground with any part of the body). When the participant got on the balance beam and kept her balance again, the time continued from where it left off. The test was carried out in that way for a minute, at the end of which the sample group's number of attempts to stay stable (after falling) was counted and recorded as their score (Deforche, et al., 2003).

2.7. Statistical Data Analysis

The data were entered into the SPSS 20.0 software, and the Mann Whitney U Test was used to examine the relationship between pre-test and post-test scores of the athletes in gymnastics and ballet.

2.8. Ethical Text

Ethics committee approval for the present study was obtained from Sports Sciences Ethics Committee of Atatürk University. Having being explained the content and purpose of the study, the families were asked to sign the informed consent form of Sports Sciences Ethics Committee of Atatürk University.

3. Results

Tests	Branch	N	\bar{X}	Mean Rank	Rank Sum	U	P
Height pre-test	Gymnastics	11	112.8182	13.91	153.00	45.000	.194
	Ballet	12	110.3333	10.25	123.00		
Height post-test	Gymnastics	11	116.0909	13.59	149.50	48.000	.80
	Ballet	12	114.0000	10.54	126.50		
Body weight pre-test	Gymnastics	11	20.8182	14.05	154.50	43.500	.164
	Ballet	12	18.7500	10.13	121.50		
Body weight post-test	Gymnastics	11	23.0909	13.64	150.00	48.000	.264
	Ballet	12	21.5000	10.50	126.00		
Flexibility pre-test	Gymnastics	11	31.1818	13.09	144.00	54.000	.455
	Ballet	12	29.9167	11.00	132.00		
Flexibility post-test	Gymnastics	11	34.8182	15.14	166.50	31.500	.033*
	Ballet	12	31.2500	9.13	109.50		
Balance pre-test	Gymnastics	11	19.2727	12.23	134.50	63.000	.877
	Ballet	12	19.0833	11.79	141.50		
Balance post-test	Gymnastics	11	14.5455	11.05	121.50	55.500	.513
	Ballet	12	16.1667	12.88	154.50		

* $p < 0.05$

The table shows that according to the branch variables of the participants, no statistically significant ($p > 0.05$) differences were observed in height pre-tests ($u = 45.000$; $p = .194$) and post-tests ($u = 48.000$; $p = .280$), body weight pre-tests ($u = 43.500$; $p = .164$) and post-tests ($u = 48.000$; $p = .264$), flexibility pre-tests ($u = 54.000$; $p = .455$), and balance pre-tests ($u = 63.000$; $p = .877$) and post-tests ($u = 55.500$; $p = .513$), whereas statistically significant differences were detected in the flexibility post-tests ($u = 31.500$; $p = .033$).

As a result of the comparison, a statistically significant difference ($p = .033$) was found between the athletes who do gymnastics and who do ballet in their post-tests of flexibility, in which gymnastics athletes ($\bar{X} = 34.8182$) were observed to have higher scores of flexibility than those of ballet athletes ($\bar{X} = 31.2500$).

4. Discussion

Our study examined the effect of a 12-week gymnastics and ballet training on the development of balance and flexibility in pre-school children, and there are other studies in the literature showing similarities in terms of height and body weight of the participants (Webster-Gandy et al., 2003; Kayapınar, 2007; Özbar, 2007; Kayapınar. and Özbar 2004).

According to the branch variable, no statistically significant differences were found in balance pre-tests ($U = 63.000$; $p = .877$) and post-tests ($U = 55.500$; $p = .513$) ($p > 0.05$). In the literature, there are studies examining the impact of the branch variable on balance, as well as those comparing the experimental and control groups in similar branches. Tüfekçioğlu and Ayça (2008) compared the pre-test results of the experimental group and the control group in their study on children aged 4-6 years, yet could not detect a significant difference amongst the static balance, dynamic balance, and quickness measurements. In a study by Anamurluoğlu (2020), the results of the post-test balance parameters of the experimental and control groups were reported to show no significant difference between the groups ($p > 0.05$). Likewise, Karaman (2019) found no significant difference between the experimental group's pre-test and post-test scores.

On the other hand, some studies comparing the experimental and control groups reported significant differences in favour of the former group. Tekin (2009) stated that the trainings in the experimental group contributed more to the balance parameters. Arınlı (2019) examined the effect of strength and balance trainings on the performance of ballerinas aged 11 to 15 years, and observed that there was a significant increase in strength parameters and time to stay in balance as a result of participants' additional training. Özbar (2007) pointed out a significant difference in favour of the experimental group ($p < 0.01$) in static and dynamic balance scores. In the post-test results of the study conducted by Yarımkaya and Ulucan (2015), a significant difference was found in the balance parameter of the experimental group. Şen (2004) found that the static balance results of the experimental group were higher than those of the control group ($p < 0.05$). According to Çelebi (2010), a significant difference ($p < 0.05$) was observed in favour of the experimental group in both the boys' and girls' groups in the single-leg balance post-tests. Tüfekçioğlu (2002) reported that there are significant changes in the static balance of children at the end of the perceptual-motor development program for children aged 4-6. In another study conducted with kindergarten children, Altınök (2006) found that special physical education programs applied to children between the ages of 5-6 result in significant differences in the static balance of children. Mülazımoğlu (2006) concluded that gymnastics training programs have a significant impact on children's balance skills. Similarly, İnan (1989) found that children with gymnastics training demonstrate higher scores of single-leg balance skills than children who only attend kindergarten.

In our study, no significant difference was found in the flexibility pre-tests according to the branch variable ($U = 54.000$; $p = .455$). In some other studies in which experimental and control groups were compared with respect to flexibility, no significant difference was found, either. Similarly, Karaman (2019) found no significant differences between the pre-test and post-test values of the experimental group as a result of the comparison of the experimental and control groups. Anamurluoğlu (2020) reported no significant difference between the experimental and control groups ($p > 0, 05$) when the flexibility post-test results of both groups were examined.

As a result of the comparison in our study, a statistical significance ($p = .033$) was found between gymnastics and ballet athletes according to the flexibility post-test values. In the post-tests, the gymnastics ($\bar{X} = 34.8182$) athletes were found to have higher flexibility scores than those of the ballet ($\bar{X} = 31.2500$) athletes. Given that the children in our study have just started in either branch, the outcome can be assumed to be related to the implementation of flexibility exercises in the gymnastics branch in a relatively more technical and comprehensive way than how they are applied in the ballet branch.

In the relevant literature, we have come across a number of studies in which experimental and control groups in the same discipline are compared and significant differences are detected in favour of the experimental group. For instance, Anamurluoğlu (2020) reported that the capacity of dynamic balance, standing long jump, quickness

and flexibility of children in the 3-5 age group developed at the end of a 6-week basic classical ballet training and educational game program. Various studies on flexibility have reported a statistically significant difference in favour of experimental groups (Altinkök 2006; Özbar 2007). A study by Zülkadirlioglu (1995), focusing on the effects of a 12-week gymnastics and swimming program on flexibility and conditional features in girls and boys aged 5-6 years, concluded that the programs resulted in significant differences in the development of flexibility. Karaman (2019) reported that significant differences emerged between the pre-test and post-test values of the control groups. Moreover, Saygin et al. (2005) stated that movement training is effective on children's sit and reach scores.

5. Conclusion

As a result of the comparison between the flexibility and balance parameters of gymnastics and ballet athletes who were subjected to 12 weeks of exercise, no statistical significance was detected between the pre-test and post-test results of height, body weight, and balance scores as to the branch variable. While there were no significant differences between the pre-test scores of flexibility, a significant difference was observed in the relevant post-test scores.

6. Recommendations

- ✓ Similar studies may contribute to the literature when conducted in different branches by including different age groups.
- ✓ Conducting studies using experimental and control groups in the same branch may contribute to the development of the literature.
- ✓ Further studies to examine the specific impacts of different branches of sport on children's bio-motor skills will enrich the literature and function as a guide for exercise planning.
- ✓ Micro and macro managing the youth and children for these kinds of activities and preparing them for the better future is everyone's task.

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Reliability and Validity of the Turkish Version of Aurora-a Intelligence Test Battery

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Abstract

The Aurora-a test battery was applied to 520 students who were between the ages of 9 and 12 attending public and private schools in Istanbul to create the Turkish version of the Aurora-a Intelligence Test Battery (Aurora-a_TR), which was developed for children aged 9-12 years based on the Triarchic Intelligence Theory. The three sub-test scores that measured verbal intelligence in the original form were excluded from the analyses since they were not suitable for statistical analysis. The validity evidence of Aurora-a_TR test was obtained by Confirmatory Factor Analysis and Reliability Analyses. The analyses supported the three-factor Triarchic Intelligence Model with strong evidence, which also included the fourteen subtests. It was recommended in this study to re-apply Aurora-a_TR on a different sampling with the tests that were re-adapted into Turkish for 3 verbal content tests, which could not be tested in the present study.

Keywords: Triarchic Intelligence Theory, Measurement of Intelligence, Adaptation of Intelligence Test, Factor Analysis

1. Introduction

Intelligence tests are one of the most important techniques for recognizing individuals. Galton, who was one of the pioneers of intelligence, which has been researched with scientific methods since 1884, argued that sensory processes are important for determining the intelligence levels, and that intelligence is passed on to future generations through heredity (Burt, 1968; narrated by Snyderman and Rothman, 1988:51). Spearman, on the other hand, defined general ability with “g” and the specific abilities of an individual with “s” factors (Baykul, 2010). Thorndike (1924, cited by Gottfredson & Saklofske, 2009) argued that there was no factor like general intelligence, and each mental activity required a number of different abilities. Guilford explained cognitive processes with the Cube Model, which included product, process, and content dimensions (Kaygın & Cetinkaya, 2015). Cattell-Horn-Carroll’s (CHC) mind abilities explained narrowing and specializing mental abilities with the three-layer intelligence theory; Gardner (1983) explained the effect of culture on intelligence in the context of problem-

solving, and interpersonal differentiation with the dominant intelligence types. Ceci's biological theory is based on the context to show cognitive abilities (1990, narrated by Pal, 2004).

Sternberg examined the evolution of intelligence theories in a three-level model. The fundamental question in level one is whether a theory of intelligence should be singular or plural; in the second level, the integration of the opinion in the first question in a hierarchical or non-hierarchical way in one sense; and in the third level, the question of what intelligence is and how it should be investigated is dealt with again, and possible new answers are evaluated (Sternberg, 1981). The measurement of the gifted is a separate subheading in the scope of the differentiation of intelligence tests. In the context of superior ability, it is emphasized that the concept of intelligence is a complex structure that consists of the interaction of different cognitive, social, emotional, and environmental factors (Heller, Pertel & Lim, 2005). In the literature, the use and disadvantaged sides of tests including short (e.g., The Kaufman Brief Intelligence Test) or expanded ability criteria (e.g., Wechsler Tests) have long been discussed and study support was sought in the selection of students to gifted programs (Pierson, Kilmer, Rothlisberg, & McIntosh, 2012). Also, it is recommended that teachers' and parents' observations are included in the diagnoses (Renzulli, 1978; Poweryster, 2016).

Renzulli (1978) considered superior ability as a condition that stems from the interaction of above-the-average general or special ability, creative talent, and motivation. He also stated that the lack of one of these or being below a certain threshold prevents the formation of superior intelligence, and that there is no need to have very high potentials in all these three ability fields to have superior intelligence. In the light of Renzulli and Sternberg's opinions on intelligence and superior ability, a new perspective has been developed on creativity measurement. Mednick's Word Connotations Test (Benedek, & Neubauer, 2013), and Torrance Tests of Creative Thinking test batteries (Torrance, 1974) were included in the creative thought intelligence test.

The successful intelligence theory of Sternberg defines intelligence as "a balanced abilities system allowing one to adapt, shape, and choose environments to achieve goals in the context of one's own culture or society". People who are intelligent and also successful need creative capabilities to produce new ideas, and to deal with a relatively new situation, analytical capabilities to detect the value of their new ideas, coping strategies, practical abilities to put these novel ideas into practice, and convince others regarding the values of their ideas (Sternberg, 1999). This opinion shows parallelism with the theory of Piaget on intelligence (Santrock, 2011) defining the ability to adapt to the child's environment by changing schematics as intelligence behaviors. For these reasons, Triarchic Intelligence Theory addresses intelligence under Analytic, Application, and Creative Intelligence headings (Sternberg, 2005). Intelligence requires that serial mental ability is combined to solve problems in a socio-cultural context (Sternberg & Grigorenko, 2004).

Aurora-a Test Battery was developed as part of a project that began at Yale University Child Study Center on the basis of Triarchic intelligence theory. The test, which was worked on for three years, is still a tool whose validity and reliability are tested in seven different languages and countries (Tan et al., 2009; Prieto, Ferrándiz, Ferrando & Bermejo, 2015; Gubbels, Segers, Keuning, & Verhoeven, 2016). As well as the general intelligence score, it can also measure the analytic, application, and creative intelligence types. The ability to measure creative intelligence in line with other intelligence types under one single scale is an important acquisition in recognizing an individual.

Tests, such as Wisc-R and Wisc-4 (Uluç et al., 2011), Basic Abilities Test, and ASIS (Sak, Bal Sezerel, Ayaş & Tokmak, 2016) are widely used in our country to evaluate the cognitive abilities of children who need special education. However, some of these tools that are used have limitations, such as being outdated, or simply measuring mere analytical intelligence. The individual needs to be measured in a multifaceted way to recognize him/her and support his/her development. Also, intelligence tests are needed in international form to make international comparisons and researches on Turkish children. Although the values of international intelligence tests are high, their adaptation requires different knowledge and care. The main objective of this study was to create the Turkish version of ARORA-a Test Battery (Aurora-a TR) for age groups (9-12 years) with analytic, application intelligence, and creative intelligence types and 17 subtests.

2. Method

The Method section describes in detail how the study was conducted, including conceptual and operational definitions of the variables used in the study. Different types of studies will rely on different methodologies; however, a complete description of the methods used enables the reader to evaluate the appropriateness of your methods and the reliability and the validity of your results. It also permits experienced investigators to replicate the study. If your manuscript is an update of an ongoing or earlier study and the method has been published in detail elsewhere, you may refer the reader to that source and simply give a brief synopsis of the method in this section.

2.1 Participant Characteristics

A total of 520 randomly selected volunteer students who studied in public and private schools in 2017-18 in the borders of the city of Istanbul, which received a lot of migration in Turkey, and which covers different regional cultures, constituted the study groups of the Turkish form.

2.2 Measurement Tool

Along with the description of subjects, give the mended size of the sample and number of individuals meant to be in each condition if separate conditions were used. State whether the achieved sample differed in known ways from the target population. Conclusions and interpretations should not go beyond what the sample would warrant.

Table 1. The Aurora-a Subtests Grouped by Target Ability and Domain

	Analytical	Practical	Creative
Images (visual/spatial)	<i>Shapes (Abstract Tangrams):</i> complete shapes with missing pieces. (10 items) (MC)	<i>Book Covers:</i> interpret an abstract picture and invent a story to accompany it. (5 items) (OE)	<i>Paper Cutting:</i> identify the proper unfolded version of a cut piece of paper. (10 items) (MC)
	<i>Floating Boats:</i> identify matching patterns among connected boats. (5 items) (MC)	<i>Multiple Uses:</i> devise three new uses for each of several household items. (5 items) (OE)	<i>Toy Shadows:</i> identify the shadow that will be cast by a toy in a specific c orientation. (8 items) (MC)
Words (verbal)	<i>Words That Sound the Same (Homophone):</i> Blank sentence with two missing words using homonyms. (20 items) (RW)	<i>(Inanimate) Conversations:</i> create dialogues between objects that cannot typically talk. (10 items) (OE)	<i>(Silly) Headlines:</i> identify and explain an alternative “silly” meaning of actual headlines. (11 items) (RW)
	<i>Metaphors:</i> explain how two somewhat unrelated things are alike. (10 items) (OE)	<i>Interesting (Figurative) Language:</i> interpret what sentence logically comes next after one containing figurative language. (12 items) (MC)	<i>Decisions:</i> list elements given in a scenario on either “good” or “bad” side of a list in order to make a decision. (3 items) (RW)
Numbers (numerical)	<i>Number Cards (Letter Math):</i> find the single-digit number that letters represent in equations. (5 items) (RW)	<i>Number Talk:</i> imagine reasons for various described social interactions between numbers. (7 items) (OE)	<i>Maps (Logistics Mapping):</i> trace the best carpooling routes to take between friends’ houses and destinations. (10 items) (RW)
	<i>Story Problems (Algebra):</i> (before any algebra training) devise ways to solve logical math problems with two or more missing variables. (5 items) (RW)		<i>Money (Exchange):</i> divide complicated “bills” appropriately between friends. (5 items) (RW)

Note: MC = multiple choice; OE = open-ended items that need to be scored by an individual using a rating scale; RW = answers are either right or wrong; () in subtest titles = subtest titles or portions of titles no longer in use.

Source: (Tan et al., 2009, p.448)

2.3. Study Procedure

The test was translated independently by two different experts who mastered both in English and Turkish, checked by two field specialists, and was then converted into one single Turkish form. The linguistic equivalence studies of the Aurora-a TR are prepared as separate articles. The items of the subtest of Words that sound the same were created again by the researchers based on words written the same in Turkish but which meant differently by considering cultural differences. In the preliminary application conducted at a state and a private school, it was observed that Headlines, Decision and Interesting language subtests could not be understood by children. For this reason, these subtests were not included in the study. The Turkish version of the test consisted of 14 subtests according to the results of the study. Scoring and interpreting the test requires psychological test usage competence and scoring expertise. The test can be applied as a group or as an individual test. The test consists of a total of 119 questions as Analytical Intelligence ($N_{\text{question}}=59$), Practical Intelligence ($N_{\text{question}}=33$), and Creative Intelligence ($N_{\text{question}}=27$) subtests, and the application time of the test is 159 minutes. Detailed information on the number of items, response styles, application times, and the characteristics measured by the subtests is given in Appendix 1

2.4 Data Analysis

The validity analyses of Aurora-a-TR Battery were examined as based on Factor Analysis. CFA was done to determine whether the data were in line with the structure defined by the American version. The Mplus 7 Program was used for the analyses. Weighted Least Square Mean and Variance Adjusted (WLSMV) estimation method was preferred because there were different item types with two and more categories. WLSMV has been recommended for estimating CFA model parameters with categorical variables (Muthén & Muthén, 2010). Firstly, single-dimensional DFA was carried out for each subtest, and then, second order CFA was conducted to check whether the subtests were predicted by the intelligence they were related to. Multiple evaluations were made for model-data compatibility according to the criteria of CFI > 0.90 (Browne & Cudeck, 1993), TLI > 0.90 (Bentler & Bonett, 1980), RMSEA < 0.08 (Jöreskog & Sörbom, 1993). In CFA analyses, one item was excluded from Paper Cutting sub-scale with standardized pathway coefficient below 0.30, and three items were excluded from Shapes subtest because of the same reason. The findings were reported over 115 items.

Convergent and divergent validity checks were done. Convergent validity was evaluated according to composite reliability (CR) > 0.70 and AVE > 0.50 (Fornell & Larcker, 1981). Divergent validity criteria: (1) If the correlation coefficient of two dimensions is less than the individual Cronbach α reliability coefficient (Gaski & Nevin, 1985), and (2) if the correlation coefficient of two dimensions is smaller than the square root of AVE, then these two dimensions have divergent validity (Fornell & Larcker, 1981; Gaski & Nevin, 1985).

Cronbach α coefficient was used in the sub-test reliability, and the Stratified Cronbach Alpha Coefficient was used for general scale reliability. Cronbach, Schonemann and Brennan (1965) proposed to use the Stratified Cronbach α coefficient for the reliability of the combined scores obtained from measurement tools with sub-dimensions. The Stratified Cronbach α coefficient was calculated by using the "sirt" package in program R (Robitzsch, 2017).

After the validity of the measurement and structural models for Analytical, Creative and Practical Intelligence was achieved, three model trials were conducted for all the data as Unidimensional Model, Three-Factor Model and General Factor Model. Although the χ^2 difference test can be used to compare nested models in the WLSMV method, there is no statistic allowing the direct comparison of non-nested models. For this reason, improvement in the goodness of fit indices and in factor loadings were considered in the decision-making process in the comparison of the 3 non-nested models in question.

3. Results

The results of the confirmatory factor analysis of the measurement model of the subtests of the Analytical Intelligence Scale are summarized in Table 2.

Table 2: Fit Statistics and Factor Loadings for The Model Fit of the Subtests of the Analytical Intelligence Test

Analytical Intelligence Subtests	Fit Measures			Range of standardized path coefficient
	RMSEA	TLI	CFI	
Story Problems	0.02	0.99	0.99	0.47-0.80
Words that sounds the same	0.09	0.94	0.95	0.52-0.95
Metaphors	0.09	0.97	0.98	0.67-0.75
Number Cards	0.14	0.98	0.99	0.53-0.97
Shapes	0.04	0.97	0.98	0.40-0.80
Floating boats	0.08	0.94	0.96	0.58-0.87
Analytical Intelligence (second order model)	0.04	0.94	0.95	0.42-0.86

When Table 2 is examined, it is seen that the TLI and CFI indices of the subtests are above acceptable limits, and the RMSEA value is above the limit of 0.8 in some subtests. When the minimum factor loadings of 0.40 is considered, it can be argued that the subtests fitted an one-dimensional structure. The fit indices were obtained above the limit values in the second order CFA model, which was conducted after fitting the measurement models of the subtests. In this way, it was shown that Analytical Intelligence is the predictor of Story Problems, Words that Sound Same, Metaphors, Number Cards, Shapes and Floating Boats subtests.

Table 3. Cronbach Alpha, CR, AVE, square root of AVE (in bold) and correlations between subtests of analytical intelligence (off-diagonal).

Subtests	N of items	Alpha	Subtests							
			CR	AVE	F	SP	NC	S	WTS	Met
Floating Boats	10	0,82	0,92	0,54	0,73					
Story Problems	5	0,68	0,81	0,47	0,42	0,69				
Number Cards	5	0,80	0,95	0,79	0,35	0,65	0,89			
Shapes	7	0,64	0,79	0,47	0,42	0,68	0,65	0,69		
Words that Sounds	20	0,92	0,97	0,60	0,20	0,38	0,31	0,38	0,77	
Metaphors	9	0,90	0,91	0,53	0,33	0,62	0,51	0,61	0,42	0,73
Scale (Stratified Alpha)	56	0,94								

In Table 3, Cronbach α reliabilities of Analytical Intelligence subtests vary between 0.64-0.92; and composite reliabilities vary between 0.81-0.95. AVE values range from 0.47 to 0.79. According to Fornel and Larcker (1981), CR should be higher than 0.70, and AVE should exceed 0.50 so that is adequate for convergent validity. However, Fornel and Larcker argued that if AVE is less than 0.50 but CR is higher than 0.60, convergent validity of the construct is still adequate. It may be argued that the subtests of the analytical intelligence have convergent validity because CR values are ≥ 0.79 , as well as reasonably goodness of fit values. Also, the reliabilities and the square root of the AVE are higher than the correlation coefficient of two dimensions, it is considered of proof of discriminant validity. When both Cronbach α and the square root of the AVE are compared with correlations, it may be accepted that the subtests of the analytical intelligence have divergence validity. The overall reliability of the Analytical Intelligence Scale was calculated to be 0.94 with Stratified Alpha.

The results of CFA regarding the measurement model of four subtests of the Creative Intelligence Scale are summarized in Table 4.

Table 4. Fit Statistics and Factor Loadings for the Fit of the Subtests of the Creative Intelligence Test

Creative Intelligence Subtests	Fit Measures			Range of standardized path coefficient
	RMSEA	TLI	CFI	
Multiple uses	0.17	0.98	0.99	0.85-0.86
Book cover	0.19	0.94	0.97	0.73-0.81
Number talk	0.23	0.92	0.94	0.76-0.85
Conversation	0.15	0.96	0.97	0.75-0.84
Creative Intelligence (second order model)	0.06	0.97	0.98	0.15-0.87

When Table 4 is examined, it is seen that the TLI and CFI goodness of fit indices of the subtests are above the acceptable limits, and the RMSEA value is above the limit of 0.8 in all subtests. When it is considered that factor loadings are ≥ 0.73 , it may be accepted that the subtests fitted an unidimensional structure. Goodness of fit indices was obtained above the criterion values in the second order CFA model, which was conducted after fitting the measurement models of the subtests. In this way, it was shown that Creative Intelligence was the predictive of multiple uses, book cover, number talk and conversation subtests.

Table 5. Cronbach Alpha, CR, AVE, square root of AVE (in Bold) And Correlations Between Subtests of Creative Intelligence (Off-Diagonal).

Subtests	N of items	Alpha	Subtests						
			CR	AVE	MU	BC	NU	C	
Multiple Uses	5	0,92	0,93	0,73	0,85				
Book cover	5	0,86	0,88	0,59	0,12	0,77			
Number Talk	7	0,91	0,93	0,65	0,51	0,09	0,81		
Conversations	10	0,94	0,95	0,65	0,71	0,13	0,54	0,81	
Scale (Stratified Alpha)	27	0,96							

In Table 5, Cronbach α reliabilities and composite reliabilities of creative intelligence subtests are over 0.70; and AVE values are above 0.50. In this way, the convergence reliability of the subtests was proven. When Cronbach α reliabilities and the square root of the AVE (bold) are compared with the correlations, it may be accepted that the subtests of the creative intelligence have the divergence validity. Also, the overall reliability of the creative intelligence scale was calculated to be 0.96 with stratified alpha. The results of the CFA of the measurement model of the six subtests of the practical intelligence scale are summarized in Table 6.

Table 6. Fit Statistics and Factor Loadings for The Fit of the Subtests of the Practical Intelligence test

Practical Intelligence Subtests	Fit Measures			Range of standardized path coefficient
	RMSEA	TLI	CFI	
Maps	0.10	0.85	0.88	0.40-0.96
Paper cutting	0.04	0.95	0.96	0.33-0.75
Toy shadows	0.04	0.97	0.98	0.50-0.88
Money	0.05	0.97	0.98	0.75-0.79
Practical Intelligence (second order model)	0.03	0.95	0.95	0.34-0.89

When Table 6 is examined, it is seen that the goodness of fit values of subtests other than Maps are above the acceptable limits. Goodness of fit values was slightly below acceptable limits in the Maps subtest; however, factor loadings were reasonable. It was decided that the Maps scale should remain in the main scale because its divergence and convergence validities were adequate. Goodness of fit values was obtained above the criteria values in the second order CFA model, which was conducted after the subtests fitted an unidimensional structure. In this way, it was shown that Practical Intelligence was the predictor of Maps, Paper Cutting, Toy Shadows and Money subtests.

Table 7. Cronbach Alpha, CR, AVE, square root of AVE (in bold) and Correlations Between Subtests of Practical Intelligence (Off-Diagonal).

Subtests	N of items	Alpha	Subtests					
			CR	AVE	TS	PC	MO	MA
Toy Shadows	8	0.77	0.88	0.49	0.70			
Paper Cutting	9	0.67	0.84	0.37	0.40	0.61		
Money	5	0.71	0.87	0.58	0.62	0.52	0.76	
Maps	10	0.72	0.86	0.39	0.24	0.19	0.30	0.62
Scale (Stratified Alpha)	32	0.84						

It is seen in Table 7 that the Cronbach α and composite reliabilities of the Practical Intelligence subtests were >0.70 , and the AVE values were <0.50 in general. Fornell and Larcker (1981) as the reference, it was accepted that the convergence validity is still adequate if AVE is <0.50 but the CR is ≥ 0.60 . When Cronbach α and the square root of AVE were compared with the correlations, it was accepted that the subtests of the Practical Intelligence have the divergence validity. The overall reliability of the Practical Intelligence Scale was calculated to be 0.84 with Stratified Alpha.

Table 8. Goodness-of-Fit Statistics for the Confirmatory Factor Analysis Models.

Model	χ^2	df	CFI	TLI	RMSEA
Single-factor model	19843.57	6440	0.70	0.70	0.06*
Three factor model	9479.51	6422	0.93	0.93	0.03
General factor model	9476.51	6422	0.93	0.93	0.03

* $p < 0.05$

After the validity of the structural models of the analytics, application and creativity intelligence scales, different structural models were also tested by adding all the items and subtests. As summarized in Table 8, firstly, a one-dimensional CFA model (single factor model) was tested. In this model, it was seen the factor loadings of some items were below <0.30 ; and goodness of fit indices was insufficient. Then, a second-order CFA model, which was related to analytics, practical, and creativity intelligence scales, was tested. It was found that the goodness of fit indices of this three-factor model were above the criteria values, and the factor loadings varied between 0.40-0.96.

Finally, the third-order CFA model, which collected the three scales under a general factor, was also tested. In this general model, although factor loadings (0.39-0.96) and goodness indices were above the criteria values, the standardized path coefficient (i.e., the correlation) between analytical intelligence and general intelligence was calculated to be >1.00 . It is considered that this negative condition, which is known as the Heywood Case, stemmed from a sampling error. Also, this model did not show improvements in goodness of fit compared to the three factor model. As a result, depending on the comparison of these three structural models, it was concluded that the Three-factor Model was more fitted to the data (Figure 1).

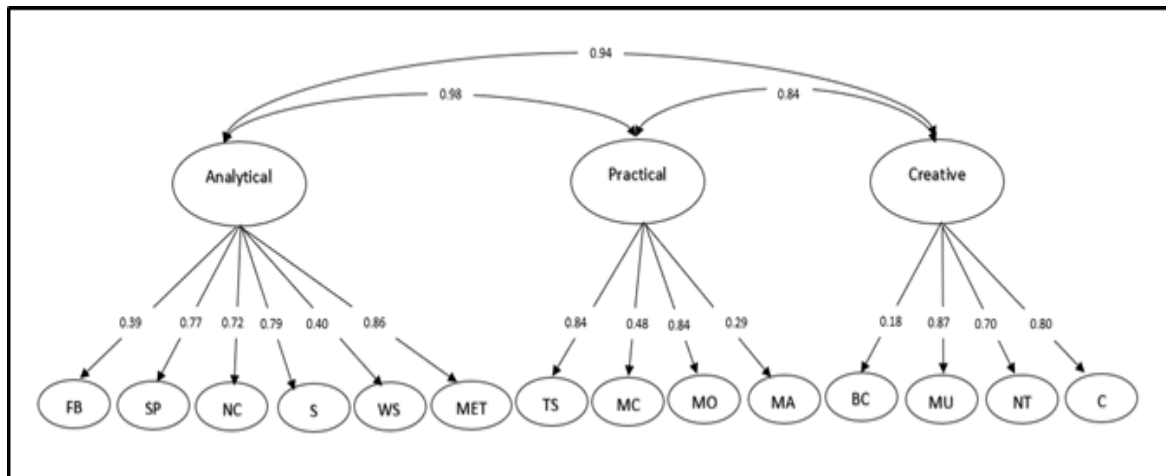


Figure 1: Standardized path coefficients for the 14 Aurora-a subtests in the three-factor model. (Observed variables omitted for simplicity)

4. Discussion

The structural characteristics of the Turkish form of the Aurora-a Intelligence Test, which was tested in different countries as an international scale, and which was the main problem of the study, adapted for Turkish children (between 9-11 years) studying at primary school 4th-6th grades were tested. Analytical, Practical, and Creative Intelligence, and a general intelligence above these three intelligences, were defined in the psychometric structure of the original Arora-a Battery. Firstly, the measurement models of Analytical, Practical, and Creative Intelligence subtests were tested in the Turkish form. As a result of the CFA analyses done for story problems, words that sound the same, metaphors, number cards, shapes and floating boats subtests in Analytical Intelligence, all items except for the “story problem” showed reasonable factor loadings. Three items were excluded from the analyses in the Story Problem subtest. In addition to Cronbach Alpha reliability, the convergence and divergence validity of analytical intelligence subtests was also adequate. The second order CFA model that was identified for these six subtests proved that the Aurora-a TR battery could measure analytical intelligence.

Similar structural evidence was obtained for Practical Intelligence, which consisted of Maps, Paper Cutting, Toy Shadows, and Money subtests. Structural evidence was achieved for the subtests (Multiple Uses, Book Covers, Talking Figures, Conversations) except for three subtests (Decision, Headings, Interesting Language) under the Practical Intelligence. Only one item that produced low factor loading in Paper Cutting subtest was excluded from the analyses. In Decision Making, Titles, Interesting Language subtests, which include items based on verbal skills, children were not able to answer the items of these subtests. It is estimated that they cannot understand the items of these subtests due to the fact that the idioms and expressions in the original form were preserved and adapted to Turkish.

Tan et al. (2009) emphasized that although it is accepted that Sternberg’s intelligence understanding components and intelligence representations are universal, how the outward indicators of these components are reflected in a certain culture as a language and behaviors should also be considered. He also argued that although each country started with translations in the international journey of the Arora-a test Battery, it was noticed that a new tool requiring adaptation had to be created. The reflection of socio-cultural effects on the scores in the adaptation of intelligence tests to another language and country is discussed in the literature (Malda et al., 2010; Vijver, 1997). It is reported that using original or almost-originally translated tools will save cost and time; however, an adaptation with cultural knowledge, values and practices is still required to idealize a tool for a particular cultural context (Malda et al., 2010).

Three structural model were tested for Aurora-a_TR battery. The data did not fit to a one-dimensional model. Standardized path coefficients and goodness of fit indices of the three-factor model showed that the model adequately fit to the data. A general factor model was applied to determine whether the general dimension defined

in the original Aurora-a Battery complied with the Turkish version. However, the goodness of fit indices obtained for the general factor did not show much differentiation from the three-factor model. It was also observed that the correlation between the general factor and analytical intelligence was >1.00 . Since the conditions that might have caused this, such as multicollinearity and outliers were checked, it was considered that this problem might have stemmed from sampling error. Although the data of the Aurora-a_TR battery did not support the general factor model, the high correlations obtained from the three-factor model between Analytical, Creative and Practical Intelligence (Figure 1) can be shown as evidence that a total score can be obtained.

Similar to the present study, Aljughaiman and Ayoub (2012) conducted a test of a gifted students program in Saudi Arabia in line with the Triarchic Intelligence Theory obtained from 5th-6th graders. To test the effectiveness of the program, some subtests of the Arora-a Test in the scope of Analytical (Metaphors, Shapes, Number Cards), Creative (Speeches, Book Covers, Numbers), and Practical Intelligence (Decision, Toy Shadows, Money) Intelligence types were used. In this context, although the number of the subtests in the original test was less, it was observed that the Goodness of Fit of the Triarchic Intelligence Structure was excellent. Specifically, this model produced a non-significant $\chi^2/df = 34.99$, $p = .069$. In addition, the values of RMSEA = 0.048, GFI = 0.96, AGFI = 0.93, and NFI = 0.97 indicated the suggested model for Aurora fits with the data.

High correlations were found between the total scores of Arora and the Analytic (0.91), Creative (0.94) and Practical (0.84) intelligence in the confirmatory factor analysis study that was conducted by Aghababaei, Malekpour, Kajbaf, & Abedi (2016) with the data of 400 Iranian students. The Cronbach Alpha coefficient was 0.92. The three-factor structure was thus confirmed in Iranian culture.

Similarly, Gubbels, Segers, Keuning and Verhoeven (2016) tested the three-factor structure in Dutch adaptation; however, they reported that the analytics/practical and creative subtests of the Aurora-a Battery were better for the two-factor structure (RMSEA= .09, CFI= .88, $\chi^2 /df = 4.91$).

As a conclusion, the Turkish form (Aurora-a TR) was obtained compatible with the original structure of the Aurora-a Test Battery, which measures the analytical, application and creative intelligence types. It is recommended for future studies to re-apply the Aurora-a TR with a different sampling and with adapted tests by adapting the 3 verbal content tests to Turkish again, which could not be tested in this study. Also, determining whether the battery has the ability to differentiate gifted students can be considered to be a new study topic.

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Appendix A

Aurora-a_TR subtests and the characteristics it measures

Table A1: Aurora-a_TR subtests and the characteristics it measures

Types of intelligence measured	Subtests	N of items	Scoring type	Time of app.	Feature measured by test
Analytical	Story Problems	5	0-1	12'	With this subtest, analyzing the problem, making a logical comparison and mathematical thinking skills are measured.
	Words that Sound the Same	20	0-1	15'	With this subtest, linguistic intelligence is measured. To accomplish the assignment, the individual needs to use the skills of reading and understanding, questioning what s/he understands, and placing words appropriately to provide semantic integrity.
	Metaphors	9	0-2 accuracy * 0-4 ability**	12'	With this subtest, it is desired to reveal the similarities and differences between words, and also to consider the secondary meanings that words take in context. This subtest also reveals the ingenuity or weakness of the individual in using the language. In addition, the test measures the individual's analytical thinking ability.
	Number cards	5	0-1	8'	With this subtest, the power of visualizing relations and performing mathematical operations between the figures are measured. In addition, abstract thinking skills are required to be successful in this test scoring is done as Correct (1) Wrong (0) in two categories.
	Shapes	10	0-1	18'	Visual-spatial intelligence and abstract thinking skills are measured with this subtest. In order to achieve this assignment, it is necessary to think from part to whole, and whole to part.
	Floating Boats	10	0-1	7'	Understanding the relationship between elements by using visual-spatial intelligence skills and problem-solving skills are measured.
	7 tests	59	0-104	72'	
Practical	Maps	10	0-2	7'	With this subtest, the spatial perception, the ability to think and calculate the visual material are measured.
	Paper Cutting	10	0-1	7'	This subtest measures the ability of the individual to establish relationships between parts through visual and mental imagery. At the same time, the test also provides information about the individual's visual attention and organizational skills.
	Toy Shadows	8	0-1	6'	The use of visual-spatial intelligence and the ability to imagine geometric shapes in mind from the previous visual information capacity are measured with this subtest.

	Money	5	0-1	15'	The ability to use mathematical thinking skills in everyday life is measured by the money subtest.
	4 subtest	33	0-43	35'	
Creative	Multiple Uses	5	0-2 accuracy * 0-4 ability**	15'	The ability to use creative thinking skills in daily life problems is measured. The skills of thinking outside the box, originality, unconventional thinking are required.
	Book Covers	5	0-2 accuracy * 0-4 ability**	12'	With this subtest, the connotations of the given visual stimuli and verbal creative thinking skills, imaginativeness are measured.
	Number Talk	7	0-2 accuracy * 0-4 ability**	10'	Mathematical creativity is measured by this subtest. This test requires to identify relations between numbers differently, with the help of imagination and with a multifaceted perspective.
	Conversations	10	0-2 accuracy * 0-4 ability**	15'	With this subtest, being able to distinguish the characteristics of the surrounding objects, and the ability to see their relations from different angles are measured.
	4 subtest	27	0-204	52'	
4 tests	14 subtest	119	0-351	159'	
<p>*"Accuracy" is the accuracy score of the answer given in accordance with the instruction. The answers are scored from the wrong answer (0) to the exact correct answer (2) by three-point grading. ***"Ability" is the ability to be evaluated in terms of the expected ability or creativity. The answers are scored from the lowest (0) to the highest (4) by four-point grading</p>					

TRT EBA Secondary School Channel Social Studies Courses: Attitude and Perceptions of Students

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Abstract

This study aims to determine the attitudes and perceptions of secondary school students, who live in Bingöl and take social studies course, towards this course broadcasted on TRT EBA (Education Information Network) secondary school channel in the second semester of the 2019-2020 academic year. A quantitative research approach was adopted and a cross-sectional survey design was used in the study. The population of the study is 150 students who are in the 5th, 6th and 7th grades of the secondary school located within the borders of Bingöl city center in the 2019-2020 academic year. The data collection tool is the "scale of attitudes and perceptions towards social studies course broadcasted on TRT EBA secondary school channel " developed by the researchers. Factor analysis, correlation analysis, Kaiser-Meyer-Olkin (KMO) and Bartlett's Test were used on the scale. Cronbach's Alpha test was conducted for the reliability of the measurements. IBM Statistical Package for Social Sciences 22.0 (SPSS, Chicago, IL) was used for data analysis. Independent Samples t-test and One-Way ANOVA were applied for differences of general attitudes and perceptions. It was concluded that the attitudes and perceptions of the students are on the border of positive-neutral; social studies courses were not presented in a way to attract the attention of students; and that some changes are needed regarding the studio environment and the presentation of the courses.

Keywords: Student Perceptions, Social Studies, TRT EBA Secondary School, Attitude and Perception Scale

1. Introduction

In the twenty-first century, rapid social, economic and technological developments experienced all over the world have made changes in education inevitable. Countries around the world have had to act on strengthening the technological infrastructure, especially in education. Day by day, the traditional understanding of school has begun to be replaced by the understanding of school without physical boundaries. Societies have been urged to completely changing their understanding of limiting traditional school education between walls, especially with the Covid-19 pandemic (Akkaş Baysal et al., 2020).

World societies have come across or have been brought against the virus pandemic, which is reported to originate in Wuhan, China and allegedly produced as part of the Human 2.0 project. It also contains a global transformation, technological monopoly and brings many arguments related to it. The turning of this pandemic into a rapid threat has brought different measures and practices to the agenda. The field of education has also been affected by these measures and practices. In Turkey, some steps taken by the Ministry of Education (MEB) long before the pandemic made a significant contribution to the management of this process. In 2010, with the Movement of Enhancing Opportunities and Improving Technology (FATİH), the project of financing project implementation support was initiated with the delivery of broadband internet to all classes, the provision of e-content of the courses, the adaptation of teachers to information communication technologies and the establishment of web platforms for content development (MEB, 1). MEB offered free online opportunities to education stakeholders with the Education Information Network (EBA), which was designed as a social platform in 2012. Thus, it continues to integrate technology into education through information technologies and share reliable and reviewed e-contents suitable for class levels (MEB, 2). These include lecture, news, video, visual, audio, book, magazine, document, competition, e-course, distance education and lifelong learning and television sections. The EBA application is also offered as already installed on tablet computers distributed within the scope of the FATİH Project. Thus, new applications can be downloaded, and existing ones can be updated (Coşkunserçe et al., 2019). Through EBA, students can access lecture notes, projects and assignments, share their works with their teachers and classmates, and go over the topics they learn through supplementary materials. In 2020, EBA started to broadcast live as soon as the epidemic erupted (Çiftçi et al., 2020). Thanks to this infrastructure, MEB was able to quickly take measures for distance and online education types that are needed more intensively due to the pandemic. The developments in the pandemic process and the pressures of global mechanisms in the direction of digitalization have shown that distance education is no longer seen as supplementary or a substitute for face-to-face education, as it has been until today, and that there is no alternative to distance education (Türker et al., 2020). However, the digital gap between different groups' access to these technological tools due to socio-economic differences in distance education practices is a significant problem. In particular, groups such as Romani people, children of seasonal agricultural worker families, and refugee children also experience the digital gap significantly (Sezgin et al.2020). In order to overcome the digital gap problem, distance education via television, which is more common than the internet, has enabled education and instruction to reach every home easily. Thus, the principle of equality and fairness in education could be ensured (Aydın, 2020). After the Covid-19 outbreak was announced in other countries, television and radio broadcasts came to the fore with internet applications. Broadcasting from television and radio has gained importance as an alternative to people who do not have internet or computer access or to the internet applications that are difficult to access because of many people trying to access them simultaneously (Eken et al., 2020). The Ministry of Education opted for the most effective way and established three new television channels quickly. TRT EBA Primary School, TRT EBA Secondary School and TRT EBA High School started distance education on March 23, 2020. Students could watch their lectures in alternative hours determined according to the program of their classes. Thus, when over 1.5 billion students worldwide were deprived of face-to-face education in 184 countries, Turkey became the second country that started a nationwide distance education (MEB, 3). TRT EBA channels broadcasted 2516 hours until June 19, 2020, which is the beginning of the summer holiday. In order to strengthen this one-way communication, the pilot implementation of the live classroom application of the online EBA platform, which enables multi-directional lessons, started on March 30, 2020. During the pandemic period, the EBA platform was actively used by 7.383.213 students and 1.300.516 teachers (MEB, 4).

A one-hour course program consisting of two lessons per day was designed for primary and secondary schools on TRT EBA channels. The courses are Turkish, Mathematics, Social Studies, English, Science, Social Studies, Religious Culture and Moral Knowledge and Arabic, respectively. For high schools, a one-hour and thirty-minute course program consisting of three lessons a day was designed. Courses are Turkish Language and Literature, Mathematics, Religious Culture and Moral Knowledge, History, Chemistry, Mathematics, Biology, Physics, Geography, Philosophy, English, History of Revolution and Kemalism. An "activity zone" of one hour or one hour and thirty minutes was also added to these lessons (Eren, 2020). Some studies show that students are satisfied with EBA in functional and communication aspects (Sentürk et al., 2020). It was reported that all students had easy access to distance education courses and participated willingly (Gören et al., 2020). Despite all these possibilities, it was revealed that teachers think that distance education cannot be a substitute for learning

by doing and living (Ünal et al., 2020). In Aydın's (2020) research, it was stated that an overwhelming majority of the secondary school students enjoyed watching the content related to the Turkish lesson and found the programs informative, but stated that the duration of the lessons and the number of activities should be increased. In her research with primary school parents, İnci Kuzu (2020) concluded that the students watched the lessons on EBA TV enthusiastically, and a great majority of them were connected right on time when the lessons started and did not have concentration problems until the end of the lesson, and liked the lessons. Şentürk et al. (2020) concluded that in distance education via EBA, female students had a more positive perspective in the communication dimension than male students, there was no significant difference between secondary school classes in terms of functionality and motivation, and in the communication dimension, the fifth and sixth graders had more positive perceptions than the eighth graders. Despite the widespread use of the Internet, television remains a popular medium to reach people. However, in a study conducted in nine different provinces, it was determined that secondary school students did not consider EBA TV broadcasts alone sufficient, the lessons were not engaging, but they thought distance education was conducted in a healthy way (Kaynar et al., 2020). In another study, it was found that perceptions about EBA TV lessons and broadcast flow were generally positive, but teachers' teaching only on the board and not using any other method decreased student motivation, students felt negative about teachers' reading the slides on the board, the time was sufficient, the exercises were enough, and as the grade level increased, the content and the presentation of the subjects taught grew more insufficient (Erümit, 2020). The students stated that they only watched EBA TV lessons, could not participate actively, teachers could not get answers to their questions, and feedback could not be provided (Başaran et al., 2020). A study conducted regarding English lessons concluded that EBA TV has many points to be appreciated; however, further improvements are needed in terms of material, efficiency, and some technical issues (Özkanal et al., 2020). In the study conducted on 7th-grade Turkish lessons, it was concluded that subjects containing only information were presented in TRT EBA channels, the lessons were carried out with concept definitions and explanations and prepared in a format that guided students to memorization, but students received support so that they do not become feel alienated from the practices they are used to in schools (Akin, 2020). It was determined that the education provided on the EBA TV throughout the country offers equal opportunity, the limitation of using different materials negatively affects learning; on the other hand, the flexibility in the lessons, the ability to review and reinforce are seen as an advantage (Başaran et al., 2020).

These results show that distance education should be developed in its various aspects. MEB, which is constantly striving to further its research and development activities, organized the "Intelligent Technologies and Software Development Professional Development Program" as part of the preparation for the Internet of Things applications, one of the main concepts of the New World order. The program was organized for the teachers. The program aimed to provide teachers with smart technology and software development training to make sure that students are raised as individuals who use technology effectively, who have strong competencies and who have acquired the skills that the business world needs. After 8-week training provided to 1032 teachers, the goal is to reach a total of 1 million current teachers, including 19 thousand information technology teachers (MEB, 5).

In this study, in order to contribute to the development of TRT EBA TV programs in general and social studies presentations and the relevant literature in particular, the attitudes and perceptions of secondary school students living in Bingöl towards the social studies lessons offered on the TRT EBA Secondary School channel were determined.

1.2. The Aim of the Study

The aim of this study was to determine the attitudes and perceptions of secondary school students living in Bingöl and taking social studies course towards social studies courses offered on TRT EBA secondary school channel in the second semester of the 2019-2020 academic year.

1.3. Main and Sub-Questions of the Study

The main research question of this study is expressed with the question of “What are the attitudes of secondary school students living in Bingöl and taking social studies course towards social studies courses offered on TRT EBA Secondary School channel?”. Sub-questions determined depending on this main question are as follows:

1. What are the perceptions of secondary school students about the studio environment where social studies courses are offered on the TRT EBA Secondary School channel?
2. What are their perceptions on the comprehensibility of the social studies course on the TRT EBA Secondary School channel?
3. What are their attitudes towards the presentation of social studies courses on the TRT EBA Secondary School channel?
4. How is the comparison of their attitudes towards social studies courses on the TRT EBA Secondary School channel with their attitudes towards social studies courses offered at school?
5. What are their general attitude and perceptions towards social studies lessons on the TRT EBA Secondary School channel?
6. Is there a significant difference by gender between attitudes or perceptions towards social studies courses on the TRT EBA Secondary School channel?
7. Is there a significant difference between their attitudes or perceptions towards social studies courses on the TRT EBA Secondary School channel according to grade levels?

2. Method

In this section, the research design, population and sample, data collection and analysis methods of the research are included.

2.1. Research Pattern

This study was designed according to a quantitative research approach, and a cross-sectional survey design was employed. The rationale for choosing this pattern is to illustrate the determined population's attitudes and perceptions towards the social studies course offered in distance education via television by means of a sample group and to collect information on this subject. Statistical analysis was carried out with the data obtained in accordance with this design, the tendency of the data was defined, and the research questions were answered. Accordingly, current attitudes, beliefs, perceptions or practices can be examined, and across-group comparisons can be made with the cross-sectional survey design (Creswell, 2019). This study also aimed to compare 5th, 6th and 7th-grade student attitudes. The attitudes, beliefs and perceptions here include the way individuals think about a subject (Creswell, 2019).

2.2. Population and Sample

The population of the study is the 5th, 6th and 7th-grade students at secondary schools located within the borders of Bingöl province centre in the 2019-2020 academic year. These levels were chosen because social studies courses are included in their curriculum. The study sample is a total of 150 students, 72 girls and 78 boys, who were selected in accordance with the probability-based stratified sampling technique in the universe. Grade levels were accepted as a variable, and grade-based stratification was made. Care was taken to have an equal number of students by gender in each stratum. By taking into account a certain variable, the representation of the variable's characteristics in the sample at the same rate is called stratified sampling (Altunışık et al., 2005). Simple random sampling was used in the selection of members within the stratum. While determining the number of samples, 50 students from each grade level were contacted since sample sizes greater than 30 and smaller than 500 are sufficient for many studies. In the event that the samples are divided into subgroups, the sample size of each category should be at least 30 people. In this study, it is accepted that each class constitutes a subgroup. However, it is also recommended to reach a sample size of at least ten times the number of variables in the data collection form (Altunışık et al., 2005). Since this study finally consists of 14 items, the completion of the study with 150 students shows the adequacy of the sample size. The ability to track the attendance online

facilitated taking the necessary steps in the sampling. The distribution of the participants according to their grade levels and genders is presented in Table 1:

Table 1: Frequency and percentage distributions of students according to gender and grade levels

Gender	Grade Level						Total	
	5th Grade		6th Grade		7th Grade		f	%
	f	%	f	%	f	%		
Male	32	64	24	48	22	44	78	52
Female	18	36	26	52	28	56	72	48

According to Table 1, 78 (52%) of the participating students are female, and 72 (48%) are male. There are 50 students from all grade levels. 32 (64%) of the 5th-grade students are female, 18 (36%) of them are male, 24 (48%) of the 6th-grade students are female (%), 26 (52%) are male, and 22 (44%) of the 7th-grade students are female, and 28 (56%) are male.

2.3. Data Collection Method of the Study

In the study, "the scale of attitudes and perceptions towards TRT EBA secondary school channel" developed by the researchers was used. Prior to the study, the content of the research and the scale to be used were presented to the Scientific Research and Publication Ethics Board of Bingöl University, and it was verified that the application was in accordance with the research ethics with the letter dated 13/07/2020 and numbered E.11829. The scale consists of Likert-type items, and each item consists of 5 categories. The items were structured to answer the research questions and to use the mean values of these questions in the analysis phase. In the first stage, 23 items were determined. The items were composed of clear, short, single and balanced positive-negative statements. Negative implications and guiding expressions were avoided. The items were submitted to two social studies teachers' perceptions, one of whom with five years and the other with eight years of professional experience, one literature teacher with 16 years of experience and two experts with a Ph.D. degree in social studies. A total of 6 items, which received a negative opinion from any of them, were cancelled, and only 17 items with complete consensus were included in the scale. In the preliminary test of the draft scale, the items' comprehensibility and items completion time were measured on 18 students. Accordingly, it was decided to exclude three more items from the scale, and some minor changes were performed. As in its final form, the scale encompasses a cover letter stating the importance of participation, the aim of the study, and a strict guarantee of participant confidentiality. It also encompasses socio-demographic questions consisting of school, class and gender information and 14 items prepared according to the 5-point Likert scale, which aim to determine the attitudes and perceptions of the participants regarding presentations of teachers, the environment where the presentations are executed, the comprehensibility of the lessons, the comparison between the lesson from the television and the lesson in the school. Scale options are listed as I strongly agree (1), I agree (2), I am indecisive (3), I do not agree (4), and I strongly disagree (5).

The scale, which took its final form, was structured on a website for a charge, and the web connection of the scale was formed in order not to pose any health risks due to the Covid 19 pandemic and to make it possible to collect data due to the summer break of schools. Teachers and parents were contacted to deliver the web link to students, and their support was received, provided that they comply with the voluntary principle. The link was made available to 5th, 6th, and 7th-grade students, respectively. For one level, taking into account the gender as much as possible, the action was not taken for another level before the sample had reached a sufficient number. The scales filled in online were followed daily, those that were found to be not filled insincerely were cancelled, and this continued until it reached 150 students. Factor analysis was performed to test the construct validity of the scale. Factor analysis is a set of multivariate methods aiming to determine the fewer number of new variables that are independent, conceptually meaningful, with as little information loss as possible from many interrelated variables. The purpose of the analysis is to reduce dimensions and classify variables by investigating the structure in the relationships between variables (Alpar, 2017). Factor structure was measured by correlation analysis. The suitability of the data for factor analysis was evaluated using the Kaiser-Meyer-Olkin (KMO) and

Bartlett's Test. KMO Measure of Sampling Adequacy is a method used to measure the studied sample's suitability for factor analysis. KMO ranges between 0-1. For good factor analysis, the KMO measure is expected to be more than 0.80. However, a KMO value above 0.60 is seen as sufficient most of the time, while being below 0.50 is unacceptable for factor analysis (Alpar, 2016). As a result of the analysis, the KMO value was calculated as 0.748. The minimum KMO value considered satisfactory by the researchers is 0.7 (as cited in Malhotra, 1996; Altunışık et al., 2005). This result, for instance, indicates that the sample size of the scale is satisfactory. Bartlett's test of sphericity was conducted to measure whether the data were suitable for factor analysis. The result of the test was significant ($X^2 = 636.735$; $p < 0.01$). This situation showed that the data were suitable for factor analysis. In the factor analysis of the scale, four factors that explained 75.2% of the total variance with an eigenvalue greater than one emerged. Varimax was used as a data return method. The return process was applied in 15 iterations. Thus, highly related items were collected under the same factor. It was observed that there was no need to remove any items to increase the scale's reliability. The 14-item scale consists of 4 factors in this way. The eigenvalue, variance percentages and total variance percentages of the factors are presented in Table 2:

Table 2: The eigen values of the scale factors and the amount of variance they explained

Factors	Eigenvalue	Percentage of Variance	Total Variance Percentage
1	3.078	27.481	27.481
2	2.541	22.384	49.865
3	1.672	14.453	64.318
4	1.341	10.883	75.201

According to Table 2, the amount of the total variance explained by the four factors is 75.201%. The variance must be above at least 66% (Alpar, 2017). The eigenvalue of the first factor is 3.078, and it explains 27.481% of the total variance, the eigenvalue of the second factor is 2.541, and it explains 22.384% of the total variance, the eigenvalue of the third factor is 1.672, and it explains 14.453% of the total variance, the eigenvalue of the fourth factor is 1.341, and it explains 10.883% of the total variance. Factors were named as perceptions regarding the studio environment, perceptions regarding understanding the lessons, attitudes towards presentation, and attitudes towards the course's choice on TV and school.

In order to strengthen the construct validity, the relations of the subscales with the whole scale and with each other were tested with Pearson correlation coefficients. Pearson correlation coefficients for this scale range between 0.372 and 0.915. Coefficients are significant at the 0.01 level ($p < 0.01$). Accordingly, it can be said that there is a significant relationship between the whole scale and its sub-dimensions and significant relationships between the sub-dimensions and the distinctiveness of the items is overall high.

The Cronbach Alpha test, known as internal consistency calculation, was used to calculate the reliability of the measurements obtained from the 14 items in the measurement tool. Cronbach's Alpha coefficient is used to predict the reliability of a psychometric test. If the coefficient is found to be 0.7 and above, the reliability of the scale is accepted as good (Kılıç, 2016). Since the Cronbach's Alpha coefficient of this test was found to be 0.73, it is reliable. The minimum score to be obtained from this scale is 14, and the highest score is 70. Since the scale is a 5-point Likert type, the lowest average to be obtained from the scale is 1, and the highest average is 5.

2.4. Data Analysis

A 5-point Likert scale was used in the study. This scale aims to determine the average attitudes of the participants on the specified topics from the combined values of all items. (Turan et al., 2015). The data obtained from the scale were entered into the IBM Statistical Package for Social Sciences 22.0 (SPSS, Chicago, IL) package program. While doing this, necessary transformations were made for negative questions.

In order to determine if the general attitudes and perceptions of the students towards social studies lessons offered on television differ according to gender or not, Independent Samples t-test, and in order to determine if there is a difference according to grade levels, one-way analysis of variance (one-way ANOVA) was carried out. The scoring key of the Likert scale is presented in Table 3:

Table 3: Scoring key

Attitude	Values	Result
I strongly disagree	14-21	Very Negative
I disagree	22-35	Negative
I'm indecisive	36-49	Neutral (Indecisive)
I agree	50-63	Positive
I strongly agree	64-70	Very positive

According to Table 3, in case that the average of a student's markings on the Likert scale is between 14-21, the attitude and perceptions of the students regarding the social studies course broadcasted on the TRT EBA secondary school channel will be interpreted as very negative, if between 22-3, as negative, if between 36-49, as neutral (indecisive), if between 50-63, as positive, and if between 64-70, as very positive. In order to make a general evaluation, the average value of each student's scores was divided into 70, which is the highest score. Thus, it became possible to comment on the general approach.

3. Findings

In this section, the findings of the study related to the sub-questions are discussed.

3.1. Findings Related to Question 1 of the Study: Perceptions Regarding the Studio Environment

There is a teacher and a smart board just behind the teacher on the screen where social studies lessons are presented. Most of the time, the teacher covers a part of the board due to where they stand. The item "The studio where social studies lessons are broadcasted should remain as it is" was submitted to the students, and they were asked to express their perceptions about this studio environment. Perceptions are presented in Table 4:

Table 4: Students' perceptions regarding the studio environment

Item No	I strongly agree		I agree		I'm indecisive		I strongly disagree		I disagree	
	f	%	f	%	f	%	f	%	f	%
6	26	17.3	39	26.0	35	23.3	39	26.0	11	7.3

According to Table 4, 43.3% of the students' perceptions regarding keeping the studio environment in which the lessons are broadcasted in the same form are very positive or positive, 23.3% of them are neutral, and 33.3% are negative or very negative.

Researchers thought that the presence of animated characters and teaching the lessons by professional vocalization as an alternative to teacher presentations on the screen on which social studies lessons were broadcast could be an alternative. In this way, it will be possible for the lessons to be more enriched and active with the animated characters, and they will be more fun. Therefore, the item "Animated characters should present lectures instead of teachers who offer social studies lessons." was presented to the students, and they were asked to express their perceptions on this issue. Perceptions are presented according to Table 5:

Table 5: Students' perceptions on the presentation of the lessons by the animated characters instead of teachers

Item No	I Strongly Agree		I Agree		I'm Indecisive		I Strongly Disagree		I Disagree	
	f	%	f	%	f	%	f	%	f	%
4	26	17.3	42	28.0	29	19.3	24	16.0	29	19.3

According to Table 5, 45.3% of students' perceptions regarding the presentation of the lessons by the animated characters instead of teachers are very positive or positive, 19.3% are neutral, and 35.3% are negative or very negative.

It was thought that organizing the current studio environment like a real classroom environment could motivate students. For this reason, the item "The studio where social studies lessons are presented should be designed like a real classroom environment" was presented to the students, and they were asked to express their perceptions. Perceptions are presented in Table 6:

Table 6: Students' perceptions regarding designing the studio like a real classroom environment

Item No	I Strongly Agree		I Agree		I'm Indecisive		I Strongly Disagree		I Disagree	
	f	%	f	%	f	%	f	%	f	%
5	51	34.0	53	35.0	29	19.3	11	7.3	6	4.0

According to Table 6, 69% of the students' perceptions about designing the studio like a classroom environment are very positive or positive, 19.3% neutral and 11.3% negative or very negative.

It was thought that designing the studio like a classroom environment and having animated characters seated in the desks while giving lectures on TV would be more fun for the students. For this reason, the item "The studio should be designed like a classroom, and animated characters should sit in the rows in the social studies course." was presented to the students, and they were asked to express their perceptions. Perceptions are presented in Table 7:

Table 7: Students' perceptions regarding having animated characters in the classroom environment

Item No	I Strongly Agree		I Agree		I'm Indecisive		I Strongly Disagree		I Disagree	
	f	%	f	%	f	%	f	%	f	%
7	27	18.0	63	42.0	23	15.3	23	15.3	14	9.3

According to Table 7, 60% of the students' perceptions regarding having animated characters in the studio, which will be designed like a classroom environment, are very positive or positive, 15.3% are neutral, and 24.6% are negative or very negative.

3.2. Findings Regarding the Second Question of the Study: Understanding the Lessons

It is important to determine how well the teachers who present the lessons are understood in terms of both the method and the material they use. For this reason, the item "I understand social studies lessons." was presented to the students, and they were asked to express their perceptions on how well they understand the lessons. Their perceptions are presented in Table 8:

Table 8: Students' Perceptions Regarding Understanding Teachers

Item No	I Strongly Agree		I Agree		I'm Indecisive		I Strongly Disagree		I Disagree	
	f	%	f	%	f	%	f	%	f	%
10	44	29.3	56	37.3	14	9.3	34	22.7	2	1.3

According to Table 8, 66.6% of students' perceptions about understanding teachers are very positive or positive, 9.3% are neutral and 24% are negative or very negative.

When social studies lessons on television begin, teachers give topic information about the subject they will present. However, if the content is not sufficiently correlated during the presentation, this leads to the loss of awareness regarding the subject being taught. For this reason, regarding whether the students are aware of the subject taught, the item "I am aware of the subjects that the social studies course teachers teach." was presented to the students, and they were asked to express their perceptions. Perceptions are presented in Table 9:

Table 9: Students' perceptions on subject matter awareness

Item No	I Strongly Agree		I Agree		I'm Indecisive		I Strongly Disagree		I Disagree	
	f	%	f	%	f	%	f	%	f	%
11	35	23.3	81	54.0	15	10.0	18	12.0	1	0.7

According to Table 9, 77.3% of students' perceptions about the awareness of the subject matter are very positive or positive, 10% are neutral and 12.7% are negative or very negative.

The concepts mentioned in the lecture presentations are explained. However, it is important to determine the adequacy of the explanations for the students. For this reason, the item "I understand the concepts of social studies lesson." was submitted, and they were asked to express their perceptions. Perceptions are presented in Table 10:

Table 10: Students' perceptions regarding understanding the concepts

Item No	I Strongly Agree		I Agree		I'm Indecisive		I Strongly Disagree		I Disagree	
	f	%	f	%	f	%	f	%	f	%
12	33	22.0	84	56.0	16	10.7	9	6.0	8	5.3

According to According to Table 10, 78% of students' perceptions about understanding concepts are very positive or positive, 10.7% are neutral and 11.3% are negative or very negative.

Since there is a relationship between the students' level of understanding the lesson and the length of the lesson, the item "The length of the social studies lessons should be increased." was submitted to the students, and they were asked to express their perceptions. Perceptions are presented in Table 11:

Table 11. Students' perceptions on increasing the lesson length

Item No	I Strongly Agree		I Agree		I'm Indecisive		I Strongly Disagree		I Disagree	
	f	%	f	%	f	%	f	%	f	%
13	19	12.7	47	1.3	31	20.7	41	27.3	12	8.0

According to Table 11, 14% of the students' perceptions regarding increasing the length of the lesson are very positive or positive, 20.7% are neutral, and 35.3% are negative or very negative.

Since the boredom of the students would negatively affect how well students understand of the lessons, the item, "I get bored while watching social studies lessons" was submitted to the students, and they were asked to indicate their attitudes towards the lesson. The attitudes are presented in Table 12:

Table 12: Students' attitudes towards getting bored while watching the lessons

Item No	I Strongly Agree		I Agree		I'm Indecisive		I Strongly Disagree		I Disagree	
	f	%	f	%	f	%	f	%	f	%
14	23	15.3	43	28.7	33	22.0	45	30.0	6	4.0

According to Table 12, 44% of the students' perceptions about their boredom in social studies lessons offered on television are very positive or positive, 22% are neutral and 34% are negative or very negative.

3.3. Findings Regarding the 3rd Question of the Study: Perceptions Regarding the Presentation of the Lessons

Teachers usually give monologue-style lectures in the lessons. It was thought that teachers could address questions to students to go beyond this lecturing pattern and motivate students in front of the screen and create a perception of reality. This practice is carried out at the primary school level. In order to understand whether a secondary school student wants such a style or not, the item "Questions aimed at students should be asked in social studies lesson" was submitted to the students, and they were asked to express their perceptions. Perceptions are presented in Table 13:

Table 13: Students perceptions regarding teachers' asking questions to them

Item	I Strongly Agree		I Agree		I'm Indecisive		I Strongly Disagree		I Disagree	
	f	%	f	%	f	%	f	%	f	%
1	50	33.3	67	44.7	24	16.0	8	5.3	1	0.7

According to Table 13, 78% of the students' perceptions about that teachers ask questions as if students are present in the classroom are very positive or positive, 16% are neutral, and 6% are negative or very negative.

In the lecture presentations, lectures are sometimes taught using animated videos. In order to determine the students' attitudes towards this kind of practice, the item "I like the animated lectures in the social studies course" was submitted to the students, and they were asked to indicate their attitude. The attitudes are presented in Table 14:

Table 14: Students' attitudes towards the use of animated videos

Item No	I Strongly Agree		I Agree		I'm Indecisive		I Strongly Disagree		I Disagree	
	f	%	f	%	f	%	f	%	f	%
2	77	51.3	64	42.7	6	4.0	0	0	3	2.0

While making presentations, teachers usually read from the slides on the smartboard or papers in their hands. In order to understand the students' attitudes towards this kind of lecturing, the item "I like that social studies teachers read the subject on the board or the paper in their hands" was submitted to the students, and they were asked to express their attitude. The attitudes are presented in Table 15:

Table 15: The attitudes of students towards teachers' lecturing by reading from paper

Item No	I Strongly Agree		I Agree		I'm Indecisive		I Strongly Disagree		I Disagree	
	f	%	f	%	f	%	f	%	f	%
3	33	22.0	39	26.0	23	15.3	30	20.0	25	16.7

According to Table 15, 48% of students' attitudes towards teachers' lecturing by reading from paper are very positive or positive, 15.3% are neutral, and 36.7% are negative and very negative.

3.4. Findings Regarding the 4th Question of the Study: The Preference of Social Studies Lessons in School and Social Studies Lessons on TV

It was thought that determining whether students prefer social studies lessons at school or social studies lessons on television would be important in terms of determining the efficiency of the lessons. For this reason, the item "I prefer social studies lessons at school to social studies lessons broadcasted on TRT EBA secondary school channel" was submitted to the students, and they were asked to indicate their attitude. The attitudes are presented in Table 16:

Table 16: Students' attitudes towards preferring social studies courses at school

Item No	I Strongly Agree		I Agree		I'm Indecisive		I Strongly Disagree		I Disagree	
	f	%	f	%	f	%	f	%	f	%
8	85	56.7	34	22.7	14	9.3	13	8.7	4	2.7

According to Table 16, 79.4% of the perceptions of students about their attitudes towards preferring social studies courses at school are very positive or positive, 9.3% are neutral, and 11.4% are negative.

In order to understand whether the students prefer the social studies lessons on TV or the social studies lessons at the school, the item, "I prefer the social studies lessons on the TRT EBA Secondary School channel to the social studies lessons in the school" was submitted, and they were asked to indicate their attitude on this issue. At the same time, the opposite of the item above was asked, and their attitudes were double confirmed. The item also served to show whether the scale was understood and completed. The attitudes are presented in Table 17:

Table 17: Students' attitudes towards preferring social studies courses on television

Item No	I Strongly Agree		I Agree		I'm Indecisive		I Strongly Disagree		I Disagree	
	f	%	f	%	f	%	f	%	f	%
9	11	7.3	15	10.0	15	10.0	42	28.0	67	44.7

According to Table 17, 17.3% of the students' attitudes towards preferring social studies courses offered on television are very positive and positive, 10% are neutral, and 72.7% are negative and very negative.

3.5. Findings Regarding The 5th Question of The Study: Students' General Attitudes and Perceptions Towards Social Studies Lessons on TRT EBA Secondary School

It was determined that the general attitude of the 150 students participating in the study was neutral with 49.28 ± 5.58 points, which is close to positive. Statistics related to this are presented in Table 18:

Table 18: General attitude and perception statistics towards social studies lessons broadcasted on TRT EBA Secondary School channel

N	Minimum Score	Maximum Score	Mean	Standard Deviation	Median	Variance	%95 Confidence Interval
150	33.00	66.00	49.28	5.58	49.00	31.09	48.38-50.18

According to Table 18, among the students participating in the study, the lowest attitude score is 33, and the highest attitude score is 66. The mean attitude score is 49.28. This score indicates the state of indecisiveness, close to positive. The standard deviation of 5.58 indicates the scattering of the scores around the mean. This difference between deviation reveals that students' attitudes and perceptions show a very different distribution from each other. The fact that the 95% confidence interval is in a very narrow band between 48.38-50.18 shows that the data shows a normal distribution, and there is an accumulation around the mean. The histogram graph of these data is presented in Figure 1.

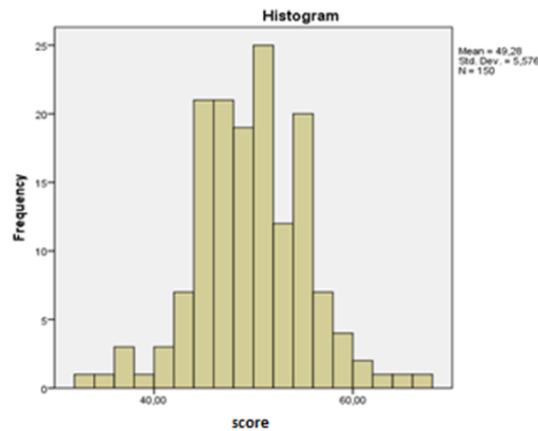


Figure 1: Histogram Graph of General Attitude and Perception Score towards Social Studies Lessons on TRT EBA Secondary School Channel

In Figure 1, the graph of the scores obtained from the scale according to the number of people is shown.

3.6. Findings Concerning the 6th Question of the Study: Attitude Differentiation According to Genders

According to the results of the independent sample t-test, it was found that there was no statistically significant difference in the general attitudes of the students towards social studies lessons presented on television according to gender ($p > 0.05$; $t = 0.209$).

3.7. Findings Regarding the 7th Question of the Study: Attitude Differentiation According to Grade Levels

According to the one-way analysis of variance, it was found that there was no statistically significant difference between students' general attitudes towards social studies lessons broadcasted on television, according to their grade level ($p > 0.05$; $F = 1.747$).

4. Discussion and Conclusion

In the present study, it was aimed to analyse secondary school students' attitudes and behaviours about social studies lessons broadcasted on the TRT EBA Secondary School channel. In this context, it was determined that student attitudes and perceptions are on the border of indecision, very close to positive. On the one hand, the indecisiveness or neutrality can be ascribed to the fact that students are freed from spending a whole day under control and discipline with the closure of schools and reach a free environment they desire, but on the other hand, that they struggle in an undesirable situation due to losing their social environment. However, it is also a clear result that social studies courses were not presented in a way that attracted students. It cannot be ignored that there are some important reasons for this negative situation. The Ministry of National Education (MEB) was partially caught unprepared for the online classes due to the unexpected closure of the schools. Also, the shortcomings happened in the rush lesson shots, and the pressure was mounted on the institution because these lessons had to be presented on the screens in less than a month. However, in the studies, it was stated that there were positive attitudes and perceptions regarding the lecture presentations made on television after the epidemic. For example, in the study by Aydın (2020), it was stated that secondary school students enjoyed watching Turkish lessons. İnci Kuzu (2020) concluded in a study conducted with primary school students' parents that the students enjoyed watching the lectures on TV and did not experience concentration problems. The difference between this study and the studies mentioned above has shown that social studies lesson presentations are not performed with the correct methods. This statement is supported by the findings that the majority of secondary school students do not want the length of the lessons to be increased, state that they are bored with the lessons, and as stated in Erümit (2020), they generally find the lesson length sufficient. However, in Aydın's (2020) study, it was determined that students wanted the length of the lessons to be increased. This result shows that

students have a positive attitude towards the presentation of the Turkish lesson, and consequently, they want the lesson to last longer.

Another study that is similar to the result of this one is the study by Kaynar et al. (2020). In their research conducted in nine different provinces, they concluded that secondary school students generally did not find EBA TV broadcasts interesting. The reasons for this lack of interest are revealed in Erümit's (2020) study. The reasons for boredom are that teachers only give lectures on the board, do not use any other methods, and read from the slides on the board. In the study by Başaran et al. (2020), it was determined that students did not like one-way communication. This study revealed what should be done so that students develop a more positive attitude towards the lessons. Although the majority of the students show a positive attitude towards the studio environment consisting of a teacher and a smart board behind it, students suggested that they want animated characters to make presentations instead of teachers, want their teachers to ask questions to them as if they are in the classroom, want the screen to be decorated like a real classroom setting and want the animated characters to sit in the desks to reduce this boredom and to make lessons more attractive and fun. Özkanalet al. (2020) concluded that EBA TV has many points to be appreciated, but further improvements are needed in terms of material, activity and some technical issues. Akın (2020) also found that subjects containing only information are presented on TRT EBA TV, the lessons are carried out with concept definitions and explanations, and prepared in a format that directs students to memorization. These results also show that it is necessary to take into account the student suggestions mentioned above.

In the study, it was determined that there is no difference between the secondary school grade levels in terms of attitudes and perceptions towards social studies lessons presented on television. This situation is similar to the results of the studies by Şentürk, Duran & Yılmaz (2020). In their study, they reported that there was no significant difference between secondary school grades in terms of functionality and motivation for distance education.

It is also among the important results of the study that most of the students understand the teachers who give presentations, that the teachers follow the subject they teach consciously, but most of the students prefer the social studies lessons at school to the social studies lessons on the television. Despite all these possibilities, it was determined that teachers also think that distance education cannot be an alternative to learning by doing and living (Ünal & Bulunuz, 2020).

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L2 Motivational Self System and Learning Approaches of High School Students

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Abstract

This study identifies the level of L2 motivational self-system (L2MSS) consisting of Ideal L2 Self, Ought-to L2 Self, and L2 Learning Experience, and the application of deep and surface learning strategies on high school students regarding gender and grades. The study is designed in both correlation and descriptive comparative models. The research sample is composed of 202 high school students. Two questionnaires are used in the collection of data: The L2 Motivational Self System Questionnaire and The Student Process Questionnaire. SPSS 22 is used to analyze data and the findings show that the level of L2MSS is moderate and the most frequently reported sub-category of L2MSS is L2 Learning Experience. Regarding gender, the levels of each L2MSS category of the female participants are greater than those of the males. In terms of proficiency, students with higher grades tended to have an Ideal L2 Self motive than unsuccessful students. The findings also reveal that learning strategies are moderately used and surface learning strategies are the most widely used ones, and the level of learning approaches varies substantially in favor of females. Besides, the students with low grades tended to use surface learning strategies more than successful learners. Finally, the students with high levels of Ideal L2 self tend to use deep learning strategies.

Keywords: L2 Motivational Self-System, Ideal L2 Self, Ought-to L2 Self, L2 Learning Experience, Deep Learning Strategies, Surface Learning Strategies

1. Introduction

Global language teaching and learning approaches have been changing as a result of evolving needs of students and individual differences (Dađbaşı, 2018). The significance of individual differences among learners has been revealed in second language studies since the 1960s (Dörnyei, 2009). Motivation proves to be one of the main differences among others including language ability, learning strategies, and styles (Dörnyei, 2005). Motivation has thus become a significant factor in second language learning. Studies on the role of motivation in second language acquisition have now moved towards the socio-dynamic period, driven by Dörnyei's work, known as the L2 Motivational Self System (L2MSS) (Dörnyei, 2009). L2MSS also includes three main components as Ideal L2 Self (ILS), Ought to L2 Self (OLS), and L2 Learning Experience (LLE) (Dörnyei, 2009). L2MSS is a

variable affecting the utilization of language learning strategies (LLS). In other words, motivation is the variable with the strongest relationship with learning strategies (Oxford & Schramm, 2007). More LLS are used by the learners who are more motivated to learn (Grenfell & Macaro, 2007), and the factors as motivation and strategy use are interrelated (Oxford & Schramm, 2007). This means that high motivation can lead to high use of LLS or vice versa. (Rivera-Mills & Plonsky, 2007). Therefore, LLS leads to self-sufficient learning with motivation (Hong Nam & Leawell, 2006), and greater L2 success. As explained by Rubin (1987), it is crucial for students to be in a position to control their learning, so that, once alone, they can learn outside the school.

LLS are the most critical elements determining how students study English (Oxford, 2016). They can be divided into two groups, namely surface and deep learning strategies (Tragant et al. 2013). While the surface learning strategies promote memorization and recurrence, deep learning strategies require the application of metacognitive strategies and linguistic skills in practical situations. Deep learning strategies cultivation is important in the language learning process since it has a far greater impact on the EFL skills of students than surface strategies (Gerami & Baighlou 2011). On the other hand, it is difficult to have students use deep learning strategies in their classes until they learn how internal and contextual influences affect the choice of deep approaches to learning. In the existing literature, predictive roles of individual factors as motivation and self-efficacy on the use of surface and deep LLS have been widely explored (Zhan 2018; Wang & Bai 2017; Chang & Liu 2013; Senko et al. 2011; Li & Wang 2010). However, the relationship between the L2MSS of high school students and the use of surface and deep LLS has not been explored, yet.

2. Review of Literature

2.1. L2 Motivational Self System (L2MSS)

L2 motivation has been reconceptualized by Dörnyei (2009). This paradigm builds on Higgins's (1987) self-discrepancy where students study a foreign language or enhance their language skills to eliminate individual discrepancies whenever they see the difference as a language student and as an ideal student in their current state (Subekti, 2018). Markus and Nurius'(1986). The principle of the "Possible Self" is also emphasized in Dörnyei's L2MSS, where students can see the self in the future: What they are talking about, what they want to be, and how they worry about the future are just some reflections introduced by Dörnyei (Subekti, 2018). Besides, L2MSS comprises three components: Ideal L2 Self, Ought to L2 Self, and Language Learning Experience (Dörnyei, 2009). The ILS focuses on the future self-image regarding L2. The concept could therefore be linked to internal wishes. The inspiration, therefore, comes from an inconsistency between the present L2 image as well as the students' potential L2 images, that is the ILS. The studies of the ILS have further contributed to the emergence of new theoretical concepts like the "Rooted L2 Self," based on the compelling relationship between the student, culture, and background, and the "ideal multilingual self," which includes the wish to become a multilingual self (Henry, 2013; MacIntyre, et al., 2017). The next category, the OLS is characterized by external elements including families, friends, and community. The students, in other words, have an L2 self, so as not to let other people down and to attempt to live up to the standards of others. The three components of L2MSS should be consistent with each other (Dörnyei, 2009). However, some research studies have not reported statistically relevant findings. Moreover, taking this context into account, several researchers assumed that the OLS could make more sense in different environments, where societal values are more stressed (Lamb, 2012). Besides, the converse effect could occur in the context of the 'Anti-ought-to' L2 Self if L2 is taken into account within a society. Thompson and Vasquez (2015) stated in a case study that the negative attitudes of others to the L2 learning process could shape a motive. These negative external effects have also been studied by other researchers (Dörnyei, et al., 2015; Lanvers, 2016). Finally, the LLE component refers to one's current life, language classes, students, course books, subjects, the teaching atmosphere, or anything that can affect the current L2 learning process (Dörnyei & Al-Hoorie, 2017). The experiments also show that motivated learning behavior and LLE are more closely related than to the ILS and OLS (Csizér & Kormos, 2009; Papi 2010). To sum up, in various countries such as Japan, China, and Iran, the use of L2MSS has been investigated and validated (Lamb, 2012).

Due to Dörnyei's (2009) greater explanatory capacity to explain the motivation of learners, several recent studies examine the motivation of learners using the L2MSS as a theoretical paradigm in different learning contexts (MacWhinnie & Mitchell, 2017; Khany & Amiri, 2016; Moskovsky, et al., 2016; Yaghoubinejad et al., 2016; You et al., 2015; You & Dörnyei, 2014; Henry, 2013). Taguchi et al. (2009) studied and observed that L2MSS was a part of a learning effort. The motive of learners using L2MSS and its relation to anxiety and the intended learning effort was explored in a further analysis conducted by Papi (2010). This research showed that all L2MSS variables contributed greatly to the learning intentions of learners. Also, Moskovsky et al. (2016) performed a study exploring the relationship between L2MSS and foreign-language performance that showed that the components of L2MSS were not reliably correlated with performance through reading or writing assessments by the learners. Lamb's (2012) research also examined junior high school learners of English, finding that L2's optimistic views are the best predictors of both intended learning and L2 skills in both contexts. Numerous studies on L2MSS analyze the interactions between students' L2MSS and other factors (Papi, 2010), as self-reporting abilities (MacWhinnie & Mitchell, 2017), fear and auto efficacy (Ueki & Takeuchi, 2012), but interestingly few studies are analyzing the relationship between L2MSS and LLS.

2.2. Surface and Deep Learning Strategies

Language Learning Strategies (LLS) are practices used by students to learn or monitor language learning (Griffiths 2015). LLS is not a single concept, though. Over the years the LLS classification was varied and unclear. Oxford (1990) grouped LLS into six categories including “memory, cognitive, compensation, metacognitive, affective, and social strategies.” More recently in a validation report, Tragant et al. (2013) also classified LLS into skill-based deep processing strategies. They noticed that deep-processing strategies dependent on competence belonged to a profound collection of strategies that required higher-level expertise, including metacognitive strategy and the use of language skills in contexts; whereas language study strategies may be considered a surface cluster of strategies that promoted visual and auditory memorization. Successful L2 learners used deep LLS, whereas unsuccessful peers used surface LLS, as observed by Gerami and Baighlou (2011).

Haggis (2003) defined and illustrated surface and deep learning strategies. Deep learners make a connection between the ideas and previous knowledge. It is also recognized as a constructivist learning activity, the notion of content and competencies to be understood in the context of the previous learner experience (Alt, 2014). Students use their expertise and skills to interpret learning content more clearly, in contrast to surface learning that is limited to rote learning and retaining (Price, 2014). The deep approach is regarded as an effective way of managing the acquisition of information that rises exponentially in cycles of transformation (Alt, 2017). Deep learners often think critically of the recently acquired content, link knowledge with other sources, and want to clarify what the material means. These skills can be related to self-regulated learning that relates to the student's capacity to use internal controls for learning, which includes establishing its objectives, transmitting new meanings from established information, and sensitizing current knowledge frameworks (De Clercq et al., 2014). Students that have a deep understanding, coordination, or strategic choice of several approaches are referred to as self-regulating deep learners (Hattie, 2009). These students are described as possible teachers since they have a lot of techniques to use when their current approach was not functioning (Hattie, 2009). In a more technical sense, Pintrich et al. (2000) defined self-regulation as an involved, positive mechanism that allows students to set targets for their learning and try to track, change and regulate their comprehension, motivation, and behavior. Consequently, students are directed and restricted by their objectives and contextual characteristics in the environment. The students know what, where and why, and how to apply effective methods of learning. Deep learning strategies include preparation and organization, monitoring of strategies, design mapping, metacognitive strategies, self-regulation, and raise extensive questions (Pegg & Tall, 2010). There is a range of deep learning strategies that improve the learner's skills for deeper thinking and for learning to be more strategic. These include self-verbalization, consciousness, self-monitoring, justification, self-interpretation of the problems, peer support, cooperative learning, assessment and reflection, problem-solving, and critical thinking strategies (Pegg & Tall, 2010).

Surface LS contains the vocabulary of the subject matter, lesson content, and much more details such as recording, summarization, underlining and highlighting, note-taking, mnemonics, outline and transformation, organization of notes, developing working memory, imagery, and so forth. Once a student has started creating a surface understanding that it's important to encode the knowledge in such a way that it can be retrieved later. The coding comprises different layers of learning strategies: the former establishes storage power and the latter develops strategies for retrieval. Encoding strategies are meant to improve both, but with a focus on improving recovery capacity (Bjork et al., 2007). While some people do not enjoy this step, it consists of practice, becoming curious, and experimenting again and are prepared to accept complexity and confusion during this period of investment (von Stumm, et al., 2011). This requires adequate metacognition and a calibrated sense of progression in the intended outcome of learning. Testing, coaching, practice interleaved, rehearsal, maximization of commitment, support, time on the job, analysis of data, learning how to get input, and intentional preparation are some of the surface strategies (von Stumm, et al., 2011).

Several experiments on L2MSS and LLS were performed separately. Research studies have shown that the motivations of language education are linked favourably with the strategic actions and performance of the students. For example, Chang and Liu (2013) indicated that highly engaged students use the LLS substantially more periodically than their less motivated peers with a medium level of learning motive. There have also been many studies on the links between various LLS and language learning motives. The literature shows that such correlations are more complicated than merely assuming that deep LLS is encouraged by intrinsic motives and extrinsic motives promote the surface LLS. Deep LLS is possible both for extrinsic and intrinsic reasons (Zhan 2018). This study enlightened the researcher to explore the level of L2 motivational self-system consisting of ILS, OLS, and LLE and the usage of deep and surface learning strategies by high school students regarding gender and language grades. The above review of the literature suggests that motives for language learning affect the preference of LLS use and that the relationship between motives for language learning and the LLS may be more complicated. However, scientists underexplored the relationship between the motives of language learning and LLS. This research aims primarily to explore a potential connection between the L2MSS and the use of surface and deep learning strategies regarding gender and language grades. For this main objective, the research questions are:

1. What level of each component of L2MSS do high school students demonstrate? Does the level of L2MSS differ significantly in terms of gender, and foreign language grades?
2. Which approaches to learning are used by high school students? Do these strategies differ significantly in terms of gender, and foreign language grades?
3. Is there a correlational relationship between high school students' L2MSS and LS?

3. Method

This research study is a descriptive one based on the quantitative research method. The correlational and descriptive models are employed in this study. L2MSS and language learning strategies are dependent variables, while gender and foreign language grades are independent variables. The research attempted to characterize a current condition and to decide the magnitude of the relationship between variables.

3.1. Participants

202 high school students in Turkey enrolled in the research in the academic year 2020-2021. They were between the ages of 14 and 18. They were chosen using a simple random sampling technique. Table 1 describes the distribution of demographic characteristics of the students enrolled in the study.

Table 1: Demographic characteristics of high school students

Variables	Groups	N	%
Gender	Male	98	48.5
	Female	104	51.5
Foreign	5	51	25.2
Language	4	53	26.2
Grades	3	43	21.2
	1-2	55	27.2
Total		202	100

As shown in Table 1, 48.5% of the high school students in the sample are males, while 51.5% of them are females. 27.2% of them are not successful, while 25.2 of them are very successful.

3.2. Instruments

The L2MSS Questionnaire (Taguchi et al.,2009) and The Student Process Questionnaire (Biggs et al., 2001) were the two questionnaires used in the data collection process. To collect personal data, questions about the students' gender and language grades, were added at the top of these surveys.

The L2MSS Questionnaire (L2MSS)

The L2 Motivational Self System Scale of Taguchi et al., (2009) was applied for the identification of the L2MSS. There are 27 items, where nine are connected with ILS, nine are associated with OLS, and nine with LLE. The scale is a 5-point Likert scale ranging from "strongly disagree to strongly agree." The Cronbach alpha coefficient for the whole scale is .89. The reliability coefficients for the sub-categories can be listed as follows: "ILS, .88, OLS, .93, LLE, .87". Based upon Cronbach Alpha Coefficient scores, the scale was determined to be reliable.

The Student Process Questionnaire (R-SPQ-2F)

The Student Process Questionnaire developed by Biggs et al., (2001) was used to identify the high school students' approaches to learning. The surface learning strategy sub-category tests the tendency of students to satisfy the learning needs with minimal effort, while the deep approach to studying requires an underlying learning interest of the students. There are 20 items on the scale which is a 5-point Likert scale ranging from "almost never true to almost always true." The Cronbach alpha coefficient for the whole scale is .92. The reliability coefficients for the sub-categories can be listed as follows: The surface learning strategy is .91, and the deep learning strategy is .93. Based on the Cronbach alpha coefficient scores, the scale was determined to be reliable.

3.3. Data collection

In the fall semester, data of the research study were collected through two surveys from high school students. The aim of the data collection was clarified in the application of the scales. It was carefully ensured that participants were volunteered to participate in the study. The participating students had consent for the engagement in the research. The data collection and handling were declared to correspond strictly with the usual norms of research ethics.

3.4. Data analysis

The data of the research were analyzed by using the SPSS 22 software. Firstly, whether the normal distribution was achieved in the study was examined by the Kolmogorov-Smirnov test. As a result of the analysis, it was concluded that the data provided a normal distribution ($p > .05$).

4. Results

4.1. The Level of L2MSS

To determine the level of L2MSS of the high school students, findings regarding the scores obtained from the basic categories of " ILS, OLS, and LLE" and the whole of the scale are presented in Table 2.

Table 2: The level of L2MSS of high school students

L2MSS	\bar{X}	SD	Value
ILS	1.65	.572	Very Low
OLS	3.35	.614	Moderate
LLE	4.76	.461	Very High
TOTAL	3.25	.549	Moderate

Note: 1.0-1.80 = very low; 1.81-2.60 = low, 2.61-3.40 = moderate, 3.41-4.20 = high, 4.21-5.00 = very high

As can be seen in Table 2, the total mean of all 3 components of the L2MSS is moderate ($\bar{x}=3.25$, $SD=.549$). The arithmetic means of the total scores obtained from the sub-categories of the scale are calculated as; 1.65 for the ILS; 3.35 for OLS, and 4.76 for LLE. The mean scores and standard deviations have shown a moderate level of L2MSS of high school students. While the level of the ILS is very low ($\bar{x}=1.65$, $SD=.572$), the level of the LLE is very high ($\bar{x}=4.76$, $SD=.461$).

4.1.1. Gender differences

The mean values of the respondents' answers to the questionnaire were measured and compared using an independent sample t-test to assess the levels of each aspect of L2MSS regarding gender. Table 3 shows the results.

Table 3: T-Test results regarding gender differences in the use of L2MSS

L2MSS	Gender	f	\bar{x}	Sd	t	p
ILS	Male	98	1.30	very low	.610	0.987
	Female	104	2.00	Low		
OLS	Male	98	2.50	Low	.602	.008*
	Female	104	4.20	High		
LLE	Male	98	4.55	Very high	.466	4.312
	Female	104	4.96	Very high		

* $p < 0.05$

The level of all three components of L2MSS for both genders can be seen in Table 3. A more rigorous analysis of each component shows that in both groups, the level of LLE is the highest. The LLE of females is still higher

than that of males ($\bar{x}=4.55$, $\bar{x}=4.96$, respectively). Furthermore, in terms of encouraging students to learn English, the levels of ILS and OLS of females are greater than that of male students ($\bar{x} = 2.00$, $\bar{x} = 4.20$). However, for females, OLS ranks as the second-highest motivation ($\bar{x}= 4.20$) and ILS is the least effective motivation among the 3 components ($\bar{x}=2.00$). Similarly, for males, OLS ranks as the second-highest motive for learning ($\bar{x}= 2.50$) and ILS is the least effective one among the other components ($\bar{x}=1.30$). This shows that males have a significantly lower ILS, OLS, and LLE than females. Significant differences in both ought-to L2 Self and LLE between the two groups of students are found ($p < 0.05$).

4.1.2. Foreign Language Grades

T-test results regarding foreign language grades of the students and level of all three components of the L2MSS are provided in Table 4.

Table 4: The levels of the components of L2MSS regarding foreign language grades

L2MSS	Grades	\bar{x}	Sd	t	p
ILS	5	2.85	.576	.241	.001*
	4	1.60	.565		
	3	0.39	.562		
	1-2	0.26	.342		
OLS	5	2.01	.467	.156	.001*
	4	3.08	.543		
	3	4.12	.657		
	1-2	4.19	.342		
LLE	5	2.45	.213	.812	.131
	4	4.72	.435		
	3	4.95	.578		
	1-2	4.92	.753		

* $p < 0.05$

* Grades 1-2=very low level of knowledge; Mark 3=average level of knowledge; Mark 4=fewer major shortcomings; Mark 5=best performers

One of the aims of this research is to assess students' L2MSS levels regarding their foreign language scores. The students were classified based on the foreign language grades to accomplish this goal. As can be seen in Table 4, students with higher grades tend to have ILS motives than unsuccessful students. A closer look at each component reveals that the level of ILS is high for successful students, while OLS and LLE levels are lower than the others. However, the OLS and LLE levels of the underperforming students are high in promoting the learning of English ($\bar{x} = 4.19$, $\bar{x} = 4.92$, respectively). Nevertheless, for low achievers, the ILS is the least effective motive ($\bar{x}=0.26$). This indicates the slightly lower OLS and LLE of high performers than of low performers. There are significant differences between student groups in both ILS and OLS ($p < 0.05$).

4.2. The Use of Learning Strategies

To determine the high school students' approaches to learning, findings regarding the scores obtained from the basic categories as "surface learning strategies" and "deep learning strategies" are presented in Table 5.

Table 5: The high school students' approaches to learning

	\bar{X}	SD	Value
Surface Learning Strategies	4.85	.516	Very High
Deep Learning Strategies	1.32	.312	Very low
TOTAL	3.08	.246	Moderate

When Table 5 is analyzed, the arithmetic mean of the total scores obtained from the scale is calculated as 3.08. The arithmetic mean of the scores obtained from the sub-categories of the scale is calculated as; 4.85 for the surface learning strategies, and 1.32 for deep learning strategies. The mean scores and standard deviations have shown moderate use of learning strategies, with the highest use of surface learning strategies ($\bar{X}=4.85$).

4.2.1. Gender Differences

To see whether there are any gender differences regarding learning strategy use, a t-test has been conducted. The results are presented in Table 6.

Table 6: T-Test results regarding gender differences in learning strategy use

	Gender	f	\bar{x}	Sd	T	p
Surface Learning Strategies	Male	98	4.78	.432	.367	
			very high			.368
Deep Learning Strategies	Female	104	4.81	.543		
			Very high			
	Male	98	0.76	.213		.896
			Very Low		.212	
	Female	104	1.12	.112		
			Very Low			

* $p < 0.05$

Based on the data in this table, it can be claimed that the use of learning strategies differs between genders. When considering surface learning strategies, both males and females tend to use them to a great extent. Deep learning strategies, however, are used more by females than males ($\bar{x} = 1.12$, $Sd = .112$). No other significant difference has been found between the groups of the students.

4.2.2. Foreign Language Grades

T-test results regarding foreign language grades of the high school students and their use of learning strategies are provided in Table 7.

Table 7: T-Test results regarding foreign language mark differences in strategy use

	Grades	\bar{x}	Sd	t	p
Surface Learning Strategies	5	1.23	.215		
	4	3.65	.675	.813	.113
	3	4.76	.112		
Deep Learning Strategies	1-2	4.89	.321		
	5	3.08	.322		
	4	2.68	.154	.5387	.021
	3	1.13	.443		
	1-2	1.01	.213		

* $p < .001$

One of the objectives of this research study was to analyze the high school students' use of learning strategies based on their grades. As can be seen in Table 7, when the surface learning strategies are considered, it is visible that the students with low grades prefer using them more than the successful language learners. The level of surface learning strategies is high for unsuccessful students while successful ones tend to use deep learning strategies more frequently. Additionally, there is no statistically significant difference found between the high school students' approaches to learning in terms of their foreign language grades, $p < .001$.

4.3. Correlation of L2MSS and Learning Strategies

The relationship between high school student's level of approaches to learning and L2MSS was analyzed using Pearson's r-correlation analysis. The correlation analysis was performed to assess how the relationship differed. The analysis of the Pearson r correlation showed that the participants' level of L2MSS and their use of learning strategies were reasonably positive, $r(202) = +.79$, $p < .001$ two-tailed(??). Table 8 also presents the results of correlation analysis of the sub-dimensions of L2MSS and LS.

Table 8: Correlation between subdimensions of L2MSS and LS.

r	ILS	OLS	LLE	Surface Learning	Deep Learning
ILS	1	.123	-.321	-.893	.588*
OLS		1	.154	.631*	-.252
LLE			1	.622*	-.356
Surface Learning				1	-.394
Deep Learning					1

* $p < 0,05$

When the potential relationships between the sub-dimensions of high school students' level of approaches to learning and L2MSS are analyzed, significant positive correlations are observed between ILS and deep learning strategies ($r = .588$, $p < 0,05$, at a high level). Besides, OLS and LLE are correlated with surface learning strategies at a significant level ($r = .631$, $p < 0,05$ at a high level, $r = .622$, $p < 0,05$ at a high level).

5. Discussion

This descriptive research study was conducted to identify the level of L2MSS and the usage of deep and surface learning strategies by high school students regarding gender and language grades. Therefore, the first step was to determine the level of L2MSS of the participants. When the national and international literature was analyzed, some studies that were conducted on the level of L2MSS were found (Bilhan, 2019; Öz & Bursalı, 2018; Laohawiriyanon, 2019). The level of L2MSS was found to be moderate within the framework of this study. The most frequently reported sub-category of L2MSS was "LLE" relating in particular to the current life, language courses, language instructors, course books, subjects, the classroom environment, etc. (Dörnyei & Al-Hoorie, 2017). The results are in line with the studies that determined that the motivated learning actions and LLE had the closest bond (Csizér & Kormos, 2009; Papi, 2010). Further, for high school students, OLS was the second most ranked subcategory of L2MSS. External influences such as the family, peers, and community characterize that category. This means that the learners construct OLS so as not to let people in their immediate surroundings down and to satisfy their education-related demands. When considering the Turkish context, this result is consistent with other studies which found out that the OLS had a greater influence in circumstances in which the values of society are prioritized (Lamb, 2012; Taguchi, Magid, & Papi, 2009; Dörnyei et al., 2016; Lanvers, 2016). While high school pupils had extensive LLE and OLS, they had a few ILS attributes that reflect on their potential self-image concerning L2. The findings of previous studies conducted did not match the results of this study because they found out that the students had ILS rather than the other categories (Bilhan, 2019; Henry & Thorsen, 2017; MacIntyre, Baker, & Sparling, 2017).

The level of L2MSS of secondary school students was also analyzed concerning gender and the level of LLE was found to be the highest in both genders. For all sub-categories, the levels of each L2MSS category of the female participants were greater than those of the males. Besides, for girls, OLS was the second-highest motivation, and ILS was the least effective motivation. Also, for boys, OLS was the second-highest motive for learning and ILS was the least rated one of all. Given the answers to the issues concerning genders, the participants' L2MSS construction resembles the participants in Csizer's analysis (2012).

Additionally, one of the goals was to identify the L2MSS level regarding foreign language grades. Taking the findings of this study into account, it was evident that students with higher grades tended to have an ILS motive than unsuccessful students. A closer look at each component revealed that the level of ILS was high for successful students, while OLS and LLE levels were lower. However, the levels of OLS and LLE of the low achievers were high. This revealed that high performers could master OLS and LLE slightly less than those of low performers. The study also explored various levels between successful and unsuccessful students of each aspect of L2MSS and found out that ILS influenced successful students more. In other words, those that were better than their counterparts were inspired by ILS. A significant correlation was also observed between the ILS and the language skills of high performers. This finding is in line with some studies that found out that students with lower grades were more influenced by OLS and the LLE than their peers (Islam, 2013; Papi, 2010). Conversely, successful students had higher ILS levels than low achievers did. This highlights the important role of ILS for being proficient in a foreign language. Concerning previous studies, the ILS has proven to be a strong indicator of the commitment that students make to learn the language (Deci & Ryan, 2002). These findings seem to be consistent with other studies (Laohawiriyanon, 2019).

In this study, the approaches to learning used by high school students towards foreign languages were also examined in terms of gender and exam scores. The findings revealed that learning strategies were moderately used and surface learning strategies were the most widely used strategies. As the surface of learning approaches was based on a lack of self-regulated learning, secondary school students can be inferred as struggling to control their learning effectively. These findings seem to be inconsistent with other studies (Karabenick & Berger, 2013; Karabenick & Dembo, 2011; White & Bembenutty, 2013).

It was also examined the level of language learning approaches of high school pupils concerning gender and observed that the level of learning approaches varied substantially in favor of females. When considering surface learning strategies, both males and females tended to use them to a great extent. Deep learning strategies which empower students to connect subjects and ideas to prior knowledge and generate new arguments, appreciate reasoning based on new information, and identify a pattern within a given material were used more by women than men. This finding does not correspond to the majority of studies carried out so far, as the students were expected to use deep learning strategies (Alt, 2017; Alt & Boniel-Nissim, 2018).

Another objective of this research study was to analyze the high school students' use of learning strategies regarding their grades. The results revealed that the students with low grades tended to use surface learning techniques more than successful language students. For unsuccessful students, surface learning strategies were highly preferred whereas successful students preferred using deep learning strategies. The findings are in line with Lai's (2009) research that also found that more proficient language learners preferred using metacognitive and cognitive strategies more often, and memory strategies were used less frequently than the less competent individuals.

Finally, the associations between secondary school students' levels of approaches to learning and L2MSS were examined, and significant positive correlations between the ILS and deep learning strategies were identified. This means that students with high levels of ILS tended to use deep learning strategies. Similarly, OLS and LLEs were correlated with surface learning strategies at a significant level. This finding showed that the high school students who had high levels of OLS and LLEs tended to use surface learning strategies more.

6. Conclusion

To begin with, the present study aimed to examine L2MSS concerning LLS in a Turkish high school context. In this study, the students have a moderate level of L2MSS and the most frequently reported sub-category used by both genders is LLE, while the second one is OLS. This is proof of the fact that the students are learning the language to pass the class, or to make the other people happy. They do not learn it for their future goals. Additionally, students with higher grades tend to have an ILS motive than unsuccessful students. Actually, the increased level of ILS is so important in learning a foreign language. With this in mind, teachers are required to

inspire students, especially low achievers, to have a potential L2 vision and navigate their future by pleasing learning opportunities and motivating interventions in their immediate learning environment.

Another significant finding is that learning strategies are moderately used and surface learning strategies are the most widely used approaches to learning. Additionally, students with low grades tend to use surface learning strategies while successful ones prefer using deep learning strategies. In reality, the proficiency of students is directly linked to the failure to self-regulate their learning. Self-regulation is to direct the learning process by strategies such as the search for knowledge, self-evaluation, and goal-setting. Since surface learning is a core component of reduced self-regulation, it appears useful to teach how to use deep learning strategies. Students should have the opportunity to participate effectively in the self-regulated learning process. Students acquiring self-regulation and practicing skills could include promoting abilities that can help them regulate their learning process.

Finally, it has been found out that the students with high levels of ILS tended to use deep learning strategies. That is proof of the fact that the students who can regulate their learning process have the motive for the future and become successful learners. If the teachers expect their students to be successful, they are required to teach them how to use deep learning strategies effectively.

More research studies should be conducted in a qualitative framework to better explain L2MSS and learning strategies. This study was also concentrated exclusively on students' use of LLS and L2MSS. Additional analysis may also provide observations that show how LLS and L2MSS are used by students in the learning of a foreign language. In future research experiments in different EFL contexts may be added to check the results obtained in this analysis.

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Excused and Legitimized Violence in School

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Abstract

This study was carried out to examine whether the students excuse the teacher violence that could be resorted to them. The sample of the study consisted of 222 girls (47.1%) and 249 boys (52.9%) students studying in secondary schools and high schools in İstanbul. A questionnaire developed by the researcher was used to collect data. Content analysis and non-parametric techniques were used together in the analysis of the data. As a result of the research, it was found that the situation in which violence is mostly excused is "cheating in exams." It was found that students attending public schools excused violence more than those studying at private schools. The content analysis showed that the students stated that teachers should resort to corporal violence, psychological violence, and punishment rather than non-punitive practices.

Keywords: Violence in School, Legitimized Violence, Corporal Punishment, Turkey

1. Introduction

1.1 Introduce the Problem

Violence comes from the Latin "Violentia." Violentia means violence, harsh or ruthless personality, power. The act of "Violare" means acting with violence, not knowing value, and breaking the rules. These words are linked to each other by "Vis." "Vis" includes the meanings of competence, value, and vitality which means power, energy, authority, violence, bodily power, and the possibility of using the power of something (Michaud, 1991, pp. 7–8). Violence generally qualifies the excess of emotion, the intensity of a phenomenon, and rude and harsh behavior (Köknel, 1996, p. 20). This term has been used in various studies as verbal threats, damaging property, and behaviors that harm someone else (Hastings & Hamberger, 1997, p. 323). Michaud proposed a definition describing both cases of violence and acts of violence (Michaud, 1991, p.11): "In an environment of mutual relations, if one or more of the parties behave in a harmful way to the bodily integrity or moral (ethical/morale/spiritual) integrity or property or figurative and symbolic cultural values of one or more of the others, as directly or indirectly, as collectively or dispersed, regardless of proportion there is violence" (Michaud, 1991, p. 11). Violence can be seen as the act or structure that humiliates the existence of another person (Harlow et al., 1996, p. 62). When this definition is accepted, it can be considered that many basic

structures in society are conceptually violent. It can be argued that organizations such as school and work environments that can include competition, hierarchy, and non-democratic practices constitute violence (Harlow et al., 1996, p. 62).

The use of authority based on punitive power in a child's education continues to be the most common type of discipline in both families and schools (Güçray, 1995, p. 117). The dictionary meaning of punishment is "regrettable, distressful, painful practice to prevent inappropriate reactions and behaviors" (TDK, 1988, p.255). At the heart of the phenomenon described with the word "poena," which means "pain" or "ache" in Latin, lies the principle of taming the perpetrator by causing psychological or physical pain or suffering, disciplining or even taking revenge on the offender on behalf of the public (Kale, 1995). According to Good and Brophy (2000, p. 180), punishment is generally used in response to undesirable behavior. Punishment is a way of using force on the student who cannot control himself/herself. According to Foucault (1992), the word punishment should mean anything that can make children feel the guilt they commit, anything that can humiliate them and confuse them. Punishment is a brutal weapon for adults who have forgotten their childhood to make their children look like themselves in a short period, that is to shorten their childhood period, that is used when they are desperate and helpless. Adults who resort to punishment in the face of guilt and try to discipline with it create a small legal system and court model; adults are judges, children are criminals.

According to Miller (1966, p.260), when the guilty person is accepted as a responsible person, the right to punishment arises. Richard Peters (1966) stated that he does not think there is a conceptual link between punishment and the notions of "deterrence," "prevention" and "reform." According to Peters, every punishment should include retribution. Retribute means doing something in return for what someone who does something. Weijers (2000) focused on the relationship of trust and authority that should exist when it comes to the educational meaning of harming a child. Looking at the relationship of trust between the child and the adult means meeting two criteria: The adult (parent) must be convinced that (1) there is no other way, (2) it is done for the benefit of the child. In this case, punishment is inevitable. This leads to the "concept of deserving." Weijers states that the admissibility of punishment depends on the conviction that the pain of punishment is justified. In this case, legitimization of punishment in an educational context is possible in a relationship of mutual responsibility. The parent (teacher) must be convinced that s/he has no other choice and s/he is acting for the benefit of the child. The child, on the other hand, must be convinced that his/her parent (teacher) has no other choice and his/her best benefit is being treated. Punishment in child-rearing is considered as deserved only when these two conditions are met. Punishment always means testing trust and authority relationships. However, in the presence of these relationships, punishment works as an educational practice. The critical point here is that punishment will not establish authority. The authority relationship should be considered as a precondition for punishment. However, under these circumstances, the child is expected to take responsibility for the undesirable behavior.

Corporal punishment is defined as deliberate suffering or imprisonment as a punishment for crime/misdemeanor (Hyman, 1988; Hyman, et al., 1997). According to Gözütok (1994), corporal punishment in education means giving pain to the body of a student for making an action that is not approved by a teacher or other school staff. The victimization of children by school staff is commonly done in the name of discipline (Hyman & Perone, 1998). Previous studies in Turkey indicated that a high prevalence of violence perpetrated by teachers against students (Kilimci, 2009; Kiziltepe, et al., 2020; Şimşek & Cenkseven-Önder, 2011). As a result of the retrospective research conducted by Mahiroğlu and Buluç (2003), it was found that corporal punishment is widely used in schools in Turkey. The most used corporal punishment methods are slapping, ear pulling, and hitting with a rod. Gözütok (1993a) reported that teachers used tools such as a ruler, stick, compass, key chain, encyclopedia while beating students, and they used slapping, punching, and kicking when they did not use any tools. There are many reasons for using corporal punishment on students. One of these reasons is that the public supports such harsh disciplinary methods as a result of the exaggeration of inappropriate behaviors in students in the media (Hyman, & Perone, 1998). Another is that corporal punishments such as slapping are not perceived as violence (Hyman, 1990). Hyman (1995) suggests that the use of corporal punishment in school is a part of punitive and authoritarian beliefs in American society. The situation is not much different for Turkey. As a

matter of fact, it was determined that Turkish parents consider rebukes, insults, and corporal punishment as effective ways of disciplining children (e.g. Akduman, 2010; Kutlu et al., 2007; Simsek Orhon, et al., 2006; Sofuoğlu et al., 2016).

The consequences of corporal violence and sexual violence can be seen with some certain dimensions. Since the mentioned types of violence are visible in some certain dimensions, they can be perceived as the most important harm that can be inflicted on a child. However, the effects of emotional violence can reach very serious levels. The main problem here is to determine the "basic boundaries of the person." There is no consensus that this limit can be reduced to the phenomenon of bodily existence. According to Mc Carthy (1990, p.181) "Emotional and physical violence are constant attacks on the child's developing ego and individualization efforts." According to Garbarino et al. (1986, pp. 64-65), people who are subjected to emotional violence see themselves as incompetent, worthless, belonging to nowhere, and unloved and find the maltreatment unfair. However, those who have been treated that way since their childhood may think they deserve it. Studies conducted in Turkey showed that teachers and students see physical or corporal punishment as a normal and acceptable action in education (Saruhan, 1987; Timuroğlu, 1983). Although it is not sufficiently supported by empirical findings due to the inadequacy of the studies on the subject, it was observed that some teachers argue that children will cooperate only when they are treated in this way at school because they are used to being beaten at home. Some teachers, especially young teachers who have just started this profession stated that some students expressed to them that they should behave violently in the classroom, otherwise the class would not be in order. As a result of their retrospective research, Mahiroğlu and Buluç (2003) found that 11% of the education faculty students who participated in the study perceived corporal punishment as a valid disciplinary tool. Gözütok (1993b, p.12) found in his study that the teacher candidates stated that corporal punishment has no place in education and that they were against beating, however, they used the expression "our teacher was right, we deserved to be beaten" about the violence imposed on them while they were students. This study was carried out to examine whether the students excused the teacher violence that could be resorted to them. For this purpose, the questions tried to be answered are as follows:

- 1- In which cases (disrupting classroom order, cheating in exams, lecturing, having teacher status, maintaining discipline) do students accept more forms of violence expressed as yelling, swearing, ear pulling, hitting hands, slapping, and beating?
- 2- Does the excused violence differ in terms of gender?
- 3- Does the excused violence differ in terms of school type?
- 4- What are the students' views about how should the teacher treat them in the cases that may be happened in the classroom (disrupting classroom order, cheating in exams, lecturing, having teacher status, maintaining discipline)?

2. Method

2.1 Participant (Subject) Characteristics

Participants of this study are 471 secondary and high school students living in Istanbul. All of the students are Turkish citizens. The demographic characteristics of the participants are shown in Table 1. The open-ended questions of the questionnaire used in the study were answered by 150 students in the middle school and 112 students in the high school. Content analysis was carried out on the answers of a total of 262 students.

Table 1: Descriptive statistics

	Girls		Boys	
	f	%	f	%
Gender	222	47.1	249	52.9
School Type	Public		Private	
	283	60.1	188	39.9
Age				
11	54	11.5		
12	66	14		
13	65	13.8		
14	50	10.6		
15	86	18.3		
16	74	15.7		
17 and above	76	16.1		

2.2 Measures

A questionnaire developed by the researcher was used to collect data. This questionnaire consists of two parts. In the first part, students' demographic information (gender, age, grade level, school type) was collected. In the second part; (a), A closed-ended question was asked to get the students' views on six types of violence (yelling, swearing, ear pulling, hitting hands, slapping, and beating) that the teacher could resort to them for each of the five different cases (disrupting classroom order, cheating in exams, lecturing, having teacher status, maintaining discipline). Answers were asked to be marked on a three-point Likert-type scale (yes, undecided, no), (b) An open-ended question was asked to get students' views on how should the teacher treat them in five different cases (What do you think the teacher should do in such a case?). Students were asked to write their opinions in the provided space. The sample item for the second part of the questionnaire is presented in Appendix A.

Two of the five cases that the students expressed their views which are considered under the category of behaviors requiring "condemnation" in the Ministry of National Education Primary and Secondary Education Institutions Award and Discipline Regulations are disrupting classroom order and cheating in exams. Mercan and Çam (2003) found that the most imposed punishment is condemnation in schools. The aforementioned two cases are addressed as behaviors that could be subject to disciplinary action. The other cases were chosen to understand whether the teacher is excused for only having teacher status, lecturing, and behaving violently in maintaining discipline.

3. Results

3.1 Statistics and Data Analysis

In the study, the quantitative (non-parametric techniques) method was used in the analysis of closed-ended questions, and the qualitative (content analysis) method was used in the analysis of open-ended questions. The views of the students from the relevant parts of the questionnaire about how should the teacher treat them in five cases were taken by writing answers to open-ended questions and these views were subjected to content analysis. Content analysis is defined as the decomposition, enumeration, and interpretation of repetitive issues, problems, and concepts in the obtained data (Denzin & Lincoln, 2005). In this study, the data were read line by line, sentences and paragraphs formed the basis for coding. Since there was no clear theoretical basis for students' views on how teachers should treat them in cases that may be encountered in the classroom, coding was made according to the concepts extracted from the data. Within the scope of the purpose of the research, meaning themes were created from the repetitive codes. Attention has been paid to the fact that these themes are different from each other and form a meaningful whole among themselves. Finally, the frequency of the themes was calculated.

3.2 Quantitative findings

The types of violence that are excused in different situations are presented in Table 2. A Kruskal-Wallis H test showed that there was a statistically significant difference in yelling score between the different cases, $\chi^2(4) = 231.887$, $p = 0.000$, with a mean rank yelling score of 1462.15 for disrupting classroom order, 1305.13 for cheating in exams, 1174.36 for lecturing, 1035.29 for maintaining classroom discipline, 913.07 for having teacher status. A Kruskal-Wallis H test showed that there was a statistically significant difference in swearing score between the different cases, $\chi^2(4) = 10.195$, $p = 0.037$, with a mean rank swearing score of 1212.90 for cheating in exams, 1187.53 for disrupting classroom order score, 1176.51 for maintaining discipline, 1165.68 for lecturing, 1147.37 for having teacher status. A Kruskal-Wallis H test showed that there was a statistically significant difference in ear pulling score between the different cases, $\chi^2(4) = 55.676$, $p = 0.000$, with a mean rank ear pulling score of 1282.75 for cheating in exams, 1243.68 for disrupting classroom order, 1151.59 for maintaining discipline, 1123.33 for lecturing, 1088.65 for having teacher status. A Kruskal-Wallis H test showed that there was a statistically significant difference in hitting hands score between the different cases, $\chi^2(4) = 38.127$, $p = 0.000$, with a mean rank hitting hands of 1265.17 for cheating in exams, 1221.39 for disrupting classroom order, 1152.59 for maintaining discipline, 1146.17 for lecturing, 1104.68 for having teacher status. A Kruskal-Wallis H test showed that there was a statistically significant difference in slapping score between the different cases, $\chi^2(4) = 25.001$, $p = 0.000$, with a mean rank slapping score of 1129.82 for cheating in exams, 1204.73 for disrupting classroom order, 1182.06 for maintaining discipline, 1143.91 for having teacher status, 1129.49 for lecturing. A Kruskal-Wallis H test showed that there was a statistically significant difference in beating score between the different cases, $\chi^2(4) = 17.861$, $p = 0.001$, with a mean rank beating score of 1208.25 for cheating in exams, 1200.64 for disrupting classroom order, 1177.35 for maintaining discipline, 1160.57 for lecturing, 1143.19 for having teacher status. When Table 2 is examined, it was seen that the most excused situation of violence was yelling for disrupting classroom order, swearing, ear pulling, hitting hands, slapping, and beating for cheating. In the case of cheating, violence is more excused.

Although violence types and cases were varied, boys were more likely to excuse violence against themselves than girls. A Mann-Whitney U test was run to compare the violence type scores of boys and girls in the case of "disturbing the classroom order." The test indicated that the differences were statistically significant in favor of boys for ear pulling ($U = 25376,5$, $p < .05$), hitting hands ($U = 25400$, $p < .05$), slapping ($U = 24489$, $p < .01$), and beating ($U = 25881$, $p < .05$). A Mann-Whitney U test was run to compare the violence type scores of boys and girls in the case of "cheating in exams." The test indicated that the differences were statistically significant in favor of boys for swearing ($U = 25252$, $p < .01$), ear pulling ($U = 24995,5$, $p < .05$), hitting hands ($U = 24244,5$, $p < .01$), slapping ($U = 24040$, $p < .01$), beating ($U = 24638$, $p < .01$). Mann-Whitney U test was run to compare the violence type scores of boys and girls in the case of "lecturing." The test indicated that the differences were statistically significant in favor of boys for ear pulling ($U = 25550$, $p < .05$), slapping ($U = 25459$, $p < .01$), beating ($U = 26242$, $p < .01$). Mann-Whitney U test was run to compare the violence type scores of boys and girls in the case of "having teacher status." The test indicated that the differences were statistically significant in favor of boys for slapping ($U = 26227$, $p < .05$), beating ($U = 26549$, $p < .05$). A Mann-Whitney U test was run to compare the violence type scores of boys and girls in the case of "maintaining classroom discipline." The test indicated that the differences were statistically significant in favor of boys for hitting hands ($U = 25184$, $p < .01$), and slapping ($U = 24741$, $p < .01$).

Although violence types were varied in all cases, it was found that students studying at public schools were more likely to excuse violence against them. A Mann-Whitney U test was run to compare the private and public school students' violence type scores in the case of "disrupting classroom order." The test indicated that the differences were statistically significant in favor of public school students for ear pulling ($U = 21489$, $p < .01$), hitting hands ($U = 22780$, $p < .01$), slapping ($U = 23740$, $p < .01$), beating ($U = 24563$, $p < .01$). A Mann-Whitney U test was run to compare the private and public school students' violence type scores in the case of "cheating in exams." The test indicated that the differences were statistically significant in favor of public school students for yelling ($U = 23864$, $p < .05$), swearing ($U = 24446$, $p < .01$), ear pulling ($U = 21605$, $p < .01$), hitting hands ($U = 22222$, $p < .05$), slapping ($U = 23527$, $p < .01$), beating ($U = 24034$, $p < .01$). A Mann-Whitney U test was run to compare the private and public school students' violence type scores in the case of "lecturing." The test indicated

that the differences were statistically significant in favor of public school students for yelling ($U= 23865$, $p<.05$), swearing ($U= 24412$, $p<.01$), ear pulling ($U= 24068$, $p<.01$), hitting hands ($U= 23872,5$, $p<.01$), slapping ($U= 24717$, $p<.01$), beating ($U= 24859$, $p<.01$). A Mann-Whitney U test was run to compare the private and public school students' violence type scores in the case of "having teacher status." The test indicated that the differences were statistically significant in favor of public school students for yelling ($U= 24167$, $p<.05$), hitting hands ($U= 24747$, $p<.05$), slapping ($U= 24616$, $p<.01$), beating ($U= 25757$, $p<.05$). A Mann-Whitney U test was run to compare the private and public school students' violence type scores in the case of "maintaining discipline." The test indicated that the differences were statistically significant in favor of public school students for ear pulling ($U= 23731$, $p<.01$), hitting hands ($U= 23865$, $p<.01$), slapping ($U= 23918,5$, $p<.01$), and beating ($U= 25376$, $p<.05$).

Table 2: Excused violence in different situations

Violence type Score	Cases	N	\bar{x}_{sira}	χ^2	df	p
Yelling	Disrupting classroom order	471	1462,15	231,887	4	,000
	Cheating in exams	471	1305,13			
	Lecturing	471	1174,36			
	Maintaining discipline	471	1035,29			
	Having teacher status	471	913,07			
Swearing	Cheating in exams	471	1212,90	10,195	4	,037
	Disrupting classroom order	471	1187,53			
	Maintaining discipline	471	1176,51			
	Lecturing	471	1165,68			
	Having teacher status	471	1147,37			
Ear pulling	Cheating in exams	471	1282,75	55,676	4	,000
	Disrupting classroom order	471	1243,68			
	Maintaining discipline	471	1151,59			
	Lecturing	471	1123,33			
	Having teacher status	471	1088,65			
Hitting hands	Cheating in exams	471	1265,17	38,127	4	,000
	Disrupting classroom order	471	1221,39			
	Maintaining discipline	471	1152,59			
	Lecturing	471	1146,17			
	Having teacher status	471	1104,68			
Slapping	Cheating in exams	471	1129,82	25,001	4	,000
	Disrupting classroom order	471	1204,73			
	Maintaining discipline	471	1182,06			
	Having teacher status	471	1143,91			
	Lecturing	471	1129,49			
Beating	Cheating in exams	471	1208,25	17,861	4	,001
	Disrupting classroom order	471	1200,64			
	Maintaining discipline	471	1177,35			
	Lecturing	471	1160,57			
	Having teacher status	471	1143,19			

3.3 Findings Regarding Content Analysis

The open-ended questions of the questionnaire used in the study were answered by 150 students in the middle school and 112 students in the high school. Content analysis was carried out on the answers of a total of 262 students. As a result of the content analysis, four themes were found as corporal violence, psychological

violence, punishment, and non-punitive discipline. Some examples of student views on these four themes are as follow: 1) Students' views on corporal violence; *"Student should be warned, if s/he does not listen, s/he should be beaten," "Student just be warned, if s/he does the same thing after warning, s/he should be beaten,"* 2) Students' views on psychological violence; *"Intimidation should be given and s/he should be warned with a harsh language not to do it again," "S/he should be taken an oral exam and disgraced,"* 3) Students' views on punishment; *"Teacher should take his/her exam sheet and give 0 points to his/her exam", "Teacher should send him/her to the board of discipline,"* 4) Students' views on non-punitive discipline; *"The reason for the behavior should be learned, and s/he should come to an agreement by talking," "S/he must be treated in a friendly manner."* The definitions and frequencies of these themes are presented in Table 3. When the data obtained as a result of the content analysis are examined, students stated that teachers use corporal, psychological violence, and punishment rather than non-punitive practices. Corporal violence, psychological violence, and punishment were more excusable in two cases of disciplinary actions (disrupting classroom order and cheating in exams) than cases that are not considered disciplinary actions. It is observed that the themes regarding the need to use non-punitive practices in cases that do not involve disciplinary actions are expressed more frequently.

Table 3: Definitions and frequencies of the themes

Theme	The frequency of the theme	Definition of the theme
Corporal violence	N=10	Violent behaviors towards the physical integrity of the student. For example; ear pulling, being kept standing, hitting hands, hitting, beating, etc.
Psychological violence	N=129	Behaviors that are directed towards the student's self rather than his/her behavior, that could cause harm either immediately or in the future: verbal violence, threatening, humiliating, intimidating, warning, making him/her do whatever the teacher wants, behaving in a way that hurts pride.
Punishment	N=100	Assigning additional assignments/ dropping grades, invalidating the exam and making a new exam, getting back the student's paper, sending the student to the principal/disciplinary board, notifying the parents, taking the student out of class/expelling or suspending the student from school.
Non-punitive practices	N=84	Trying to solve the problem by talking to the student, ignoring, giving advice, showing love/tolerance, being like a friend with the student, trying to improve student behavior positively, etc.

4. Discussion

As a result of the research, it was seen that the most excused case of violence is yelling for disrupting classroom order, swearing for cheating, ear pulling, hitting hands, slapping, and beating. In the content analysis, it was found that the answers given by the students to the question of "What should the teacher do in such a case?" for each case were gathered under 4 themes. These themes were corporal violence and psychological violence, punishment, and non-punitive practices. Students stated that teachers could resort to corporal violence, psychological violence, and punishment rather than using non-punitive strategies. This finding of the study was consistent with the findings obtained from the quantitative part. Unfortunately, students thought that violence may be justifiable and they could excuse violence. This finding was consistent with studies showing that teachers and students found physical or corporal punishment as a normal and acceptable action in education (Saruhan, 1987; Timuroğlu, 1983). Though corporal violence and psychological violence enacted by teachers has been banned and is illegal, previous results indicated a high prevalence of violence perpetrated by teachers

against students in Turkey (Kiziltepe et al., 2020; Mahiroğlu & Buluç, 2003; Şimşek & Cenkseven-Önder, 2011). Gözütok (1993a) reported that some of the students who were beaten directly found the teacher right. However, when the data of the aforementioned study were analyzed, it was found that some of the students answered as "I promise to myself that I will study or not talk again," "I regret," "I ignore," "I think my teacher does not love me," "I am silent," "I apologize." If these responses are considered to indicate that the violence is believed to be deserved and excused, the proportion of children who believe that they deserve violence increases. Sadık and Türkoğlu (2007) conducted a similar study, examining the discipline methods resorted to children within the family from the perspective of parents and children. In this study, children who thought they deserved parental beating used expressions such as "They beat us because they want our favor," "They beat us because we are doing something wrong," "My parents slapped me because I committed major guilts," "Because what they say is for my sake," etc.

When excused violence against oneself and others was analyzed in terms of gender; although the types and the cases of violence were varied, it was observed that males excused violence in more situations than females. Studies conducted in Turkey showed that male students got more corporal punishment than females (Coral & Pine, 2003; Mahiroğlu & Buluç, 2003). Sadık (2000) found that the strategies teachers use in dealing with unwanted student behavior were varied in terms of students' gender. It was found that the strategies of an immediate verbal warning, scolding and intimidation, using force to the body, uttering insulting words, teasing, judging-criticizing-accusing, and isolation were mostly used on male students.

According to another finding of the study, students who attend public schools were more likely to excuse violence than students attending private schools. Gümüş, Tümkaya and Dönmezer (2004) found that the incidents of scolding and beating students in schools were mostly in lower socioeconomic districts, whereas in richer places, students were punished by giving extra homework. Studies showed that teachers' behavioral management strategies were varied in terms of school type and location of the school. Thus, private school teachers stated that they were more effective in practice and they had fewer problems, whereas rural teachers and teachers working in the slums of the city said that discipline events were getting worse and they spent more time on the management of problem behaviors (Boldmaz, 2000; Brown & Payne, 1992; Gottfredson & Gottfredson, 2001.). Further studies should investigate which variables related to public school are associated with excusing violence.

Finally, it is necessary to mention the limitations of this study and some suggestions. The most important limitation is that the data were collected using a questionnaire. It is recommended to use parametric tests for future studies. Since the study was conducted only in the Istanbul province, there is a problem regarding generalizability. Studies to be conducted in different regions will be more suitable in terms of generalizability. The mechanisms behind the excuse for violence should be examined in more detail by focus group studies or interview methods. The possible future consequences of excusing violence should be analyzed in longitudinal studies.

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Appendix A

Sample item

1- If you disrupt classroom order, the teacher should

	Yes	Undecided	No
Yell at you			
Swear to you (Uttering insulting words, swearing, etc.)			
Pull your ear			
Hit your hands			
Slap in your face			
Beat you			

How do you think the teacher should treat other than those stated above? Please write:

.....

.....

.....

.....

.....



Music and Mathematics: The Effect of Matching Musical Meters with Geometric Shapes on 6th Graders' Learning Outcomes

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Abstract

Aksak meters such as 5/8, 7/8, 9/8 are not formed equally and teaching these meters to the students usually takes a long time and learning these measures requires a dedicated effort. The aim of this research is to determine whether the teaching 5/8, 7/8, 9/8 aksak meters to the students in sixth grade through geometric shapes is more effective than regular techniques used in the music lesson. The research group was composed of 120 sixth grade students between ages 11-14 in one private and one public school in Ankara. The research was composed in randomized pre-test, post-test control group experimental design. During 8 weeks teaching aksak meters through matching musical meters to geometrical shapes technique was practiced with the experimental group. The data was analyzed on the IBM SPSS Statistics 22 Program. Mc Nemar test was used for the dependent relationship between two categorical variables. According to findings of this research, students in the experimental group scored higher points in their post-test than students in the control group and improved their efficacy in distinguishing the aksak measures. This shows that teaching aksak Meters through geometric shapes affected students' learning outcomes in a positive way.

Keywords: Music and Mathematics, Aksak Meters, Geometric Shapes, Music Education, Teaching

1. Introduction

Mathematics and music have been compared and associated with each other since ancient era. Many mathematicians and philosophers have studied on this subject since then. Pythagoras, Plato and Aristotle, wrote about the overlaps and links between the two disciplines (Bamberger and Disessa, 2003; Azaryahu et al. 2019) Furthermore, in the middle age music was considered as a sub major of mathematics. In those days mathematics was divided into two sub majors; theoretical and applied mathematics. Arithmetic and geometry were considered to be in the theoretical mathematics sub major and astronomy and music were considered to be in the applied

mathematics sub major. Now days mathematics and music are described as universal languages and two ways of expressing patterns of human rational thoughts and emotional feelings (Nagy et al., 2020). These two universal languages are interrelated, as Papadopoulos (2002) states mathematics and music are similarly expressed through the use of representational language and symbolic notations (Papadopoulos, 2002). More specifically musical elements such as melody, rhythm, intervals, scales, harmony, and tuning are related to mathematical concepts such as numerical relations, proportions, integers, logarithms, arithmetical operations, trigonometry, and geometry (Beer, 1998; Harkleroad, 2006; An et al. 2013).

Related Literature

There are many studies which show that music education provided by the family in the early childhood period (singing songs with family members, listening to self music archives, practicing rhythm, etc.) enhances the mathematic skills of the individuals. Accordingly the relationships between mathematics and music have been researched broadly, and research has suggested that music can enhance students' academic outcomes in mathematics (An et al., 2016; Evans, 2009; Harris, 2005; Nisbet, 1998; Rauscher, 2003; Schumacher et al., 2006; Still and Bobis, 2005; Spychiger, 2001; Vaughn, 2000; Nagy et al., 2020).

Researchers have also pursued a line of inquiry into outcomes for students resulting from including music activities in mathematics instruction (e.g., An et al., 2008; Benes-Laffety, 1995; Omniewski, 1999). These studies have provided empirical evidence that music has the potential to improve students' mathematics achievement and attitudes (An et al., 2013). The existing literature shows that learning to play a musical instrument has proven to have positive effects on mathematics achievement (An et al., 2013). As Helmrich (2010) points out, music supports creativity, problem solving, and diverse thinking skills needed in mathematical learning, particularly algebra (Gonzales, 2017).

In 2015, Cranmore and Tunks in a case study explored high school students' perceptions on how mathematics and music are related. Their results showed that 14 out of 24 high school students perceived cognitive connections between mathematics and music and students emphasized that mathematics skills were crucial for understanding music (Cranmore and Tunks, 2015). While Cranmore and Tunks' (2015) research findings indicate that mathematics support music ability, research that observed the relationship between music and mathematics suggest that music training supports mathematics ability (Helmric, 2010; Ivanov and Geack, 2003, Kinney, 2008; Shore, 2010; Gonzales, 2017). Similarly according to Shilling (2002) studies also show that, mathematics and music are actually relevant to each other and can feed and enhance each other speaking in a manner of learning any of them (Shilling, 2002). Since music has the potential to improve students' mathematical achievement and attitudes, the same effect can be seen in the opposite direction. In other words, mathematical methods can make some incomprehensible musical concepts understandable. In this context, in this study we tried to use the same approach but in the opposite direction and used mathematical methods to make some incomprehensible musical concepts understandable for students.

Simple and Aksak Meters

In music lessons, students learn numerous abstract musical concepts, such as rhythmic and melodic notation, conversion in key and time, diverse instrument playing techniques etc. Most of these musical skills are infused with mathematics because there are based on patterns that can be easily predicted by students (Courey et al., 2012; Gonzales, 2017). For example rhythm is among the most basic mathematical concepts in music theory. The link to mathematics is obvious: a numerical pattern of beats, which can be counted, bears direct resemblance to the study of basic arithmetic (James, 1991). In Turkey teaching rhythm and more specifically music meters is a part of 6th grade music lesson curriculum the curriculum includes simple meters and aksak meters. Meter is a repetitive pattern that provides the beat or pulse of music. Meter is notated at the beginning of the music pieces with a time signature. Time signatures are always notated with two numbers, one on top of the other, much like a fraction in math. While the top number represents the number of beats in each measure, the bottom number represents the note value that receives the beat. There are different categories of meter such as simple,

compound, or aksak. Each of the categories of meter is defined by the subdivision of beats. The number of beats for a measure defines the term associated with that meter.

In this study we used the approach from easy to more difficult. We started with simple meters which are the easiest meters $2/4$, $3/4$ and $4/4$. Which can be shown as $2/4 = (1+1) = 2$ beats in total for a measure, $3/4 = (1+1+1) = 3$ beats in total for a measure and $4/4 = (1+1+1+1) = 4$ beats in total for a measure. When it comes to aksak meter it is more complicated. Aksak is a rhythmic organization used broadly in Turkish music. Goldberg (2015) in his study stated that "Other terms that have been applied to aksak are additive rhythm, "unequally divided meter," and nonisochronous meter (Sachs, 1953; Dzhudzhev, 1980; London, 2012). While the theoretical approaches corresponding to these names differ substantially from one another, they typically describe temporal cycles composed of durations belonging to two different categories, long and short, in a ratio of 3:2. Brăiloiu (1984) and his Bulgarian coeval Stoyan Dzhudzhev (1931, 1980) sought to systematize the possible combinations of short and long beats and identify their properties, a project that a handful of authors have continued more recently (e.g., Arom, 2004; Cler, 1994; London, 2012). In music from southeastern Europe, common *aksak* sequences include short-long, short-short-long, long-short-short, short-short-short-long, and short-short-long-short-short" (Goldberg, 2015, pp.305). Sakin and Öztürk (2016, pp.834) explained more in detail that "in addition to having different time signatures, these meters include different patterns for the same time signature; in fact the patterns, which contain different rhythmic structures", while enriching the rhythm at the same time makes it more difficult to perform or learn by the students. For example, the $5/8$ aksak meter has 2 different forms ($2+3$, $2+3$), the $7/8$ aksak meter has 3 different forms ($2+2+3$, $2+3+2$, $2+3+2+2$ and $3+2+2$) and $9/8$ aksak meter has 4 different forms ($2+2+2+3$, $2+2+3+2$, $2+3+2+2$ and $3+2+2+2$). As mentioned before aksak meters have different rhythmic specialties in time signatures and rhythmic structures.

Statement of the Problem

Since aksak meters include different rhythmic patterns, in our study we choose specifically only the simplest rhythmic pattern examples $5/8 = (2+3)$, $7/8 = (2+2+3)$ and $9/8 = (2+2+2+3)$. These meters are not formed equally and teaching these meters to the students usually takes a long time and learning these meters requires a dedicated effort. At this point, as it is stressed in many studies mathematics as a good assistant in teaching by explaining the concepts of rhythm and measure (Nemirovsky, et al., 1998; Bautista and Roth, 2012), we used mathematics especially geometric symbols in order to teach aksak meters to 6th grade students. We thought that using geometric shapes by matching them to musical meters could be helpful in music lessons. By doing that our expectation was that students could recognize, distinguish and understand aksak rhythmic structures and meters better.

We choose teaching Aksak Meters $5/8$, $7/8$ and $9/8$ which are specific to Anatolian music culture and are not equally grouped which makes them a challenge for the teachers and the students. Through experience, we realize that it can be a very difficult task to explain aksak meters and to teach students to identify those meters in a theoretically manner. This is especially relevant in younger students. The main idea in this study is to research if visualizing aksak meters, which are an intangible concept, in forms of geometrical shapes can make them tangible and understandable for 6th grade students.

The problem sentence for which a solution was sought in this study was formed on the basis of all these thoughts. In this context, the main problem of the research is to reveal whether $5/8$, $7/8$, and $9/8$ aksak meters can be taught effectively by matching them with geometric shapes. In other words, the contribution of this study to the field of music education is to reveal whether the use of geometric shapes in teaching aksak meters benefits students learning outcomes.

Sub-problems formed under this main problem can be listed as follows:

1. Can students ability to distinguish simple meters from aksak meters be improved by teaching them those meter through geometric shapes?
2. Can students learn aksak meters better by matching them to geometric shapes?

2. Method

2.1 Research Model

The research model of this study is the pre-test - post-test control group model. "In this model, there are two groups formed by unbiased assignment. One of them is experimental; the other one is used as the control group. Measurements are made before and after the experiment under equal conditions in both groups"(Karasar, 2016, p. 132).

2.2 Participants

There were 55 participants in the Experimental and 65 participants in the Control Group.

Table 1: Gender and School Types

Gender	N	%
Female	68	56,7
Male	52	43,3
School Types		
Government: Gülen Muharrem Pakoğlu/ Ankara	65	54,2
Private: Büyük Kolej/ Ankara	55	45,8

Table1. Shows that female participants were dominant with 56.7% while male participants were 43.3%. Participants were from one government and one private school, where 54.2% of them were from government school and the 45.8% were from private school.

Table 2: Weekly Schedules for Experimental Group







Experimental Group Private School (Büyük Kolej)							
1 st week	2 nd week	3 rd week	4 th week	5 th week	6 th week	7 th week	8 th week
PRE-TEST	Introducing Geometric Shapes as Meters 1, 2 2/4= 	Teaching Aksak meter Time Signature Explaining aksak meters with Geometric Shapes 2 + 3 	Explaining 7/8 meters with Geometric Shapes 2+ 2+ 3 	Explaining 9/8 meters with Geometric Shapes 2+ 2+ 2+ 3 	Practicing all meters with Geometric Shapes Practicing all meters on the worksheet	Practicing all meters with Geometric Shapes Practicing all meters on the worksheet	General Repetition of the whole method and future practicing
	Teaching Time Signatures Teaching 2/4, 3/and 4/4 meters Practicing with different meter songs	3/4= 1,2,3  4/4=1,2,3,4  Practicing with Geometric Shapes drawn on the floor Dancing on the drawn shapes with sample songs Practicing Body Percussion	Practicing on the floor with 5/8 meters with music Practicing 5/8 meter w/ the geometrical work sheets	Practicing on the floor with 7/8 meters with music Practicing 7/8 meter with the geometrical work sheets Practicing Body Percussion	Practicing on the floor with 9/8 meters with music Practicing 9/8 meter with the geometrical work sheets Practicing Body Percussion		
							POST-TEST

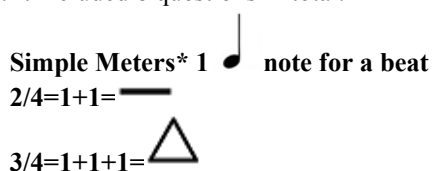
Table 3: Weekly Schedules for Control Group

Control Group Government School (Gülen Muharrem Pakoğlu)							
1 st week	2 nd week	3 rd week	4 th week	5 th week	6 th week	7 th week	8 th week
PRE-TEST	Teaching meters with Classical Method Listening to sample songs	Teaching Aksak meter Time Signature Explaining aksak meters with Classical Method	Explaining 7/8 meter with Classical Method Practicing 7/8 meter with work sheets	Explaining 9/8 meter with Classical Method Practicing 9/8 meter with work sheets	Practicing all meters Practicing all meters on the worksheet	Practicing all meters Practicing all meters on the worksheet	General Repetition of all practiced meters and future practising
Teaching Time Signature Teaching 2/4 3/4 4/4 meters		Explaining 5/8 meter with Classical Method Practicing 5/8 meter with work sheets					POST-TEST


Data Collection

Questions specific to the study were prepared and applied as "pre-test" before various teaching activities for teaching geometric shapes and aksak meters, and as "post-test" after these activities. The rhythm heard in the questions, for example a rhythm of two quarters, must match the shape of the rhythm (strait line). Similarly matching strait line + triangle is required for 5/8 meter rhythm. Only one shape (circle) has been added for checking purposes; a question for recognizing a dimension that actually matches this shape was not asked. A total of 14 rhythmic questions specific to the study were prepared by taking expert opinions by the researchers. The reliability of the rhythmic test was measured with Kuder-Richardson Formula 20, or KR-20. KR-20 is a measure reliability for a test with binary variables (i.e. answers that are right or wrong). The Kuder- Richardson-20 reliability coefficient (r) for this study was found to be 0.89. This shows that the prepared questions are highly reliable. The participants were asked to mark if the rhythmic patterns they hear during the test were representing "similar, different or identical" musical meters. The answers were distributed in two groups which are "True" or "False".

First personal information was taken. The pre and post tests given to the both groups consisted two parts. *Part 1* was made in order to determine of similar different or repeating musical meters. Every question (RP1, RP2,) included two rhythmic patterns. It included 8 questions in total. *Part 2* of the test aimed to evaluate the students' degree of matching the rhythm patterns including simple and aksak meters with simple geometrical shapes that 6th grade students can easily perceive and understand (Appendix 1). It included 8 questions in total.



$$4/4 = 1+1+1+1 = \square$$

Aksak Meters * 1  note for a beat

$$5/8 = 2+3 = \text{—} + \triangle$$

$$7/8 = 2+2+3 = \text{—} + \text{—} + \triangle$$

$$9/8 = 2+2+2+3 = \text{—} + \text{—} + \text{—} + \triangle$$

FINDINGS AND INTERPRETATION

Table 4: Distinguishing Simple Measures from Aksak Measures Part 1 Question 1

		Post-test		Total	P	
		Right	Wrong			
Control Group	Pre-test	Right	6	2	8	0,180
		Wrong	7	50	57	
	Total		13	52	65	
Experimental Group	Pre-test	Right	27	1	28	0,000*
		Wrong	26	1	27	
	Total		53	2	55	

This question included (Simple 2/4 and Simple 4/4) two simple meters, so the right answer was ‘Similar Meters.’ According to the statistical analysis there is not statistically significant relation in scores of the pre-test and post-test of the control group ($p > 0,05$). While experimental group pre-test and post test scores are statistically significant ($p < 0,05$).

According to these findings students that gave the right answer in experimental group increased in the post test. These findings show that experimental group was able to recognize similar simple meters better after their training.

Table 5: Distinguishing Simple Measures from Aksak Measures Part 1 Question 2

		Post-test		Total	P	
		Right	Wrong			
Control Group	Pre-test	Right	27	1	28	0,006*
		Wrong	11	26	37	
	Total		38	27	65	
Experimental Group	Pre-test	Right	41	2	43	0,013*
		Wrong	12	0	12	
	Total		53	2	55	

This question included (Simple 2/4- and Aksak 5/8) one simple one aksak meter, so the right answer was ‘Different Meters.’ According to the statistical analysis there is statistically significant relation in scores of the pre-test and post-test of the both groups ($p < 0,05$). Accordingly both groups right answers increased in their post test scores.

These findings show that both groups were able to recognize the difference between simple and aksak meters better after their training.

Table 6: Distinguishing Simple Measures from Aksak Measures Part 1 Question3

		Post Test		Total	P
		Right	Wrong		
Control Group	Pre-test	Right	22	4	26
		Wrong	18	21	39
	Total		40	25	65
Experimental Group	Pre-test	Right	23	4	27
		Wrong	27	1	28
	Total		50	5	55

This question included (Aksak7/8- and Aksak 9/8) two aksak meters, so the right answer was 'Similar Meter.'. According to the statistical analysis there was statistically significant relation in scores of the both control and experimental group ($p < 0,05$).

According to these findings students that gave the right answer in both groups increased in the post test. These findings show that both groups were able to recognize similar aksak meters better after their training.

Table 7: Distinguishing Simple Measures from Aksak Measures Part 1 Question 4

		Post-test		Total	P
		Right	Wrong		
Control Group	Pre-test	Right	46	3	49
		Wrong	6	0	6
	Total		52	3	55
Experimental Group	Pre-test	Right	20	3	23
		Wrong	13	29	42
	Total		33	32	65

This question included (Aksak7/8- and Simple3/4) one aksak and one simple meter, so the right answer was 'Different Meters.' According to the statistical analysis there is no statistically significant relation in scores of the pre-test and post-test of the control group ($p > 0,05$). While the statistical analysis show statistically significant relation in scores of the pre-test and post-test of the experimental group ($p < 0,05$).

Accordingly experimental group right answers increased in their post test scores. These findings show that experimental group was able to recognize the difference between simple and aksak meters better after their training.

Table 8: Distinguishing Simple Measures from Aksak Measures Part 1 Question 5

		Post-test		Total	P
		Right	Wrong		
Control Group	Pre-test	Right	13	6	19
		Wrong	7	39	46
	Total		20	45	65
Experimental Group	Pre-test	Right	47	1	48
		Wrong	7	0	7
	Total		54	1	55

This question included (Simple4/4- and Simple 4/4) one simple meter which was repeated, so the right answer was 'Identical Meter.'

According to the statistical analysis there is no statistically significant relation in scores of the pre-test and post-test of the both groups ($p > 0,05$).

Table 9: Distinguishing Simple Measures from Aksak Measures Part 1 Question 6

		Post-test		Total	P
		Right	Wrong		
Control Group	Pre-test	Right	19	5	24
		Wrong	4	37	41
	Total		23	42	65
Experimental Group	Pre-test	Right	31	0	31
		Wrong	21	2	23
	Total		52	2	54

This question included (Aksak5/8- and Aksak5/8) one aksak which was repeated, so the right answer was 'Identical Meter.' According to the statistical analysis there is no statistically significant relation in scores of the pre-test and post-test of the control group ($p > 0,05$). While there is statistically significant relation in scores of the pre-test and post-test of the experimental group ($p < 0,05$).

Accordingly experimental groups' right answers increased in their post test scores. These findings show that experimental group was able to recognize the repeating aksak meter better after their training.

Table 10: Distinguishing Simple Measures from Aksak Measures Part 1 Question 7

		Post-test		Total	P
		Right	Wrong		
Control Group	Pre-test	Right	7	3	10
		Wrong	10	45	55
	Total		17	48	65
Experimental Group	Pre-test	Right	24	3	27
		Wrong	26	2	28
	Total		50	5	55

This question included (Aksak5/8- and Aksak 9/8) two aksak meters, so the right answer was 'Similar Meters.' According to the statistical analysis there was no statistically significant relation in scores of the both control group ($p > 0,05$). While there is statistically significant relation in scores of the pre-test and post-test of the experimental group ($p < 0,05$). Accordingly experimental groups' right answers increased in their post test scores. These findings show that experimental group was able to recognize the aksak meter better after their training.

Table 11: Distinguishing Simple Measures from Aksak Measures Part 1 Question 8

		Post-test		Total	P
		Right	Wrong		
Control Group	Pre-test	Right	43	5	48
		Wrong	6	1	7
	Total		49	6	55
Experimental Group	Pre-test	Right	12	6	18
		Wrong	17	30	47
	Total		29	36	65

This question included (Simple 3/4- and Aksak5/8) one simple and one aksak meter, so the right answer was 'Different Meters.' According to the statistical analysis there is no statistically significant relation in scores of the pre-test and post-test of the control group ($p > 0,05$). While the statistical analysis there is statistically

significant relation in scores of the pre-test and post-test of the experimental group ($p < 0,05$). Accordingly experimental groups' right answers increased in their post test scores. These findings show that experimental group was able to recognize the difference between simple and aksak meters better after their training.

Table 12: Matching Geometrical Shapes with Musical Meters Part 2 Question1

		Post-test		Total	P
		Right	Wrong		
Control Group	Pre-test	Right	6	6	0,500
		Wrong	2	57	
	Total		8	57	
Experimental Group	Pre-test	Right	4	2	0,000*
		Wrong	48	0	
	Total		52	2	

In relation to the First Geometrical Shape students were expected to *match straight line with simple 2/4 meter*. According to the statistical analysis there is no statistically significant relation in scores of the pre-test and post-test of the control group ($p > 0,05$). While the statistical analysis there is statistically significant relation in scores of the pre-test and post-test of the experimental group ($p < 0,05$). Accordingly the training that experimental group received was more successful for matching 2/4 meter with straight line shape than the traditional training of the control group.

Table 13: Matching Geometrical Shapes with Musical Meters Part 2 Question 2

		Post-test		Total	P
		Right	Wrong		
Control Group	Pre-test	Right	4	1	1,000
		Wrong	0	60	
	Total		4	61	
Experimental Group	Pre-test	Right	5	0	0,000*
		Wrong	38	3	
	Total		43	3	

In relation to the Fifth Geometrical Shape students were expected to *match (straight line+straight line+straight line +triangle) with aksak 9/8 meter*. According to the statistical analysis there is no statistically significant relation in scores of the pre-test and post-test of the control group ($p > 0,05$). According to the statistical analysis there is statistically significant relation in scores of the pre-test and post-test of the experimental group ($p < 0,05$). Accordingly the training that experimental group received was more successful than the traditional training of the control group which improved their success in matching (straight line+straight line+straight line +triangle) with aksak 9/8 meter.

Table 14: Matching Geometrical Shapes with Musical Meters Part 2 Question 3

		Post-test		Total	P
		Right	Wrong		
Control Group	Pre-test	Right	8	0	0,063
		Wrong	5	52	
	Total		13	52	
Experimental Group	Pre-test	Right	6	1	0,000*
		Wrong	42	4	
	Total		48	5	

In relation to the Third Geometrical Shape students were expected to *match (straight line+triangle) with aksak 5/8 meter*. According to the statistical analysis there is no statistically significant relation in scores of the pre-test and post-test of the control group ($p>0,05$). While the statistical analysis there is statistically significant relation in scores of the pre-test and post-test of the experimental group ($p<0,05$).

Accordingly the training that experimental group received was more successful than the traditional training of the control group.

Table 15: Matching Geometrical Shapes with Musical Meters Part 2 Question 4

		Post-test		Total	P
		Right	Wrong		
Control Group		Right	7	7	0,031*
	Pre-test	Wrong	6	52	
	Total		13	52	
Experimental Group		Right	6	6	0,000
	Pre-test	Wrong	39	3	
	Total		45	3	

In relation to the Fourth Geometrical Shape students were expected to *match (straight line+straight line+triangle) with aksak 7/8 meter*. According to the statistical analysis there is statistically significant relation in scores of the pre-test and post-test of the both groups ($p<0,05$).

Accordingly the training that both groups received improved their success in matching straight line+straight line+triangle with aksak 7/8 meter.

Table 16: Matching Geometrical Shapes with Musical Meters Part 2 Question 5

		Post-test		Total	P
		Right	Wrong		
Control Group		Right	9	10	1,000
	Pre-test	Wrong	2	53	
	Total		11	54	
Experimental Group		Right	10	11	0,000*
	Pre-test	Wrong	36	2	
	Total		46	3	

In relation to the Second Geometrical Shape students were expected to *match triangle with simple 3/4 meter*. According to the statistical analysis there is no statistically significant relation in scores of the pre-test and post-test of the control group ($p>0,05$). While the statistical analysis there is statistically significant relation in scores of the pre-test and post-test of the experimental group ($p<0,05$).

Accordingly the training that experimental group received was more successful for matching 3/4 meter with triangle shape than the traditional training of the control group.

Table 17: Matching Geometrical Shapes with Musical Meters Part 2 Question 6

			Post-test		Total	P
			Right	Wrong		
Control Group	Pre-test	Right	11	1	12	0,625
		Wrong	3	50	53	
		Total	14	51	65	
Experimental Group	Pre-test	Right	9	0	9	0,000*
		Wrong	40	4	44	
		Total	49	4	53	

In relation to the Sixth Geometrical Shape students were expected to *match square shape with simple 4/4 meter*. According to the statistical analysis there is no statistically significant relation in scores of the pre-test and post-test of the control group ($p>0,05$). While there is statistically significant relation in scores of the pre-test and post-test of the experimental group ($p<0,05$).

Accordingly the training that experimental group received was more successful for matching 4/4 meter with square shape than the traditional training of the control group.

CONCLUSION & SUGGESTIONS

1. *The Ability of Students to Distinguish Aksak Measures from Simple Measures:*

According to the data obtained, as a result of the educational practices students participated in the experimental group developed their ability to distinguish 5/8, 7/8, 9/8 aksak meters from, 2/4, 3/4, 4/4 simple meters in great proportions. In order to determine the level of attaining this skill, in the pre-test post-test responses of the rhythm questions experimental group showed statistically better results than the control group to more than half of the asked questions. In total of eight questions that were asked they showed statistically significant increase in their results in seven of the questions.

These results show that training applications that are made by matching the aksak meters to geometric shapes, greatly improved the ability to distinguish aksak meters from simple meters for experimental group students. In other words the targeted behavior change was formed, so these results demonstrate that the method used in this study, is a significantly effective teaching method for 6th grade students. Students learning outcomes in the experimental group showed better results.

2. *Students Abilities to Match Aksak Meters with Geometrical Shapes:*

According to the measurements for matching aksak meters with geometrical shapes, students in the experimental Group had significantly higher scores than the participants in the control Group. In other words students learning outcomes in the experimental group showed better results than the students who attended in the control group. This result is based on the fact that training program applied to experimental group students helped them to improve their skills for recognizing aksak meters, better than the students participating in control group, this demonstrates that teaching through matching geometrical shapes with musical meters, was a significantly effective teaching method for teaching Aksak meters to 6th grade students. This study reveals the success of using Geometrical Shapes in teaching aksak meters to the 6th grade students compared to the traditional teaching methods.

SUGGESTIONS

This study presents a unique method of teaching musical meters through mathematical analogies and offers an interesting perspective of teaching and learning aksak meters.

We suggest that a further study subject could be observing if the students who have never experienced aksak meters before in his/her life can identify aksak meters with Geometrical Shapes and compare the findings to this study results.

Concepts which are hard for students to understand in music lessons could be taught with the help of activities related with mathematics.

The Geometrical Shapes can be used in the schools and be included text books to help teach aksak meters. Other research subject could be teaching complex meters such as 10/8 with the help of different Geometrical Shapes.¹

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¹ One part of this study was presented at 32ndWorld Conference of International Society for Music Education, 24 - 29 July 2016, Royal Conservatoire of Scotland, Glasgow, United Kingdom

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Appendix 1

Personal Information

1-Gender: () G () B

2-School Name:

3-Grade:

Part 1

In this section, there are 8 rhythmic groups consisting of two separate rhythm phrases.

The two rhythms in each group are going to be tapped consecutively with short breaks two times.

Identical Meter = **Both of the rhythmic phrases are in the exactly same meter such as: 4/4 =4/4**

Different Meters = **The rhythmic phrases are from different meter type such as: Simple meter + Aksak meter or Aksak meter +Simple meter**

Similar Meters = **Both of the rhythmic phrases are from the same type: Simple meter + Simple meter or Aksak meter + Aksak meter**

Please mark one of the options

1. a) Identical Meter b) Different Meters c) Similar Meters
2. a) Identical Meter b) Different Meters c) Similar Meters
3. a) Identical Meter b) Different Meters c) Similar Meters
4. a) Identical Meter b) Different Meters c) Similar Meters
5. a) Identical Meter b) Different Meters c) Similar Meters
6. a) Identical Meter b) Different Meters c) Similar Meters
7. a) Identical Meter b) Different Meters c) Similar Meters
8. a) Identical Meter b) Different Meters c) Similar Meters






Part 2

In this section, you are going to hear are 6 rhythmic patterns.

The rhythmic pattern for each question is going to be tapped twice. Please match the rhythmic patterns with the geometrical shapes given below.

Please mark only one of the options for each question.

Geometric Shape	Question 1 RP1	Question 2 RP2	Question 3 RP3	Question 4 RP4	Question 5 RP5	Question 6 RP6
—	Şen Çalgıcılar (2/4)					
△					Halay Saip Egüz (3/4)	

						Ilgaz Anadolu'nun (4/4)
			Sevgi Çiçekleri (5/8)			
				Çay Elinden Öteye (7/8)		
		Kızılıcıklar Oldu mu (9/8)				
						

Note: The rhythmic patterns for the test were chosen from Turkish songs. They are shown here just for information. Students received that part of the test empty.

Examination of the 6th Grade Turkish Lesson Coursebook Texts Within the Context of the Properties of the Text

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Abstract

In this study, the texts in the 6th-grade Turkish coursebook, prepared according to the 2019 Turkish Lesson Curriculum, have been analysed in terms of various text types. In this framework, the texts in the book have been examined and evaluated according to the criteria of the function, literary genre, logic level, and the utilization feature in language teaching, which the researchers have created based on the literature. The case study of qualitative research methods was used in the study. The data source of the research is the 6th-grade Turkish textbook used in 2020-2021 academic year. The data of the study was obtained through document review. The data obtained in the study were analysed and evaluated by content analysis, one of the qualitative data analysis methods. The research findings determined that the book included informative texts more than narrative texts and poems in terms of their functions. It has been determined that the texts in the book show a rich variety in terms of literary genre. It has been concluded that most of the texts in the book in terms of logic level are simple texts written at the level of plain logic. In the context of their usage characteristics in language teaching, it was determined that literary texts have more place than original texts in the textbook. Based on these findings, it was concluded that sufficient attention was not given to text selection in the textbook, and suggestions for text selection were presented in the process of preparing a Turkish textbook.

Keywords: Turkish Textbook, Text, Literary Genre, Logic Level, Function

1. Introduction

Language education aims to improve students' reading, writing, listening and speaking skills. Textbooks have an important function in this process (Ensar, 2002; Arici, 2009; Woody, et al., 2010; Carkıt, 2019). As a matter of fact, the process of developing basic language skills aims to improve students' both cognitive and affective characteristics through the texts in the textbooks. In this respect, the texts in the textbooks are seen as important educational resources (Oates, 2014; Usiskin, 2013). In the Turkish teaching process, textbooks and texts in the textbooks are the main sources of reference. In this respect, it is useful to explain the text conceptually first.

The word text is originally derived from the Latin word "textus" and means "weaving, writing knitting" (Yilmaz, 2010). Based on these meanings, a text can be stated that it is a knitted and interconnected series of writings. According to Gunay (2017), a text is a language string produced verbally or in writing by one or more people in a specific communication context. According to this definition, the text is a means of communication, namely, a means of expressing emotions, thoughts and desires through language. From another point of view, the text is a language element that is a communication function, is not static but has a dynamic feature. According to Gunes (2013), it is the product that results from the construction of the message to be given with a logical arrangement in a way that creates semantic harmony. Accordingly, the text can be evaluated as a work of language that requires a mental design and creates a meaningful whole within itself. In this respect, although the text is seen as a collection of parts that compose it and carry meaning integrity, it is a language product with a richer meaning than the parts that compose it.

A text is formed by composing sentences by establishing meaningful integrity of words made up of sounds and establishing meaningful and connected paragraphs with sentences (Aktas, 2009). In this sense, the text can be likened to a chain and the words, sentences, and paragraphs that make it up to that chain's rings. One of the main features of the texts is that the elements that form them are not composed randomly but in a certain order, meaning, logic and within grammar rules. The critical thing in text organization is the unity of language, meaning, and thought between sentences and paragraphs (Musaoglu, 2003). In these respects, the text can be considered as a complex structure consisting of sound, words, sentences, and paragraphs, which are the basic elements of language in a composition.

The texts in the textbooks have special importance in language teaching because the main material of language teaching is texts (Lackie & Tarry, 1993). The texts in the textbooks contribute to the development of the cognitive, emotional, and social skills of the target audience as well as language skills. In addition, these texts play an important role in helping students gain effective communication skills. In this respect, the texts in the textbooks are used to improve the cognitive, linguistic, emotional and social skills of the students during the Turkish teaching process. For this, selecting the texts to be included in the textbooks is considered a process that requires intensive study and analysis. When the literature is examined, it is seen that the texts are subjected to various classifications in terms of genre, characteristics, and usage purposes. It is useful to explain these classifications at the point of the theoretical background of the study to be carried out in this research.

Texts are divided into various categories according to the purpose of writing, content, and language usage characteristics. Ozmen (2001) examines texts as fictional, informative, and literary texts. Cemiloglu (2015) divides texts into three categories: Texts based on events, thoughts, and feelings. Gunay (2017) classifies text types as narrative, descriptive, conversational, linguistic, proving, explanatory, educational texts. In the 2019 Turkish Lesson Curriculum (TLC), while literary genres such as story, novel, fairy tale, biography, essay, and article are discussed at the level of classes, texts are examined under three headings as narrative, informative, and poetry. Gunes (2013) states that text types should be subjected to different classifications according to various approaches used in education. According to him, texts are examined in three categories based on their functions, characteristics in language teaching, and the level of logic.

In the literature, texts are classified as narrative, informative, and poetry according to their functions (Gunes, 2013; Cemiloglu, 2015; MoNE, 2019). Narrative texts are the ones that emerge when the writer narrates the events that have been or may be experienced in a way that affects the reader. Narrative texts enhance the reader's imagination. However, it takes the reader to different lives and offers him different experiences. Stories, novels, fairy tales, and theater texts are some of the narrative text examples (Aktas & Gunduz, 2001). On the other hand, informative texts are texts written to inform and make the reader think about any subject. These are also called didactic texts. While writing informative texts, ways of developing thought such as definition, comparison, and sampling are used. It is ensured that the reader establishes a cause-and-effect relationship. Texts in the form of interviews, travel articles, memoirs, essays, diaries, and letters are among the informative texts (Aktas & Gunduz, 2001). Another type of text, according to their functions, is poetry. Poetry is mostly texts that reflect the emotional world of the poet and have aesthetic value (Aksan, 1999).

Texts are classified as literary, produced, original and special texts according to their usage characteristics in language teaching. It is seen that the language teaching approach adopted in this classification is effective. According to Gunes (2013), literary texts are texts that emerge by expressing emotions, thoughts, and dreams aesthetically. The produced texts are written by students, teachers, and authors, and these texts generally present sections from daily life. Original and special texts, on the other hand, are texts created for communication purposes that allow the individual to express himself.

The texts are examined in two groups as simple and high-level texts in terms of logic level. According to Gunes (2013), texts written with plain logic are called simple texts, while texts created with spiral logic are called high-level or heavy texts. Simple texts are mostly texts that do not carry out an in-depth analysis that develops around a single event or situation. High-level texts, on the other hand, are texts that make in-depth analysis around multiple events and situations and put the reader into an intense thinking process.

When the literature was examined, it was found that many studies were conducted to evaluate Turkish textbooks from various angles (Kolac, 2003; Ciftci et al., 2007; Iseri, 2007; Gocer, 2008; Sahin, 2010; Durukan, 2011; Carkit, 2019). Despite this, it has been observed that sufficient studies have not been done regarding the classification of the texts in Turkish textbooks. In this sense, this study analysed the texts in the 6th-grade Turkish textbook in the context of text features. Thus, the aim was to determine the general characteristics and scope of the texts in the book. The study aims to contribute to the process of preparing textbooks and selecting text for textbooks. In this context, the following questions were sought in the research:

- What kinds of texts are included in the 6th-grade Turkish textbook in terms of their functions? Do these texts offer a balanced distribution?
- What types of literary texts are included in the 6th-grade Turkish textbook? Do these texts offer a balanced distribution?
- What kinds of texts are included in the 6th-grade Turkish textbook in terms of logic level? Do these texts offer a balanced distribution?
- Which types of texts are included in the 6th-grade Turkish textbook according to their usage characteristics in language teaching? Do these texts offer a balanced distribution?

2. Method

2.1. Research Model

The case study of qualitative research methods was used in the study. Case studies are a qualitative research method that allows one or more events, phenomena, or situations to be examined in depth and longitudinally (Davey, 1991). The purpose of case studies is to develop the proposed hypotheses instead of generalizing them (Yin, 1984). Case studies are classified in different ways in the literature. Merriam (1998) discusses case studies in 3 groups as discipline-oriented, general-purpose, and multi-case studies. In this study, the texts in the Turkish course textbook were accepted as a situation and these texts were analysed from different angles. In this respect, the study is included in the general-purpose case study. General purpose case studies allow a situation to be handled with a descriptive, interpretative and evaluative approach (Merriam, 1998). In this study, the features of the texts in the Turkish course textbook are described and evaluated.

2.2. Research Data Source

The data source of this research is the 6th-grade Turkish textbook, used at the public and private schools affiliated to the Ministry of National Education in 2020-2021 academic year. The said book has been prepared and published by MoNE publications. In this framework, the texts in the book have been examined and evaluated according to the criteria of the function, literary genre, logic level, and the usage feature in language teaching, which the researchers have created based on the literature.

2.3. Collection of Data

The data of the study were collected through document analysis, one of the qualitative data collection methods. Document review is a data collection method used to analyse documents with diligence and systematicity (Wach, 2013). In the field of education, many sources such as textbooks, teaching programs, student records, teacher files can be used and analysed as data sources (Bogdan & Biklen, 2007). In this research, 6th-grade Turkish Textbook is accepted as a data source and the texts in the book have been analysed by document examination. In qualitative research, long-term interaction and expert opinion are important practices that contribute to the credibility of the research (Guba & Lincoln, 1982). In the document review process, primarily in line with the criteria determined by the researchers, the texts in the 6th-grade Turkish textbook are classified, later, the obtained data were presented to two Turkish education field experts. The three texts that the researchers contradicted in terms of literary genre and two texts they contradicted in terms of logic level were included in the related categories in consensus in line with expert opinions. Besides, the data source was examined by two researchers over a period of 3 months, and the findings of the research were obtained. In this sense, it is aimed to increase the validity and reliability of the study with expert opinion and long-term interaction.

2.4. Data Analysis

The data obtained through document analysis in the research were analysed and presented with content analysis. In content analysis, the researcher presents the research pattern by presenting the findings in the context of themes and sub-themes (Patton, 2014). The aim of the researcher in content analysis is to determine the concepts and relationships that will explain the data (Yildirim & Simsek, 2016). In this study, the texts were examined according to the researchers' criteria, and the themes of the study were formed according to these criteria. In this process, in the context of research questions, the data obtained from the research on the themes of function, literary genre, level of logic, and usage characteristics in language teaching were evaluated and presented.

3. Results

In this section, the findings obtained during the study process are presented in the direction of themes and in tables. Thus, the aim was to concretize the findings obtained during the research process. Classification of the Texts in the 6th-Grade. The classification of the texts in the 6th-grade Turkish textbook in terms of their functions is shown in Table 1.

Table 1: Classification of the texts in the 6th-grade Turkish course textbook in terms of their functions

Themes	Text Name	Types of Text in Terms of Function
Theme 1 Reading Culture	Text 1: This Is My Story	Informative Text
	Text 2: I'm Searching	Poetry
	Text 3: My Dear Library	Informative Text
	Text 4: Donkey with a Standing Statue	Informative Text
Theme 2 National Struggle and Ataturk	Text 1: Courage of the Turkish Soldier	Informative Text
	Text 2: Old Granny	Informative Text
	Text 3: July 15	Informative Text
	Text 4: 120	Informative Text
Theme 3 Science and Technology	Text 1: Aziz Sancar	Informative Text
	Text 2: How People Used to Measure Time?	Informative Text
	Text 3: Technology Addiction	Informative Text
	Text 4: Look, The Postman Comes with Greetings	Informative Text
Theme 4: Virtues	Text 1: Giving Means Increasing	Narrative Text
	Text 2: Caglar Asar Saya Love	Poetry
	Text 3: Silver Wing	Narrative Text
	Text 4: Heron	Narrative Text
Theme 5: Nature and Universe	Text 1: What We Are Curious About	Informative Text
	Text 2: Afyon	Informative Text
	Text 3: Water Pollution	Informative Text
	Text 4: A Life After the Snow Crystals	Informative Text
Theme 6 Our National Culture	Text 1: Anatolia	Poetry
	Text 2: The Story of Tarhana	Informative Text
	Text 3: Native Language	Poetry
	Text 4: Black Train	Poetry
Theme 7: Health and Sports	Text 1: Time for Riding a Bike	Informative Text
	Text 2: Eating, Drinking, and Digesting	Informative Text
	Text 3: 10 Questions 10 Answers About Obesity	Informative Text
	Text 4: The Story of Those Who Don't Give Up	Informative Text
Theme 8: Individual and Society	Text 1: Yes Sir	Narrative Text
	Text 2: You Do a Favour, Too	Narrative Text
	Text 3: On Friendship	Informative Text
	Text 4: Hacettepe	Narrative Text

When examining the data about text types in terms of function in table 1, it is seen that a total of 32 texts in the Turkish course textbook are distributed as five poems, six narrative texts, and 21 informative texts. The ratio of informative texts to the total number of texts is 65.62%, while the ratio of narrative texts to the total number of texts is 18.75%, and the ratio of poetry to the total number of texts is 15.62%. Accordingly, it can be stated that the texts in the book do not show a balanced distribution in terms of function, and informative texts are included more in the book. In addition, when analysed at the theme level, it was determined that the texts in the 2nd, 3rd, 5th, and 7th themes consist only of informative texts. It is thought that this situation will negatively affect the effective acquisition of the targeted objectives in the theme by the students. In the research, the texts were analysed in terms of literary genres. Findings reached in this regard are presented in Table 2:

Table 2: Classification of the texts in the 6th-grade Turkish textbook in terms of literary genre

Themes	Text Name	Literary Genres
Theme 1 Reading Culture	Text 1: This Is My Story	Essay
	Text 2: I'm Searching	Poetry
	Text 3: My Dear Library	Chat
	Text 4: Donkey with a Standing Statue	Memoir
Theme 2 National Struggle and Ataturk	Text 1: Courage of the Turkish Soldier	Memoir
	Text 2: Old Granny	Memoir
	Text 3: July 15	Notice
	Text 4: 120	Memoir
Theme 3 Science and Technology	Text 1: Aziz Sancar	Autobiography
	Text 2: How People Used to Measure Time?	Chat
	Text 3: Technology Addiction	Funny Story
	Text 4: Look, The Postman Comes with Greetings	Chat
Theme 4: Virtues	Text 1: Giving Means Increasing	Tale
	Text 2: Caglar Asar Saya Love	Poetry
	Text 3: Silver Wing	Tale
	Text 4: Heron	Fable
Theme 5: Nature and Universe	Text 1: What We Are Curious About	Funny Story
	Text 2: Afyon	Itinerary
	Text 3: Water Pollution	Article
	Text 4: A Life After the Snow Crystals	Biography
Theme 6 Our National Culture	Text 1: Anatolia	Poetry
	Text 2: The Story of Tarhana	Chat
	Text 3: Native Language	Poetry
	Text 4: Black Train	Poetry
Theme 7: Health and Sports	Text 1: Time for Riding a Bike	Essay
	Text 2: Eating, Drinking, and Digesting	Essay
	Text 3: 10 Questions 10 Answers About Obesity	Article
	Text 4: The Story of Those Who Don't Give Up	News Text
Theme 8: Individual and Society	Text 1: Yes Sir	Drama
	Text 2: You Do a Favour, Too	Tale
	Text 3: On Friendship	Chat
	Text 4: Hacettepe	Legend

When the data about the texts are examined in terms of literary genres in Table 2, It is seen that the 6th-Grade Turkish textbook is formed of five poems, five chats, four memoirs, three stories, three essays, two jokes, two articles, one statement, one autobiography, one biography, one travel article, one news text, one theater, one legend, and one fable of the 32 texts, considering the distribution of literary genres of all texts in the book, conversation and poetry have a share of 15.62%, memoirs 12.5%, story and essay 9.37%, jokes and articles 6.25%, papers, biography, autobiography, travel writing, news text, theater, legend and fables 3.12%. Conversation and poetry appear as the most used literary genre in the book. Considering the book in general, the diversity in terms of literary genre draws attention. This situation is important for students to recognize different literary genres and to perform applications on these literary genres. In the research process, the texts were analysed in terms of logic level. Relevant findings are presented in Table 3.

Table 3: Classification of the texts in the 6th-grade Turkish course textbook in terms of logic level

Themes	Text Name	Texts in Terms of Logic
Theme 1 Reading Culture	Text 1: This Is My Story	Simple Text
	Text 2: I'm Searching	High Level Text
	Text 3: My Dear Library	Simple Text
	Text 4: Donkey with a Standing Statue	Simple Text
Theme 2 National Struggle and Ataturk	Text 1: Courage of the Turkish Soldier	Simple Text
	Text 2: Old Granny	Simple Text
	Text 3: July 15	High Level Text
	Text 4: 120	High Level Text
Theme 3 Science and Technology	Text 1: Aziz Sancar	High Level Text
	Text 2: How People Used to Measure Time?	High Level Text
	Text 3: Technology Addiction	Simple Text
	Text 4: Look, The Postman Comes with Greetings	Simple Text
Theme 4: Virtues	Text 1: Giving Means Increasing	Simple Text
	Text 2: Caglar Asar Saya Love	Simple Text
	Text 3: Silver Wing	Simple Text
	Text 4: Heron	Simple Text
Theme 5: Nature and Universe	Text 1: What We Are Curious About	High Level Text
	Text 2: Afyon	Simple Text
	Text 3: Water Pollution	Simple Text
	Text 4: A Life After the Snow Crystals	Simple Text
Theme 6 Our National Culture	Text 1: Anatolia	Simple Text
	Text 2: The Story of Tarhana	Simple Text
	Text 3: Native Language	High Level Text
	Text 4: Black Train	Simple Text
Theme 7: Health and Sports	Text 1: Time for Riding a Bike	High Level Text
	Text 2: Eating, Drinking, and Digesting	High Level Text
	Text 3: 10 Questions 10 Answers About Obesity	Simple Text
	Text 4: The Story of Those Who Don't Give Up	Simple Text
Theme 8: Individual and Society	Text 1: Yes Sir	Simple Text
	Text 2: You Do a Favour, Too	Simple Text
	Text 3: On Friendship	Simple Text
	Text 4: Hacettepe	Simple Text

When the data about the texts are examined in terms of logic level in Table 3, It is seen that there are 23 simple texts and nine high-level texts in the 6th-Grade Turkish textbook. The ratio of the number of simple texts to the texts in the book is 71.87%, while the ratio of high-level texts is 28.12%. This situation shows that the textbook is mostly prepared with simple texts. In this sense, it can be stated that high-level texts that develop around more than one event, situation, or phenomenon and mobilize students' thinking skills are not included in the book adequately. In the research, the texts were analysed in terms of their usage characteristics in language teaching. Relevant findings are presented in Table 3.

Table 4: Classification of the texts in the 6th-grade Turkish course textbook according to their usage features in language teaching

Themes	Literary Texts	Produced Texts	Original and Special Texts
Theme 1: Reading Culture	4	-	-
Theme 2: National Struggle and Ataturk	2	-	2
Theme 3: Science and Technology	3	-	1
Theme 4: Virtues	4	-	-
Theme 5: Nature and the Universe	2	-	2
Theme 6: Our National Culture	2	-	2
Theme 7: Health and Sports	-	-	4
Theme 8: Individual and Society	4	-	-

When the texts are examined according to the usage characteristics in language teaching in Table 4, it was observed that there were 21 literary texts, 11 original and special texts in the 6th-Grade Turkish textbook. The produced texts are not included at all, while the ratio of literary texts to the total number of texts is 65.62%, the ratio of original and special texts to the total number of texts is 34.37%. From this point of view, it is seen that there are more literary texts in the book.

4. Discussion

Supporting the cognitive, social, and emotional development of children, contributing to their linguistic development, and ensuring that they grow up as individuals who use the language correctly are among the aims of the Turkish course (Sever, 2013). Turkish lessons also make significant contributions to the development of students in terms of providing students with a love and culture of reading, developing high-level thinking skills, getting to know literary genres, and making applications for those genres. In order to achieve these goals, the texts in the textbooks, which are the main material of the Turkish course, must be carefully selected. In this study, the texts in the 6th-Grade Turkish textbook were examined under various themes in line with the research questions.

In the research process, the texts in the 6th-Grade Turkish textbook were analysed in terms of their functions firstly. In this sense, the book contains 32 texts in the research findings; five poems, six narrative texts and 21 informative texts were identified. These results show that there are more informative texts in the book proportionally. In this sense, it can be stated that the texts in the book do not show a balanced distribution in terms of their functions. However, in the study, it was determined that the 2nd, 3rd, 5th, and 7th themes consist only informative texts. The poetry type, which is one of the text types in terms of its functions, has been determined as the least used type in the book. However, poetry is an effective genre in creating literary and aesthetic pleasure in children. The findings of the research made by Yagmur, (2009); are in line with the findings of Solak and Yayli (2009) and Carkit (2019). It has been determined that the text types do not show a balanced distribution in terms of their functions in secondary school Turkish textbooks, which were also examined in related studies. In the 2019 Turkish Lesson Curriculum, it has been stated that text types should be distributed in a balanced manner throughout the book in terms of their functions, although the types of text to be used in a theme are left to the author(s) of the book (MoNE, 2019). It can be stated in that in the research, the texts in the 6th-Grade Turkish textbook are not distributed as specified in the curriculum, and it is necessary to be more careful about this issue when preparing the book.

Second, in the research process, the texts in the 6th Grade Turkish textbook were analysed in terms of their functions. In this sense, research findings include five poems, five chats, four memoirs, three stories, three essays, two jokes, two articles, one statement, one autobiography, one biography, one travel article, one news text, one theater, one legend, one fable type text in the book, consisting 32 texts in total, was determined. Considering the book in general, the diversity in terms of literary genre draws attention. This situation allows students to recognize and experience language usage in various literary genres and exercise them. Thus, the wide

variety of literary texts contributes to students' use of the language in an aesthetic and effective manner. Again, texts in different literary genres support students' multidimensional development by presenting different experiences in terms of linguistic, cognitive, and affective aspects. The results obtained in the research support the results of Bas, (2003); Urundu, (2011); Ozbay and Cecen (2012) and Bulut (2020) they carried out in their studies in the literature. It was concluded that Turkish textbooks, which were also examined in related studies, show a wide variety in terms of literary genres. The wide variety of texts in the textbooks is considered very important in terms of allowing students to explore the richness of the language in different dimensions (Carkit, 2019). In this respect, it is beneficial to consider this situation during the text selection stage for the textbooks.

Third in the research process, the texts in the 6th-Grade Turkish textbook were analysed in terms of logic level. Based on Gunes (2013), texts that develop around a single event, phenomenon or situation, do not encourage students to think at a higher level, and are written in a linear and simple logic, are expressed as simple texts. On the other hand, texts that develop around more than one event, fact, or situation, encourage students to think at a higher level, and are written in a spiral logic, are determined as high-level texts. In this sense, in the research findings of the book that contains 32 texts; 23 simple texts, and nine high-level texts were identified. In this context, it can be stated that the texts in the book examined in the research do not show a balanced distribution in terms of logic level. Simple texts often cause students to think one way. On the other hand, while high-level texts provide students with a versatile and analytical perspective, they also provide their high-level thinking skills such as critical, creative, reflective, lateral thinking, and problem-solving skills. Including high-level texts in the textbooks that will enable students to develop their thinking skills at a sufficient level will enable them to acquire 21st century skills, while contributing to their success in international exams such as PISA (Dolapcioglu, 2020; Ozdemir, 2020; Carkit, 2020).

In the research process, lastly, the texts in the 6th-Grade Turkish textbook were analysed in terms of their usage characteristics in language teaching. Accordingly, the texts are classified into three categories as literary texts, produced texts, original and special texts. In this framework, 21 texts in the book are literary texts, while 11 texts show original and special text features. The produced texts are not included in the book. The texts produced are texts written for the purpose of teaching language as a reflection of the behavioural approach (Gunes, 2013). Since the 2019 Turkish Lesson Curriculum is a program prepared in line with a constructivist approach, it is thought that the texts produced in the book prepared within the framework of this program and examined in the research are not included. Literary texts are considered important in terms of reaching students' language pleasure and using language aesthetically (Aytas, 2006). Original and special texts are texts created within the framework of the constructivist approach that allows the individual to express himself / herself (Gunes, 2013). It can be stated in the analysed book that the texts do not show a balanced distribution in terms of usage characteristics in the language teaching process. What is important in the language teaching process is to confront students with all kinds of texts that will support their linguistic, cognitive, social, and emotional development, thereby expanding their imagination and revealing their potential in using language effectively. At this point, it is thought that the texts in the textbooks, which are the main material of language teaching, should show a balanced distribution according to their usage characteristics in language teaching.

The research is a qualitative study conducted with the method of document analysis. There are some limitations to the research. The research was prepared and published by the Ministry of National Education conducted on the 6th-Grade Turkish textbook. At this point, it will be useful to examine the books prepared and published by different publishing houses and at different grade levels. Again, it is important to conduct researches on the opinions of teachers who are field practitioners in order to make healthy evaluations about the qualities of the texts in the textbooks. At this point, it is thought that both qualitative and quantitative studies will contribute to the literature.

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Review on Montessori Educators' Opinions Concerning the Digital Assessment Tool They Use in Terms of 21st-Century Skills

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Abstract

This study aimed to examine the opinions of Montessori educators on the digital assessment tool they use in terms of 21st-century teacher skills. The study sample covered 14 Montessori educators working in early childhood classes in public and private preschool educational institutions, located in Barcelona and Istanbul, where the Montessori educational approach is applied. In the study, the experiences of the Montessori educators with the digital assessment tool they use as the assessment tool were examined in terms of the identified 21st-century teacher skills. To this end, the research was designed with a phenomenological approach in the qualitative research method. The data were obtained through the personal information form and structured interview questions prepared for the digital assessment tool used by the Montessori educators. In the analysis of this data, the phenomenological study of Moustakas (1994) was introduced through the steps of the analysis. The perspectives of the Montessori educators concerning digital assessment, their application experiences regarding the digital assessment tool, and their views on their experiences were discussed in terms of utilization of the digital tool applications, as well as to use and evaluate information, their skills regarding collaborative work and communication, and finally their communication skills with the parents, which are among the 21st-century teacher skills. It was concluded that different factors influenced the opinions of the Montessori educators, where there were positive and negative expressions within the scope of these skills regarding the digital assessment tool.

Keywords: Montessori Education, Digitalization, Digital Assessment Tools, 21st-Century Assessment, Early Childhood, Phenomenology

1. Introduction

1.1 Introduce the Problem

Beginning when a child is still in the womb, the vital signs are monitored and recorded, as are the time of birth, average heartbeat per minute, breathing, reflexes, and appearance of the skin (Wortham, 2014). All of these data are obtained with the aim of getting to know the child and create a suitable environment for him/her. The

recognition process, which consists of numerical and medical information in the first years of life, changes and becomes multidimensional as time passes.

Getting to know the child in early childhood is the first step in evaluating them. In terms of the lexical sense, assessment is derived from the meaning of attributing importance to an object (Slentz, 2008). As a concept, the assessment covers all measurements and examinations to answer questions about what children know and what they can do (McAfee and Leong, 1997). Assessment in preschool education is a systematic process in which information is obtained through observations, interviews, portfolios, projects, tests, and other sources that can be used to gain insight into the characteristics of children or programs (Marion, 2015).

On the basis of Carr (2001), this systematic process can be explained as follows:

- There should be an interaction of quality between the teacher and the child.
- The child needs to be encouraged to take responsibility for his own learning.
- The fact that the child reaches a higher level is targeted.
- Positive learning trends need to be ensured.

Making the assessment right is crucial in creating positive learning experiences and academic success. (Neumann et al., 2019) Assessment in preschool education means assessing the child's learning and development holistically.

Assessment in Montessori Education is a continuous process that allows us to see the achievements concerning the child holistically within and as a result of the education process. Similar to monitoring and recording the vital signs of the child, Maria Montessori formed her philosophy by watching the child and getting to know him/her (Kramer, 2017). Therefore, it is very important to be aware of the interests, needs, and individual characteristics of the child; in other words, to know the child in order for the Montessori educator to provide the appropriate environment for the child (Guttek, 2004). Montessori expressed the importance of the development of the child during this period with the concept of the 'absorbent mind,' in which the child takes all of the stimuli around him/her into his/her mind through absorption. This period, which covers the period from birth to six years of age, is important in terms of acquiring the skills that will form the basis of his/her life, as well as creating social and academic life experiences that will affect the later periods of his/her life (Poyraz & Dere, 2003).

According to Montessori (2015), children have sensitive periods during the pre-school period. Montessori stated that these sensitive periods are critical time zones for development to take place, and it is essential to provide the necessary stimulation. The role of the adult for in the education of the child during this period is to guide their desire to learn and understand this environment in which the child absorbs like a sponge in its nature. This guidance creates an educational environment appropriate for the child with individualized education, which is a characteristic feature of the Montessori approach (Isaacs, 2007). Therefore, a Montessori educator is a good observer above all (Durakoğlu, 2010).

Observation, which plays a leading role in assessing the progress of the child and planning for the next steps, allows the ability of Montessori educators to be reflective in interpreting the observed behavior of the child. Moreover, these observations serve as a record-keeping and assessment tool and provide information on the planning and modification of the environment (Isaacs, 2010). The data obtained for each child through observation is recorded in many ways. Some are recorded with tools such as observation reports, time records, daily work plans, expert checklists, critical indicators, etc. (Korkmaz, 2013).

In the 21st-century, technology has created an area of utilization in the field of education by its introduction into human life and its day-to-day development (Taşgın, 2019). In this sense, technology that enables recording, analyzing, and sharing of data obtained through observation in a digital environment emerges as an assessment tool in early childhood education, as well.

Wortham (2014) referred to the digital assessment tools, which he called “the technology-based assessment,” as the adaptation of on-paper assessments, such as reading or math checklists, or in connection with a particular curriculum to computer software. Feld and Bergan (2002) referred to it as the electronic management of learning and stated that it makes recording, analysis, and reporting of the learning data of a child possible, and it can then be used to document learning outcomes and plan for subsequent learning goals and activities. Through electronic learning management, parents, teachers, and administrators have access to information on curriculum planning based on the learning and assessment of the child (Feld and Bergan, 2002; Wortham, 2014).

In the 21st century, the use of technology to address the complexities of class assessment can provide a medium (Heritage, 2018).

In the UK, it is known as a computer-based system (computer-based assessment) and is divided into two systems, namely private and state-developed. E-Profile is an example of a computer-based system designed by the government to help classroom teachers record profile assessments for the English curriculum. This system allows teachers and managers to monitor the success of Early Learning Goals and acts as a medium for reporting the information in charts and reports. This system, called the E-Profile system, also allows for reporting by the parents (Featherstone, 2013).

In Turkey, it has been decided that the digital assessment system will be included within the scope of the 2023 Education Vision published by the Ministry of National Education in 2018. Within the scope of the 2023 Education Vision, the decisions regarding the digital assessment system are as follows:

Measurement and assessment area

Objective 1. Measurement and assessment methods will be activated to improve the quality of education

Article 6: An E-Portfolio, which was designed for the assessment and improvement of all areas of the development of children, will be created based on the protection of the data of the child in a way that will start from early childhood education and continue in the upper levels of education.

Article 7: Special training for parents will be designed for the digital measurement and assessment applications.

Objective 2. The social, cultural, and sportive activities of the child will be monitored

Article 3: The social, sportive, and cultural activities of all children will be compiled in the E-Portfolio. Every child should have the option to be the best of what he/she can be, feel that he/she has it at every moment of their educational life, and has enough opportunities to move forward on the path he/she has chosen in order to reveal his/her full potential. The responsibility of a good assessment system is to support all stakeholders, who are responsible for making sense of the abilities of the child and increasing them, to make accurate and meaningful decisions on this journey.

The objectives and articles covered by the 2023 Education Vision set forth by the Ministry of National Education showed that a digital assessment system had been introduced to monitor, assess, develop and steer children (MEB, 2018). Thus, it was understood that the issue of assessing, monitoring, and supporting the individual characteristics of each child, which gains importance in the 21st-century, is being carried out.

Some of the digital (online, electronic) record-keeping tools used to keep records in Montessori education are as follows:

- Montessori Records Express is a program that allows teachers to monitor and follow-up progress, plan, save, and report studies. They can copy and paste work from other schools that use the software, or prepare studies specific to their class. There is also a portal for parents in the system.
- This software, the Montessori Compass, which also offers a free 14-day trial, is available on all devices. It provides the opportunity to record attendance, classroom observations, and course ideas and plans. Moreover, the features of printing weekly work plans on the system, overseeing classroom progress at a glance, and communicating with parents are available, as well.
- The Montessori Workspace is a system that allows the teacher to monitor progress, record social observations, and create customized reports and lists (<https://carrotsareorange.com/transparent-classroom/>).

Within the scope of the study, two digital assessment tools were examined via the opinions of Montessori educators. Transparent Classroom is the digital assessment tool used at the Montessori school in Barcelona, and Sap Fiori is the digital assessment tool used at the Montessori school in Istanbul. The historical process and content of these digital assessment tools are given below.

Transparent Classroom

This assessment tool is software that allows the recording of observations concerning children in Montessori classrooms in a digital environment and making various assessments of the development of the child as a result of the possibilities enabled by technology. Originally developed in 2012, solely for the purpose of keeping records for Montessori educators, this tool later began to allow sharing with parents. The tool was created by a team of eight people, including an Association Montessori International-certified Montessori educator. Even though Transparent Classroom is a software that was developed in Seattle, it has users in many regions of the world. There is also a website where the contents of the tool and all information about the tool can be accessed. Transparent Classroom provides Montessori educators with a wide range of use detailed under headings including record keeping, child profile, meeting reports, and optional features.

SAP (System Analysis and Program Development) Fiori

This system was created in 2019 through the preparation of the interface in SAP Fiori software for the purpose of recording observations and sharing information with the parent for the parents and educators of a special educational institution. This tool is also used in all steps of the educational institution and teacher-related personal service procedures. Under this heading, a digital assessment tool section of the SAP Fiori tool designed for the Montessori method will be explained. The tool was designed by the information technology department of the educational institution in cooperation with Montessori educators. It was created with the combination of the information about the title and subheadings of Montessori studies of educators and software information of the information technology unit.

The SAP Fiori digital assessment tool consists of the observation records for the Montessori studies, and the teacher and parent notes regarding the observations on the profile page of the child, branch lessons, photo and document upload, guidance, and absence tabs.

In addition to the use of digitalization for assessment in education in the 21st century, other skills have also emerged. Although these skills have common traits, the skills created by different institutions and organizations are shown in Table 1.

P21-Partnership For 21st Century Skills	NCREL En Gauge-North Central Regional Educational Laboratory	ATCS -Assessment, And Teaching Of 21st Century Skills	NETS/ISTE- National Educational Technology Standards	EU-European Union	OECD-Organization For Economic Cooperation And Development
Learning and Innovation Skills Creativity and Regeneration, Critical Thinking and Problem-Solving Communication and Collaboration	Creative Thinking Adaptation, overcoming complexity and self-management Curiosity, risk-taking and creativity	Ways of Thinking Creative and Innovative Critical thinking, problem-solving and decision-making, -Metacognitive awareness	Creativity and Innovation Creative thinking, structuring information and turning it into the product, and use of technology in the process	Learning to Learn Communication Communicating in the native language Communicating in the foreign language Cultural awareness, Social and citizenship adequacy, Entrepreneurial sensitivity	Interaction with heterogeneous groups Building good relationships with others Working as a team in collaboration Managing and resolving complex events
		High Productivity Effective use of Planning and Management Tools Production capability and high quality products	Digital Citizenship Understanding cultural and social issues through technology		Use of technology tools Use of language, symbol and text Use of information Use of technology
		Working Tools Information literacy, Information, Communication Technology Literacy	Technological Applications and Concepts Understanding the meaning, systems and applications of technology		
		Digital Age Literacy Basic, scientific, economic and technology Visual information literacy Multicultural literacy and global awareness	Research and Information Fluency Use digital tool applications to obtain, use, and evaluate information		

Voogt, Jockey, Natelia, Pareja Roblin. 2010. 21st-century skills. Discussion Paper. Zoetermeer: The Netherlands: Kennisnet. c. p.23 3:2000.

2. Method

This research was developed using qualitative research methods to interpret the experience of Montessori educators regarding the digital assessment tools they use by considering their opinions. Qualitative research is a method in which literature does not provide sufficient information about the phenomenon being studied, so it is a way to attain detailed data about the phenomenon from participants (Creswell and Poth, 2018). One of the patterns of qualitative research, the phenomenological study, is an approach that closely examines how an individual interprets his/her experiences (Cilesiz, 2011; Lodico et al., 2010). In this study, it was aimed to uncover and interpret the experiences, perspectives, and attitudes of the Montessori educators towards digital assessment tools that are considered as phenomena.

2.1. Determining the Study Group

The study group consisted of Montessori educators who provide Montessori education, use a digital assessment tool as a means of assessment, and work at two schools that have official private school status in the cities of Barcelona and Istanbul. Of the 14 participants, 3 used the digital assessment tool called Transparent Classroom at the Montessori school in Barcelona, whereas 11 used the SAP Fiori digital assessment tool at the Montessori school in Istanbul. The phenomenological study consisted of the experiences of the participants with the specified phenomenon. It was very important that all of the participants had experience with the phenomenon being studied. Criteria sampling required that all of the individuals examined should represent those who have experienced the phenomenon (Creswell and Poth, 2018). For this reason, the criterion sampling method, which is one of the purposive sampling methods, was selected in determining the study group. The research had criteria for the inclusion of participants in the study group, which were determined during the preparation stage of the study, and was set forth as follows: The participants in the study group should have received Montessori educator training from an officially trained institution, and use a digital assessment tool designed for Montessori education as the assessment tool in educational institutions designed with the full Montessori method in early childhood category. Moreover, the concept of 'experience acquired' in phenomenological research was very important. This study covered the experiences acquired by the participants between 2 months and 2.5 years of phenomena usage; in other words, the digital assessment tool. Purposive sampling, which allows the sample to best represent all of the diversity indexes, provides maximum diversity in qualitative research with different people and environments in a selected sample (Maxwell, 2013). In the study, the experience durations of the participants enabled the provision of maximum diversity. The entirety of the experiences of the participants with the digital assessment tool was discussed.

2.2. Analysis of data

There are many approaches to analyzing data acquired through the phenomenological approach (Merriam, 2009; Moustakas, 1994). The data obtained within the scope of this study was analyzed by following the steps developed by Moustakas (1994). The Moustakas phenomenological data analysis procedure was followed in the analysis of data collected from educators through the phenomenological interview.

Interviews with educators were recorded on video and transcription was performed by the researcher within a maximum of 3 days. The punctuation and spelling that the participants gave were ignored while transcription was being performed, and put on paper in a computer environment. After the recording was transcribed, the recording was listened to several times to check for errors. This was to ensure the accuracy and uniformity of the coding and themes from the transcriptions, which were attempted to be made without errors. Moreover, accuracy and uniformity were achieved through review analysis.

2.3. *Validity and reliability studies*

Van Manen (2014) stated that the validity of a phenomenological study should be sought in the evaluation of the robustness of the authenticity and interpretation of the meaning shown in the study. Therefore, one of the characteristics of qualitative research is that it does not have any concerns regarding generalizability.

Therefore, the validity of the research is the focused effort of understanding that can be associated and explained with the problem of the research in interviews and analyses conducted throughout the study. In order to ensure the reliability of the research in this explanation and interpretation process, the first thing the researcher must do is implement the epoché process. In other words, the researcher excludes his/her own experiences from the research. For this purpose, the researcher put his/her own experiences on a paper and then examined the experiences of the participants. Thus, during the data analysis, he/she tried to increase the characteristics of the research as reliable and unbiased by keeping the experience that he/she had put on paper separate from those of the participants (Yüksel and Yıldırım, 2015).

Moreover, strategies for the validity studies were also introduced to ensure validity of the research by bringing together insight from qualitative research history that defined strategies such as the length of time that the researcher has spent in the field of research, rich definitions, and closeness with participants in the study, and recommended that at least two of these should be followed in the study. The strategies used to ensure validity in the study are given below (Creswell and Poth, 2018).

Peer review, detailed and wide descriptions, external auditing, length of time in the field of research, and observation were among the strategies used to ensure validity. The interview questions used to collect data were created by taking expert opinion and conducting a pilot scheme, and external auditors were included in the research process. The themes generated as a result of the data collected from the study group were also reviewed by another Montessori educator. As a result of the peer review, the themes were finalized by looking at the harmony and disharmony between the themes. Without making any changes to the transcription and analysis of the opinions of the educators, it was attempted to express the findings in rich definitions and explanatory detail. Reliability in qualitative research is the consistency of the study by non-researcher individuals. In this sense, the use of an online interview program while collecting data was a factor in the reliability of the work in terms of recording the entire interview and then making transcripts of these records. The fact that the interviews were transcribed as they were, including pauses during speech, intonations, and sound drops, had a strengthening effect on their reliability, as well. (Creswell and Poth, 2018).

3. Results

When the data were analyzed, it is found that while talking about their experiences regarding the digital assessment tools, the Montessori educators associated them with ease of use, sharing with parents, and Montessori studies. It was also observed in the interviews that the Montessori educators included statements about their own observation styles and observation recording methods. Although these statements did not give information directly about the digital assessment tool, they were examined as a separate theme, as it was important for the educators to be able to understand their feelings and attitudes toward the digital assessment tools through a holistic approach. As a result, the data obtained revealed four main themes, which comprised: ease of use, sharing with parents, Montessori studies, and non-digital assessment tools. Within the scope of the study, among these themes, the themes of necessity of usage, communication with the parents, and communication and cooperation among Montessori educators were selected. The selected themes are shown in Figure 1.

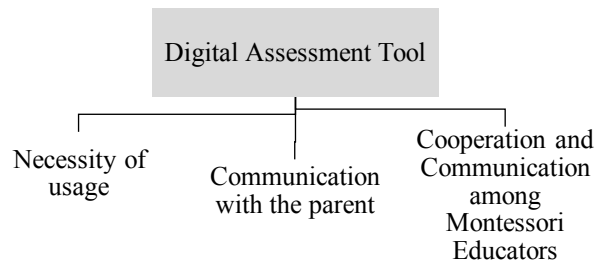


Figure 1: Selected Themes

3.1. Views of the Montessori Instructors on the Necessity of Digital Tools for Using and Assessing Information

The findings regarding research and information flow, the need to use the digital assessment tool by Montessori educators for their ability to use digital tool applications in order to make use of and evaluate information, as determined by the International Society for Technology in Education (NETS/ISTE), are shown in Table 1. Moreover, the opinions taken were classified as positive and negative statements towards the digital assessment tool being used.

Table 1: Opinions Regarding the Necessity of Use

Opinions on the Necessity of Use	Participants' statements
	<p><u>Positive statements</u></p> <p>“It makes it easier for the teacher to be online and digital, so that other partners and parents can be informed of the observation data entered about the children.” K3</p> <p>“In fact, I think the palest ink is stronger than the sharpest memory. We also write on paper, but the storage of these data of the child online will be very useful to the other teachers of the child in the next few years.” K4</p> <p>“I think it is necessary because we live in a digital age, and in this age, everything is actually recorded there, and if we think about why we use it, the most accurate data is the data recorded digitally. I think it makes sense to use it for transferring information to the next teacher.” K7</p> <p>“It is a good thing on behalf of the institution that the information about the child is kept in a neat and tidy manner, and that they have data on hand.” K10</p> <p>“It is effective if we consider it as transferring the observation forms to the digital field. I find it more functional to use technology actively and fill out forms on the phone than buy and write on printed paper.” K11</p> <p>“A user-friendly platform where I can save data and share information with my assistant, and share photos and comments in terms of sharing information concerning family, and create graphics.” K13</p>
	<p><u>Negative statements</u></p> <p>“As a teacher, it does not encourage me to assess because it is very difficult to use, there are so many tabs. It is supposed to be fast, but it is slower than normal.” K1</p> <p>“I think that it is good and healthy for educators to have a folder where they can keep their own notes instead of keeping it in digital form in terms of teacher observations,</p>

Continuation of Table 2: Opinions Regarding the Necessity of Use

Opinions on the Necessity of Use	Participants' statements
	“So I do not think it is very necessary, I do not think we get much efficiency. “There are three options, namely “presented,” “working on it” and “specialized”; and they cannot fully express the child.” K6
	“It is a very useful application, but without it, we can take notes and prepare reports of the process.” K8
	“At the same time, it is compelling for us as we do not do a desk job, and we do not always have a phone at our disposal.” K9
	“I think it is not necessary. I do not find the Fiori system very useful. The problems faced by the teacher during entries.” K12
	“You can also write it on paper, but the digital assessment tool saves time to file reports for families, which is very useful in this sense, but I do not think it is exactly necessary, we can do it another way.” K14

When Table 1 is examined, it is understood from their expressions that the Montessori educators had both positive and negative opinions regarding the necessity of the digital assessment tool they use. Among the Montessori participants, K3, K4, K5, K7, K10, K11, and K13 said that a digital assessment tool is necessary in terms of data sharing, data access, and practicality, whereas K1, K2, K6, K8, K9, K12, and K14 said that a digital assessment tool is not necessary for Montessori education due to its usage difficulty and inefficiency.

3.2. Findings on the Effect of Digital Assessment Tools on Montessori Educators' Communication with Parent

The findings concerning the views of the Montessori educators on the “communication with the parent” feature of the digital assessment tools used are shown in Table 2.

Table 3: Opinions on The Feature of Communication with the Parent

Opinions on Communication	Participants' statements
	Positive statements
	“We had monthly newsletters, and we could upload the food list. We can upload information such as newsletters, meal lists, announcements, organizational events that affect the entire class.” K1
	“Our general target was to share with our parents the information about children, the things they do and their photos.” K3
	“After all, we are living in a society of technology, and we need to inform the families. Rather than sending photos on WhatsApp, the SAP Fiori system is a much more formal platform for us.” K5
	“It is more of a tool for schools to keep data, to share with parents about what is been done with their child, and share newsletters, meal menus, and to keep parents informed,” K5
	“I am first working with the child in class; and when I am working, I have a notebook in my pocket. I take note as “this child is studying this subject” In fact, when I enter the study data into the system, I write a comment about the child for the parent.” K6

Continuation of Table 4: Opinions on The Feature of Communication with the Parent

Opinions on Communication	Participants' statements
	<p>“When we have an appointment with a parent or when we organize a meeting, we can enter records of the conversations there. This makes it easier to get a robust report.” K7</p> <p>“Sharing photos with parents, checking presentations made to children, and being able to receive reports for parent meetings.” K8</p> <p>“We usually enter our observations into the system on Fridays. It is spontaneous, and the parents can access the system with their passwords. There is no supervision by the administrators. but some of the parents are very interested, they are logging in at least once a week as they check the studies in which their child participates.” K9</p> <p>“There are the notes of the teacher and the notes of the parent parts. We put a full stop there because we cannot record it without writing something down.” K10</p> <p>“You can write a statement there if you want, but this statement is visible to other teachers, and the parent can see it, as well.” K11</p> <p>“We can share some of the information entered into the system with parents, and use it as a means of communication.” K13</p> <p>“We send emails every second Friday. We send all of the studies and presentations, but parents can access the system at any time they desire. The main goal is to share with parents what has been done concerning their children, and share the level and the studies that the child participates in, and be able to create reports and establish a network between family and the class.” K14</p>
	<p><u>Negative statements</u></p> <p>“Most parents cannot use it because they find it difficult to use, or they do not look at the tables we entered. They just look at the photos and use the download feature for the photos.” K1</p> <p>“The parents do not like this system, and they have expressed that the operator side is challenging, and that they cannot access the data very easily. I think that the turnout is very low, and I can tell you that it is one-third.” K2</p> <p>“Parents think it is a system mostly used in many business systems as they do not know much about the system; so, they have demanded from us that we send these issues and the photos over WhatsApp. They are not very interested in the written stuff. I wrote there “pressure tubes,” but not many people searched to see what pressure tubes are. We had a parent who googled for it specifically. There are only a few parents, and most of them do not use it; we use it.” K4</p> <p>“The parents do not check, we can tell from the bulletins. When we mentioned the bulletin we uploaded monthly, they said they did not look at it.” K5</p> <p>“Make it “working on it” as the parent will see it, but the parents are waiting for us to report back. They see the name, they see there that the child is working on it, but what is it? It is not efficient in that sense. Parents do not often take a look at it. There were only two parents and one was a computer engineer. They had previously used this system for other purposes, so that parent was very interested. We thought maybe we should send it through WhatsApp now, but even if we continue to load it and steer the parents to it, they are not very interested.” K6</p> <p>“We already use this system to share our observations with parents, but we also get feedback that it is quite complicated and that they do not enter the system For example, “student is studying engraved numbers.” Aside from this field, there are also comment fields for teachers and parents, but I do not use it.” K12</p> <p>“It is a good tool but I do not think it is very reliable. I do not think it is necessary for the family to see what is been done all day. I think it is too much. It cannot replace a one-on-one meeting with the family.” K14</p>

When Table 2 is examined, it is understood from the statements that the Montessori educators had both positive and negative expressions regarding the feature of digital assessment tools being used to communicate with the parents. Among the participants, while K1 mentioned that the ability to share information, such as newsletters and meal lists, with parents through one-way communication channels was a positive feature of the digital assessment tool, K3, K5, K6, K7, K8, K9, K13, and K14 expressed that informing parents about their children's studies in school in parental communication was a positive effect of digital appraisal tools. In the table, it is understood that K1 and K5 had both positive and negative opinions of their digital assessment tool in terms of communication with the parent.

3.3. Findings on the Effect of Digital Assessment Tools on the Ability of Montessori Educators to Work in Collaboration and Communicate with Each Other

The findings on the digital assessment tools obtained in the study concerning the effect of digital assessment tools on the ability of the Montessori educators to work in cooperation and communicate with each other are shown in Table 3.

Table 5: Findings Regarding the Ability of the Montessori Instructors to Work in Collaboration and Communicate with Each Other

Opinions on Communication and Collaboration	Participants' statements
Communication	<p>Positive statements</p> <p>“There is a field on this checklist where only teachers can see the way the children work academically. Considering the moments when he/she cannot share with the other which child is doing which study during the day, both teachers can see what the other teacher enters there, which level the child is at, and instead of taking the time to communicate with each other, we are able to obtain this information there.” K2</p> <p>“There are cases where it facilitates communication with each other, but there are also cases where it is necessary to communicate it privately. In one case... I did not come to school for a few days, I did not know what was done. So, if we are stuck about what was done with this child, which level we are at, and if it is something we cannot observe, then yes, it can be checked there. For example, “we have studied it with this student, but we can also do this and that as well,” and “he/she seems to need support on this.” But since they saw the same screen through the system as me, let us say that I worked on engraved numbers with a student, I say that this kid needs to study again 3 to 6 times. And when I enter the explanation, my other colleagues can see the explanation. So, he/she can see the details of my work by reading my views.” K7</p> <p>“Teachers can write notes there for each other because we keep entering our notes about the student, which is efficient for other teachers to enter; we do not have to take notes. Then we can forget.” We can see the child's studies there, as well; and then we can see the last study of the child while planning what he/she should learn, and plan the next study accordingly.” K9</p> <p>“Let us say daily life, grace, kindness... I click the other study that have been opened under it, and if I have a teacher's note, I enter my note.” K10</p> <p>“We can see which teacher made which presentation. Yes, there are sometimes overlooked issues when you write in the notebook, but when you look at the system, we can see which teacher is doing a presentation for which child. You can write a statement there if you want, but this statement is visible to other teachers; and the parent can see it, as well.” K11</p>

Continuation of Table 6: Findings Regarding the Ability of the Montessori Instructors to Work in Collaboration and Communicate with Each Other

Opinions on Communication and Collaboration	Participants' statements
Communication	<p>“My colleague and I can enter all of our observations. First, we take notes in our notebook, then we enter them into the system. I see it quite positively in that sense. During the day, we are able to take a break at different times, and it is impossible for us to meet and exchange information. We can see what has been done through the Transparent Classroom, daily. We have a weekly meeting, of course.” K13</p> <p>Negative statements</p> <p>“It had no effect on communication.” K1</p> <p>“But SAP had no influence on the transfer of the information by the teachers.” K5</p> <p>“We did not need to open and look at it anyway; we open our observations book and look in order to move on from level where the student was.” K6</p> <p>“Every week there are children with whom the teacher worked. We group the children there per educator, but we do not use it so much for communication. In the later period, the teacher looks at the observation book when he/she wants to see it.” K12</p> <p>“I do not really need it very much. Because it is more important that I observe the children directly. It is better to have a meeting together.” K14</p>
Collaboration	<p><u>Positive statements</u></p> <p>“One week it can be one teacher, and another week it can be a different teacher.” K1</p> <p>“We usually enter them into the system at the end of the week on a Friday, sharing what we have worked on with the kids throughout the week with other teachers. In order to collaborate with each other, we group the children per educator, and share the data entered using this application.” K3</p> <p>“We enter the Montessori observations with the collaboration of 3 or 2 teachers. We just enter the information we want to enter by collaborating.” K5</p> <p>“If we think about the number of students. Three teachers last year, two teachers this year. If we can share it and enter it into the system, it makes it easier for us. Anyway, it can be seen which presentations are entered. I have not had problems at this point; it even makes our job easier when it comes to photo entry. For example, we have 24 students and from there we upload photos of 7 students per teacher.” K7</p> <p>“When there are 3 people in the classroom and the number of children in the classroom is high, let us say that the number of students is 24, it makes 8 children per 3 teachers. Whoever we are working with that month to share our workload, we say that “I do all the work related to the child that month,” and we do the division of labor and try to make our job easier.” K10</p>

When Table 3 is examined, it is understood from the statements that the Montessori educators had both positive and negative expressions regarding the digital assessment tools they use with respect to communication and cooperation with the other educators working in the same class. While Montessori educators K2, K7, K11, and K13 emphasized that each educator can see the study presented by the other in the digital assessment tool in terms of informing each other about the presentations they made, K9, K10, K11 expressed that, through the digital assessment tool, they can inform each other about the condition of the child in the study process. K1 and K5 stated that the digital assessment tool had no effect in terms of communication between the Montessori educators, whereas K6 expressed that they use their own observation book instead of the digital appraisal tool in that sense, and K14 stated that the Montessori educators should meet face-to-face instead of using the digital assessment tool in this sense.

When Table 3 is examined for the effect of the digital assessment tool on the cooperation between the Montessori educators, it is understood that the statements were positive. According to the table, concerning the digital assessment tool for collaboration between the Montessori educators, K1, K3, K7, K10 stated that they collaborate for making presentations to the children and entering observation data into the digital assessment tool.

4. Discussion

In this section, the relation between the 21st-century skills and the related themes obtained from the views of the Montessori educators about the digital assessment tool were examined. The first skill considered as a 21st-century skill was the use of a digital assessment tool as a means of using and evaluating knowledge. While communication skills were discussed in terms of communication between the Montessori educators, and between the Montessori educators and the parents, collaboration skills were discussed in terms of cooperation of the Montessori educators with each other.

Within the scope of using a digital assessment tool as a means of using and evaluating information, which is one of the 21st-century skills, it was observed that the Montessori educators fulfilled this skill in practice. However, the analysis regarding the experiences of the Montessori educators with the Transparent Classroom and SAP Fiori digital assessment tools showed that the Montessori educators had positive and negative views on the necessity of utilizing the digital assessment tool. The fact that Lacina (2012) mentioned in his study that there are many benefits of online systems, as well as negative sides, supported the views of the Montessori educators. It can be said that the concept of 'digital' in the digital age was effective in the fact that the Montessori educators believed that a digital assessment tool was necessary. The concept of digital has been used to mean that the observation data obtained from children can be accessed and shared in another environment at any time, and they also stated that this opportunity as the result of technology should be used in education and assessment. Other educators expressed a negative opinion of the need for the use of the digital assessment tool for the assessment. Negative insights were negatively expressed in terms of the efficiency and usefulness of the digital assessment tool used. It was understood that the digital assessment tool was compared to the paper-based assessment. Some of the Montessori educators who use the SAP Fiori system said that the usage of the SAP Fiori digital assessment tool was necessary if its usage was facilitated, and some believed that it was sufficient to conduct the assessment on paper for this reason. Neuman et al. (2019) stated in their research on technology and assessment in preschool that it is difficult to make technology-based education assessment a part of good education practices, but it can be overcome by the joint efforts of a number of stakeholders, and that it is important to choose well the technological tool to be used. This was in line with the views of the Montessori educators that the tool was easy to use concerning their views on the necessity of using the digital assessment tool.

Another 21st-century skill examined was communication skills, which became more prominent with the development of technology, as mentioned earlier. As a result of this research, the Montessori educators highlighted the feature of the digital assessment tools to communicate with the parent. The Montessori educators had both positive and negative statements regarding the digital assessment tool. They expressed a positive attitude towards the digital assessment tool in terms of sharing the status of the children in the classroom and ensuring that the parents could see them. In fact, they used digital assessment tools in the sense that the parent could see how their child was doing. It was also understood that two-way and one-way communication were used with the parents. Montessori educators using the SAP Fiori digital assessment tool can share a photo, monthly bulletin, and monthly meal lists utilizing one-way communication. Moreover, the studies and study reviews of the children are communicated to the parents via the digital assessment tool. Montessori educators using Transparent Classroom said that in addition to parents entering the system at any time and seeing information about their child, they send information to the parents concerning the studies that their child takes part in every two weeks on Friday through the e-mail system of the digital assessment tool. This indicated that Montessori educators using Transparent Classroom utilized the digital assessment tool instead of their own personal communication channels in their communication with the parents. The study conducted by Migliorino and Maiden (2004) supported the fact that using an online record-keeping site has many positive aspects, such as

allowing parents to instantly access up-to-date information about their children from anywhere. Cases such as parents having problems using the system, and not understanding what the study involved had meant, etc., had a negative impact on parental communication. In his study examining the Montessori Compass tool, which was used as another digital assessment tool in Montessori education, Seril (2015) expressed that the Montessori Compass tool was used in communicating with the parent, followed by e-mail, and finally, phone. Moreover, the parents stated that they had difficulty in understanding the reports and entering the system. This fact coincided with the findings of this study, where parents preferred face-to-face communication due to problems such as finding the system complex and losing the password to enter the system, according to the feedback of the Montessori educators.

Collaboration and communication skills in the areas of study, which all institutions and organizations refer to as a common skill among 21st-century skills, become more important in terms of the relationship between educators, since there are multiple teachers in Montessori classes (data on the number of educators over the number of children has already been given). It was understood that the Montessori educators use their collaborative skills to record the observations of the children in the system through digital assessment tools, whereas different factors were effective in their communication between each other; therefore, it changes from one person to another. Neuman, et al. (2019), in their research on assessment and technology in early childhood education, stated that technology has many benefits for assessment. Thus, in the 21st-century, it is understood that in addition to the effect of digital assessment tools on communication and cooperation between Montessori educators, cooperation and communication skills have an important role in its adoption and the increase of efficiency.

5. Conclusions and Recommendations:

It was determined that the Montessori educators utilize a digital assessment tool as a tool to use and evaluate information which is among the 21st-century skills, but their perspectives on their usage vary positive to negative. It was seen that they use the digital assessment tool to communicate with the parents, and the effectiveness of this communication is affected by many issues. It was also observed that the Montessori educators had different perspectives and practices in terms of the effect of digital assessment tools on communication and collaboration with others. Some of the participants found it very useful in terms of communication with each other, while others stated that they did not feel the need to use the tool. Although the importance of the content of the digital assessment tool was emphasized in the study, it was understood that the perspectives of the Montessori educators influence their views on their experiences.

It is foreseen that the use of digital assessment tool technology will increase in Turkey and around the world as it integrates more and more into our lives. Therefore, more studies will be needed to increase the use of digital assessment tools and the quality of their content. In this sense, the recommendations for future studies are as follows:

- The use of digital assessment and similar tools can be researched in schools that provide preschool education under the Ministry of National Education in Turkey.
- The sample of the research can be enlarged, and the experiences of teachers regarding digital assessment tools can be revealed.
- The study can be conducted with Montessori educators in different countries using the same digital assessment tools.
- A study on Montessori educators, who use many different digital valuation tools, that compare different features of the digital assessment tool, can be conducted.
- A study can be conducted using digital assessment tools utilized in different education programs.

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Computer Assisted Education's Effects of Learning the Eighth Grade Math Subjects with Geometer's Sketchpad on Students' Performance Grades and Academical Achievements and Students' Opinions: A Mixed Method Study

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Abstract

In this study, it was aimed to show the effect of computer assisted learning on the academic achievement, performance levels and computer attitudes of 8th grade students in "Transformation Geometry" subject and determine students' opinions about this learning environment. The study was conducted with embedded design, one of the mixed method designs. As a result of the analysis, no statistically significant difference was found between the academic achievement of control and experimental groups. Experimental group students stated that the Geometer's Sketchpad (GSP) software was useful, they expressed that they learnt the subjects better and easier, learning by applying increased their self-confidence and sense of curiosity. It was determined that students were able to establish relationships between the concepts they learnt about real life and the subject of transformation geometry and realized that they could experience mathematical concepts in many areas in daily life.

Keywords: Computer Assisted Instruction, Dynamic Geometry, Geometry Teaching, Student Achievement, Mixed Research Method

1. Introduction

Many countries are trying to integrate education systems that direct the future of society with developing technology (Tuzer Unsal, 2018). According to Akekin Baskaya (2014), there is significant competition for using technology in education in many parts of the world. This competition has enabled computers to be used in all educational content and made the computers one of the indispensable elements of education.

Since computers are used for teaching purposes affect various sensory organs simultaneously, it increases the learning level and the efficiency of the information learned. Using multimedia tools together increases the learning level by compensating for the negativities arising from the usual structure of learning environments (Ceylan, 2008). The interaction of students with computers can show a structure that is liked and provides real-life skills to the student compared to differently designed teaching materials (Senemoglu, 2007).

In the constructivist learning approach the student, who "builds the knowledge," creates a learning system related to the environment through experience and interaction. By participating actively in the environment where the learning takes place, the student combines the latest information he/she learnt with what he/she learnt before and thus creates his/her learning. In this understanding, rational arrangements about the information to be learnt are realized by the learner. Therefore, constructivist learning environments should be prepared in a way that allows students to interact more with their environment and to have a more efficient and effective learning life (Pesen, 2005). The constructivist learning approach is tried to be implemented by the development of many educational software supported by information technologies (Yurdakul, 2004).

National Council of Mathematics Teachers (NCTM) has stated that technology was an appropriate element in terms of mathematical reasoning, expression, problem solving and effective communication. Therefore, widespread use of technology in almost every aspect of our lives necessitates changes in the content and nature of school mathematics programs and it is important for students to use computers to increase their mathematical understanding in accordance with these changes and its use should be supported (NCTM, 2021). According to Bintas and Akilli (2008); Dynamic Geometry Software (DGS) developed for this purpose was help students to reach a higher cognitive level by making connections between geometric shapes and making inferences. DGS enables many geometric shapes to be created in computer environment, to establish relationships between shapes, to make various measurements and comparisons. According to Hyewon and Reys (2013); an up-to-date tool like DGS provides a more motivating, interactive and student-focused method for students to explore relationships. DGS allows students to format the shapes in the computer environment and then change these shapes by dragging their corners or edges and calculate certain properties. In DGS, the relationships created once between lines and figures are preserved in all cases (Van De Walle, 2013).

The results of the study conducted by Hannafin et al. (2008) with 6th grade students using GSP on the spatial abilities of the students revealed that students who learn with GSP activities learn geometry more easily and contribute more to the development of their spatial abilities. In the study of Cetin (2018) where the "transformation geometry" learning processes using DGS of the middle school 7th grade students were examined, it has been determined that DGS is effective in exploring and reasoning mathematical relationships, concept learning and conceptualizing, modelling, making use of multiple representations and concentrating the attention of the students by increasing their motivation. In the study of Thangamani and Eu (2019) where GSP's effects on students' success in creating symmetries of two-dimensional shapes were investigated, it has been determined that DGS improves students' academic achievements and attitudes. In the study of Sinclair and Moss (2012) where the effects of dynamic geometry environments on children's geometric thinking were investigated, it has been determined that children's thoughts developed and the diversity of three-sided polygons called "triangles" increased considerably.

1.1. Significance of the study

When the studies conducted in Turkey were examined, it was seen that there was no scientific research examining the effects of transformation geometry sub-learning area and student views by using the 8th grade CAI method according to the renewed mathematics curriculum. In this respect, it was thought that the study would contribute to the literature and it was determined that the use of DGS in middle school mathematics lessons was important in determining students' attitudes towards computers, evaluating their academic achievements and revealing students' views about CAI environment.

The fact that this study will try to exemplify the use of DGS in mixed research design according to the constructivist theory increases the importance of the study.

The aim of this study was to investigate the effect of CAI on "Transformation Geometry" on the academic achievement, performance levels and computer attitudes of 8th grade students in mathematics and determine students' opinions about CAI environment designed with DGS. For this purpose, the following research questions were examined:

1. Does CAI of middle school 8th grade math subjects with Geometer's Sketchpad have an effect on students' academic achievements and attitudes towards computers?
2. What are the experimental group students' opinions on computer assisted geometry learning?

2. Method

This study was based on embedded design, one of the mixed method designs. The mixed method was expressed as a combination of quantitative and qualitative approaches of a study method by Tashakkori and Teddlie (1998). According to Creswell (2003), mixed method is a method of collecting qualitative and quantitative data in a study and analyzing these data according to their importance. In this way, the researcher can better explain the information obtained from the experimental process by collecting qualitative data in addition to an experimental study (Plano Clark and Creswell, 2015). Embedded mixed design is the method in which the perspectives of individuals are combined or sequentially added to experimental data (Creswell, 2016).

2.1 Participants

The research group consisted of a total of 48 students studying in the 8th grade in a public secondary school in Manisa province of Turkey in the academic year of 2016-2017 fall term. In order to determine the homogeneous groups before the study, the success mean points of the 8th graders for the last four years were taken from the e-School system. The findings obtained are given in Table 1.

Table 1: Mean Success Points of Classes for Previous Years According to the Data Taken from the e-School System

Class	8-A	8-B	8-C	8-D	8-E	8-F
Number of Students	24	24	24	28	24	24
Average	74,624	74,359	77,534	71,134	81,608	72,446

As seen in Table 1, it has been determined that 8-A class has the mean of 74,624 and 8-B class has the mean of 74,359. Based on these data, it could be thought that the academic achievement levels of 8-A and 8-B classes were close to each other. Since the same mathematics teacher has been teaching in these two classes, it was thought that they could be suitable classes for the study. In order to determine whether the 8-A and 8-B classes were statistically equivalent or not, the Transformation Geometry Achievement Test was applied to both classes as a pretest and the data sets were analyzed. The findings obtained are given in Table 2.

Table 2: Independent Sample T-Test for Equivalence of Control and Experimental Groups

Group	N	Mean (\bar{X})	Std. Deviation	df	t	p	r
Control	20	3.8310	3.39384	40	0.550	0.585	0.04
Experimental	22	3.1505	4.48705				

According to the results of the Independent Sample T-Test, no statistically significant difference was found between academic achievement test pretest score averages of the control group and the experimental group ($t(40) = -0.55, p = 0.585, r = 0.04$). The effect size value shows that there is a small difference between the mean scores of the groups ($r = 0.04$). It was determined that the groups chosen before the study were statistically equivalent to each other. Based on these data, 8-A class was assigned to the experimental group and 8-B class was assigned to the control group randomly.

2.2 Quantitative Method

The subject of “transformation geometry” was chosen because of the fact that reflection, symmetry, rotation and translation are among the basic concepts of geometry and it was determined that students have misconceptions about it in the literature. The dynamic geometry software, GSP, was chosen because it is an interactive teaching tool and enables constructivist teaching environments. Transformation geometry sub-learning areas were investigated before the implementation of the study, which was designed using a pretest-posttest control group quasi-experimental design. All the outcomes related to the subject have been determined by examining the curriculum and making use of the studies on sub-learning areas. Considering the opinions of the experts who have worked in the field, it was decided that a 3-week curriculum of 12 hours in total was sufficient for the students to achieve the relevant outcomes. The table of transformation geometry outcomes is given in Table 3.

Table 3: Transformation Geometry Learning Outcomes

Learning Area	Sub-Learning Area	Total Hours	Outcomes
Geometry and Measurement	Transformation Geometry	2	1. Creates images of points, segments and other planar shapes under rotation.
Geometry and Measurement	Transformation Geometry	3	2. Discovers that each point on the shape in rotation is subjected to clockwise or counter-clockwise transformation at a certain angle around a point, and that the shape and its appearance are identical.
Geometry and Measurement	Transformation Geometry	4	3. Draws a polygon in the coordinate system by specifying its image under translation, translation along any line, reflection according to one of its axis and rotation around the origin.
Geometry and Measurement	Transformation Geometry	3	4. Creates images of the shapes as a result of up to two consecutive translation, reflection or rotation.

Before the implementation, information about the use of GSP was given to the math teacher of the school by the researcher and several practices were carried out together. Transformation geometry achievement test and computer attitude scale were applied to the both groups as a pretest. Then, 3 hours of training was given by the math teacher in drawing points, segments and polygons, calculating side lengths and areas, creating a coordinate system and determining the coordinates of geometric shapes in order to introduce the GSP software to the experimental group students and to gain them skills in using it in the IT Laboratory. There were 20+1 computers in the laboratory. After the implementation started, the subject of Transformation Geometry was taught to both groups simultaneously by the same math teacher at the school. The control group was taught in the classroom using traditional teaching methods. The experimental group was taught the same subject in the IT Laboratory. The lessons were taught by math teacher with daily lesson plans, worksheets and GSP drafts prepared by the researcher in accordance with the curriculum. Worksheets containing paper-pencil activities, thinking activities and GSP activities were distributed to each student before the lesson. GSP activities were also copied to the desktop of student computers by the researcher before the lesson started. Students created what was asked of them in the worksheets and wrote their findings and generalizations on the worksheets. When it was the turn of the relevant GSP activity in the worksheets, the students opened these drafts on their computers and worked on them. After each activity on the worksheets was completed, the students discussed the findings they obtained and the students who volunteered solved it on the smart board. After the existing worksheets were finished, new worksheets were distributed to the students. The researcher was not present in the IT laboratory during the lesson, but he was ready outside in order to immediately intervene in the malfunctions that may occur in the computers or the smart board and to ensure the effective use of the course time.

The quantitative method of the research is given in Table 4.

Table 4: The Quantitative Method of the Research

Groups	Number of Students	Before Experiment	Teaching Method	After Experiment
Experimental	24	Pretest	Computer Assisted	Posttest
		Transformation Geometry Achievement Test		Transformation Geometry Achievement Test
		Computer Attitude Scale		Computer Attitude Scale
Control	24	Pretest	Traditional	Posttest
		Transformation Geometry Achievement Test		Transformation Geometry Achievement Test
		Computer Attitude Scale		

The experimental implementation was carried out in 12 lesson hours for 3 weeks. In the both groups, the subjects were started and completed at the same time. After the implementation, transformation geometry achievement test was applied to both groups as posttest. In addition, computer attitude scale was applied to the experimental group students as a posttest.

2.3 Data Collection Tools

In order to collect quantitative data in this study; students' grade point means of the last 4 years obtained from the e-School system, Transformation Geometry Achievement Test prepared by the researcher to measure the effect of CAI on students' academic achievement, Computer Attitude Scale in order to measure students' attitudes towards computers, worksheets and GSP activities prepared by the researcher were used.

2.4 Worksheets and GSP Activities

Worksheets and activities were designed considering the constructivist theory principles and parallel to the transformation geometry sub-learning area. Thus students were actively been participated in the course by using the features of GSP that requires entry-level experience. At this stage, the mathematics course curriculum, textbooks and studies in the literature were used. Worksheets, containing guiding explanations about the activities that students would study and that could be used in computer environment with the activities prepared for GSP software, were also included activities where drawings could be made with crayons. The examples in the worksheets were prepared in a way similar to the examples in the textbook and include examples of situations they encounter in daily life and real life problems. Students made inferences by working on 36 worksheets and 25 GSP activities. It is aimed that students should observe the transformations of shapes on reflection, rotation and translation, discover the relationships between them, explain the results and reach generalizations with the questioning nature of the worksheets and its open-ended questions. All activity drafts, worksheets and daily lesson plans based on them were examined by two expert academicians who had studies in the field. According to the feedback received from them, necessary corrections were made and the materials were finalized.

2.5 Transformation Geometry Achievement Test

Transformation Geometry Achievement Test was prepared in accordance with the transformation geometry sub-learning area objectives determined in the curriculum. A candidate test consisting of 40 questions, selected from the Ministry of National Education achievement tests and national exams in previous years, was created. In order to increase the content validity and reliability of the test, the number of candidate test questions was planned to be high. A table of specifications for the candidate test was created by taking the joint opinions of three expert researchers who have worked in this field. Thus, it was determined which cognitive process the related outcome of each item belonged. 15 test questions were excluded from the candidate test, thus the final test consisting of

25 questions was prepared. Since the questions were prepared by the Ministry of National Education according to the outcomes and selected with expert opinion, no additional reliability and validity study was conducted.

2.6 Computer Attitude Scale

As a result of the review of the literature, it was observed that there was a correlation between the attitudes towards computers and academic achievement of the students who participated in the CAI implementations. Therefore, it was decided to use Computer Attitude Scale developed by Yuksel (2010) in a current study. The 5-Point Likert Scale, which was prepared to measure middle school students' feelings and opinions about computers, consists of 28 items and 3 factors (computer usefulness, anxiety towards computer, self-confidence in using computer).

2.7 Interview Form

A semi-structured interview form with 9 questions was prepared by the researcher to obtain detailed information about how the experimental group students process the mathematics lessons before the implementation, to learn the positive and negative opinions about the GSP software used during the implementation, to obtain information about the implementation process, to determine students' thoughts about the computer assisted mathematics implementation and their feelings in this process, to reveal their level of associating the concepts they learnt during the implementation with their daily life and to determine their suggestions for implementation. Open-ended questions in the interviews make it possible to reach deep answers regarding the experiences, intuitions, thoughts, feelings and knowledge of individuals (Patton, 2014).

The interview form was reviewed by three academicians who had studied in the field and the form was finalized by making necessary corrections according to the feedback received. With the interview form prepared, a richer understanding about the implementation was tried to be obtained. After the 3-week practice, face-to-face interviews were conducted with the experimental group students ($n = 20$), lasting an average of 10 minutes. Before the interview, the participants were informed about the purpose of the research, some explanations were made about the interview process and information was given about the confidentiality of the interview. The interviews were recorded with an electronic device that can record audio after the participants' permission. The questions in the interview form were directed to the students and it was ensured that the subject was addressed in a wider perspective by asking probe questions where necessary. After the interviews, the audio recordings were listened to and the answers of the participants were recorded in writing. After the data set was obtained, the audio recordings were listened again, incomplete or erroneous expressions were arranged and the final version of the data set was created. The answers given by the students were preserved and no changes were made in the writing of the statements.

2.8 Data Analysis

In the analysis of the experimental data of the study, the significance level was determined as 0.05 ($\alpha = .05$). Data were analyzed by statistical analysis software.

Content analysis was performed on the qualitative data set obtained from face-to-face interviews with the students in the experimental group. First, the texts were divided into small units such as expressions and sentences, and these parts, which have a meaning integrity in themselves, were coded and grouped to provide a more comprehensive perspective. These codes, which were created by considering the conceptual framework in the semi-structured interview form, enabled the researcher to make evaluations in line with its purpose. The new codes that emerged within this framework were added to the list and the analysis continued with the pre-determined codes and the data detected by examining the data set were added to the previously determined code list. The expressions of the students were compared with the existing code list, as a result, either a new code was created or added to the previously detected code frequency. After the coding process was completed common aspects between the codes were determined, sub-themes that can gather the codes under certain groups and themes that can explain the sub-themes at a general level were created. The data were coded independently by a

field expert under these determined themes. The differences of opinion among the coders were eliminated by discussing and the themes were rearranged by re-examining the codes according to the accepted ideas. Themes were defined and explained in plain language. The qualitative data obtained were expressed in tables and digitized by frequency analysis and percentage calculation. In addition, direct quotations from the interviews with students were included in the findings section. Students were coded as Student1, Student2, etc.

2.9 Construct Validity

It could be stated that the transformation geometry achievement test, worksheets and GSP activities developed by the researcher, have construct validity because they were prepared by taking expert opinions. Reliability studies and factor analysis of the Computer Attitude Scale used in the study were performed by the researcher who developed it. It can also be stated that the semi-structured interview form prepared by the researcher has construct validity since it was developed by taking expert opinions.

2.10 Internal Validity

The researcher made his evaluations by avoiding subjective judgments in the interpretation of qualitative findings. In addition, the researcher took the necessary care to ensure that the findings reflect the real situation in the most accurate way by evaluating the comments on the results with the field experts. In order to ensure internal validity, the research environment, framework and the role of the researcher have been carefully specified.

2.11 External Validity

The generalizability of a study is related to external validity. In this study, in order to ensure external validity, the whole process of the study and the features of the chosen method were discussed in detail and information was given about the data analysis stage. Each stage regarding the analysis of the data, determining the codes and themes, and how the findings were interpreted were described in detail. Thus, it could be stated that enabling other researchers to make sense of the results of this study and to conduct similar studies in a different environment will increase external validity.

2.12 Reliability

The reliability was tried to be ensured by clearly expressing the role of the researcher in the research, by defining participants who are data sources, by taking the necessary precautions to reach the right information, by giving descriptions of data collection and analysis methods, by specifying the theoretical framework used in data analysis, by carefully displaying information obtained from different data collection tools and by digitizing qualitative data.

2.13 The Role of the Researcher

The researcher examined the facts objectively in the quantitative step of the embedded mixed method research. The pretests and posttests were applied together with the mathematics teacher but the researcher wasn't taken part in the lessons. After the lessons, he met with the mathematics teacher and got information about the implementation. Thus, he tried to define the facts by trying to stay outside of the research. The researcher tried to collect the data that could be explained quantitatively by using the standard measurement tools determined by keeping environmental conditions that could affect the cause-effect relationships between the variables under control and to explain the results by analyzing these data statistically. In the qualitative step, the researcher made interviews with the students in the experimental group, asked the questions prepared in this context to the participants and refrained from commenting. During the interviews, he tried to create an environment where the students could feel comfortable. He tried to keep his own assumptions and prejudices separate from the findings he obtained and expressed his personal views after analyzing the data he collected.

3. Findings

The quantitative and qualitative data collected during the research process were analyzed in accordance with the research problems and findings were obtained. The findings of the quantitative sub-problems were shown in tables. Findings of qualitative sub-problems were expressed with patterns by adhering to the themes and codes obtained as a result of the content analysis.

3.1 Does CAI of middle school 8th grade math subjects with Geometer's Sketchpad have an effect on students' academic achievements and attitudes towards computers?

3.1.1 Is There a Difference Between the Academic Achievements of the Control and Experimental Groups?

Covariance analysis is a technique that enables the control of another variable called common variable (pretest) that has a relationship with the dependent variable (posttest) apart from the independent variable (CAI) whose effect is tested. It extracts the changes originating from the co-variable from the dependent variable and then explains whether the change in the dependent variable is due to the independent variable. In the analysis, pretest was determined as a covariate because it was the variable that showed the highest correlation with the posttest. Thus, the variance caused by the external factor whose effect is observed on the dependent variable can be controlled and the power of the test is increased.

It was determined that all the assumptions required for the analysis (the need of a linear relationship between the dependent variable and covariate, the scores of the dependent variable for each of the groups are normally distributed and their variances are homogeneous, the regression slopes -coefficients- are equal within the groups) were met before ANCOVA Covariance Analysis was performed.

Table 5: ANCOVA Analysis of the Pretest Corrected Posttest Scores According to Groups

Source	Sum of Squares	df	Mean Square	F	p	η^2
Pretest	606.036	1	606.036	23.787	.000	.362
Groups	1.251	1	1.251	0.049	.826	.001
Error	1070.051	42	25.477			
Total	7037.688	45				

According to ANCOVA results given in Table 5, no statistically significant difference was found between the pretest-corrected posttest scores of the students studying in the control and experimental groups ($F(1,42) = 0.049$, $p > .05$, $\eta^2 = .001$). The finding of Eta-square (η^2) .001, which is the effect size, can be interpreted as 1% of the variance of achievement test scores originates from GSP supported education. This finding means that GSP supported instruction has a very low effect on Transformation Geometry Achievement Test scores.

3.1.2 Does Use Dynamic Geometry Software in Mathematics Teaching Have an Effect on Attitude Towards Computer?

Before the implementation, Computer Attitude Scale pretest was conducted to determine whether there was a difference between the groups' attitudes towards computers.

Table 6: Mann-Whitney U Test for the Computer Attitude Scale Pretest Results of the Groups

Group	N	Mean Rank	Sum of Ranks	U	p	r
Control	24	19.58	470.00	170.000	.039	-0.31
Experimental	22	27.77	611.00			

According to the results of the Mann-Whitney U test given in Table 6, a statistically significant difference was found between the Computer Attitude Scale pretest mean scores of the groups ($U = 170,000$, $p = 0.039$, $z = -2.069$, $r = -0.31$). The effect size value indicates a moderate difference ($r = -0.31$).

Computer Attitude Scale posttest was conducted to determine whether there was a change in the attitudes of the experimental group towards computers after the implementation.

Table 7: Wilcoxon Signed Ranks Test of the Experimental Group's Computer Attitude Scale Before and After Implementation

Posttest-Pretest	N	Mean Rank	Sum of Ranks	z	p	r
Negative Rank	4	12.00	48.50	-1.893*	.058	-0.41
Positive Rank	15	9.47	142.00			
Ties	2	-	-			

* Based on negative ranks.

According to the results of the Wilcoxon Signed Ranks Test given in Table 7, the use of CAI in mathematics teaching has no effect on computer attitude ($T = 48.50$, $p = 0.058$, $z = -1.893$, $r = -0.41$). The effect size value shows that there is a moderate difference between pretest and posttest ($r = -0.41$).

It was also examined whether there was changes in the attitude mean scores of the sub-factors of the Computer Attitude Scale before and after the implementation of the experimental group students. It was found that only one of the three sub-factors changed.

Table 8: Wilcoxon Signed Ranks Test Regarding Pretest and Posttest Mean Scores of the Experimental Group's Computer Attitude Scale "Self-Confidence in Using Computer" Sub-Factor

Posttest-Pretest	N	Mean Rank	Sum of Ranks	z	p	r
Negative Rank	3	10.00	30.00	-2.623*	.009	-0.56
Positive Rank	16	10.00	160.00			
Ties	3	-	-			

* Based on negative ranks.

As seen in Table 8, a statistically significant difference was found in the attitude scores of the experimental group students before and after the implementation, belonging to the "self-confidence in using computer" sub-factor determined in the Computer Attitude Scale ($p = 0.009$, $p < .05$, $r = -0.56$). Considering the rank totals of the difference scores, it is seen that the observed difference is in favor of the posttest mean scores. This finding means that there is a positive increase in students' self-confidence attitudes while using computers. The effect size value indicates a moderate difference ($r = -0.56$).

3.2 What are the Experimental Group Students' Opinions on Computer Assisted Geometry Learning?

"How did you used to learn geometry lesson before this practice?" The findings obtained from the experimental group students' answers to this question are given in Table 9.

Table 9: Experimental Group Students' Opinions Regarding the Learning of Geometry Topics Before Implementation

Theme	Sub Theme	Frequency (f)	Percent (%)
Learning the Subject Using Technology	By writing / drawing on the board	16	80
	By writing in the notebook	16	80
	From smart board	16	80
	From textbook	11	55
Learning Method of the Subject	By solving example	13	65
	Teacher is telling	13	65
	By solving the test	4	20
	Question-answer	3	15
	By memorizing	2	10
	By giving homework	1	5

One of the students used the following expressions on the theme of "learning the subject using technology":

"The teacher was drawing on the board. We were writing in the notebook according to him and we were working according to what the teacher told on the board. Sometimes he showed it on the smart board, sometimes we used the textbook." [Student9]

It was concluded that the lessons were taught using the traditional teaching method in the classroom, various implementations were opened from the smart board and the subjects were learnt by making use of some educational websites and DGSs were not used.

"What are your positive thoughts about Geometer's Sketchpad? Can you explain the reason?" The findings obtained from answers to this question are given in Table 10.

Table 10: The Views of the Experimental Group Students on Geometer's Sketchpad

Theme	Sub Theme	Frequency (f)	Percent (%)
For Use	I don't need to write / draw	5	25
	There's more opportunity	3	15
	Noise in the classroom has decreased	1	5
For Learning	I learnt / understood better / quicker / easier	13	65
	We learnt by applying	12	60
	Made easy to learn	7	35
	Proves / becomes permanent	3	15
For Individual	Very good / nice / positive / useful / helpful	12	60
	I liked it	4	20
	I felt better / confidence	2	10

One of the students used the following expressions on the theme of "for use":

"When I press the menu in the software, it comes out automatically without having to draw." [Student4]

One of the students said the following about the theme of "for learning":

"This software has given us better results in this regard. We understood this issue better. It improved us better. Because we create shapes ourselves. We draw, create and reflect the shapes exactly ourselves." [Student17]

One of the students used the following expressions regarding the theme "for individual":

"It was very helpful. Because in the past, we could not get this much information even though the teacher told us. When the teacher showed more examples, it became more efficient. We learnt better. While doing it on the computer, I felt like a teacher." [Student6]

Based on the answers given by the students, it could be stated that the students found the GSP software useful in general; it helped them to understand the subject better and easier because they learnt by applying it and unlike in traditional learning environments, they did not need to use paper and pencil constantly. Also learning by applying had a positive effect on students' spatial competence, made them happy and had a positive effect on their self-confidence.

"What are your negative thoughts about Geometer's Sketchpad? Did you encounter any difficulties while using this software? Can you explain why?" Based on the answers given by the students, it could be stated that most of them (90%) did not have negative thoughts about GSP and most of them (70%) did not encounter any difficulties. It could be said that a few students had difficulty and fall behind (20%).

"Would you like to do individual study or group study during the practice? Can you explain why?" The findings obtained from answers to this question are given in Table 11.

Table 11: Individual Study and Group Study Preferences of Experimental Group Students

Theme	Sub Theme	Frequency (f)	Percent (%)
Individual Study	Individual study	8	40
	We can learn better by ourselves	6	30
	Others may have a different view	5	25
	I feel better when I'm alone	2	10
	Not everyone can find opportunities in group study	1	5
	I can reflect my thoughts better	1	5
	I had the opportunity to review the software / did different things	1	5
	If I do wrong I'm afraid of my friend's reaction	1	5
Group Study	Group study	9	45
	We can help each other / share the thought	7	35
	Different ideas allow us to learn better	4	20
	It's more fun to do together	2	10

One of the students used the following expressions on the theme of "individual study":

"Individual. When we are many people, not everyone has an opportunity. I can understand better when I'm single. I feel better when I'm alone." [Student3]

One of the students said the following about the theme of "group study":

"Group study. I think it would be better that way. We can ask our friends what we do not understand. Otherwise, when we study as a single individual, we cannot ask what we do not know. Then when the teacher passes, you are left behind. So I think it should be a group." [Student19]

Based on the answers given by the students, it could be said that half of the class preferred individual study and the other half preferred group study. There were students stated that they gave importance to the ideas of their friends and group study increased social interaction and sharing. Some students preferred to work individually because it provided the opportunity to research topics they were curious about and individual learning provided them more satisfaction. Also some students who were sensitive to the issue of individual differences expressed their desire to study individually. Due to the subjective nature of students, it might be beneficial to recognize and acknowledge these differences and give students the chance to choose environments in which they can study individually or in groups.

"Were there any factors that disrupted the teaching of the lesson? If so, would you explain them?" Considering the answers given by the students to the 5th question, most of them (70%) stated that there was no factor that disrupts the teaching of the lesson. Among those who stated that there were (30%), the sub-theme "some students spoke / misbehaved" was 25%, the sub-theme was "power cut" was 5%, the "computers were slow" sub-theme was 5% and the sub-theme "there was a problem in the seating arrangement" was expressed at a rate of 5%.

"What are your thoughts on computer assisted mathematics teaching? What did you feel while doing this study? (e.g. curiosity, success, failure, amusement, boredom, surprise, difficulty, happiness) Can you explain the reason?" The findings obtained from answers to this question are given in Table 12.

Table 12: Thoughts of Students on Computer Assisted Mathematics Teaching

Theme	Sub Theme	Frequency (f)	Percent (%)
Newness	I was curious about the next parts of the lesson	16	80
	Those who do not like mathematics love with computers	1	5
	More attractive	1	5
	It enabled us to process the lesson fast	1	5
Self Confidence	I've been / have felt more successful	15	75
	I understood / learnt better / easier / quicker	12	60
	Lessons were easy / made easy	6	30
Satisfaction	I had fun / it was fun	16	80
	I was / felt happy	15	75
	I was never bored	5	25
	I like using a computer	5	25
	I was excited	4	20
	What I could do gave me confidence	1	5
Willingness	Better / good / useful	15	75
	It gets more catchy	2	10
	I attended the lesson more	2	10
	No fear of getting on the board because you do it on the computer	1	5
Negative Thoughts	Sometimes I struggled / felt unsuccessful	7	35
	It is not catchy when you do not write	1	5
	I can't use the computer well	1	5
	I was bored sometimes	1	5
	Clicking on the wrong place needs to select the points again.	1	5

One of the students used the following expressions on the theme of "newness":

"This is the first time we have done such a study. So I wondered what we were going to do." [Student14]

One of the students said the following about the theme of "self-confidence":

"I helped some of our friends when they couldn't do it, for example when they couldn't rotate, I realized that I understood better and I felt successful." [Student15]

One of the students used the following expressions regarding the theme "satisfaction":

"It was very nice, it was fun. I felt happy because computer assisted learning is better." [Student12]

One of the students used the following expressions on the theme of "willingness":

"Computer assisted instruction is better." [Student2]

One of the students said the following about the theme of "negative thoughts":

"Sometimes I had a hard time, looked at it from my friends, even how it was done. I was not happy." [Student20]

Based on the answers given by the students, it could be said that the vast majority of students found computer-assisted mathematics teaching more useful, had fun in the lesson, felt happier, wondered what they would learn in lessons, felt more successful, understood and learnt better but some students had difficulty from time to time. In this context, it could be stated that CAI increased students' interest in the lesson more, made them love mathematics, facilitated to understand the subject better and found the lesson enjoyable compared to the traditional teaching method.

"Do you encounter the concepts you learnt about Transformation Geometry in your daily life? If so, would you explain them?" The findings obtained from answers to this question are given in Table 13.

One of the students used the following expressions on the theme of "rotation":

"Yes. Ferris wheel. The rotation of the clock, the angle between the hours." [Student4]

One of the students said the following about the theme of "reflection":

"So, reflection; we are going for a drive with my father. He sees the back through the car mirror, it reflects. I see myself when I look at the puddle." [Student19]

One of the students used the following expressions regarding the theme "translation":

"When we push the table and the desk and when we pull them back, they will be translated." [Student13]

One of the students used the following expressions on the theme of "translational reflection":

"Our footprints in the sand may be translational reflection." [Student6]

Based on the answers given by the students, it could be said that they could make connections between the concepts they have learnt about transformation geometry with the situations they encountered in daily life, they could better understand the geometry of the various movements of objects, in short, they realized that there was mathematics in situations that they can encounter at any moment in daily life and that mathematics was a part of life.

Table 13: Opinions of Students Related to Situations in Daily Life with Transformation Geometry Concepts

Theme	Sub Theme	Frequency (f)	Percent (%)
Rotation	Ferris wheel	9	45
	The rotation of the wheel	5	25
	Rotation of the hour and minute hands	4	20
	Rotation of the propeller	3	15
	Rotation of the carousel	2	10
	The rotation of the earth	1	5
	Rotation of the washing machine drum	1	5
	Rotation of the tap	1	5
Reflection	Symmetry / reflection in the mirror	16	80
	Reflection in the lake	7	35
	Reflection in the rear-view mirror of cars	3	15
Translation	Translation of the table and desk	3	15
	Translation of the chair	2	10
	Translation of the box	1	5
	Translation of the pencil	1	5
	Translation of the wheelbarrow	1	5
	Translation of the tile stones	1	5
Translational Reflection	Footprints in the sand	2	10
	Patterns on carpets	1	5
	Coordinates in games	1	5

"Do you think this software will contribute to teaching mathematics? Can you explain why?" The findings obtained from answers to this question are given in Table 14.

Table 14: Students' Opinions Regarding the Contribution of the Implementation to Teaching Mathematics

Theme	Sub Theme	Frequency (f)	Percent (%)
Contributions to Course Management	Done by applying	8	40
	Provides a visual environment	4	20
	Creates more time to solve the test	2	10
	Saves from writing	1	5
	Eliminates the worry of forgetting the notebook and book	1	5
	Allows to save and review the recorded ones	1	5
Contributions to Permanence	Provides better learning / understanding opportunities	11	55
	Ensures that what has been learnt is permanent	6	30
Emotional Contributions	Makes it more fun	2	10
	Makes you love math	2	10

One of the students used the following expressions on the theme of "contributions to course management":

"It is better to learn by seeing. It is better to do it by applying." [Student1]

One of the students said the following about the theme of "contributions to permanence":

"I learnt better reflection and coordinates. Last year I was having difficulties in these matters. I learnt better this year." [Student8]

One of the students used the following expressions regarding the theme "emotional contributions":

"For example, students who do not like mathematics can start to love mathematics thanks to such a software." [Student9]

Based on the answers given by the students, it could be said that GSP software made the learning environment student-centered, provided better learning opportunities and helped the information they learnt to be more permanent due to the visual environment and implementation opportunities provided to students. CAI would contribute to students' development of a more positive perspective on mathematics lesson, help students overcome their fear of mathematics and make the lesson more enjoyable.

"Finally, do you want to add anything or do you have any suggestions about education? If so, what are they?" The findings obtained from answers to this question are given in Table 15.

Table 15: Suggestions Expressed by Experimental Group Students about Education

Theme	Sub Theme	Frequency (f)	Percent (%)
Suggestions	It's getting more efficient with the computer	6	30
	Everyone should learn geometry with a computer (Sketchpad)	3	15
	Should be applied to other students as well	3	15
	Makes it easier to learn	2	10
	Every lesson should be taught with a computer	2	10

One of the students used the following expressions on the theme of "suggestions":

"Sketchpad should always be used in mathematics and geometry. Every student, every class should use it." [Student13]

Based on the answers given by the students, it could be said that the implementation of CAI was more efficient, it should be applied to all students in other lessons, and it provided easier learning of the subjects due to its

student-centered approach. It is understood that the students participated in the study generally welcomed the experimental implementation. There were no students who expressed negative opinions.

4. Discussion and Conclusion

The results of the first research question indicated that when the posttest scores of the control and experimental groups were compared, no statistically significant difference was found between the posttest scores. Although there was no difference between the achievement levels of the groups, it was stated in the interviews with the experimental group students that the CAI method was generally useful. Also it was stated that the practice-based learning process, which included visual elements that put the student at the center, provided a better understanding of the subject, students felt more successful and happier, found the lesson more enjoyable compared to the traditional teaching method, and this practice should be done in other classes and schools. It was determined that there was a statistically significant difference between the mean scores of the computer attitude of the groups before the implementation and this difference was in favour of the experimental group. It was analyzed whether there was a difference between the pretest and posttest attitude mean scores of the experimental group after the implementation and a significant difference was found in favour of the posttest results of the experimental group in the "self-confidence in using computer" factor, which is one of the sub-factors of the Computer Attitude Scale. These findings revealed that the CAI implementation increased the confidence of the students while using the computer. Findings related to the theme of "self-confidence" determined as a result of qualitative analysis also supported the findings obtained from the experimental implementation.

The results of the second research question indicated that the students taught previous lessons in the classroom with traditional teaching method, CAI applications were not performed and the teacher only used the smart board among the IT tools. The students found the GSP software useful, they stated that they learnt the subjects better and easier and learning by practicing increased their self-confidence, they felt happier, CAI increased their curiosity and they had fun in the lesson. It was determined that the experimental group did not have a negative opinion about GSP to a large extent and only a few students had difficulty using it. Half of the students stated that they preferred individual study and half of the students preferred group study. It was determined that students' preferences to study individually or in groups should be respected in order to create equal opportunities in education and to take into account individual differences. Students were able to establish relationships between real life and the concepts they learnt about transformation geometry. They also realized that they could encounter mathematical elements in many areas in daily life. The students stated that it would be beneficial to implement CAI application in other mathematics lessons, even in other lessons and schools.

The contribution of the media to learning is a controversial issue in the field of instructional technology. While Clark (1995, p.23) argues that "media will never affect learning and media is neither sufficient nor necessary for learning"; Kozma (1994) argues that the media learning relationship is an area that has not been discovered yet and the potential of this relationship should be examined by research. This ongoing debate is called the Clark-Kozma debate in the field of instructional technology. Tamim et al. (2011), as a result of the second-level meta-analysis of instructional technology studies spanning a period of 40 years, revealed that using technology in teaching increases learning. It is unnecessary to make a general claim that the use of technology can improve or not affect learning (Becker, 2010). Instructional technology can support learning for some groups of participants, on some topics and under some conditions; however, this is true for all pedagogical interventions (Mann, 1999, p. 5). In this context, Kirschner and van Merriënboer (2013) advocates that methods that work should reveal under which conditions, in which educational situations, and "how" it helps to achieve that goals rather than examining "what works" in instructional technology research. It is clear that more collaboration is needed between researchers and teachers to explain the nature of learning and the technology-learning relationship.

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Assessment of Awareness of Chemistry Concepts with Thesaurus Task: 9th Grade Vocational High School Students Sample

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Abstract

The study was conducted at a vocational high school in Ankara during the academic year of 2018-2019 based on the key concepts regarding the units in the chemistry curriculum for 9th grade. The purpose of the study was to investigate whether 9th grade students recognized the key concepts in chemistry units of first and second semester, and how correct their relevant definitions were. In the first unit, 9 students could determine a sufficient number of key concepts; however, in the proceeding units, the number decreased, and none of the students were able to recognize the correct concepts in the last unit. Another important finding of the study was that students included high-level concepts in their dictionaries even though they had difficulty in identifying the basic key concepts offered in the curriculum. It revealed that students attempted to explain unrecognized concepts through an unfamiliar terminology. Accordingly, it was inferred from the data obtained that students entered into chemistry with fundamental conceptual deficiencies. When concept-related definitions in student thesauruses were examined, it was revealed that the majority could make scientific explanations and choose their resources correctly; nonetheless, a small number of students could not make sufficient descriptions or used expressions far from scientific explanations. One of the important aspects of this study is that, teachers need to give the key concepts to students in detail first, and demonstrate in practice how to look up their explanations in the right resources. This constitutes the main scientific background of our study.

Keywords: Chemistry Education, Chemistry Concepts, 9th Grade, Key Concept, Glossary, Thesaurus

1. Introduction

By means of education and experience, people acquire the facts related to the world around them, and the necessary skills and knowledge to survive in the world. From this viewpoint, each education system is planned to increase the amount of knowledge in individuals. However, schooling, study, observation and experience progress differently for each individual because they form “concepts” as main elements of a specific piece of

information with unique combinations of the known and unknown in their minds. A student, throughout his/her education process, passes through a series of knowledge levels and obtains a new conceptual understanding of the universe. While moving from an academic lesson to another, the balance of known and unknown concepts in student's mind changes gradually (Raud, Vodovozov & Lehta, 2012). Basic knowledge and skills targeted to be acquired by students under the guidance of teachers are offered within the curriculum framework, and it is based on providing in-discipline and interdisciplinary information flow (Raud & Vodovozov, 2012). Interdisciplinary approach is viewed as a way of bringing together different disciplines in a meaningful and practical manner so that students perceive knowledge and skills as a whole rather than discrete pieces. This approach is consistent with our natural way of thinking, which is holistic most of the time (Yildirim, 1996). The situation requiring sensitivity in the process is the fact that the existence of unknown components in academic teachings prevents progress in learning (Raud, Vodovozov & Lehta, 2012). Therefore, it is regarded important that students improve their terminology in the relevant fields. For instance, in the education system, if terminology offered in the first semester courses is considered as tree roots, the concepts in the following semesters are tree branches and leaves (Raud & Vodovozov, 2012). If competence in a field subject is accepted as a communicative achievement, language development is essential. It is impossible to form the scientific background of a lesson without basic concepts. Competence in scientific field regarding student level is expressed by being able to recognize and explain concepts in the relevant lecture flow. Inadequate vocabulary in the field causes conceptual mistakes and misunderstandings. At this point, it is considered necessary that student's receptive and productive language capacity is improved.

In order to produce solutions to problems related to health, industry and environment, it is expected that students first explain situations causing the problems and relevant concepts with a correct terminology. Either traditional or contemporary teaching methods are used within the education process, that students can identify key concepts of course content is considered to facilitate students' following and comprehending the lesson. Concordantly, one of the effective guides widely used in curriculum development is concept maps demonstrating relationships between concepts (Novak & Casvas, 2008; Raud, Vodovozov & Lehta, 2013; Sisson & Ryan, 2015). Concept maps are considered useful in curricula; however, it seems impossible for students to clarify their perception of the study field with a simple visual presentation of curriculum components. Furthermore, to understand curriculum components and their relationships, students need more informative explanations along with propositions from one component to another (Raud & Vodovozov, 2012). On the other hand, it is emphasized to be appropriate that knowledge level of students is assessed through hierarchical glossary considered as a kind of thesaurus (Raud & Vodovozov, 2012; Raud, Vodovozov & Lehta, 2013). It is indicated that knowledge level is predictable through personal thesaurus presenting the collection of concepts familiar to individual in the relevant field (Raud & Vodovozov, 2012). Most of the items included in this kind of thesaurus are directly or indirectly interrelated, and a concept can reveal dozens of different concepts, which helps understanding knowledge level. Dictionaries involving this kind of hierarchical terms are generally like genealogy chart. A family tree diagram can represent conceptual relationships successfully starting from the root (ancestors) ending with the leaves (descendants) (Raud & Vodovozov, 2012).

In the study, personal thesaurus formation was used to help predict and assess student's knowledge level in chemistry subjects. 9th grade chemistry curriculum comprises of subjects that enable review of subjects and concepts given as fundamentals of science, and that students need in daily life scientifically. It is defined, in curriculum, as "to use knowledge and skills acquired in chemistry lesson to explain events regarding daily life, health, industry and environment." Accordingly, students are expected to evaluate and express negative and positive reflections of chemical activities on life. However, it is necessary for students to have a specific terminological basis considering their levels in order to actualize the purposes of chemistry lesson. At this point, two situations to be questioned appear. The first is that students recognize the key concepts of the unit, and the second is that they can define them. It is acknowledged as one of the first steps to activate the learning mechanism in student mind that student knows key concepts of a unit. That student defines the key concepts or reaches a correct definition or explanation by finding a reliable resource -except for the teacher- can be considered as an indicator that student takes the responsibility for learning. This study involves a conceptual thesaurus task performed to identify student perception and awareness during the lesson. The purpose of the study is to investigate whether students are aware of the key concepts offered in the 9th grade chemistry lessons

during the first and second semesters, and whether they can define these concepts accurately. In the literature, there is plenty of research regarding concept-related thesaurus formation. These studies are mostly in the fields of language learning (Griggs, Bujak-Johnson & Proctor, 2004; Keränen, 2005; Miller, 2009; Karaduz & Yildirim, 2011; Chainikova, Zatonkiy, Mitiukov & Busygina, 2018; Milic, Glusac & Kardos, 2018); however, a limited number of studies are related to terminology of a specific scientific field (Nadiya, 2011; Raud & Vodovozov, 2012; Raud, Vodovozov & Lehta, 2013). Therefore, it is believed that the relevant study is important in that it contributes to the field of chemistry teaching and sets an example for the use of thesaurus as a reference in the field of education.

The purpose of the study is to investigate whether students recognize the key concepts of chemistry delivered to them during instruction and to evaluate the accuracy of their scientific definitions for these concepts. Within the scope of this purpose, the research questions were as follows:

- Can students accurately identify the key concepts in the units of 9th grade chemistry lesson? (receptive language development)
- How scientific are students' definitions or explanations for the key concepts they have recognized? (productive language development)

2. Method

In order to determine which key concepts students could recognize within the context of 9th grade chemistry lesson and to examine to what extent they could describe the key concepts in the relevant units, descriptive method was utilized. In this descriptive study, basic statistics were used to identify the existing state. Lessons were delivered by the teacher so as to prevent researcher bias in the study. Lesson plans were designed properly by the researcher so that the concepts explained and examples given in the group could reflect the curriculum, and lessons were covered within the framework of this planning.

2.1 Research Design

The study was conducted with 30 9th-grade students as 13 females and 17 males at the ages of 14-15 studying at a vocational high school during the fall and spring semesters of 2018-2019 academic year. In the study, since students' recognition of key concepts during teacher's instruction pursuant to the curriculum requirements was investigated, students were given personal thesaurus formation as a performance task. Within the context of the task, students were requested to determine the key concepts that they learned in chemistry lesson and write their definitions or explanations for these concepts in their dictionaries. The study was based on the lesson content depending on the chemistry curriculum. Students were informed, at the beginning of the semester, that the study would last until the end of the second term, and that they would have the chance to make changes on the concepts they learned during the academic year and to complete their work. At the end of the second semester, researchers received the personal dictionaries that students prepared. Within the scope of the study, the chemistry curriculum taken as a basis comprised of 5 units, and students were expected to recognize and describe the 68 key concepts offered in the curriculum. Unit names, number of learning outcomes, lesson hours and unit-based key concepts in the curriculum are presented in Table 1.

Table 1: List of key concepts based

Unit No	Unit 1	Unit 2	Unit 3	Unit 4	Unit 5
Unit Name	Science of Chemistry	Atom & Periodic System	Interactions between Chemical Species	States of Matter	Nature & Chemistry
Number of outcomes	7	5	11	10	5
Lesson hours:	6	16	22	20	8
Percentage:	8	22	31	28	11
Key Concepts	Compound	Absorption	Nonpolar Covalent Bond	Fluidity	Chemical Contaminant
	Scientist	Nonmetal	Bond Energy	Avogadro number	Contamination
	Substance/Matter	Atom	Valence electron	Relative Humidity	Global Warming
	Element	Atom Model	Hydrogen Bond	Pressure	Greenhouse Effect
	Symbol	Atomic Radius	Ion	Vapor Pressure	Hard Water
	Formula	Electron Affinity	Ionic Bond	Vaporization	Soft Water
	Alchemy	Electron	Chemical Bond	Freezing	
	Chemistry	Electro-negativity	Covalent Bond	Melting	
	Safety in Laboratory	Emission	Metallic Bond	Expansion	
		Group	Intermolecular Interaction	Volume	
		Ion	Polar Covalent Bond	Boiling	
		Ionization energy		Deposition	
		Isobar		Mole	
		Isoelectronic		Absolute Temperature	
		Isotone		Humidity	
		Isotope		Plasma	
		Metal		Sublimation	
		Neutron		Viscosity	
		Periodic system		Condensation	
	Period				
	Proton				
	Theory				
	Semimetal				
Number of concepts per unit	9	23	11	19	6
Total number of concepts	68				

2.2 Population and Sample/Study Group/Participants

The study was conducted with 30 9th-grade students as 13 females and 17 males at the ages of 14-15 studying at a vocational high school during the fall and spring semesters of 2018-2019 academic year.

2.3 Data Collection & Analysis

Units with the key concepts that students were expected to include in their personal thesaurus were Science of Chemistry, Atom and Periodic System, Interactions between Chemical Species, States of Matter, and Nature and Chemistry. Concepts given for each unit in the curriculum were determined as the basic concepts that students needed to know and include in their dictionaries. Basically 68 concepts were presented in the 9th grade curriculum, and students were also expected to recognize and define these 68 concepts.

Expectations from students: In accordance with the curriculum requirements at their education level, students were requested to;

- distinguish key concepts in the units,
- look up their definitions in the right resources and express them in written form,
- keep these concepts and explanations in their personal thesaurus for 2 semesters,
- complete their study in all units methodically and consistently.

Necessary controls were made after each unit by the researchers.

Concept list compilation for thesaurus, resource selection for definitions: In this section of the study, the criteria determined for students' including concepts of the 9th grade chemistry curriculum in their dictionaries are presented.

1) The criterion for a concept to be involved in personal thesaurus is that it is among the key concepts offered in the curriculum. However, a concept that is not in the curriculum but specified by students can be accepted if it fulfils the conditions below. The selection of the concepts is based on;

- their scientific and course-specific semantic value,
- their use in the curriculum (MEB, 2018), course book (The Commission, 2018) unit content explanations,
- and their use preferred by teacher in instruction.

2) While controlling dictionaries, for the resources from which definitions were taken to be reliable, students were recommended main resources, reference resources, course books, journals and articles on relevant web pages. It was indicated that other definitions would not be evaluated within the scope of the study.

Evaluation: While personal thesauruses prepared by students were being evaluated, key concepts in the curriculum were approved. When the number of key concepts recognized by students and the ones in the curriculum was equal, full points were given for each unit. The formula used is explained below.

Results were determined through the formula " $Q = a / n$."

Success rate; Q

Student's accurate recognition of key concept: a

Number of key concepts in the unit: n

While student success was being assessed, success rate below 0,5 was estimated to be insufficient, 0,51-0,79 as sufficient and over 0,8 as high level. When the rate was over 0,51, it was identified as a sign of student's being at a sufficient level. Student who recognized all the key concepts in a unit received 1 (one) full point. A student who determined all the key concepts in all units was expected to have maximum 5 (five) full points.

In order to determine the accuracy of definitions for the key concepts in personal thesauruses, evaluation was made by researchers and two chemistry teachers through discussion, and results were recorded after reaching a consensus. Researchers discussed the responses for each definition with reference resources, and then, chemistry teachers were requested to control the same data. Consequently, for definitions of the key concepts included in student dictionaries, "consensus among experts" and "divergence among experts" were specified. At this point, reliability was calculated through the formula of Miles and Huberman (1994), and reliability coefficient was found to be 0,91 indicating the reliability of the study. Upon control of researchers and field experts, analysis was completed by reaching a consensus in definitions with divergence.

This section should state how, when and under which circumstances the data collection tools are used. If the study is experimental, the experiment or the control conducted should be detailed. Not only the procedures included in experimental group(s) but also the control group(s) should be stated.

3. Findings

In this section, the key concepts of the units included in the research were evaluated individually, and student success in two semesters was presented by making an overall analysis with a holistic approach.

Under the title of Unit Evaluation Based on Key Concepts, findings for each unit were given in tables. Key concepts in the curriculum were presented in the tables with the number of concepts included in personal thesauruses. Moreover, in the column titled “use of concepts associatively,” the number of different concepts that students included in their thesaurus by taking the relevant key concept as basis. For instance, student did not include the key concept of substance but included corrosive substance, caustic substance, toxic substance, noxious substance. The number of these concept groups is presented under the relevant title.

In “students’ recognition levels of key concepts,” a unit-basis evaluation was made for each student by using the $Q = a/n$ formula to determine student success, and each student’s level of competence in concept recognition for two semesters was categorized.

3.1 Unit Evaluation Based on Key Concept

3.1.1 Unit 1: Science of Chemistry

In Science of Chemistry unit, 10 key concepts in total were identified; these were: “Compound, Scientist, Matter/Substance, Element, Symbol, Formula, Alchemy, Chemistry, Laboratory Safety, and Laboratory.” In Table 2, students’ recognition of key concepts in Science of Chemistry unit is presented.

Table 2: Recognition of Key Concepts in Science of Chemistry Unit 1

Nr.	Key Concepts	Number of Students Including the Relevant Concept	Use of Concept Associatively
1.	Compound	18	11
2.	Scientist	---	---
3.	Matter/Substance	16	41
4.	Element	15	3
5.	Symbol	1	---
6.	Formula	6	---
7.	Alchemy	29	---
8.	Chemistry	20	86
9.	Laboratory Safety	---	---
10.	Laboratory	3	---

When student works were examined, it was observed that scientist and laboratory safety were not selected by students as key concepts among others in the relevant unit, and not included and defined in their dictionaries. “Symbol” was one of the main key concepts of the unit but only one (1) student included it in his/her work and made its definition. It was identified, at the end of the unit, that most of the students (29) selected “alchemy” as a key concept and recorded it in their work with its definition. Students began chemistry lesson at secondary school, and met “chemistry” concept scientifically for the first time. However, 20 students involved it in their work. It was encountered and explained in different contexts for 86 times in total. Students selected and described chemistry-related concepts like “organic chemistry, analytical chemistry, environmental chemistry, textile chemistry, food chemistry, geochemistry, biochemistry and modern chemistry” and examined them within the context of key concepts. Nonetheless, the number of students who included “chemistry” as the basic concept was limited to 20. Similarly, “compound” as one of the main key concepts of the unit was defined by 18

students, and compound-related concepts like “ionic compound, organic and inorganic compound” were presented by 11 students without definition of compound itself. Another basic concept “substance/matter” was selected as key concept and explained by 16 students. Concepts related to matter/substance like “corrosive matter, organic substance, foreign matter, harmful substance, colorant substance, radioactive substance and pure substance” were described by students among key concepts. Moreover, there were some works involving relevant concepts without defining “substance/matter” itself. “Element” as another basic concept was explained by 15 students while the related “radioactive element” term was defined by 3 students without definition of element itself. The concept of “formula” in the first unit was recognized and defined by 6 students, and “laboratory” by 3 students. There was no key concept that was identified commonly and described accurately by all 30 students.

It was observed that key concepts selected for Science of Chemistry unit were generally expressed with correct definitions in students’ works, which indicated that they described the concepts through the right resources. On the other hand, some key concepts were presented but explained inaccurately. 4 students were identified to have problems with definitions of the key concepts in the first unit; the relevant data are presented below. Inaccurate definitions belonged to the concepts of element, chemistry and compound.

S17: “Element: It is the structure formed when the same kind of elements come together.”

S11: “Chemistry: It is the studies conducted in 1600s before scientific research. “

S11: “Compound: All substances are called compounds.”

S21: “Element: It is a symbolic sign.”

S30: “Element: It is a particle with negative charge.”

3.1.2 Unit 2: Atom and Periodic System

23 key concepts of the Atom and Periodic System unit were given in the curriculum as “Absorption, Nonmetal, Atom, Atom model, Atomic radius, Electron, Electron affinity, Electronegativity, Emission, Group, Ion, Ionization energy, Isobar, Isoelectronic, Isotone, Isotope, Metal, Neutron, Periodic system, Period, Proton, Theory, Semimetal.” In Table 3, students’ recognition of key concepts for Atom and Periodic system is presented.

Table 3: Recognition of Key Concepts for Atom and Periodic System

Nr	Key concepts	Number of students	Use of Concept Associatively
1	Absorption	----	----
2.	Nonmetal	3	3
3	Atom	30	39
4	Atom model	----	----
5	Atomic radius	15	----
6	Electron	20	14
7	Electron affinity	15	----
8	Electronegativity	8	----
9	Emission	----	----
10	Group	10	----
11	Ion	12	62
12	Ionization energy	15	----
13	Isobar	----	----
14	Isoelectronic	----	----
15	Isotone	----	----
16	Isotope	15	15
17	Metal	6	20
18	Neutron	22	----
19	Periodic system	1	----
20	Period	10	----
21	Proton	19	----
22	Theory	4	----
23	Semimetal	1	----

Among these concepts; “absorption, atom model, emission, isobar, isoelectronic, and isotone” were not selected as relevant key concepts and included in any student works. “Periodic system” and “semimetal” among the main key concepts of the unit were involved in personal thesaurus of only one (1) student. “Nonmetal” was recognized and defined by 3 students, “theory” by 4 students, “electronegativity” by 8 students, “period” and “group” by 10 students each, “atomic radius,” “electron affinity,” “isotope” and “ionization energy” by 15 students each. “Ion” was recognized and described by 12 students but also used in different contexts by others for 62 times without being explained. Although concepts of “ionic bond, ionization energy, ionic, ionic compound, ion dipole interaction” were explained as key concepts within the scope of the study, the number of students who examined and defined ion concept forming the basis for the subject was limited to 12. “Electron” was identified as a key concept by 20 students. 14 students who did not determine it as a key concept included and explained electron-related concepts like “electronegativity, electron affinity, electron activity” in their dictionaries. 6 students defined “metal” in their works whereas 20 students did not include it but explained related concepts like “metallic bond and semimetal.”

All 30 students participating in the study identified “atom” concept in the unit of Atom and Periodic System and included it in their thesauruses.

When the key concepts that students selected for atom and periodic system unit were evaluated within the context of the study, it was observed that very few concepts were presented and explained accurately. When it was evaluated overall, students made correct definitions for few concepts; mistakes were detected in their statements. It was identified that 4 students described key concepts of the 2nd unit inaccurately. Those inaccurate descriptions were for atom, neutron, electron affinity, ion and electronegativity.

S16: “Atom: It is the constituent that forms elements and is divisible.”

S9: “Neutron: They are the particles that move fast in a specific orbit around the nucleus with -1 charge and little mass. Their symbol is e-.”

S18: “Electron affinity: It is what comes out when a gaseous atom takes e-.”

S17: “Electronegativity: Atom constituting a molecule or compound pulls electrons in another atom towards itself.

“Ion: They are atom-sized chemicals with electric charge.”

3.1.3 Unit 3: Interactions between Chemical Species

11 key concepts were involved in the curriculum for Interactions between Chemical Species unit. These were “Nonpolar covalent bond, bond energy, valence electron, hydrogen bond, ion, ionic bond, chemical bond, covalent bond, metallic bond, intermolecular interaction, and polar covalent bond.” In Table 4, students’ recognition of key concepts in Interactions between Chemical Species unit is presented.

Table 4: Recognition of Key Concepts in Interactions between Chemical Species Unit

Nr.	Key Concepts	Number of Students	Use of Concept Associatively
1.	Nonpolar covalent bond	4	---
2.	Bond energy	---	---
3.	Valence electron	---	---
4.	Hydrogen bond	7	---
5.	Ion	12	62
6.	Ionic bond	18	---
7.	Chemical bond	2	---
8.	Covalent bond	18	8
9.	Metallic bond	15	---
10.	Intermolecular interaction	---	---
11.	Polar covalent bond	4	---

Among these concepts, “bond energy, valence electron, intermolecular interaction” were not selected as relevant key concepts and included in any student works. Even though “chemical bond” was a key concept of the unit, it was identified and described by only 2 students. “Polar covalent bond and nonpolar covalent bond” were recognized and defined by 4 students, “hydrogen bond” by 7 students, “metallic bond” by 15 students, “ionic bond and covalent bond” by 18 students. Students who did not include “covalent bond” in their works explained concepts of nonpolar and polar covalent bond. Among the concepts of unit 3, there was “ion” which was also one of the key concepts in unit 2. It was noteworthy that ion was emphasized in both units; however, students did not determine it as a key concept but explained it in different ways. Details related to the concept of ion are given below Table 2. In this unit, there was no concept identified and described accurately by all 30 students.

When definitions for the key concepts included correctly in student dictionaries within the context of Interaction between Chemical Species unit were evaluated, it was observed that students, in general, defined few concepts accurately. 8 students were identified to have inaccuracy in their definitions, and relevant statements are presented below. Those inaccurate definitions were for the concepts of covalent bond, metallic bond, hydrogen bond and ionic bond.

S1: “Covalent Bond: It is the common use of electrons by substances.

S2 & S7: “Covalent Bond: The bond formed as a result of electron cooperation between nonmetal and metal element atoms is called covalent bond.

S11: “Metallic Bond: It is the chemical substance formed by bonds.”

S12: “Hydrogen Bond: Electron negativities of Fluorine, Oxygen, and Nitrogen are high.”

S15: “Metallic Bond: It is the chemical bond holding one or more atoms between metals.”

S20: “Covalent Bond: It is the bond created as a result of electron cooperation between nonmetal and metal element atoms.”

S23: “Covalent Bond: It is the chemical bond characterized through sharing of one or more atoms between two atoms.

S27: “Ionic Bond: It is the chemical bond formed during electron exchange between metal and metal.

3.1.4 Unit 4: States of Matter

For States of Matter unit, there were 11 key concepts offered in the curriculum. These were fluidity, Avogadro number, relative humidity, pressure, vapor pressure, vaporization, freezing, melting, expansion, volume, boiling, deposition, mole, absolute temperature, humidity, plasma, sublimation, viscosity, and condensation. In Table 5, students’ recognition of the key concepts in State of Matter unit is presented.

Table 5: Recognition of the key concepts in State of Matter unit

Nr.	Key Concepts	Number of Students	Use of Concept Associatively
1.	Fluidity	----	----
2.	Avogadro number	----	----
3.	Relative humidity	4	----
4.	Pressure	13	----
5.	Vapor pressure	----	12
6.	Vaporization	7	----
7.	Freezing	3	----
8.	Melting	3	----
9.	Expansion	----	----
10.	Volume	18	----
11.	Boiling	7	----
12.	Deposition	1	----
13.	Mole	1	----
14.	Absolute temperature	----	----
15.	Humidity	3	12
16.	Plasma	7	----
17.	Sublimation	4	----
18.	Viscosity	12	----
19.	Condensation	12	----

Among these concepts; fluidity, Avogadro number, vapor pressure, expansion, and absolute temperature were not selected as relevant key concepts and included in thesauruses by any students. Deposition and mole were recognized and described by 1 student; humidity, freezing and melting by 3 students; relative humidity and sublimation by 4 students; “vaporization, boiling and plasma” by 7 students; “viscosity and condensation” by 12 students; “pressure” by 13 students; and “volume” by 18 students. Furthermore, “vapor pressure” was not selected as a key concept but “equilibrium vapor pressure” was identified and explained by 12 students.

In this unit, there was no key concept that all 30 students identified and described accurately.

Students defined totally 14 out of 19 key concepts in the States of Matter unit. It was observed that students explained concepts correctly in general sense; however, some definitions were mistaken. 7 students were identified to have problems while describing some concepts of the 4th unit, which were mole, pressure and condensation. Inaccurate definitions for the relevant concepts are presented below.

S8: “Mole: It is the unit used for chemical calculations of substance amount.”

S2, S7, S13 & S26: “Pressure: It occurs when gas collides with the container surrounding it.”

S11: “Pressure: When we perform an impact on something, it is called pressure.”

S16: “Pressure: Gas fills the container it is in, takes its volume and shape because gas molecules are continuously on the move.”

S16: “Condensation: It is the mass per unit volume of a substance.”

3.1.5 Unit 5: Nature and Chemistry

Totally 6 concepts were offered in the curriculum for Nature and Science unit. These concepts were chemical contaminant, contamination, global warming, greenhouse effect, hard water, and soft water. In Table 6, students’ recognition of key concepts in Nature and Chemistry unit is presented.

Table 6: Recognition of key concepts in Nature and Chemistry unit

Nr.	Key concepts	Number of students	Use of Concept Associatively
1.	Chemical contaminant	None	----
2.	Contamination	None	----
3.	Global warming	None	----
4.	Greenhouse effect	None	----
5.	Hard water	None	----
6.	Soft water	None	----

Concepts of this unit presented in Table 6 were not identified as key concepts and included in any student dictionaries. None of the 30 students who participated in the study was able to recognize and define the relevant key concepts in the curriculum.

3.2 Students’ Recognition Levels of Key Concepts

Students’ recognition of key concepts is summarized in Table 7 & 8 presented in this section. In Table 7, each student was coded, total number of concepts included by each student was given, and student success for each unit was assessed with $Q = a/n$ formula. While using this formula, success was calculated both for the key concepts included in personal thesauruses (Q1) and for the relevant concepts in the unit (Q2). However, while total success rate was being calculated, assessment was made based on the number of key concepts in the units (Q1).

Based on Q1 value obtained in Table 7, the number of students at sufficient level was examined, and Table 8 was created. That Q1 values determined in Table 7 were over 0,5 was considered as a sign for student’s being successful or at sufficient level ($Q > 0,8$: very high; $0,79 > Q > 0,51$: sufficient; $Q < 0,50$: insufficient). The number of students at sufficient levels in receptive and productive vocabulary steps is presented in Table 8.

In Table 7, assessment of student success based on the number of concepts per unit is presented. In this section, each student's success in recognizing key concepts for each unit was measured.

Table 7: Assessment of student success regarding the number of key concepts per unit included in personal thesaurus accurately

St. No.	Number of concepts in personal thesaurus	Unit 1		Unit 2		Unit 3		Unit 4		Unit 5		Total
		Q= a/10		Q= a/23		Q= a/11		Q= a/19		Q= a/6		Q= a/68
		Q1	Q2	Q1	Q2	Q1	Q2	Q1	Q2	Q1	Q2	Q1
S1	40	0,20	0,30	0,13	0,35	0,46	0,63	0	0,26			0,79
S2	42	0,20	0,30	0,09	0,43	0,27	0,55	0,16	0,47			0,72
S3	56	0,20	0,40	0,43	0,61	0,18	0,63	0,16	0,37			0,97
S4	37	0,30	0,60	0,35	0,52	0,09	0,36	0,26	0,53			1,0
S5	50	0,50	0,70	0,13	0,26	0,09	0,46	0	0,47			0,72
S6	46	0,30	0,60	0,43	0,73	0,18	0,55	0,26	0,37			1,17
S7	40	0,20	0,30	0,09	0,35	0,27	0,55	0	0			0,56
S8	84	0,70	0,90	0,61	0,87	0,45	0,72	0,16	0,89			1,92
S9	56	0,50	0,60	0,30	0,61	0,27	0,72	0,37	0,37			1,44
S10	48	0,40	0,60	0,43	0,52	0,27	0,63	0,47	0,84			1,57
S11	41	0,40	0,60	0,17	0,35	0,09	0,27	0,16	0,37			0,82
S12	49	0,30	0,50	0,43	0,61	0,18	0,52	0,11	0,47			1,02
S13	39	0,20	0,30	0,09	0,26	0,55	0,81	0,21	0,26			1,05
S14	80	0,50	0,70	0,35	0,61	0,27	0,63	0,16	0,26			1,28
S15	31	0,30	0,40	0,43	0,61	0,09	0,27	0,21	0,32			1,03
S16	77	0,60	0,80	0,52	0,73	0,46	0,72	0	0,26			1,58
S17	73	0,70	0,80	0,52	0,87	0,09	0,36	0,47	0,26			1,78
S18	65	0,60	0,70	0,48	0,52	0,09	0,36	0,58	1,0			1,75
S19	39	0,30	0,60	0,35	0,61	0,36	0,72	0,26	0,26			1,27
S20	40	0,20	0,40	0,26	0,43	0,18	0,72	0,05	0,26			0,69
S21	27	0,30	0,50	0,13	0,43	0,27	0,63	0	0,42			0,70
S22	32	0,30	0,40	0,35	0,73	0,09	0,27	0,05	0,37			0,79
S23	33	0,30	0,60	0,35	0,52	0,0	0,27	0	0,11			0,65
S24	91	0,50	0,70	0,30	0,52	0,46	0,63	0	0			1,26
S25	35	0,20	0,30	0,22	0,43	0,36	0,72	0,47	0,73			1,25
S26	46	0,30	0,50	0,09	0,26	0,0	0	0	0			0,39
S27	45	0,50	0,80	0,39	0,61	0,27	0,63	0,16	0,21			1,32
S28	40	0,20	0,40	0,26	0,43	0,18	0,27	0,05	0,26			0,69
S29	86	0,30	0,40	0,22	0,43	0,19	0,55	0	0			0,71
S30	56	0,10	0,30	0,17	0,35	0,27	0,55	0,21	0,63			0,75
TOTAL		10,6		9,07		6,98		4,99		0		31,64

There are no key concepts or relevant concepts identified.

As it is inferred from Table 7, even though students could not recognize the key concepts offered in the curriculum, they included different concepts of the relevant unit in their works. In Table 7, the number of concepts that each student had in their dictionaries was given. However, since each of these concepts was not the right key concepts, students' success rates were calculated as Q1 and Q2. When personal thesauruses of students were examined based on Q1 value regarding the key concepts in the curriculum, in Science of Chemistry unit (Unit 1), 9 students (S5, S8, S9, S14, S16, S17, S18, S24, S27); in Atom and Periodic system unit (Unit 2), 3 students (S8, S16, S17); in Interactions between Chemical Species unit (Unit 3) and States of Matter unit (Unit 4), 1 student for each (S13 and S18 respectively) were found to be at sufficient level.

When the number of concepts that students identified independently from key concepts in units was examined, it was observed that students included more concepts in their thesauruses. Considering these concepts, the number

of students whose Q2 value regarded as success rate was over 0,51 was 15 in Science of Chemistry unit (Unit 1), 17 in Atom and Periodic system unit (Unit 2), 20 in Interactions between Chemical Species unit (Unit 3) and 6 in States of Matter unit (Unit 4). These students' success levels based on Q2 value were found to be sufficient or high.

That vocational high school 9th grade students identified the key concepts in the unit in accordance with the curriculum was considered as receptive vocabulary and investigated within this context. That students accurately describe or define the key concepts they identified was considered as productive vocabulary. Based on Q1 value obtained in Table 7, the number of students at sufficient level was examined, and Table 8 was formed. Q1 value over 0,5 was regarded as a sign for students' being successful or at sufficient level ($Q > 0,8$: high; $0,79 > Q > 0,51$: sufficient; $Q < 0,50$: insufficient), and the number of students with sufficient level for receptive and productive vocabulary was presented in Table 8.

Table 8: General evaluation of the task given to students

Task type		Unit 1		Unit 2		Unit 3		Unit 4	
		$Q \geq 0,51$	$Q < 0,51$	$Q \geq 0,51$	$Q < 0,51$	$Q \geq 0,51$	$Q < 0,51$	$Q \geq 0,51$	$Q < 0,51$
Receptive vocabulary	Identifying key concepts in a unit	9 student	21 student	3 student	27 student	1 student	29 student	1 student	29 student
	Productive vocabulary	26 student	4 student	26 student	4 student	24 student	6 student	23 student	7 student

When students' personal dictionaries were examined regarding Q1 value in Table 8 based on the key concepts offered in the curriculum; 9 students in Science of Chemistry unit (Unit 1), 3 students in Atom and Periodic system unit (Unit 2), and 1 student in both Interactions between Chemical Species (Unit 3) and States of Matter units (Unit 4) were found to be at sufficient level. In Nature and Chemistry unit (Unit 5), there was no student who could identify the right key concepts. As it is presented in Table 8, the number of students who were considered as insufficient was 21 in Unit 1, 27 in Unit 2, and 29 in Unit 3 and 4; they were evaluated in the category for those who identified an inadequate number of concepts.

In Unit 1 titled as Science of Chemistry, the key concepts selected by 9 students who were considered successful for identifying concepts at an adequate level were "compound, substance/matter, element, formula, alchemy, chemistry and laboratory." Students who identified an adequate number of concepts could not recognize "scientist, symbol, and laboratory safety" during the instruction or did not consider them as key concepts.

In Unit 2 called Atom and Periodic System, the key concepts selected by 3 students who were successful at determining an adequate number of concepts were "atom, atomic radius, electron, electron affinity, group, ion, ionization energy, isotope, neutron, proton, and period." Other concepts in the unit were not recognized and selected by students identifying the concepts at a sufficient level. These terms that students did not prefer as key concepts were "Absorption, Nonmetal, Atom model, Electronegativity, Emission, Isobar, Isoelectronic, Isotone, Metal, Periodic system, Period, Theory, and Semimetal."

In Unit 3 titled as Interactions between Chemical Species, the key concepts selected by 1 student considered successful for identifying concepts at an adequate level were "hydrogen bond, ion, ionic bond, covalent bond, and metallic bond." Other concepts in the unit were not recognized and selected by students at sufficient level. They were "nonpolar covalent bond, bond energy, valence electron, chemical bond, intermolecular interaction and polar covalent bond."

In Unit 4 called States of Matter, the key concepts selected by 1 student considered successful for identifying concepts at an adequate level were “relative humidity, pressure, vaporization, freezing, melting, volume, boiling, mole, humidity, plasma, sublimation, viscosity, and condensation”. Other concepts that were not recognized and selected by students were “fluidity, Avogadro number, vapor pressure, expansion, absolute temperature, and deposition.”

In Unit 5 titled as Nature and Chemistry, there was no student who could determine an adequate number of key concepts. There were 6 key concepts in this unit; however, students did not recognize and include them in their definitions.

As it is stated in Table 8, identifying the key concepts was evaluated as receptive language, and defining the selected concepts as productive language. When the task given to students was evaluated based on each unit, it was observed that students failed to select the key concepts correctly; in other words, they were unsuccessful considering receptive language. That vocational school 9th grade students defined or described the key concepts they identified themselves was evaluated as productive language, and within this context, it was observed that students generally defined the unit concepts accurately in their personal thesauruses. When students’ receptive and productive language perceptions were compared, it was revealed that students were relatively more successful at productive language in comparison to receptive one.

4. Discussion and Conclusion

Formation of scientific language depends on that conceptual background is solid, and concepts are learned, described correctly and associated. The most effective way for students to improve conceptual competence scientifically is to recognize and explain accurately the concepts they have learned, and associate them with other concepts. In many studies, it was revealed that the main reason for students’ failure in chemistry lesson was that they could not learn the basic chemistry concepts precisely during instructions, and accordingly; they could not understand the higher level knowledge taught later on (Nakleh, 1992). Concepts that are the main elements of individual’s knowledge structure are examined as abstract and concrete concepts. Concepts like beaker, flame and metal can be given as examples for concrete concepts. This kind of concepts can develop as a result of individual’s own experiences. As for abstract concepts; atom, mole, chemical balance, oxidation and reduction can be considered as examples (Janiuk et al., 1993). In scientific research conducted (Bayram, Sokmen & Gurdal, 1998; Marck, 1986; Cantu & Herron, 1978), it was indicated that students could not learn abstract concepts without learning concrete ones completely, and that they could learn these concepts at the ages of 14 or 15 when their reasoning abilities developed. Regarding that students have difficulty in comprehending when many concepts are given in abstract terms at early ages, it is believed that rote learning of concepts especially in science lessons will lead to that concepts will be forgotten in the upcoming terms or misconceptions will be developed.

It is stated that actions in the curricula are based on the principle that human development is a whole (MEB, 2018). Features in different zones of human development interact with one another. For instance, language development affects and is affected by intellectual development. For this reason, teachers contribute to individual’s development with each activity that they perform in class. In the study, it is investigated to what extent students can recognize the concepts that they are expected to learn during instruction (receptive language development) and how they define the concepts that they have recognized (productive language development).

The study was conducted with 9th grade students studying at a vocational high school during the 2018-2019 school year. Within the context of chemistry lesson, students were expected to identify the basic concepts in the curriculum, and explain these concepts. Considering the language aspect, in the first step, students’ chemistry-related receptive language during instruction, and in the second step, their productive language was evaluated. Students were informed about the task assigned to them at the beginning of the term based on the aforementioned issues; they were controlled at the end of each unit, and the thesauruses comprising of student records were collected as data at the end of the term.

When the task assigned within the scope of the study was evaluated overall, it was hard to state that vocational high school students were successful at identifying unit-based key concepts in the curriculum. Even though they made an effort to actualize the task assigned to them, only 9 students were found to be at sufficient level in the first unit called Science of Chemistry, and the others could identify an inadequate number of concepts. The number of students who could determine the concepts at an adequate level was 3 after the first unit, and 1 in the other units. In the last unit titled as Nature and Chemistry, students could not recognize and define any of the concepts in the curriculum. The rest of the students could not identify the key concepts, indicating that they passed the basic concepts without noticing during instruction and could not form the conceptual background. In other words, students had difficulty in following the lesson because they could not recognize the subject and content in question.

It was determined that students did not recognize the key concepts of the subject while performing the task assigned to them. Sampling group students began taking chemistry lesson at secondary school, and met “chemistry” concept in scientific sense for the first time then. However, 20 students included and defined “chemistry” in their dictionaries. The concept was encountered in student works 86 times in different contents. Students defined chemistry-related concepts such as “organic chemistry, analytical chemistry, environmental chemistry, textile chemistry, food chemistry, geochemistry, biochemistry, modern chemistry...” and examined them within the context of key concepts; nevertheless, the number of students who defined and examined the chemistry concept as the basis of the subject was limited to 20. 8 students explained other relevant terminology without describing “chemistry” concept. In Unit 3 called Interactions between Chemical Species, the key concepts were “chemical bond and intermolecular interactions”; however, students selected and defined “ion dipole interaction and dipole-dipole interaction” as key concepts without explaining the former ones. Students were supposed to know the concept of chemical bond primarily in this subject. They needed to internalize and make sense of it so that they could form the background for other concepts. Likewise, students were expected to think about intergranular interaction after they knew the concepts of ion and molecule and their meanings. Although teacher delivered the subjects at their own pace during instruction, students struggled to understand or explain higher level concepts without getting the basic ones as they could not form the basis, which prevented scientific content from going beyond memorization. For instance, one of the key concepts in second and third units was “ion”. Students defined “ionization energy, ionic bond and ionization” concepts without recording and explaining the key concept “ion” in their works. Another concept was “vapor pressure”, and students included “equilibrium vapor pressure” concept and its description in their dictionaries without understanding the basic concept first. When concept descriptions were checked, it was observed that students reached the right resources and mostly included accurate statements. On the other hand, it was determined that students tried to define the concepts with a terminology that they were unfamiliar with, which was like struggling to keep the leaves green on a tree without root. The relationship between knowledge and concepts resembles to the one between leaves, branches and root of a tree. Concepts and propositions indicating relationships between concepts in human mind are similar to that leaves connect to branches, reach the tree trunk through them and spring to life with the sap coming from the deeps. The relationship between tree and leaves is like a knowledge network or construction. Information given in the basic subjects of chemistry is based on concepts. These basic concepts will enable what individuals learn to connect with the soil and activate the sap. Therefore, it is of great importance that concepts are known accurately to understand scientific knowledge.

This study is important in three different aspects. First, students can recognize and associate the key concepts of the subject area; second, they have the terminological competence in chemistry for the future; and third, knowledge that students have in 9th grade chemistry subjects is improved and reinforced. The first result obtained in this study is that students, in general, could perceive the concepts superficially. In order to achieve the aforementioned outcomes, it is necessary for students to expand their awareness for the lesson. One of teacher’s responsibilities should be to ensure the subject-related concepts to be recognized. Students do not need to define a term that they hear a lot in daily life or construct it in their mind with its scientific meaning during instruction. In this case, basic concepts should be presented interactively to ensure students’ learning these concepts and to provide a sound basis for science. For this purpose, it is recommended that content of the concept is treated interactively, and students deliver a subject-related speech to explain the concept as a monologue. It is anticipated that the result of the study will change when researchers to continue investigating

this subject include verbal expressions of students by adding a parallel application to the relevant thesaurus task. Another result of the relevant study is that the number of concepts delivered to vocational high school students is high. Students cannot learn the concepts even superficially.

An effective result of the study conducted was that students were eager to perform the task assigned to them. All the students tried to complete their thesaurus-formation task precisely. However, it is obscure that the task contributed to students cognitively. Since meaningful learning of students did not occur in this study, no subject learned during instruction remained until the end of the term. Even the knowledge that could be useful in student's life was learned during instruction temporarily without awareness and forgotten later on as student was exposed to a lot of subjects and concepts. Nature and Chemistry as the last unit of the 9th grade consists of contents necessary for individual's life and for every citizen to respect the world.

Acknowledgments

No financial supports or grants were taken for this research. All authors' contributions for this research was equal.

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English Teachers' Views on Distance Education in the COVID-19 Pandemic Process

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Abstract

Classroom education in Turkey, also in most of the countries, has been temporarily abandoned to lower the speed of transmission of COVID-19 pandemic. It has been resolved that the continuity of education should be maintained through distance learning. This study has been done through qualitative case study. The study group is composed of 30 English language teachers who teach at secondary schools in the city of Malatya. The data collection of this study has been done through semi-structured interviews. This study deals with what English language teachers think about distance learning, what problems they face regarding distance education, and what corrective actions they think should be taken. In compliance with the aim of the study, English language teachers working at secondary schools have been asked about their opinions on the distance education during the COVID-19 pandemic.

Keywords: Distance education, Covid-19, Class management, English teachers, Coronavirus

1. Introduction

Having broken out in December 2019 in Wuhan, the capital city of Hubei province in central China, the COVID-19 outbreak was declared pandemic by WHO on March 11th (WHO, 2020). The date also marked the first COVID-19 case ever seen in Turkey (Turkish Ministry of Health, 2020). There have been significant changes in health, economy, education, and social activities since then. Fear and anxiety have arisen in many countries as COVID-19 cases keep rising worldwide (Lin, 2020). The pandemic has made a direct impact particularly on educational activities, leading to various concerns because most of the countries announced temporary closures of schools after the outbreak of the pandemic, and it was reported that more than 91% of the students worldwide, which corresponded to 1,6 billion students, were affected by the closures (Miks & McIlwaine, 2020). Studies carried out in China, where the first cases emerged, concluded that social mobilities in public areas were to be restricted. In accordance with the conclusions, a number of measures were taken, including school closures, and lockdown. The measures proved to be successful at controlling the spread of the pandemic (Gu, Jiang, Zhao & Zheng, 2020; Tian et al., 2020; as cited in Deniz & Evci Kiraz, 2020).

Some other countries, including the USA, Spain, Italy, France, South Korea, Germany, and Turkey, where the cases were high, followed the steps China had taken, and stopped educational activities for a while. Governments began to discuss ODL (Open and Distance Learning) as a solution to the problem encountered on a global scale in regular education. Today, most of the education is provided online, and millions of students have been attending online classes as part of the ODL (Can, 2020). According to UNESCO, a total of 1.646 million students in 172 countries have been affected by the pandemic since it broke out (UNESCO, 2020a). Local and regional governments have had to take strict measures including lockdown, ban on travel, school closures to lower the speed of transmission of COVID-19, leading millions of kids, teenagers, and young adults to be disconnected from their schools and universities. This might result in great challenges with equality of opportunity in the future (Giannini & Lewis, 2020). In any case, the school closures have brought about unprecedented difficulties for governments, teachers, students, nannies, and parents about maintaining the continuity of education (Chang & Satako, 2020). School closures in Turkey began on the 16th March, 2020 and lasted until the 30th April, 2020, a period during which it was agreed upon that the classes in primary and secondary levels were to be delivered online via three TV channels and an online platform called Educational Information Network.

Distance education basically refers to an education process in which teachers and students are not in the same physical environment (National Center for Education Statistics [NCES], 2008). In the process of distance education, teachers and students stand separate from each other, and the interaction between them is held via different types of information technology (Simonson, Smaldino, Albright & Zvacek, 2012). It also aims to offer education and training by using hardcopy, audio-visual, and electronic materials for learners who lag behind because of various reasons like age, illness, geographical proximity, parental problems, time, and money (Demiray, 1999). Distance education makes it possible to more easily and quickly obtain information with the help of technology, and it helps decrease the cost of education, and it provides a more flexible and objective assessment and evaluation (Elitaş & Devran 2017; İşman, 2008; Uşun, 2006).

Distance education does not simply indicate one single structure and one single pedagogical approach (O'Keefe, Rafferty, Gunder, Vignare, 2020; Teräs et al., 2020), rather with its various learning materials and ways of communication (Rapanta et al., 2020), it is a mindset composed by an integration of related parts (Moore & Kearslet, 2012). Distance education is a great chance in that it paves the way to a quality educational process for companies and people who have not been able to make use of regular education for some reasons (Koçer, 2001). Distance education is a type of education in which the learners are able to learn by themselves thanks to its being more flexible and adaptable compared to traditional education. The aim of distance education is to reduce or eliminate the problems faced when education is to be transmitted to large masses (Tektaş, 2010). Distance education is not affected by the challenges such as learners' age group, time of schooling, the venue, objectives and methods of teaching which are found in traditional practices, and the practices in distance education involve an integration of printed materials, mass media, and, if possible, face-to-face courses (İşman, 2011). Distance education is a modern and effective type of education that can be delivered regardless of place and time, that can help appropriately and flexibly shape and update the online educational materials, that can involve engaging technological materials, and that can be used all around the clock (Yamamoto & Altun, 2020).

The COVID-19 pandemic has altered our views and interpretation of education (Bozkurt & Sharma, 2020). A global pandemic can be defined as a disaster based on its consequences, and this disaster might be interpreted as the end of some things but the onset of many things (El Maarouf, Belghazi & El Maarouf, 2020). The natural flow of life across the world has changed due to the pandemic (Zhao, 2020). There have been a number of changes and measures to reduce the impact and spread of the pandemic, such as flexible working, remote working, and working in turns, partial and complete lockdown, self-quarantine, and keeping physical distance. In accordance with the measures taken, places, like schools and universities, where it is difficult to avoid physical contact, have been closed for a while (2020; Bozkurt & Sharma, 2020; Gupta & Goplani, 2020). The school closures have influenced 1.6 billion students, which corresponds to almost half of all the students in the world (UNESCO, 2020; UNICEF, 2020).

As a consequence of the impacts COVID-19 has had on a global scale, a need for open and distance learning has come out. The process of the pandemic has revealed out that it is necessary to keep students learning even if it is via open and distance courses, that there needs to be more investment in online education, and that traditional approaches to education should be replaced by alternative approaches (open and distance learning in particular). The process also shows that it should be borne in mind that open and distance learning offers considerable advantages not only at times of crises eg. pandemic, disasters, wars, forced migration, but also at normal times as a backup to classroom education. Governments all around the world have prioritized the continuity of education. It has been witnessed during the pandemic that countries have made use of distance learning with the help of different levels of technological infrastructure (Can, 2020).

Although, in literature, there have been studies to identify the views and attitudes of students, teachers, and professors towards distance learning, those studies are mostly done with people at bachelor's or higher level (Aktaş, Büyüktaş, Gülle ve Yıldız, 2020; Alper ve Deryakulu, 2008; Çakır Balta ve Horzum, 2008; Horzum, Özkaya, Demirci ve Alpaslan, 2013; Karadağ ve Yücel, 2020; Keskin ve Özer Kaya, 2020; Pınar ve Dönel, 2020). It is noteworthy that the number of studies on the views of English language teachers is inadequate. This study includes views of those teachers, who are the subjects of teaching English, and aims to contribute to the literature in this way.

The aims of this study are to find out the views of English language teachers in Turkey who teach remotely, and to give advice on how to get the most out of the distance learning. The focus of the study is given in the title: "English Teachers' Views on Distance Education in the COVID-19 Pandemic Process". In compliance with the aim of the study, English language teachers have been asked about their opinions on the distance education during the COVID-19 pandemic. The questions asked are as follows:

- 1- What do you think about the distance education practiced during the pandemic?
- 2- What do you think are some of the problems with distance education at this stage?
- 3- What corrective actions should be taken about distance learning?

2. Method

This study has been done through qualitative case study. The most distinctive feature of case studies is that they enable an extensive analysis of detailed information, which could be more restricted using other methods (Punch, 2014). Qualitative case study has been chosen as the method of this study to be able to analyze the situation of English language education in the process of pandemic in detail. English language teachers have been asked about their opinions on distance education, and the answers have been analyzed with all aspects.

2.1. Study Group

A study group composed of English language teachers working in secondary schools in ten different schools, after taking their informed consent, has been created. The study has been done through easily accessible convenient sampling (Yıldırım & Şimşek, 2018). The study group is composed of 30 English language teachers who teach at secondary schools in the city of Malatya. Information on the teachers can be found in Table 1.

Table 1: Demographic Segmentation of the English language teachers taking part in the study.

Code	Gender	Age	Seniority
P1	Male	26	2 years
P2	Male	41	16 years
P3	Male	47	22 years
P4	Female	34	10 years
P5	Female	33	6 years
P6	Male	34	11 years
P7	Male	52	24 years
P8	Female	27	5 years
P9	Female	30	9 years
P10	Female	37	14 years
P11	Female	32	8 years
P12	Male	29	4 years
P13	Female	24	6 years
P14	Female	35	7 years
P15	Male	37	13 years
P16	Male	48	21 years
P17	Male	36	11 years
P18	Male	52	29 years
P19	Male	40	19 years
P20	Female	35	8 years
P21	Male	31	6 years
P22	Female	38	16 years
P23	Male	51	26 years
P24	Female	24	1 year
P25	Female	34	11 years
P26	Female	39	15 years
P27	Male	40	15 years
P28	Female	30	8 years
P29	Male	38	12 years
P30	Female	47	18 years

Table 2 shows the demographic segmentation of the participants in groups.

Table 2: Demographic segmentation of the participants in groups.

Variables	n=30	f	%
Gender	Male	15	50,00
	Female	15	50,00
Seniority	1-10 Years	13	43,00
	11-20 Years	12	40,00
	21-30 Years	5	17,00
	+31 Years	-	0
Age	25-35	14	47,00
	36-45	10	33,00
	46-55	6	20,00
	Over 56	-	0

As the table suggests, 50% of the participants are male, and the rest 50% are female. 43% of the participants have served for 1-10 years, 40% have served 11-20 years, and the rest 17% have served for 21-30 years. The age variable shows that 47% of the participants are at the ages of 25-35, 33% are 36-45, and 20% are at the ages of 46-55.

2.2. Data Collection

The data collection of this study has been done through semi-structured interviews. The interview form is made up after consulting two experts. The experts suggested that several English language teachers be interviewed to test the interview questions. In compliance with their suggestion, five English language teachers were interviewed. These interviews helped shape the semi-structured form, which includes demographic information and three study questions mentioned above. The interviewee approved the comprehensibility of the questions. In the process of preparing the interview form, it was taken into consideration that the form should direct questions to elicit the situation of English language education and the problems teachers face. The respondents were informed about the content of the study. The questions were directed face-to-face by the researcher. After having completed the interview, the respondents were asked whether they would like to add anything else to their response. The responses of those wanting to add something have been included in the data.

2.3. Data Analysis

Content analysis and descriptive analysis have been selected as the method of data analysis. The responses the samples gave have been evaluated in three categories. The purpose of the use of content analysis is to build certain relationships and correlations between the research data and the situation of English language teaching in practice. The views of the English language teachers participating in the study are presented in the Findings section indirect quotations. This way contributes to the reliability of the study. The participants are named with letters and numbers so as to serve the confidentiality. The data obtained in the study were analyzed by the researcher in the first place, and by two experts in the second place. The analyses of the researcher and the experts were consistent with each other. Also, the equation of $Consensus \div (Agreement + Disagreement) \times 100$ was used to meet the reliability principle (Miles & Huberman, 1994), and the rate of reliability was found to be 0.93. To serve the external validity or transferability of the study, the steps of creating the interview form, the interviews, and the analyses have been explained. The focus group, data collection tools, analyses and interpretations of the data have been described in an appropriate language level to be understood by readers. In order to increase the consistency, the findings have been presented directly, two different researchers have converted the data into codes, and the codes have been compared among each other.

3. Findings

This section includes the findings obtained in the research. They are presented by direct quotations under themes and codes based on the responses given by the English language teachers. Table 3 shows frequency of the

responses to the question of “**What do you think about the distance education practiced during the pandemic?**”

Table 3: The views of English language teachers on distance learning practices

Themes	Coded Teacher Views, n=30	f
Positive Attitudes	-An effective practice (P3, P8, P9, P17, P24, P25, P26, P30)	8
	-The best at hand (P4, P6, P13, P15, P21, P22)	6
	-No different to regular education (P11, P14)	2
	-No time and venue limitation (P20)	1
Negative Attitudes	-Not efficient (P1, P2, P5, P7, P10, P16, P23, P27, P29, P30)	10
	-Inadequate attention and participation by students (P10, P18, P19)	3
	-Inadequate instruction time (P12)	1

As Table 3 indicates, the attitudes of English language teachers towards distance learning, which has been put into practice during the COVID-19 pandemic, are divided into two categories, namely **positive attitudes** and **negative attitudes**.

The most rated view in **positive attitudes** is that it is “an effective practice,” which is mentioned by 8 participants. The other two views in the positive section are “the best at hand” and “no different to regular education” supported by 6 and 2 participants, respectively. The least rated view in the section is “no time and venue limitation” held by 1 participant only.

As for the most frequently expressed view in the positive attitudes section, “an effective practice,” participant P30 (Female, 18 years seniority) comments: *The process of distance education is quite novel both for us and for students. The increased use of technology in this process has been a remarkable advantage. Both teachers and students have been accustomed to distance education. I am in the opinion that distance education is the true and effective method in such unusual cases.* Another participant P26 (Female, 15 years seniority) says: *Both I and my students have had enough opportunities along the process of pandemic, which enables us to maintain the continuity of the courses. My students have regularly attended the classes. I can claim that the least affected subject has been English language throughout the process, and that the English language courses delivered by me have been effective despite the pandemic.* Participant P25 (Female, 11 years seniority) thinks: *We had some challenges at the beginning of the shift to distance education, but we have made good progress along the way. I think that distance education is an effective practice in such extreme cases as the pandemic.* Participant P24 (Female, 1 year seniority) points out: *Although I was initially worried about distance learning as such an online environment had not been widely used by far, I have had satisfactory outputs by using it appropriately.* Participant P3 (Male, 22 years seniority) emphasizes: *I find distance learning as the best and most effective practice in this process.* Participant P (Female, 9 years seniority) states: *Technology is widely used in our everyday lives, and the use of technology in education is a great advantage during the pandemic in which classroom education cannot be provided.*

Other codes having high frequency are “The best at hand” and “No different to regular education.” Participant P4 (Female, 3 years seniority) underlines: *Although there have been technical and infrastructural problems, I*

believe that the Ministry of National Education has been doing what is necessary. The initial problems have been solved in time. I think that the applications provided by the ministry are the best at hand. Participant P4 (Female, 10 years seniority) summarizes the process: *Our country was caught unprepared by the pandemic, which has affected the whole world in a short time. The EBA (Educational Information Network) had been in use for a while before the pandemic, but it proved insufficient at first, and was supported by various platforms to meet the needs. Distance learning has eliminated the possibility of students' going off track. Though I cannot say that it is suitable for every purpose, I think that it is the best method to follow in this time of pandemic.* Participant P21 (Male, 6 years seniority) comments: *Through distance learning, we have been trying to compensate for the damage that classroom education has exposed in this time of pandemic. Even though it is not a perfect substitute for regular education, distance learning is useful in such cases.*

It can be inferred from the comments above that distance education practices by the Ministry of National Education have been adopted by teachers, and that it is the most appropriate thing to do during the pandemic. The least frequent code of response is “No time and venue limitatio,” given by 1 person. Participant P20 (Male, 18 years seniority) elaborates: *As long as there is enough infrastructure and technological support, distance learning is useful in that it removes time and venue limitations.* He implies that distance education is more flexible and less restrictive for both teachers and students.

The other category is **negative attitudes**. The highest frequency belongs to the view that it is “Not efficient,” with 10 participants supporting. This view is followed by “Inadequate attendance and participation by students” with 3 supporters, and “Inadequate instruction time” with 1 supporter.

The code “Not efficient” has the highest frequency in the negative attitudes section. Participant P7 (Male, 24 years seniority) states: *I believe distance education is insufficient and unproductive. The main reason for that is that it limits the interaction and communication between teachers and students.* Participant P10 (Female, 14 years seniority) complains: *I don't think that distance learning is so effective and useful as classroom education. I believe that it is too artificial and obligatory in that there is less attendance and participation, and the platform is not so interactive in distance learning. The facts that teacher-student interaction is limited in distance learning, that it is less possible to make eye-contact with students, and that teachers are less able to use their body language obstruct building a productive educational setting.* Participant P27 (Male, 15 years seniority) claims: *I don't believe that distance learning is an efficient and beneficial practice. I think it sucks most of the time, and it is way artificial.*

Another view in the negative attitudes section is “Inadequate attendance and participation by students”. Participant P27 (Male, 15 years seniority) grumbles: *Because the attendance is not obligatory, some of the students prefer not to attend most of the time, and this badly affects the motivation of teachers and other students.* Another participant P10 (Female, 14 years seniority) summarizes: *It is all about an artificial and mandatory process with limited rates of attendance.* These complaints show that inadequate attendance is a problem in distance learning, and that less attendance rates affect both teachers and students negatively.

The code having the least frequency is “Inadequate instruction time.” Participant P12 (Male, 4 years seniority) says: *I think distance education is not sufficient for our students. There are few teaching hours, and it is hard to achieve things in such little instruction time.* The participant's expressions indicate that distance education implemented by the Ministry of National Education during the pandemic is not regarded as an effective practice by teachers, and that teachers find the instruction time too little to achieve success.

Table 4 shows frequency of responses to the question of: **What do you think are some of the problems with distance education at this stage?**

Table 4: The views of English language teachers about the problems they face in the implementation of distance learning at time of COVID-19 pandemic.

Themes	Coded Teacher Views, n=30	f
Student-oriented problems	-Not enough attendance (P6, P14, P22, P27, P28, P29, P30)	7
	-Students are hard to control (P5, P12, P14, P24, P26)	5
	-Students have attention deficit (P6, P11, P12, P18)	4
	-Students lack socializing (P17, P22)	2
Teacher-oriented problems	-Teachers lack competence in distance learning (P1, P23)	2
Problems resulting from insufficient infrastructure	-The infrastructure is insufficient (P1, P2, P3, P4, P6 P7, P8, P10, P13, P15, P18, P19, P20, P21, P22, P23, P27, P29, P30)	19
	-Not enough suitable materials (P1, P18, P27)	3

As Table 4 indicates, the attitudes of English language teachers towards distance learning, which has been put into effect during the COVID-19 pandemic, are divided into three categories, namely **student-oriented problems**, **teacher-oriented problems**, and **problems resulting from insufficient infrastructure**.

The most mentioned view under **student-oriented problems** is “Not enough attendance” supported by 7 participants. Another code having the second highest frequency is “Students are hard to control” which is raised by 5 respondents. These two are followed by “Students have attention deficit” and “Students lack socializing” comments. The most frequent code is “Not enough attendance.” Participant P28 (Female, 8 years seniority) mentions: *Some of students do not attend classes due to lack of enough means, whereas some others do not attend only because they do not want to. I believe this is the biggest problem of distance learning.* Participant P6 (Male, 11 years seniority) complains: *One of the biggest problems in distance learning is low rates of attendance. Though we have enough technological equipment, I haven't been able to attract students to the classes.* Two other participants P27 (Male, 15 years seniority) and P29 (Male, 12 years seniority) complain about the same thing: *We haven't been able to attract students to the classes.* What these participants state tells us that there is not enough attendance, and that this fact bothers teachers a lot.

The second highest frequent code is “Students are hard to control.” Participant P24 (Female, 1 year seniority) states: *At this time of distance learning, it is hard to control the students and maintain the discipline. Are the students listening to me or are they busy with other tabs on their computer? It could be hard to detect and control such cases.* Participant P26 (Female, 15 years seniority) says: *We have pushed our students to use technological devices more often, which has resulted in some problems. Some students have been taking advantage of this, and we have failed to control such situations...* Participant P14 (Female, 7 years seniority) summarizes: *The biggest problem teachers have to face is not being able to see what students are doing and how they are feeling as we cannot interact with them as much as we used to do in classroom education.* All these quotations tell us that teachers face challenges when it comes to classroom management in distance learning, and that some students take advantage of this.

Another category of responses is **teacher-oriented problems**, in which there is only one code, namely “Teachers lack competence in distance learning.” Participant P1 (Male, 2 years seniority) criticizes: *Teachers are incompetent in distance learning. They don’t know exactly what they are supposed to do. They are not able to prepare materials that match with the topics.* Another participant P23 (Male, 26 years seniority) expresses: *There are problems resulting from some teachers’ inability to utilize information technology in courses.* It can be inferred from the respondents’ opinions that teachers’ lack of competence in distance learning causes serious problems.

The third and last category is **problems resulting from insufficient infrastructure**. The code having the highest repetition under this category is “the infrastructure is insufficient.” Participant P5 (Female, 6 years seniority) grumbles: *I have a great many students who have not been able to reach necessary tools, like the internet, tablets, smartphones, etc. In the absence of these tools, distance learning fails to be useful.* Participant P8 (Female, 5 years seniority) complains: *Problems such as access to the internet, disconnection occur frequently, and they reduce the attendance rates. There are many students who often cannot attend the classes on time or who go offline during the lesson due to the infrastructural and technological deficiencies, which negatively affect the ongoing lesson.* Participant P10 (Female, 14 years seniority) emphasizes: *The process of distance learning is negatively affected either by insufficient infrastructure or by lack of economic resources in parts of students and teachers as well.* Participant P13 (Female, 24 years seniority) says: *Because distance learning is a technology-based process, problems with the internet connection, and technological devices, like computers, tablets, smartphones, and smartboards have negative impact on distance learning.* Participant P21 (Female, 6 years seniority) thinks: *Maybe, one of the biggest challenges that educators have in common in this period is insufficient infrastructure. Distance learning should be carried out by paying attention to the principle of equality of opportunities. There are a number of students in this country who cannot afford the tools needed for distance education, which directly influences the effectiveness of the education.* It can be understood from the respondents’ words that the problems related with infrastructure have had a negative impact on distance education.

Another code under the category of **problems resulting from insufficient infrastructure** is “not enough suitable materials.” Participant P1 (Male, 2 years seniority) states: *Unfortunately, there are not enough suitable materials, and teachers are not competent enough to prepare them.* Participant P18 (Female, 29 years seniority) points out: *The fact that there are not enough interactive materials has made the courses boring.* Participant P27 (Female, 15 years seniority) in a similar vein: *The courses have become boring for we do not have enough suitable materials that goes along with the subjects.* It is obvious from the participants’ sentences that distance learning has been negatively impacted by the fact that there are not enough sources and materials about the subjects and topics.

Answers to the question of **What corrective actions should be taken about distance learning?** are categorized in 8 codes. Table 5 exhibits the frequencies of the views in descending order.

Table 5. Table of frequency of the participants’ views on possible solutions in the implementation of distance learning at time of COVID-19 pandemic.

Item number	Coded teacher views n=30	f
1	Problems with infrastructure should be fixed (P1, P2, P3, P4, P8, P9, P10, P13, P17, P19, P20, P21, P27, P30)	14
2	Students should be provided with the internet and tablets free of charge (P3, P14, P15, P21, P22, P23, P26, P28, P29)	9
3	Teachers should undergo in-service training on distance learning (P3, P6, P8, P9, P23, P29)	6
4	More readily available materials on course topics needed (P1, P2, P6, P23, P27)	5

Continuation of Table 5. Table of frequency of the participants' views on possible solutions in the implementation of distance learning at time of COVID-19 pandemic.

Item number	Coded teacher views n=30	f
5	Parents and students should be given information about distance learning (P4, P5, P6, P17, P24)	5
6	Instruction time should be increased (P7)	1

As is shown in Table 5, the most frequently mentioned view on what corrective actions should be taken is the code “problems with infrastructure should be fixed,” supported by 14 respondents. Another code having high frequency is “students should be provided with the internet and tablets free of charge,” mentioned by 9 participants. 6 participants think “teachers should undergo in-service training on distance learning.” The views “more readily available materials on course topics needed” and “parents and students should be given information about distance learning” have 5 supporters each. The least frequent code is “instruction time should be increased” which is put forward by one person only.

The code having the highest frequency is “problems with infrastructure should be fixed.” Participant P8 (Female, 5 years seniority) says: *Measures should be taken in order to solve infrastructural problems.* Participant P9 (Female, 9 years seniority) suggests: *First of all, there should be arrangements which will help all the students in the country to attend their online courses with no problems.* Participant P10 (Female, 14 years seniority) points out: *What is urgent is to fix the problems with infrastructure to be able to maintain the continuity of education.* Participant P21 (Male, 6 years seniority) recommends: *A well-designed technological infrastructure is a must in distance education. Therefore, problems with infrastructure should be fixed, and students in need should be supported.* The statements indicate that there are problems with infrastructure, and there need to be improvements and corrective actions to maintain the continuity of distance education.

Another highly frequent code is “students should be provided with the internet and tablets free of charge.” Participant P14 (Female, 7 years seniority) says: *Students who cannot attend classes due to limited economic resources should be provided with the internet and tablets free of charge. It is important to be selective doing this so as to provide the support for those who are really in need.* Participant P15 (Male, 13 years seniority) suggests: *Students who have fewer financial resources should be given access to the internet and tablets for free.* Participant P21 (Male, 6 years seniority) in a similar vein: *There should be urgent support for the students who lack financial resources.* These opinions imply that students whose financial situations are not good should be funded by free internet access and tablets in order to remove their problems with technological accessibility.

Another code having high frequency is “teachers should undergo in-service training on distance learning.” Participant P8 (Female, 5 years seniority) puts forward: *To make teachers able to use the stuff in distance learning, they should be offered in-service training and seminars.* Participant P9 (Female, 9 years seniority) suggests: *Teachers should receive in-service training on the use of Web 2.0 tools.* Participant P6 (Male, 11 years seniority) thinks: *There need to be meetings and seminars for teachers involving technical issues of distance learning so that they can utilize technology more effectively.* It is clearly indicated in the above-mentioned comments that teachers' level of competence in distance education matters a lot in improving the effectiveness of the process. Also, it is obvious that teachers need to take in-service training on distance learning practices. The other codes of view that are not quoted here basically imply that there should be more readily available materials on subject matters, that parents and students should be informed about the use of distance education, and that the instruction time should be increased. Arrangements and corrective actions in these issues can be claimed to have positive impacts on the process of distance education.

4. Conclusion and Discussion

Classroom education in Turkey, also in most of the countries, has been temporarily abandoned to lower the speed of transmission of COVID-19 pandemic. It has been resolved that the continuity of education should be maintained through distance learning. In accordance with the resolution, Turkish Ministry of National Education has put EBA TV (Educational Information Network) in practice with an aim of getting over the pandemic with least damage possible. This study deals with what English language teachers think about distance learning, what problems they face regarding distance education, and what corrective actions they think should be taken.

There are two categories, namely **positive attitudes** and **negative attitudes**, under which teachers' views of distance education at time of the pandemic are grouped.

Positive attitudes tell us that teachers find distance learning effective, that it is the best solution at hand, that it eliminates time and venue limitations, and that distance education is no different to traditional face-to-face education. These positive views imply that teachers like the current implementation of distance learning, and that they adopt it. Sindiani et al. (2020) have also found that distance education is the best option at hand at this moment, which supports the results of our study. Çelen, Çelik & Seferoğlu (2013) conclude that teachers are eager for distance education. In the studies of Ağır (2007) and Kuşkonmaz (2011), teachers are found to have moderately positive attitudes towards distance learning. Those findings match with the ones in this study. In contrast, in his study with primary school teachers Ülkü (2018) found that those teachers had moderately negative attitudes towards distance education. Ateş & Altun (2008), on the other hand, found out that teachers were at a level of indecision. Another study that conflicts with this study comes from Görgülü-Arı & Hayır-Kanat (2020) in which teacher candidates state that distance learning is not a perfect substitute for face-to-face education.

Negative attitudes imply that teachers find distance learning ineffective, that students' attention and participation are not at a desirable level, and that instruction time is not enough. Kürtüncü and Kurt (2020) come to the conclusion that students are not content with distance learning. Patricia (2020) and Sindiani (2020) state in their studies that students prefer face-to-face education to distance education. Morgan (2020), and Carrillo and Flores (2020) found out that students who do not have computers and internet connection at home lay behind their levels in classroom education. Tang et al. (2020) reports a dissatisfaction about distance learning in terms of attendance, assessment and evaluation, and students' pace of learning. Görgülü-Arı & Hayır-Kanat (2020) in their study with teacher candidates indicate that they do not think distance learning is a good alternative to classroom education. The inferences from studies mentioned in this section match with the results of this study. Teachers' responses to the question of what they think are some of the problems with distance education have been classified under three themes: **student-oriented problems, teacher-oriented problems, and problems resulting from insufficient infrastructure.**

Student-oriented problems show us that teachers find the rate of attendance not satisfactory, that teachers have difficulty controlling students, that students have attention deficits, and that students lack socializing. Dinçer (2016) arrays that some of the main problems with distance learning are that there are not enough materials for distance learning, that there is no face-to-face communication, that giving feedback and correcting errors are harder during the online lessons, that students, who are not good at individual learning, experience difficulties in planning their study, and that communication among crowded groups of students is not easy to build. Aytaç (2003) suggests that e-learning systems are often difficult to implement due to some challenges, like individuals meet obstacles in their socialization process, and there are problems with hardware and infrastructure. Sintema (2020) reports that teachers' skill of communication with students is weak, and that there is underperformance caused by lack of e-learning facilities. Elitaş & Devran (2017) summarizes disadvantages of distance learning: Being unable to work with a group discipline, and lack of interaction lead to demotivated and undersocialized learners. The findings in this section can be claimed to support the ones in our study.

Teacher-oriented problems indicate that teachers are aware of the fact that they are not competent enough in distance education. It can be inferred from the comments that it would be useful to provide teachers with

seminars and in-service training on distance learning. According to Valentine (2002), teachers should be motivated to boost their performance through training sessions. Moçoşoğlu and Kaya (2020) suggest that improvements be done in distance learning to turn teachers' perception on distance learning into positive, and that informative pedagogical materials be prepared. Burke and Dempsey's report (2020) on COVID-19 pandemic in Ireland overlaps with the aforementioned suggestions. In the report, teachers working in Ireland tell that they do not have enough skills for distance learning, and that they face challenges with hardware, software, and other technological skills. All these studies confirm the results obtained in our research.

Problems resulting from insufficient infrastructure imply that teachers find the current infrastructure and suitable materials insufficient. Gilani points out that school closures worldwide push the countries to create new ideas to maintain the continuity of education, that they come up with a new educational setting to keep students learning, and that however, the effectiveness of the new setting is highly dependent on the level and quality of digital accessibility (2020). The fact that the materials and applications are presented equally and in the same quantity for every student helps develop equality of opportunity in education (Seferoğlu, 2015). The reason for why teachers have developed negative attitudes towards in-service training via distance learning is insufficient infrastructure (Arslan & Şahin, 2013). Study results mentioned in this section match with the ones in our study.

Finally, looking at the possible solutions raised by teachers to the problems with distance learning, it can be seen that mostly mentioned suggestions are as follows: problems with infrastructure should be fixed, teachers should go through in-service training on distance learning, more readily available materials should be provided, and parents and students should be given information on distance education. Similar implications and suggestions have been put forward in other studies related to this issue. In his study on this unusual process, Kırmızıgül (2020) also emphasizes that teachers need in-service training. UNESCO (2020c) recommends various platforms and resources to make the learning process easier for parents, teachers, administrators, and students, and it provides psycho-social support during school closures due to the pandemic. Some of the facilities UNESCO offers are as follows: resources that are prepared to give psycho-social support, digital systems of learning management, mobile-friendly systems, powerful offline systems, massive open online courses, individual learning materials, mobile-friendly learning applications, collaboration platforms supporting video communication, tools for teachers to create digital materials for teaching, and offering financial support to fix the problems related to distance learning. Some of the most important factors to achieve a successful distance learning process are technological competence of teachers, students' accessibility to information technology tools, in-service training for teachers (König, Jäger-Biela & Glutsch, 2020). Nuland, Mandzuk, Petrick & Cooper (2020) highlight that it is necessary and important to train teachers on distance learning software tools, and on how to handle the process successfully. The suggestions and views in this section match with the results of this study.

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A Mobile Educational Game Design for Eliminating Math Anxiety of Middle School Students

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Abstract

All over the world and especially in Turkey, the success level regarding math is well below the desired rate. The main reasons for this situation are negative attitudes and anxiety towards math. It is observed that the students and the teachers experience anxiety about the Arithmetic Operations, which is one of the beginning subjects of math. On the other hand, it is stated in the literature that educational games can be used to eliminate anxieties about math. In this context, an educational math game, which can be used on mobile devices, was tried to be developed in this study in order to reach more users. The product obtained as a result of this study, which was realized according to the design and development research method, was evaluated by 69 middle school students taking classes in city of Van in Turkey. In the evaluation, it was seen that the students gave positive opinions about the game developed. The students stated that they thought the application was highly interesting and could contribute to their math successes. After the evaluation process, the application was put into use around the world and it was installed on 6500 devices from 180 different countries in a three-month period. It was observed that the number of users who did not delete the game after installing and kept it on their device is 2735. Therefore, it is thought that the product developed as a result of the research can serve its purpose.

Keywords: Educational Game Software, Math Anxiety, Middle School Students, Mobile Learning

1. Introduction

Math is a tool used in all activities of life since it reveals human abilities and forms a systematic and logical mindset. So, individuals should have at least a basic knowledge of math (Bulut, 1994). However, the math knowledge of the students is generally not at the desired level. This level is even lower especially for Turkey. Turkey ranked third from the last in 2003 and second from the last in 2006 among the participating countries in The Program for International Student Assessment - PISA Report (Program for International Student Assessment) (Saban, 2019). Although there was a relative increase in the 2018 report, it was seen that Turkey was still below the average. On the other hand, the difficulties in teaching math are not a problem just for Turkey but also is seen as a common problem all over the world (Gokbulut, Sidekli & Sayar, 2013).

Although there are many different reasons why the students fail in math in general, the two most important variables to consider are math anxiety (Abebe, 2015) and negative attitudes towards math (Abebe, 2015; Baykul, 2009). However, math anxiety does not only cause failure in math class, but also prevents the gain of many necessary skills in a technology-based society (Zavlovsky, 1994). Therefore, the efforts to eliminate these anxieties have great importance. It is known that the anxiety especially on the arithmetic operations, which is one of the most fundamental topics of math, is present in a large part of the society. For example, Doruk and Kaplan (2013) reported that anxieties on arithmetic operations do not only exist in students but also in teacher candidates. Of course, this situation can lead to bigger problems. It is known that the teachers, who work at primary and secondary school levels and have math anxieties, transfer these anxieties to their students (Norwood, 1994; Baydar & Bulut, 2002). So, it is understood that eliminating the anxieties about this issue and supporting the positive attitudes are important for the society. Especially when evaluating the findings obtained from the data of countries showing high success in international exams (TIMSS, PISA), which is one of the important indicators of success in the field of math, it was seen that affective variables have an important role in influencing the students' successes. Therefore, it is important to prepare environments that increase students' attitudes and motivations towards the math class at the ages between 9-11, which is the critical period for developing affective reactions towards math (Sari & Ekici, 2018).

When the literature is examined, it is seen that, although there are reasons such as carelessness, lack of knowledge and misconception related the problems experienced by students in the arithmetic operations; the problems faced by the students with the concepts of addition, subtraction, multiplication and division are defined as difficulty rather than misconception and mistake (Varol & Kubanc 2012). The most commonly used methods for addressing these difficulties are the use of computer, the visualization and the use of proper materials (Tatar & Dikici, 2008). It is seen that application development studies were carried out especially to identify and to eliminate difficulties (Kheong, 1988; Woerner, 1980; Bilgin, 2015; Guler & Bilgin, 2017; Bilgin, 2018a) and various educational applications for arithmetic operations were tested (Kula & Erdem, 2005). Therefore, it is understood that to perform mathematics teaching in which conceptual knowledge and operational knowledge are balanced in order to eliminate the difficulties about the theme; and to benefit from the materials that will reduce the abstraction of the concept to be explained (Tatar & Dikici, 2008); and to use software-based materials related to the subject are important. Of course, one of the most important concepts in software-based materials is educational games.

Educational games are defined as software prepared as game format to enable the students to learn school subjects and to develop their problem solving skills (Demirel, Seferoglu & Yagci, 2003). It is known that the use of educational games in math education provides benefits such as motivating the students, changing the negative perception towards the class, overcoming math fears and breaking the prejudices against math (Kebritchi, Hirumi, & Bai, 2010). Therefore, as explained in the previous sections, it is seen that these softwares are frequently used in order to increase students' attitudes and motivations towards math. Considering its benefits especially for the students of primary and secondary school levels, game development studies for math class are frequently encountered (Cankaya & Karamete, 2008; Bilgin 2018b; Gok, 2020; Tural, 2005). Also, it is understood that these materials should be integrated into online environments in order to be used more widely and to benefit the students having math anxieties, and they should be developed for more subjects (Ozata & Coskuntuncel, 2019).

On the other hand, considering the platforms where educational games take place, it is seen that the mobile technologies instead of computer-enhanced softwares, are developing rapidly and have substantial effects on education (Cakir, 2019). Therefore, considering today's conditions, it is understood that educational software used in mobile environment should be given importance, and the materials to be developed should be prepared to be used in mobile devices such as tablet and phone (Karaarslan, Boz & Yildirim, 2013).

In the light of the information given above, it is understood that a mobile educational game should be designed in order to increase the motivation of middle school students for arithmetic operations, which is an important reason for math anxieties, and thus to contribute to the success. Therefore, in this study; it was aimed to design a mobile teaching software for the subject of arithmetic operations, which is one of the most fundamental subjects

of math, and to present students' opinions about the developed software and performance reports of the application.

2. Method

In this study, the Design and Development Research (DDR) method, which is one of the quantitative research methods, was used. DDR is a research method in which a new product, vehicle, model, or processes is developed (Buyukozturk, Cakmak, Akgun, Karadeniz & Demirel, 2018). In such researches, not only the product is developed, but also the applicability, effectiveness and efficiency of the developed product should be demonstrated via experiments (Richey & Klein, 2014). Contrary to traditional research methods, in the DDR researches it is targeted to find a solution for a problem and the development, application and evaluation of the innovative products are carried out (Buyukozturk et al., 2018). Therefore, a game was designed to eliminate the students' anxieties on the Arithmetic Operations in this study.

In the development researches, particularly the ADDIE (Analysis, Design, Development, Implementation, Evaluation) design model and many other models such as Dick and Carey, Kemp and 4C instructional design are used (Buyukozturk et al., 2018; ESMER, 2018). On the other hand, the models for the educational game software development process also exist in the literature. These models are sorted mainly as EFM (Effective Learning Environment), FIDGE (Fuzzified Instructional Design Development of Game-like Environments), GOM (Game Object Model), DGBL (Digital Game Based Learning), GAM (Game Achievement Model), EGM (Experiential Gaming Model) and Spiral Educational Game Design Model. However, it is understood that these models will not be enough to develop an educational game from beginning to end and can only guide game designers (Korkusuz & Karamete, 2013). Also, it is seen that these models are mostly compatible with the general design model. The common point of all these different game development models is the necessity of including the elements of struggle and motivation in the game (Korkusuz & Karamete, 2013).

Therefore, in the study the general design model (ADDIE) was used and the process was carried out in accordance with the model's steps, which are analysis, design, development, application and evaluation.

3. Results

In this section, the transactions and findings obtained during the steps of the research carried out in accordance with the ADDIE design model are presented.

3.1 Analysis

The investigations on arithmetic operations were conducted in the Analysis step, which is the entry step in the development studies and where the current situation is analyzed. Considering the lack of educational software for the subject, which is presented in detail in the introduction section of the study, it is understood that such an educational software for middle school students is needed. On the other hand, it is known that one of the biggest reasons why the students have difficulties in the subject of four operations called as arithmetic operations is that they confuse the rules of addition, subtraction, multiplication and division operations or memorize these rules incorrectly (Varol and Kubanc 2012). Therefore, it is understood that the level of operational knowledge regarding the subject should be increased. So, it is understood that there is a need for an application that can increase the mathematical operation skill and can help to eliminate errors by providing to do practice.

3.2 Design

Studies were conducted to determine the visual structure of the software to be developed in the design section, which is the second step in the development process. In order to design the application about arithmetic operations for middle school students, care has been taken to make the visuals more colorful and interesting. Also, attention has been paid to the sound effects to be lively and fun. Especially when designing a game, considering that the students learn its rules by experiencing in the game environment and with the feedback they

receive (Funk, 2003), it was tried not to include any parts that could cause additional cognitive load on the students. For this purpose, a single interactive button has been added to the visual interface on the game's splash screen. The user proceeds and receives feedback by clicking this button. Siang and Rao (2003) stated that, instead of reading help files or following instructions, the players learn by playing the game directly and experiencing. Therefore, it was tried to form a simple structure that is far from confusion.

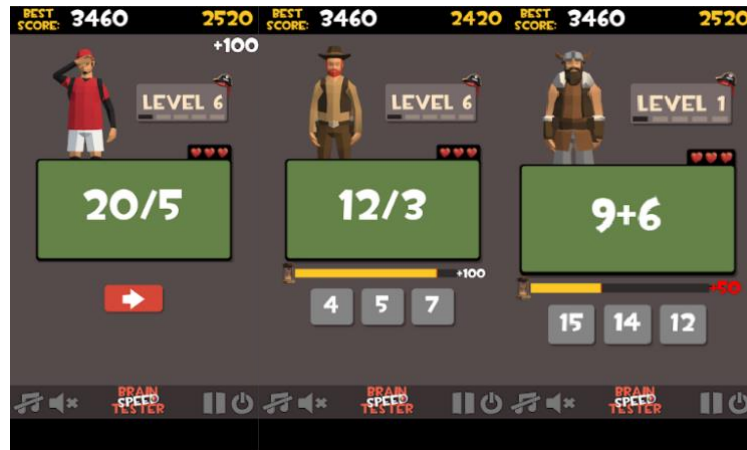


Figure 1: User Interface

As seen in Figure 1, the red-colored progress button is located in the middle of the screen. The user gets a new problem just clicking this button. The instant that the question appears on the screen, the yellow-colored time indicator gets smaller. At the same time, as the yellow indicator decreases, the point that can be earned gradually decreases, thus a sense of competition is given to the participant.

3.3 Development

The development step includes the transactions done in order to develop the algorithms for the functioning of application, to test them and to make the game workable. In this context, various scripts in *c#* language were written over the Unity platform for the purpose. The application generally generates random questions for the students and forms answers and distractors for these questions. The formed distractors are randomly assigned to the choices and their relationship with the correct answer is again randomly generated. In this way, a logical relationship cannot be found between the multiple choices and the correct answer choice, and the student cannot find the correct answer without solving the given problem. Within the developed algorithms, a structure that can generate 50 different types of random questions was formed. These 50 types consist of stages within themselves and the difficulty level increases gradually. For example, while the sum of smaller numbers is asked in the addition operation in the first levels, the sums of the three-digit numbers are also asked in the following sections. Similarly, the algorithms that generate random questions for other arithmetic operations were prepared. The users improve their level by answering 5 questions correctly and they have to give correct answers 250 times to complete all levels. In addition, in every wrong answer given, a feedback is given to the user by showing the correct answer. The user who gave the wrong answer three times loses the game. When the game is over, the score is shown on the screen and the highest score is updated by comparing it with the previous ones. In this way, a competition and motivation process is carried out in the application. In addition, each time the user switches to a new question, the time indicator progresses, and the score that will be received decreases as the answering time increases. On the other hand, the speed of time progress is reduced by the algorithm as questions become more difficult, thus giving the student enough time to solve the question. Finally, as stated in the literature, it was mentioned that the developed materials should be integrated into online environments in order to be used more widely (Ozata & Coskuntuncel, 2019). Therefore, the application obtained at the end of the development process was integrated into the Google Play Store and made accessible all over the world. The application, which is compatible with the Android devices, has a size of 25.7 MB.

3.4 Application

The application process includes the testing transactions of the developed application by the targeted audience. In this context, the middle school students taking education in the city of Van were asked to try the application and to tell their opinions by using the communication tools such as WhatsApp, Facebook and Instagram. Some updates were made according to the feedbacks received from the pre-assessment of 50 person. Showing the correct answers for the questions which were answered wrong, increasing the numbers of the choices and changing the difficulties of levels are in the updates.

3.5 Evaluation

In this section, there is a general evaluation of the product completed at the end of the design process. After the updates done according to the pre assessments in the previous section, the final version of the application was evaluated again by 69 middle school students taking classes in the city of Van and used the application. The 36.8% of the participants were male and the 63.2% were female students. On the basis of class, the 5th grade students present at the rate of 42.6% , the 6th grade students present at the rate of 36.8%, the 7th grade students present at the rate of 13.2% and the 8th grade students present at the rate of 7.4%. For the evaluation process, a questionnaire form consisting of 10 questions as 5-point Likert type was used by the researcher. The responses given to the items in the form were presented as percentage in Table 1.

Table 1: Survey Results

No	Item	1(%)	2(%)	3(%)	4(%)	5(%)
1	Did you like the application?	4,4	2,9	5,9	29,4	57,4
2	Did you find the application useful?	3,1	3,1	1,5	21,5	70,8
3	Did you enjoy the application?	6,0	,0	13,4	17,9	62,7
4	Did you experience any difficulty when using the application?	63,2	14,7	10,3	5,9	5,9
5	Would you recommend the application to your friends?	5,9	,0	4,4	20,6	69,1
6	Do you think that the application can contribute to your lessons?	4,4	1,5	5,9	13,2	75,0
7	Can the application contribute to your math skills?	5,9	,0	5,9	13,2	75,0
8	Can the application be helpful in your exams?	7,5	4,5	9,0	6,0	73,1
9	Do you think the questions in the application are appropriate to your level?	5,9	1,5	7,4	22,1	63,2
10	Do you think the questions in the application are challenging for you?	32,8	4,5	3,0	20,9	38,8

* Answers are listed as 1-Strongly disagree,..., 5-Strongly agree.

When the answers given to the questionnaire are examined, it is seen that the students gave mostly positive answers. For example, 86.8% (29.4 + 57.4) of the participants stated that they agree with the item of "I like the application." Similarly, it is understood that they found it useful with a rate of 92.3% and did not experience difficulty in using it with a rate of 77%. On the other hand, when the answers for the question of "Do you think the questions in the application are challenging for you?" were examined, it was seen that the participants were dispersed approximately similarly to all the answers. So, it is understood that it is suitable for the students' levels. Finally, in the answers the students gave for the question of "Do you think the application can contribute to your lessons?" it is seen that the 88.2% of the students marked the choices of "I agree" and "I strongly agree."

When the performance reports obtained from the Google Play Store at the end of the three-month process that passed after the development and evaluation process of the application, it was seen that the user score of the application was 4.83 over 5. In addition, it was detected that the application was downloaded 6499 times in three-month period and is still on 2735 devices as installed. On the other hand, the number of views of the application in the store, the numbers of downloads and the download rates per view were presented in Table 2.

Table 2: Download Rates

Country	Views	Download	Transformation	Country	Views	Download	Transformation
India	3,687	936	25.39%	South Korea	154	1	0.65%
Pakistan	3,328	871	26.17%	Cambodia	152	22	14.47%
Philippines	1,739	419	24.09%	Somalia	144	52	36.81%
Nepal	1,424	427	29.99%	Malaysia	140	44	31.43%
Bangladesh	955	296	30.99%	Papua	105	33	31.43%
Nigeria	785	253	32.23%	Tobago	103	38	36.19%
Ghana	695	231	33.24%	Russia	102	11	10.78%
Kenya	616	206	33.44%	Iraq	97	26	26.80%
Ethiopia	478	148	30.96%	Jamaica	86	22	25.58%
Turkey	446	134	30.04%	Afghanistan	84	25	29.76%
Egypt	407	125	30.71%	Algeria	84	21	25%
USA	374	81	21.66%	Mongolia	79	13	16.46%
South Africa	352	67	19.03%	Morocco	77	16	20.78%
Iranian	351	87	24.79%	Jordan	76	21	27.63%
Lebanon	233	67	28.76%	Namibia	75	17	22.67%
Sri lanka	227	70	30.84%	Zimbabwe	75	27	36%
Japan	195	1	0.51%	Mauritius	74	21	28.38%
Zambia	185	63	34.05%	Tanzania	70	22	31.43%
Indonesia	183	17	9.29%	United Kingdom	68	23	33.82%
Myanmar	175	52	29.71%	All countries	21,604	5,726	26.50%

When Table 2 is examined, considering all countries, it is seen that approximately 1 out of every 4 people, who viewed the application, installed it. The top five countries that downloaded the application most are India, Pakistan, Philippines, Nepal and Bangladesh respectively. It is seen that the country with the highest download rate per view is Somalia, and the lowest is Japan among the countries. Turkey has outperformed the average rate of 26.5%.

4. Discussion

This research, which aims to develop an educational game for arithmetic operations, was carried out according to the DDR research model. Unlike the traditional research methods, the products in DDR researches are developed, applied and evaluated during the research process (Buyukozturk et al., 2018). Therefore, in this section, there is a general evaluation of the product, which was developed as a result of the research.

As a result of the research, a mobile application / game with a size of 25.7 MB that can run on android operating systems was obtained. In the game, the students are asked questions about arithmetic operations prepared with the help of the numbers, which are randomly generated by the algorithm. The students get points by giving correct answers to the questions and they lose the game with three wrong answers. Also, the game keeps the highest score so the student can compete with himself or with other users (e.g. classmates) whose score (s)he knows. On the other hand, it is thought that the elements of struggle and motivation, which should be in the game (Korkusuz & Karamete, 2013), are provided with the presence of answer durations for the questions.

The educational math game obtained as a result of the research was evaluated by 69 middle school students who were taking classes in Van, the city of Turkey, and used the application via questionnaire form. The findings show that the application was found highly interesting and enjoyable by the students. Also, the students think that the application will contribute to their success in the math class. Again since the questions directed to the

users for the purpose of gaining points in the application challenge more than the half of the students (Table 1, Item 10), it can contribute to the development of their success levels in arithmetic operations. This result supports the information presented in the literature that educational math games will reduce the prejudices against math and make the lesson fun (Ozata & Coskuntuncel, 2019).

On the other hand, the performance reports obtained from the Google Play Store at the end of the 3-month period following the launching of the application all over the world, were also used to evaluate the application. According to the findings, the application has been installed 6500 times in total from 181 countries during this period and is present actively approximately on 2750 devices. It is seen that application showed success approximately at the rate of 42% in terms of rates of loading and keeping on device. Also, it was seen that the application was liked at the rate of 96% (4.83 points) in terms of user evaluation.

Therefore, it can be thought that the developed product contributes to the attitudes and motivations of the students and is attractive. In this context, it can be said that the product serves the purpose of development. On the other hand, it can be tested whether it contributes to the arithmetic operations in particular and to the math success in general, by testing the application with experimental methods. In addition, whether the anxieties about the subject have been eliminated or not should also be tested using similar experimental methods.

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Comparing the Solitary and Tablet Assisted Presentations of Direct Instruction Method in Teaching Science Topics to Students with Intellectual Disabilities

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Abstract

The purpose of the study is to determine whether the solitary and tablet assisted presentations of direct instruction method differed in terms of efficiency and effectiveness in teaching science topics to students with intellectual disabilities and to obtain the opinions of participating students and their real-time teachers about two different instructions. The participants were four male students who had been diagnosed with intellectual disability. Adapted alternating treatments model, among single-subject research designs, was used in the study. The research findings indicated that the solitary and tablet assisted presentations of direct instruction method were both effective in teaching respiratory system and digestive system topics to students with mental disabilities, the participants could generalize what they had acquired to different settings and people, and they preserved what they had learnt 10, 20, and 35 days after the instruction was over. The productivity findings of the study implied that the tablet assisted presentation of the direct instruction method was more efficient. Social validity findings uncovered that students and teachers had positive opinions about the study.

Keywords: Intellectual Disability, Direct Instruction, Tablet Computer Application, Science Concepts

1. Introduction

The effects of economic, scientific, and technological developments and changes on our lives have been obvious in today's age of technology. In an era of change, the welfare level of countries is related to the degree of adaptation to those developments (Yener & Yılmaz, 2017). Therefore, superiority in science and technology plays a decisive role in increasing social welfare. Prioritizing science is among the ways of increasing the welfare level of countries (Gürses, Açıkıldız, Bayrak, Yalçın, & Doğar, 2004). Innovations and inventions in science both contribute to the development of countries and lead to scientific and technological improvements (Aksüt, 2011). Therefore, countries tend to attribute special importance to science education for raising

productive individuals in knowledge and technology so as not to lag behind scientific and technological developments and to ensure continuous progress (Ayas, Çepni, & Akdeniz, 1993).

In the present age of information and technology, the objectives of science courses include raising individuals with science awareness who understand and grasp information, produce information using mental processes (Okcu, 2016), and improve themselves (Karakoç, 2016). In line with these, the vision of the Science Curriculum has been determined to be cultivating science-literate students regardless of their differences (Ministry of National Education [MoNE], 2018).

The literature indicates that various methods and techniques in science courses have been exploited to raise science-literate individuals based on the needs of students. Small group teaching, observational learning, unintended teaching, peer modeling, and peer teaching methods for teaching functional academic skills, and the methods using reaction clues for accurate teaching methods have been used in teaching science to students with special needs (Batu, 2008). The direct instruction method has intensively been used to teach topics and concepts in science lessons to students with special needs (MoNE, 2018).

Direct instruction is a teaching method consisting of reiterated exercises to ensure permanence and the steps of modeling, guided application, and independent application (Dağseven-Emecen, 2011; Karabulut & Özkubat, 2021). Direct instruction is a frequently used teaching method for special needs students in teaching courses with academic skills such as mathematics, literacy, life studies, social studies, and science (Vuran & Çelik, 2013). Besides, it is an extremely effective method in achieving different educational goals (Uçar, 2017; Özkubat, Karabulut & Uçar, 2021).

It was observed that there had been various studies in local and global literature examining the effectiveness and/or efficiency of direct instruction method thanks to the use of direct instruction method (Alptekin & Özyürek, 2013; Dağseven-Emecen, 2011; Özokcu, Akçamete, & Özyürek, 2011; Çakır, 2006; Tavil, 2005; Ekeril, 2000; Güzel, 1999).

Equality of opportunity in education, advances in technology, and legislations result in the widespread use of technology in education and particularly in the field of special education (Acungil, 2014). Considering the positive effects, the use of technology becomes significant for the education of individuals with intellectual disabilities.

There have been various studies in the literature on the effectiveness of teaching via technological instruments and tablet computers (Özbek, 2019; Boşnak, Yıkımsı, & Cavkaytar, 2015; Acungil, 2014; Özak, 2008). There were also international studies conducted with technological instruments and tablet computers (Hammond, Whatley, Ayres & Gast, 2010; Kagohara, Sigafos, Achmadi, Meer, O'Reilly & Lancioni, 2011; Allen, Burke, Howard, Wallace & Bowen, 2012; Cullen, 2013; Doenyas, Şimdi, Çataltepe & Birkan, 2014). However, the number of studies involving technological instruments and tablet computer applications in science education on individuals with intellectual disabilities is limited (Olsen, 2007; Wood, 2014; Sola-Özgüç, 2015; Sola Özgüç & Cavkaytar, 2016).

The increase in the use of tablet computers in the world has been gaining momentum in recent years. It has been observed that tablet-based teaching for students with special needs yields effective results (Özbek, 2014; Öztürk & Yıkımsı, 2020; Boşnak, Yıkımsı, & Cavkaytar, 2015; Acungil, 2014). However, the number of studies involving tablet computer applications in science education on individuals with intellectual disabilities is limited in both local and global literature (Wood, 2014; Sola-Özgüç, 2015; Sola Özgüç & Cavkaytar, 2016). As the studies involving tablet computer applications in the training of students with intellectual disabilities are quite recent, it is necessary to test their effectiveness and efficiency by conducting further research. Therefore, this study is deemed to be significant in terms of comparing the direct instruction method, which has been proven effective in teaching science topics (Türker Yıldırım & Çifci Tekinarslan, 2020; Yılmaz, 2017; Çapraz, 2016; Knight, Smith, Spooner, & Browder, 2012; İlik, 2009) and tablet computer applications in which technology is involved.

This study aimed to determine whether the solitary and tablet assisted presentations of the direct instruction method differed in terms of efficiency and effectiveness in teaching science topics to students with intellectual disabilities. Answers to the following questions were sought in the study.

1. Does the effectiveness of the solitary and tablet assisted presentations of the direct instruction method to differ in terms of the acquisition, monitoring, and generalization in teaching digestive system topic to students with intellectual disability?
2. Does the effectiveness of the solitary and tablet assisted presentations of direct instruction method differ in terms of the acquisition, monitoring, and generalization in teaching respiratory system topic to students with intellectual disability?
3. Is there any difference between the solitary and tablet assisted presentations of direct instruction method in teaching science topics to students with intellectual disability in terms of (a) the number of sessions, (b) the number of trials, (c) the number of errors, and (d) the total instruction period until the criteria were met?
4. What are the opinions of the participating students about the research procedure?
5. What are the opinions of the real-time teachers of the participating students about the research process?

2. Method

2.1. Research Model

Adapted alternating treatments model, among single-subject research designs, was used in the study.

2.1.1. Dependent Variables

The study had two dependent variables. The first one was the respiratory system topic which was intended to be taught to individuals with intellectual disability with 80% of achievement, and the second one was the digestive system topic with 80% of achievement.

2.1.2. Independent Variables

The independent variables of the study were the instruction of the tablet assisted presentation of the direct instruction method, and that of the direct instruction method without the tablets.

The dependent and independent variables for the participating students were presented in Table 2.1.

Table 2.1: Independent and dependent variables for participating students

Participants	Tablet assisted Presentation of Direct Instruction Method	Solitary Presentation of Direct Instruction Method
Onur	Respiratory system	Digestive system
Eren	Respiratory system	Digestive system
Mert	Respiratory system	Digestive system
Emre	Respiratory system	Digestive system

2.2. The Participants

This study was conducted with four students who had been diagnosed with mild intellectual disability and attending a special education class in a secondary school in Bolu city center in the academic year of 2018-2019. The prerequisites were sought in determining the participants for the study. They were (a) not having a previous systematic instruction on the digestive system and respiratory system topics which determined to be the dependent variables of the study, (b) to be literate and understand written material, (c) to fulfil verbal instructions (d) to be able to answer written questions directed to him/her in black and white, (e) to be able to answer verbal questions orally, (f) to be able to direct attention to an activity for at least five minutes.

Pseudonyms were used in the study instead of the real names of the participants. The demographics of the participants were submitted in Table 2.2.

Table 2.2: The Demographics of the Participants

Participants	Age	Gender	Type of Disability
Onur	12 y 3 m	Male	Mild intellectual disability
Mert	12 y 9 m	Male	Mild intellectual disability
Eren	11 y 9 m	Male	Mild intellectual disability
Emre	11 y 10 m	Male	Mild intellectual disability

2.3. The Practitioner and Observer

The instruction procedure was carried out by the first author. The second author, on the other hand, acted as a consultant at each stage. Inter-observer reliability and instruction reliability data of the study were obtained by two observer field experts.

2.4. Setting

All sessions of the study (baseline, teaching, daily “probe,” generalization, and follow-up sessions) were held in the parent-teacher association room of approximately 15m² within the school. There were a desk, five chairs, and a coffee table in the room. During the sessions, the researcher and the participating student sat side-by-side at the desk.

2.5. Aids and Materials Used in the Study

Two tablet computers, a video camera, digestive system software, respiratory system software, external hard drive for storing videos, tripod, teaching material prepared by the researcher for respiratory system, teaching material prepared by the researcher for the digestive system, various reinforcers, pens, and data collection instruments for teaching, daily “probe,” generalization and follow-up sessions to keep performance records of the participants were used in the study.

2.5.1. Digestive System and Respiratory System Mobile Applications

Mobile applications in Turkish were developed within the scope of this study to teach digestive system and respiratory system topics to children with intellectual disabilities.

Two mobile applications related to the digestive and respiratory systems have been developed in line with the target behaviours for the present study. It was aimed to develop a user-friendly tablet application. Moreover, plain screen designs for the mobile apps were preferred not to distract the users’ attention and only the required number of buttons were placed. The number of written texts was kept to the minimum in the Respiratory System and Digestive System Mobile Application, and the texts were voiced and arranged at a proper level for the student’s understanding. Besides, similar designs were used for the digestive system and respiratory system applications. Figure 2.1: presented the screenshot of the user login for the application. The user must first enter his/her name and click the “LOGIN” button to use the application.



Figure 2.1: The screenshot of Digestive System mobile app user login

After the login, the user is directed to the page with the definition of digestion. After listening to the definition, the user can proceed to the next page by clicking the organs button. The red door button allows returning to the main page.



Figure 2.2: The screenshot of the definition of digestion

When the user proceeds to the organs in the digestive system, it is possible to listen to what the organs are by clicking on the organs one by one. If s/he clicks the "function" button, s/he is forwarded to the relevant organ whose function is to be heard.



Figure 2.3: The screenshot of the organs in the digestive system



Figure 2.4: The screenshot of the function of the small intestine



Figure 2.5: The screenshot of the function of the large intestine

If the user clicks the listen button, s/he listens to the function of the relevant organ. It is possible to proceed by clicking the buttons for home, previous screen, and next screen.



Figure 2.6: The screenshot of Let's answer the questions section

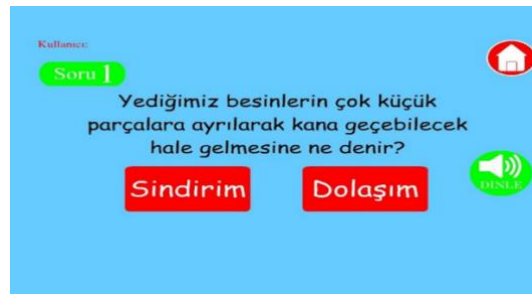


Figure 2.7: The screenshot of Question 1

There is a “Start” button at the beginning of the “Let’s answer the questions” section. On the next page, the user may listen to the question and options by clicking the “Listen” button. If the user clicks on the correct option after listening to the question, “Well done! Username” on the screen is displayed in accompany with an applause effect, and the “Next” button has been added to proceed to the next question. If the user clicks on the wrong option, “Try Again” is displayed on the screen in accompany with a warning beep. The user is warned that the topic should be listened to again by pressing the “Back to Topic” button, and s/he is directed to the previous page where the topic has been covered.

2.6. The Experimental Procedure

The experimental procedure of the study consisted of the pilot scheme, baseline sessions, teaching sessions, daily “probe” sessions, generalization sessions, and follow-up sessions. All the stages in the experimental process were carried out by the researcher and recorded with a video camera. All sessions were conducted in a one-to-one teaching arrangement.

The pilot scheme was conducted to determine the potential problems that may arise during the experimental procedure and to take necessary precautions. The participant in the pilot scheme was an 11-year-old male student who had been diagnosed with intellectual disability and attending a special education class. No problems arose during the pilot scheme. The experimental procedure was carried out as it was planned.

The baseline probe lasted for at least three consecutive sessions until stable data was obtained. The respiratory system data collection form and digestive system data collection form were used with all participants for three days in respective probe sessions for each topic. During these sessions, attention grabbers were used to attract the student's attention (“Hello! Are you ready to work with me?”). It was reinforced when the student orally expressed that s/he was ready (“Great, you are ready.”). Then, questions in the data collection form were posed depending on the topic to be taught. After posing a question, the practitioner waited for the student for five seconds to react, and then, the questions with correct answers were recorded as correct responses (+), and those with incorrect or no answers were recorded as false responses (-) to the data collection form. No feedback or correction was provided to the students during the baseline session.

2.6.1. The Solitary Presentation Of Direct Instruction Method For The Digestive System And Respiratory System

During the teaching sessions, the practitioner briefly explained the rules that the student should obey, which topic should be covered, and why it should be learned by sitting side-by-side with the student while starting the teaching session. The aids to be used in the teaching process were introduced to the student and s/he was allowed to examine for a while. The lesson plans based on the direct instruction method consisted of materials, preparation for teaching, modelling, guided application, and independent application phases. During the modelling phase, the practitioner verbally presented the information together with the material in front and repeated it several times. The practitioner waited for the student to repeat after several repetitions. The student's correct answers were reinforced. If the student was mistaken, the practitioner repeated and waited for the student to follow. During the guided practice phase, the practitioner asked what the student was taught during the modelling phase together with the material in front. The practitioner reinforced the student's correct answer. If the student did not react or made a mistake, the practitioner reiterated and waited for the student to follow. During the independent application phase, the practitioner asked the student to answer the questions in the section of let's answer the questions. The student answered the questions. If the student answered the questions correctly, s/he moved on to the other question, if s/he answered incorrectly, the practitioner returned to the topic. Then, the student answered the question again. S/he moved on to the other question. The process continued in the same way.

2.6.2. The Tablet Assisted Presentation Of Direct Instruction Method For The Digestive System And Respiratory System

Preparatory education was provided to each student beforehand. Before the teaching, the participants were supplied with applied information on how to use the tablet computer by the researcher. Preparatory education lasted approximately 10 minutes for each student.

During the teaching sessions, the practitioner briefly explained the rules that the student should obey, which topic should be covered, and why it should be learned by sitting side-by-side with the student while starting the teaching session. The aids to be used in the teaching process were introduced to the student and s/he was allowed to examine for a while. The lesson plans based on the direct instruction method consisted of materials, preparation for teaching, modelling, guided application, and independent application phases. During the modelling phase, the practitioner stated that they would click the button next to the text and learn the relevant words. The student and the practitioner clicked the dubbing button in the application and listened to the verbal information. After listening to the verbal information on the tablet, the practitioner expected the student to repeat what s/he had listened to. The student's correct answers were reinforced. The student was asked to listen to the tablet again if s/he was mistaken. During the guided practice phase, the implementer asked the student to repeat what s/he had heard on the tablet during the modelling phase. The practitioner reinforced the student's correct answer. If the student did not react or made a mistake, the teacher asked him/her to listen to the tablet again and repeat. During the independent application phase, the practitioner asked the student to do the section of let's answer the question on the tablet. The student answered the questions on the tablet. If the student answered the questions on the tablet correctly, s/he moved on to the next question, but if s/he gave the wrong answer, s/he returned to the topic on the tablet and listened. S/He listened to the question and answered it again. Then, s/he moved on to the next question. The process continued in the same way. The practitioner declared what s/he learned at the end. The practitioner celebrated the student for working very well during the lesson and following the rules and finished the lesson by announcing the award. Then, the evaluation session began.

2.7. Monitoring Sessions

Follow-up sessions were held to determine to what extent students preserved the target behaviours they learned after the end of teaching. Follow-up data were collected by the researcher on the tenth, twentieth, and thirty-fifth days following the acquisition of target behaviours by all students. Monitoring sessions were conducted following the same process as baseline sessions. The obtained data were recorded in the data registration form.

2.8. Generalization Sessions

Data on the generalization sessions of the study were collected using different materials and people. Generalization sessions were held with all participating students one week after the end of the teaching sessions. Generalization data were obtained from the participants by preparing materials in 30*40 cm with over questions about target behaviours. Besides, generalization data were retrieved by posing questions about target behaviours to the participants by a different teacher.

2.9. Data Collection and Analysis

Four types of data were obtained in the study: effectiveness, efficiency, social validity, and reliability data (inter-observer reliability and instruction reliability data). The effectiveness data of the study were estimated based on the baseline level of the topics, their correct responses in daily “probe,” follow-up and generalization sessions and were graphically analysed. The charts contained data regarding baseline level, teaching, daily “probe” and monitoring sessions. Besides, the students’ correct responses for the generalization pre-test and post-test sessions were also presented with a column chart.

Whether the solitary and tablet assisted presentations of direct instruction method differed in terms of efficiency was revealed through descriptive analysis of the data for (a) the number of sessions, (b) the number of trials, (c) the number of errors, and (d) the total instruction period until the criteria were met for each student.

The social validity data of the study obtained both from the students and their real-time teachers were analysed qualitatively. The data based on the sessions for teaching, baseline, daily “probe,” follow-up, and generalization were independently analysed for the reliability of instruction thanks to data registration forms. The obtained data were analysed using the formula of “Observed Implementer Behaviour / Planned Implementer Behaviour X 100” (Tekin-İftar, 2012). The results of the instruction reliability analysis for the baseline, daily “probe,” generalization, and follow-up sessions were found to be 100% in all four participants. The scores of teaching sessions varied between 90% and 100%.

The formula of $\text{Consensus} / (\text{Consensus} + \text{Dissensus}) \times 100$ was used in estimating inter-rater reliability (Tekin-İftar, 2012). The consensus and dissensus were decided by comparing the data collection forms filled in by the observer with those by the researcher. The instruction reliability findings obtained for baseline, daily “probe,” generalization and follow-up sessions were found to be 100%.

3. Results

3.1. The Effectiveness Of The Solitary And Tablet Assisted Presentations Of The Direct Instruction Method In Teaching Respiratory System And Digestive System Topics

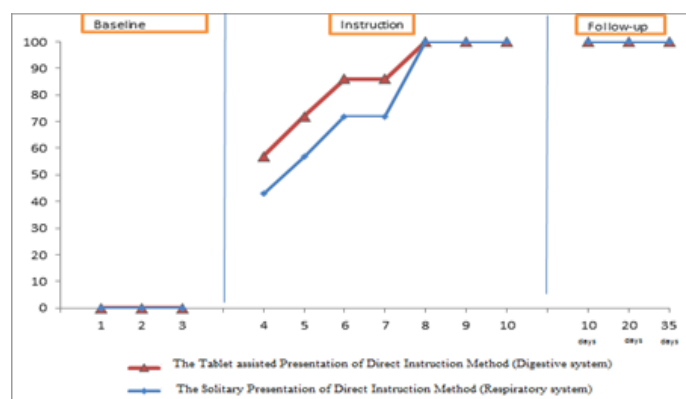


Figure 3.1: Eren’s baseline level, correct response percentages on digestive system and respiratory system topics during instruction and monitoring sessions

The examination of Eren's teaching sessions data for the solitary and tablet assisted presentations of direct instruction method in Figure 3.1 yielded that Eren could meet the criteria after the third teaching session with the tablet assisted presentation of the direct instruction method while it was achieved only after the fifth teaching session in the solitary presentation of direct instruction method. Eren performed at a 100% accuracy level in the sixth, seventh, and eighth consecutive sessions in both the solitary and tablet assisted presentations of the direct instruction method. The follow-up data implied that Eren preserved the covered topics in both ways at a 100% accuracy level 10, 20, and 35 days after the instruction was over. It was concluded that both the solitary and tablet assisted presentations of the direct instruction method were effective in teaching the digestive system and respiratory system topics based on the research findings of Eren.

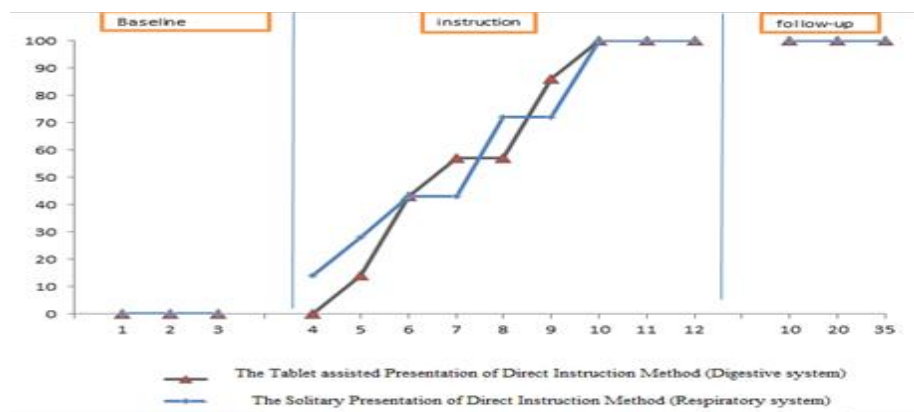


Figure 3.2: Emre's baseline level, correct response percentages on digestive system and respiratory system topics during instruction and monitoring sessions

The examination of Emre's teaching sessions data for the solitary and tablet assisted presentations of direct instruction method in Figure 3.2 yielded that Emre could meet the criteria after the sixth teaching session with the tablet assisted presentation of the direct instruction method while it was achieved only after the seventh teaching session in the solitary presentation of direct instruction method. Emre performed at a 100% accuracy level in the seventh, eighth, and ninth consecutive sessions in both the solitary and tablet assisted presentations of the direct instruction method. The follow-up data implied that Emre preserved the covered topics in both ways at a 100% accuracy level 10, 20, and 35 days after the instruction was over. It was concluded that both the solitary and tablet assisted presentations of the direct instruction method were effective in teaching the digestive system and respiratory system topics based on the research findings of Emre.

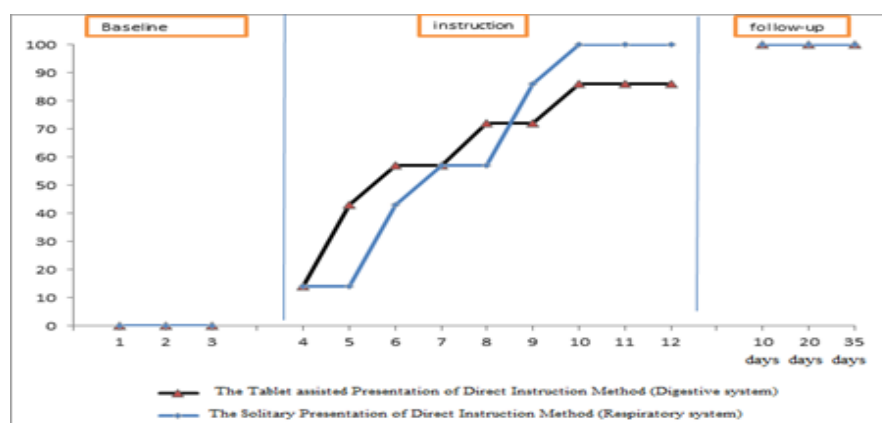


Figure 3.3: Mert's baseline level, correct response percentages on digestive system and respiratory system topics during instruction and monitoring sessions

The examination of Mert's teaching sessions data for the solitary and tablet assisted presentations of direct instruction method in Figure 3.3 yielded that Mert could meet the criteria after the sixth teaching session with the

tablet assisted presentation of the direct instruction method while it was achieved only after the seventh teaching session in the solitary presentation of direct instruction method. Mert performed at 85.71% accuracy level in the seventh, eighth, and ninth consecutive sessions in the tablet assisted presentation of direct instruction method and a 100% accuracy level in the solitary presentation of direct instruction method for the identical sessions. The follow-up data implied that Mert preserved the covered topics in both ways at a 100% accuracy level 10, 20, and 35 days after the instruction was over. It was concluded that both the solitary and tablet assisted presentations of the direct instruction method were effective in teaching the digestive system and respiratory system topics based on the research findings of Mert.

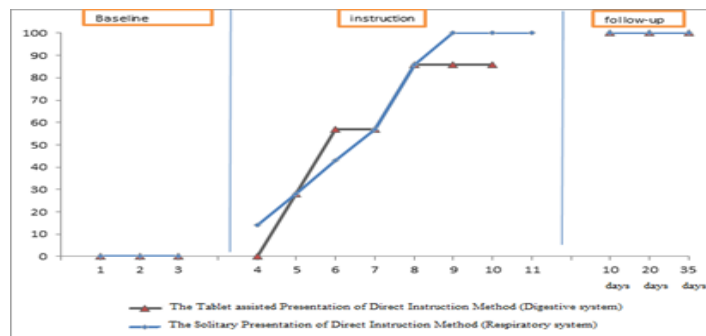


Figure 3.4: Onur's baseline level, correct response percentages on digestive system and respiratory system topics during instruction and monitoring sessions

The examination of Onur's teaching sessions data for the solitary and tablet assisted presentations of direct instruction method in Figure 3.4 yielded that Onur could meet the criteria after the fifth teaching session with both the solitary and tablet assisted presentations of the direct instruction method. Onur performed at 85.71% accuracy level in the fifth, sixth, and seventh consecutive sessions in the tablet assisted presentation of direct instruction method and a 100% accuracy level in the solitary presentation of direct instruction method for the sixth, seventh and eighth sessions. The follow-up data implied that Onur preserved the covered topics in both ways at a 100% accuracy level 10, 20, and 35 days after the instruction was over. It was concluded that both the solitary and tablet assisted presentations of the direct instruction method were effective in teaching the digestive system and respiratory system topics based on the research findings of Onur.

3.2. The Generalization Of The Solitary And Tablet Assisted Presentations Of The Direct Instruction Method In Teaching Respiratory System And Digestive System Topics

The findings including the correct responses of Eren, Emre, Mert, and Onur in the generalization pre-test and post-test sessions for the respiratory system and digestive system topics were submitted in Figure 3.5. While all students did not respond correctly regarding both respiratory system and digestive system topics in the generalization pre-test session, they gave 100% correct responses to both topics and generalized the covered topics to different people and settings in the generalization post-test session.

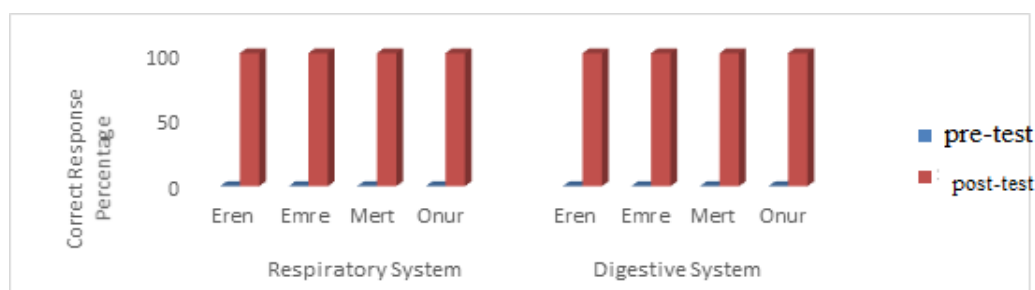


Figure 3.5. The correct response percentages of Eren, Emre, Mert, and Onur in the generalization pre-test and post-test sessions for respiratory system and digestive system topics

3.3. Productivity Findings

The number of sessions, the number of trials, the number of errors, and the total instruction period until the criteria were met were initially determined to compare the productivity findings of the solitary and tablet assisted presentations of direct instruction method in teaching respiratory system and digestive system topics. Table 3.1 submitted data on the number of sessions, the number of trials, the number of errors, and the total instruction period for all students until the criteria for both topics were met. As seen in Table 3.1, there was no significant difference for three of the participants (Eren, Emre, and Mert) in terms of the number of sessions held and the number of trials performed for the intended topics until the criteria were met. It was observed that the tablet assisted presentation of the direct instruction method was more efficient for one of the participants (Onur). It was determined that the tablet assisted presentation of the direct instruction method was more efficient in terms of the number of errors for two participants (Eren and Mert) when compared to the solitary direct instruction method. It was found that the solitary direct instruction method was more efficient than the tablet assisted presentation for two participants (Emir and Onur). It was observed that the tablet assisted presentation of the direct instruction method was conducted in lesser time for three participants (Eren, Mert, and Onur) in terms of the total instruction period.

Table 3.1: Productivity Findings for the Solitary and Tablet assisted Presentations of Direct Instruction Method

Student	Independent variable	Dependent variable	Number of Sessions	Number of Trials	Number of Errors	Total Instruction Period
Eren	Tablet assisted Presentation of Direct Instruction Method	Digestive system	7	49	7	57min 55sec
	Solitary Presentation of Direct Instruction Method	Respiratory system	7	49	11	1h 1min 12sec
Emre	Tablet assisted Presentation of Direct Instruction Method	Digestive system	9	63	24	1h 43min 17sec
	Solitary Presentation of Direct Instruction Method	Respiratory system	9	63	23	1h 28min 53sec
Mert	Tablet assisted Presentation of Direct Instruction Method	Digestive system	9	63	23	1h 3min 36sec
	Solitary Presentation of Direct Instruction Method	Respiratory system	9	63	24	1h 41min 42sec
Onur	Tablet assisted Presentation of Direct Instruction Method	Digestive system	7	49	21	1h 6min 7sec
	Solitary Presentation of Direct Instruction Method	Respiratory system	8	56	19	1h 19min 32sec

3.4. Social Validity Findings

The social validity data of the study were obtained from the participating students and their real-time teachers. This study examined their opinions regarding the significance of research objectives and the appropriateness of the methods used at the end of the instruction. The participating students and their teachers expressed positive opinions to a great extent.

4. Discussion

The research findings indicated that the solitary and tablet assisted presentations of the direct instruction method were both effective in teaching the respiratory system and digestive system topics to individuals with intellectual disability, and the acquisition levels of students were permanent in the monitoring sessions held after the fulfilment of instructions, and they were generalized to different settings and people. It was concluded that both teaching methods did not differ in terms of effectiveness in teaching science topics. The present study found that there was a difference in productivity in favour of the tablet assisted presentation of the direct instruction method. The social validity findings of the interviews implied that the students and teachers had positive opinions. All these aspects of the study were discussed below in line with the obtained findings.

As a result of the instruction session for the tablet assisted presentation of the direct instruction method to teach the respiratory system and digestive system topics to individuals with intellectual disabilities, it was determined that there was an increase at the end of the instruction compared to their baseline levels in all four participants in the study group. While the acquisition level of topics was 0% at the beginning, it was found to be between 85% and 100% at the end of the instruction. It was observed that the participants preserved what they had learnt in the monitoring sessions held 10, 20, and 35 days after the instruction was over. These findings indicated that the tablet assisted presentation of the direct instruction method was effective in the acquisition of science topics and the perseverance of covered topics after the instruction. This finding overlapped with those of other studies in the relevant literature implying that the use of technology has been effective in gaining academic skills for individuals with intellectual disabilities (Kot, 2019; Öner, 2018; Öztürk & Yıkımsı, 2020; Sola-Özgüç, 2015; Sola Özgüç & Cavkaytar, 2016; Campigotto, McEwen, & Demmans Epp, 2013; Liu, Wu, & Chen, 2013). As a result, it was found that supporting science topics with a tablet computer application was a useful and effective method for students with intellectual disabilities.

It is important to monitor the acquisition levels of the topics as well as the acquisition of new topics during the process of introducing new topics to individuals with intellectual disabilities. It was observed that the acquisition levels of the respiratory system and digestive system topics were permanent in all participants 10, 20, and 35 days after the instruction was over. In light of these findings, it can be alleged that the presentation of the tablet assisted direct instruction method supported the permanence of the science topics in students with intellectual disabilities. This finding of the study also overlapped with other research findings in the literature indicating that technology has had positive effects on the permanency of the concepts, topics, and skills taught to individuals with special needs (Kot, 2019; Öner, 2018; Sola Özgüç & Cavkaytar, 2016; Sola-Özgüç, 2015; Boşnak, Yıkımsı, & Cavkaytar, 2015; Özbek, 2014; Campigotto, McEwen & Demmans Epp, 2013; Murdock, Ganz & Crittendon, 2013; Liu, Wu & Chen, 2013; Hart & Whalon, 2012; Fitzgerald & Koury, 2008). It can be alleged that this study contributed to the relevant literature by supporting the existing data.

There were a limited number of studies with generalization data among those addressing the use of technology in teaching topics, concepts, and skills to individuals with special needs (Strasberger & Ferreri, 2014; Öztürk & Yıkımsı, 2020; Boşnak, Yıkımsı, & Cavkaytar, 2015; Genç-Tosun & Kurt, 2017; Kot, 2019). Generalization sessions were conducted on both different people and different settings in this study. Generalization findings implied that the participants could generalize the covered topics to different people and settings.

During the experimental procedure, the researcher had some observations supporting the effectiveness findings for the tablet assisted presentation of the direct instruction method. It was observed that all students avoided using tablet computers in the first week of the instruction session. In the following sessions, the students stated that they enjoyed using tablet computers and that they were happy during the teaching period. Besides, it was monitored that the students were very eager and excited to use tablet computers. Teachers also voiced in the interviews that their students were willing for the intervention. It was believed that certain characteristics (visual, auditory, and tactual) of the tablet application had effects on the motivation, desire, and interest of the students.

As a result of the instruction session of the direct instruction method to teach respiratory system and digestive system issues to students with intellectual disabilities, it was discovered that there was an increase at the end of

the instruction compared to the baseline level of four participants in the study group. It was observed that the participants maintained the acquisition levels of topics in the follow-up sessions held 10, 20, and 35 days after the end of the instruction. It pointed out that the direct instruction method was effective in students' acquisition levels of science topics and permanency after teaching. This finding of the study was consistent with the previous ones examining the effectiveness of the direct instruction method in teaching science topics and concepts to students with special needs (Çıkılı-Soylu, Dağseven-Emecen, D., & Yıkımsı, A., 2019; Türker Yıldırım & Çifci Tekinarslan, 2020; Yılmaz, 2017; Çapraz, 2016; Mete, 2016; Knight, Smith, Spooner & Browder, 2012; Spooner et al., 2011; İlik, 2009).

It was also investigated whether students with intellectual disabilities maintain their respiratory system and digestive system acquisitions after ten, twenty, and thirty-five days after teaching with the direct instruction method. The examination of the findings yielded that the participants displayed similar performance with the post-teaching performance during the follow-up sessions held after the instruction was over. Based on the permanence of respiratory system and digestive system topics at the end of thirty-five days, it was understood that the direct instruction method was effective in terms of maintaining the respiratory system and digestive system topics.

The obtained findings regarding the comparison of the presentations of the direct instruction method with and without tablets in terms of efficiency were complicated. There was no significant difference in three of the participants (Eren, Emre, and Mert) according to the number of sessions held and the number of trials performed until the criteria were met. On the other hand, it was found that the solitary presentation of the direct instruction method was more efficient for one of the participants (Onur) according to the number of sessions held and the number of trials performed until the criteria were met. It was established that the tablet assisted presentation of the direct instruction method was more efficient than the solitary direct instruction method in terms of the number of errors for two of the participants (Eren and Mert). It was concluded that the solitary presentation of the direct instruction method was more efficient than the tablet assisted presentation of the direct instruction method for the other two participants (Emir and Onur). In terms of the total instruction period, it was observed that the tablet assisted presentation of the direct instruction method was more efficient for three participants (Eren, Mert, and Onur) while the solitary presentation of the direct instruction method was more efficient for one of the participants (Emre).

The social validity data of the study were obtained from the participating students and their real-time teachers. The participating students and teachers expressed positive opinions to a great extent. The literature review revealed that the studies with tablet applications collected social validity data from teachers and participants through interviews (Acungil, 2014; Boşnak, Yıkımsı, & Cavkaytar, 2015; Geçal, 2016; Bahçalı & Özen, 2019; Öztürk & Yıkımsı, 2020; Kot, 2019). Additionally, social validity data were also obtained in studies with the solitary presentation of direct instruction (Tufan, 2018).

As a result, it was witnessed that the tablet assisted and solitary presentations of direct instruction method were both effective in teaching the projected science topics to students with intellectual disabilities, the topics were preserved 10, 20, and 35 days after the instruction was over, and they could be generalized to different settings and people. Besides, social validity findings revealed that the study was socially acceptable in terms of purpose, method, and findings. In light of these, it is hoped that the study will contribute to the literature and future research is believed to be a requirement to enhance our understanding.

The experimental procedure uncovered that the solitary and tablet assisted presentations of the direct instruction method were both effective. In this vein, the practitioners can be suggested to use both practices during the training of students with intellectual disabilities. This study included the science topics of the digestive system and respiratory system. Further research may incorporate different science topics.

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Examination of 8th Grade Students' Learning Strategies Based on Self-Regulation in Physical Education and Sports Class

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Acknowledgement: This study is derived from İnan Koçu's master's thesis, which was conducted in 2019 under the supervision of Associate Professor Doctor Halil İbrahim Kaya, at Kafkas University Institute of Social Sciences, Department of Educational Sciences.

Abstract

This research was conducted to examine 8th grade students' learning strategies based on self-regulation in physical education and sports class. The suitability of self-regulated learning scores to the normal distribution in groups in motor skills was investigated with the Kolmogorov-Smirnov test. Mann-Whitney U test statistics for groups with two categories, to compare self-regulated learning scores in groups without normal distribution ($p < 0.05$) in motor skills; In case the groups had more than two categories, it was studied with Kruskal Wallis test statistics. The statistical importance level was taken as $p < 0.05$. analyzed with. In motor skills, descriptive statistics of self-regulated learning scores in the groups are given as mean \pm standard deviation and median. In the research, it was concluded that there was a statistically remarkable differentiation in the type of school, the educational status of the father, the income level of the family, the frequency of doing sports and the participation in competitions in any branch of school sports, and the self-regulated learning scores of the students in their variables. It was concluded that there was no statistically remarkable differentiation between the other variables and self-regulated learning scores in motor skills.

Keywords: Self-Regulation, Learning Strategies, Physical Education Sports

1. Introduction

The phenomenon of lifelong learning has gained importance in the educational environment in our age. In-class and out-of-school activities of students, their efforts to create their individual learning revealed a different orientation towards education. This has led some researchers to rethink some elements of the learning process. The individual learning needs of students; It can be indicated that it brings about self-regulation based learning. The people in the lifelong learning process are people who can determine their own learning processes, take the

initiative, have a positive thinking structure, and demonstrate their cognitive strategies. It can be said that these elements express learning based on self-regulation (Altun, 2005). Self-regulation based learning is the personal regulation strategies of learning processes that emerge in educational settings (Pintirch, 2000). In a more obvious way, is the setting of achievable targets for the individual's understanding capacity and learning environment and determining, controlling and following the cognitive strategies appropriate to these targets and following this process until completion. Self-regulation based learning called academic self-regulation, in the preparation process for the exams, the behaviors carried out in order to reach the set goals were also expressed. Learning based on self-regulation, focuses on motivation elements for the learner and handles self-regulation based learning in four ways cyclically. This process can be explained as follows: The self-assessment and monitoring emerge if learners observe and evaluate their individual achievements based on their past behavior and behavior. For example, when the level of awareness of their learning in free-time activities is informed by their surroundings, or their testing process can contribute to self-assessment. The goal setting and strategy planning; self-regulation learning, occurs when the learners set their own goals and have strategies prepared in line with these goals. For example, students who do not do an assignment that they need to complete on time should follow the work of students who do the assignment on time and learn how to follow. The strategy implementation and monitoring: Self-regulation based learning occurs in situations where students manage to apply the strategy they have determined to perform any learning process. For example, using the categorization strategy to memorize important sports terms will enable it to learn more permanently.

The strategic result monitoring; self-regulated learning occurs according to the achievements and productivity of different strategies used by students. For example, a student who uses the categorization strategy to memorize keywords in sports terms; will learn categories such as basketball, athletics, football better than random categories in the form of words starting with the letters b, a, f.

Looking at these cyclical self-regulation processes, it can be said that students engage in self-regulation processes up to a certain level. However, understanding students who learn in this way can be determined by the success of the lesson and the strategies they use in these lessons. Learning is expressed as a repeating movement in the flow of life. Active learning, on the other hand, is the process of transforming mixed educational situations into cognitive strategies, where all the elements related to learning belong to itself, and the individual makes decisions with different dimensions throughout the learning period and allows self-regulation in these learning elements (Ün, 2009, p.17).

Individuals begin to recognize learning strategies at the first level of teaching, and continue to experience this process at the second level and at the university (Senemoğlu, 2005). Rather than passive learning in the course activities of the students, the active participation in the materials or other teaching processes prepared during the course and the communication with their peers reveals active learning. In this context, students use information more productively (Suzen, 2007, p39).

In the light of scientific and technological developments, some developments and changes also occur in education. In this context, ways of accessing information are diversified and new learning strategies are developed (Gelbal & Kelecioğlu, 2007). Within the framework of these developments, it is aimed that the student will be active in the education and training period as a party that accesses, questions, and concludes information, rather than waiting for information. One of the researches on developing the learning-based strategies and revealing the learning levels they have created for certain purposes is the theme of self-regulation. In this context, parallel to the emerging developments, the basic element in terms of self-regulation is seen that students reveal their own learning strategies mentally, spiritually and physically. (Alcı and Altun, 2007).

The training of individuals with skills such as being active in the learning process of the student, having high self-control, and having high self-confidence is in line with the aims of education. Teacher and student definitions related to new changes, which emerged in education, have also changed. Accordingly, while the teacher is defined as a guide in lesson activities; The student, on the other hand, is redefined as the main actor of this process, who takes the initiative in all aspects and reveals these skills. In the light of these changes, it is stated that the features that can question, think critically, develop problem solving skills come to the fore as

student characteristics. Accordingly, self-regulation that takes the student to the center in the learning process has gained importance (Üredi & Üredi, 2007). Self-regulation is defined as the process in which people realize their ideas and behavior models in an orderly manner and, accordingly, disciplines new learning elements in the scale of their own rules. In another definition; Zimmerman (1994) states that “self-regulation; stated that they have the ability to be effective in the cognitive, motivational and behavioral learning process.” In terms of achieving personal goals, it defines planned movements as a whole. It is expressed as the transformation of emotion.

2. Method

Research Model

In the research, scanning model, which is one of the quantitative research methods, was used. Research-based on the scanning model is research processes that aim to defize a present situation as it is. In the scanning model; situations that have occurred or are possible in the past include the research model (Karasar, 2008). The analysis of the data obtained from a large number of subjects regarding the problems in the research and the search for answers involves the relational model (Arseven, 2001). In this context, research is a constative study in the screening model in order to specify the relationship between students' physical education and sports lesson and learning strategies based on self-regulation. The research is limited to 8th grade students in middle school in Kars province, studying in public schools and private schools in 2018-2019 educational year.

Data collection

In the research, domestic and foreign literature searches were made and similar topics and studies were examined. In this context, the method of the research has been determined and “Self-regulated learning strategies scale in motor skills,” which was adapted to Turkish culture by BAL (2017), has been used. The questionnaire applied to the participants for data collection is a 7-point Likert-type scale consisting of 49 matters.

Data Analysis

The data obtained within the scope of the research were analyzed in the statistical package program and according to the type of school, the education level of the mother, the education level of the father, the number of siblings, the income level of the family and the frequency of doing sports, Kruskal Wallis H test, gender, own room status, going to the gym Mann-Whitney U test was used according to the situation and participation in competitions in any branch in school sports. Mann Whitney U Test was carried out to determine among which groups the difference was, and Kruskal Wallis H Test was used to determine whether the difference was important. In the study, descriptive statistics of qualitative variables were expressed as frequency n, (%). Descriptive statistics of self-regulated learning scores in groups in motor skills were given as mean \pm standard deviation and median (25.-75th percentile). Statistical significance level was taken as $p < 0.05$. In Table 2, the results of normality test of the self-regulated learning scores of the motor skills according to the variables are shown.

3. Results

Results related to sub-problems

In the sub-problems, the distribution of the answers given by the eighth grade students regarding the items in the self-regulated learning strategies in their motor skills for physical education and sports lesson was investigated. It has been investigated whether the learning based on self-regulation for physical education and sports lessons differ according to the gender of the students, the types of schools, the educational statute of the mothers, the educational statute of their fathers, the numbers siblings, their own room status, the monthly income status of their families, the frequency of doing sports, their ability to go to the gym, and their participation in competitions in any branch in school sports.

Results of self-regulated learning strategies in motor skills for physical education and sports lessons;

Table 1: Mann-Whitney U test results according to gender.

Variable		Median (25th-75th percentile)	U	p
Gender	Male	224 (196-267)	-0.389	0.697
	Female	224 (196-267)		

As seen in Table 1; In the sample of male and female students; according to the result of the Mann-Whitney U Test conducted to reveal whether there is a remarkable differentiation among girls 'and boys' motor skills self-regulated learning strategies; no statistically remarkable differentiation was observed among female students and male students in self-regulated learning strategies in motor skills. ($U = -0,389$; $p = 0,697$, $p > 0.05$). In this sample, it can be said that gender has no important effect on self-regulated learning strategies in motor skills within the scope of research. In addition, when Table 1 examines the students' data on self-regulated learning strategies in motor skills; The median values of male students are (Med = 224 (196-267)), and the median values of female students are (Med = 224 (196-267)). Although the median values of male students are lower than the median values of female students, the difference among these two groups is not important ($U = -0.398$; $p = 0.669$, $p > 0.05$). More clearly, it can be stated that male and female students participating in the research have self-regulated learning strategies in motor skills close to each other.

Table 2: Kruskal Wallis test results according to the school type

Variable		Median (25th-75th percentile))	χ^2	p
School type	Middle School	226 (196-269)	50.135	0.001
	Boarding Secondary School	251 (219-287)		
	Imam Hatip Secondary School	196 (189.75-211.5)		
	Special Education Schools	217.5 (183.75-257)		

According to the analysis results in Table 2, the difference among students' self-regulated learning strategies in motor skills was examined with the Kruskal Wallis H Test. When the median (25 -75 percentile) values at the end of the test ($\chi^2 = 50,135$, $p < 0.05$) are examined; It was concluded that there was a statistically remarkable differentiation in the self-regulated learning strategy scores of the students in motor skills, and as a result of bilateral comparisons, this difference resulted from boarding and imam hatip secondary schools. Self-regulated learning scores of imam hatip secondary school students in motor skills showed a statistically remarkable differentiation from the scores of students in special education schools ($p = 0.001 < p = 0.05$); that there is a statistically remarkable differentiation from the secondary school students ($p \leq 0,001 < p = 0.05$); It was concluded that there is a statistically remarkable differentiation ($p \leq 0,001 < p = 0.05$) from the boarding secondary school students. In addition, it was concluded that boarding secondary school students had statistically remarkable differentiation ($p = 0.002 < p = 0.05$) in motor skills of self-regulated learning scores from students in special education schools.

It has been observed that there is a remarkable differentiation in self-regulation strategies of students studying in boarding secondary school type compared to students studying in other school types Med = 251 (219-287). The type of school in which students with the least self-regulation skills study is the imam hatip secondary schools. Med = 196 (189.75-211.5). According to these results, it can be said the school types where students have the highest self-regulation skills are public schools have low self-regulation skills are public schools. It can be said that the students who study in imam hatip school type among the public schools have low self-regulation skills and that the school type has a slight effect on self-regulation skills.

Table 3: Kruskal Wallis test results according to the mother's education level

Variable		Median (25-75 percentile)	χ^2	p
Educational Status of the mother	Reading and writing	215 (196-251)	10.782	0.148
	Primary school	218 (196-259)		
	Middle school	229 (196-270)		
	High school	232 (194-274)		
	Associate degree	237 (193.5-278.5)		
	License	215 (196-279.5)		
	Master	211 (183-253.5)		
	Doctorate	196 (149.5-249)		

According to the analysis results in Table 3, No remarkable differentiation was observed among self-control learning strategies and maternal education levels in motor skills. The difference among students' self control learning strategies in motor skills was examined with Kruskal Wallis H Test. When the ($\chi^2 = 10,782$, $p > 0.05$) median (25 -75 percentile) values were examined at the end of the test, it was observed that there was a remarkable differentiation in the level of mother education (Med = 229, (196-270)) compared to other education levels. It is seen that the education level with the least self control learning strategies in motor skills is the level of the doctor (Med = 196 (149.5-249)). According to these results, it is seen that the students achieved the highest results in maternal education levels, associate and undergraduate education levels, and the highest at secondary level in the level of self-regulated learning strategies in motor skills. Although students' self-regulation skill levels do not make a remarkable differentiation, it can be said that they are inversely proportional to the educational status of the mother. As can be seen in Table 3; The self-regulation skills of the students whose mother education level is increased is decreased. In this sample, although the self-regulation skills vary slightly according to the education level of the mother, it cannot be said that the education level of the mother has a important effect on the self-regulation skills of the students.

Table 4: Kruskal Wallis test results according to the father education level

Variable		Median (25 -75 percentile)	χ^2	p
Education Status of Father	Reading and Writing	212 (184.5-240)	22.317	0.002
	Primary school	226 (196-264.75)		
	Middle School	221 (196-262)		
	High school	227 (196-274)		
	Associate Degree	231 (194-275)		
	License	247 (196-283)		
	Master	220 (182-260)		
	Doctorate	197 (131-219)		

According to the analysis results in Table 4, a remarkable differentiation was observed among the self-regulated learning strategies of the students and their father's educational status. The difference among students' self-regulated learning strategies in motor skills was examined with Kruskal Wallis H Test. When the median (25 -75 percentile) values at the end of the test ($\chi^2 = 22,317$, $p < 0.05$) were analyzed, it was observed that there was a remarkable differentiation in the level of education of the father (Med = 247 (196-283)) compared to other educational levels. Self-regulated in motor skills. the level of father education with the least learning strategies is the level of the doctor (Med = 197 (131-219)). When the median values of the Kruskal Wallis H Test are analyzed, it is seen that there is a statistically remarkable differentiation in the self-regulated learning scores of the students in motor skills, and as a result of the pairwise comparisons, this difference is due to the students whose father is a doctorate. The self-regulated learning scores of the students whose father's education was in the doctorate level were statistically significantly different from the students whose father's education was in

primary school ($p = 0.049 < p = 0.05$); that his father's education level was statistically different from that of high school students ($p = 0.020 < p = 0.05$); It was concluded that the education level of his father was statistically important ($p = 0.008 < p = 0.05$). According to these results, it can be mentioned that students with a high level of father education had a minor effect on their self-regulation strategies.

Table 5: Kruskal Wallis test results according to the number of siblings

Variable	Median (25 -75 percentile)	χ^2	p	
Number of brother or sisters	0	217 (172-272)	1.950	0.856
	1	229.5 (196-271.25)		
	2	221 (195.5-265.5)		
	3	224 (196-265.5)		
	4	223 (196-261)		
	5 and above	221 (196-268.5)		

According to the analysis results in Table 5, no remarkable differentiation was observed among the self-regulated learning strategies of the students and the number of siblings. The difference among students' self-regulated learning strategies in motor skills was examined with Kruskal Wallis H Test. When the median (25th-75th percentile) values at the end of the test ($\chi^2 = 1,950$, $p > 0.05$) are examined, the number of siblings 1 (Med = 229.5 (196-271.25)) is higher than the number of other siblings. It has been observed. When students' self-regulated learning strategies in motor skills and median values of Kruskal Wallis H Test are analyzed, the minimum number of siblings is seen as 0 (Med = 217 (172-272)) in self-regulated learning strategies in motor skills. According to these results, the self-regulated learning strategies scale of the students was found to be high with two and three siblings and the highest with one siblings. In this context, as the number of siblings in the sample increases, although the self-regulation skills of the self-students vary slightly, it cannot be mentioned that this situation has an effect on self-regulation strategies.

Table 6: Mann-Whitney U test results according to their room status.

Variable	Median (25 -75 percentile)	U	p	
Do you have your own room?	Yes	229 (196-271)	-1.832	0.067
	No	219 (196-260)		

According to the analysis results in Table 6, no remarkable differentiation was observed among students self regulated learning strategies and their own room status. ($U = -1832$; $p = 0,067$, $p > 0.05$). In this sample, it can be said that there is no remarkable differentiation in self-regulated learning strategies in motor skills. Also, in Table 6, when students' self-regulated learning strategies in motor skills and their data are analyzed, it can be said that the number of students who have their own room status (Med = 229 (196-271)) is higher. It can be said that the relationship among this variable and self-regulation skills is not encountered in the literature, making the study important in this sense.

Table 7: Kruskal Wallis test results according to the family income level.

Variable	Median (25 -75 percentile)	χ^2	p	
Family Income Level	0-1000	211 (193.25-247.5)	13.291	0.021
	1001-2020	222.5 (196-267.75)		
	2021-5000	232.5 (197-274.75)		
	5001-7500	231.5 (197.5-267.5)		
	7501-10000	222 (186,75-264.75)		
	10001 ve üzeri	218.5 (193.5-258)		

According to the analysis results in Table 7, a remarkable differentiation was observed among students self-regulated learning strategies in motor skills and their family income level. Kruskal Wallis H Test result; When ($\chi^2 = 13,291$, $p < 0.05$) median (25 -75 percentile) values, the family income level is 0-1000 TL (Med = 211 (193.25-247.5)), the average value of self-regulated learning scores in the motor skills of the students is lower, the family income level is 2021-5000 TL (Med = 232.5 (197 -274,75)), it was concluded that the self-regulated learning scores of motor skills of students with higher median value. In the comparison of these two groups, there was a statistically remarkable differentiation in self-regulated learning scores in motor skills, and as a result of binary comparisons, this difference was caused by the 0-1000 TL and 2021-5000 TL groups; self-regulated learning scores of students in motor skills were statistically important ($p = 0.019 < p = 0.05$), students with a family income level of 0-1000 TL had lower median value of self-regulated learning scores in motor skills, family income level 2021- It has been concluded that students with 5000 TL have higher median value of self-regulated learning scores in motor skills. According to these results, it can be said that family income level has an effect on students' self-regulation strategies and a positive relationship can be mentioned among income level and self-regulation strategies.

Table 8: Kruskal Wallis test results according to the frequency.

Variable		Median (25 -75 percentile)	χ^2	p
Frequency of Doing Sports	Non	216 (188-261.5)	16.060	0.001
	At least 1 day a week	225 (196-260.5)		
	At least 2 days a week	242 (200.5-285)		
	At least 3 days a week or more	225 (197-275)		

According to the analysis results in Table 8, a remarkable differentiation was observed among the self-regulated learning strategies of the students and the educational status of the mothers. When the Kruskal Wallis H Test ($\chi^2 = 16,060$, $p < 0.05$) median (25 -75 percentile) values are examined, the median values of those who do not do sports at all (Med = 216 (188-261,5)) are the lowest, the highest median value was observed in the students doing sports at least 2 (Med = 242 (200.5-285)) days a week. It was concluded that there was a statistically importance difference among the self-regulated learning scores of the students in motor skills and the frequency of doing sports, and as a result of the pairwise comparisons, this difference resulted from the group that didn't do sports at all. The result has been reached that self-regulated learning scores of the students who do not do sports at all are statistically significantly different from those who do sports at least 3 days a week ($p = 0.019 < p = 0.05$); that it is statistically significantly different from students who do sports at least 2 days a week ($p = 0.003 < p = 0.05$). In line with these results, it can be said that students with high frequency of doing sports have higher self-regulation strategies.

Table 9: Mann-Whitney U test results according to the state of going to the gym.

Variable		Median (25 -75 percentile)	U	p
Go to the gym	Yes	226 (196-268)	-1.327	0.184
	No	223 (196-267)		

According to the analysis results in Table 9, no remarkable differentiation was observed between students' self-regulated learning strategies in motor skills and their going to the gymnasium Mann-Whitney U Test result ($U = -1,327$; $p = 0.184$, $p > 0.05$). Considering the median (25 -27 percentile) values; It can be said that the number of students attending the gym (Med = 226 (196-268)) is higher. In this sample, it can be said that there is no important effect on self-regulated learning strategies in motor skills.

Table 10: Mann-Whitney U test results according to the level of participation in competitions in any branch.

Variable		Median (25 -75 percentile)	U	p
Participating in competitions in any branch of school sports.	Yes	230 (198-275.5)	-4.371	0.001
	No	215 (193-254)		

According to the analysis results in Table 10, a remarkable differentiation was observed between students' self-regulated learning strategies in motor skills and their participation in competitions. Mann-Whitney U Test result; ($U = -4,371$; $p = 0.001$, $p < 0.05$) Considering the median (25 -27 percentile) values, it can be said that participation in competitions in any branch of school sports (Med = 230 (198-275,5)) is higher. The self-regulated learning scores of the students in motor skills were higher than the students who didn't participate in the competition (Med = 215 (193-254) in the self-regulated learning scores of the students participating in the competition (Med = 230 (198-275.5)). It was concluded that. According to these results, as can be seen in Table 10, it can be said that there is the right ratio between students' participation in the competition in any branch and their self-regulation strategies.

4. Discussion

This research was carried out to examine 8th grade students' self-regulation based learning strategies in physical education and sports class. For this purpose, below are the results obtained from the findings and the results that support or contradict the research in the literature review. Self-regulated learning strategies in motor skills include physical education and sports lessons, gender of the students, school type, mother's educational status, father's educational status, number of siblings, their own room status, family's income level, frequency of doing sports, going to the gym and school sports According to the situation of participating in the competitions in a branch, it was examined whether they differed and as a result; In terms of gender differences in self-regulation based learning strategies of students, no statistically remarkable differentiation was observed between female students 'self-regulation based learning strategies in motor skills and male students' self-regulation based learning strategies in motor skills.

In similar studies; In Paterson (1996) 's "In the biology course, where self-regulation strategies and traditional teaching methods are used in learning, students examine their academic achievements and the self-regulation strategies they use in learning in terms of gender" study, there was no remarkable differentiation between the skills of using learning strategies and gender.

In another study, Yamaç (2011) reached the following conclusion regarding the "In Examining the Relationships Between Self-Regulatory Learning Strategies and Mathematics Attitudes and Achievements of Primary Fifth Grade Students" gender variable: There was no difference in the performance target orientations of the students according to the gender variable. Atun (2016) used a "motivating strategies scale in learning (ömsö)" in his research on "The effect of inquiry-based science teaching on the development of self-regulation skills for 5th-grade students". According to the results obtained from this scale, no remarkable differentiation was found in comparing the findings before and after education with the gender variable.

Aydın, (2012), Demiralp, (2012), Gömleksiz, (2012), Üstün, (2012), found that self-regulation based learning does not differ by gender in their studies. In another study that shows that it supports this research; Rao, Moely and Sachs (2000) didn't find any difference in self-regulation based learning strategies according to gender. In the study of Bal (2017), learning strategies didn't achieve a remarkable differentiation in the sub-dimensions depending on the gender variable ($p < 0.05$). It was stated that there was no difference between the gender variable and self-regulation learning strategies of this study. Although studies similar to this study can be found in the literature, findings related to important difference were mostly encountered. (Kaşkaya, Ünlü, Sağırılı & Efe, 2009), in their research for university students, it was observed that female students showed remarkable differentiation by stating that they used self-regulated learning skills at a higher level than men. Some studies

have been found to find different results with this research. Looking at these studies; Dadlı (2015); In the study titled “Investigation of the Relationship Between Self-Regulation Skills and Self-Efficacy and Academic Achievements” of Secondary School 8th Grade Students, it determined values in favor of female students in the gender variable. Aktan (2012) stated that self-regulation strategies in different sub-dimensions differ significantly in favor of female students. In their research, Kadioğlu, Uzuntiryaki, Çapa and Aydın (2011) and Ilgaz (2011) found that self-regulation based learning strategies have higher value in the skill of using, in favor of female students. In addition, Tonguç (2013), Canca (2005), Alıcı and Altun (2007) found that learning strategies reveal remarkable differentiation in cognitive dimensions in favor of girls. Meece and Holt (1993), Schunk (2009) and Lai (2011) found high-level learning strategies in favor of female students at different levels. In their research in Zimmerman and Pons (1995), they found that self-regulation strategies were used at a higher level in female students. Üredi and Üredi (2005), on the other hand, found a remarkable differentiation in favor of male students in the dimension of learning strategies based on self-regulation regarding mathematics lesson. In their study, Leung and Chan (1998) found that remarkable differentiation was in favor of men. In the literature review; It can be said that learning strategies based on self-regulation are higher in the gender variable in favor of female students. In this case, it can be said that female students put more self-regulation strategies into practice than male students.

In this context, the fact that the expectation of being more organized and more organized due to the way students are raised in the society is higher than that of male students may enable them to earn these strategies more easily. According to the school type of students' learning strategies based on self-regulation, it was concluded that there was a statistically remarkable differentiation, and as a result of binary comparisons, this difference resulted from boarding and imam hatip secondary schools. When the results are investigated, it is seen that the lowest median value of self-regulated learning scores in motor skills is in imam hatip middle school students, and the highest median value is in boarding secondary school students.

In Dadlı (2015) and Karahan (2012) 's works; It was concluded that educational institutions where mothers graduated didn't cause a remarkable differentiation in students' self-regulation skill scores. In addition, in the study of Dadlı (2015), the self-regulation skill scores of students whose mother was university graduates were higher than the others, while the self-regulation skill scores of students whose mothers were primary school graduates were higher than those whose mothers graduated from secondary and high schools. In the work of Aktan (2012), with the self-regulation skill scores of students whose mother education level is university graduates, the self-regulation skill scores of students whose mother is a high school graduate, in favor of students who are university graduates, and the self-regulation skill scores of students whose mother is a secondary school graduate, and whose mother is a primary school graduate; there was a remarkable differentiation in favor of students. It can be said that the results obtained in this context are parallel to the research. It is seen that the learning strategies based on self-regulation of the students' motor skills are statistically important according to the educational level of the father, and as a result of the pairwise comparisons, this difference is due to the students whose father is a doctorate. When the results are examined; It was concluded that the students whose father's education was doctorate had the lowest median value of self-regulated learning scores in motor skills.

In Özen (2016) study; “ Self-regulation skill scores of students whose fathers are primary school graduates were found to be higher than other students. Although the difference is not statistically important, it is interesting to find that students whose father is university graduate have lower self-regulation scores than students whose father is a primary school graduate”. The factors that reveal this situation can be determined by tests based on qualitative research methods. When the differences of the students' self-regulation based learning strategies according to the number of siblings in motor skills are considered, no statistically remarkable differentiation was observed.

Ertürk, (2013) in his research, which examines the relationship between the quality of teacher-child interaction and children's self-regulation skills; The self-regulation ability of 48-72 months old children could not find a remarkable differentiation among attention and impulse control scores according to the number of siblings. In the light of these results, when we look at the relationship between self-regulation skills and number of siblings;

It may be thought that the effect of increasing or decreasing number of siblings on students' self-regulation skills may not result in a meaningful result and may result from individual differences of children.

Eke (2017) investigates the relationship between preschool children 'self-regulation skills and parental attitudes; concluded that the number of siblings growing in the family had a positive effect on the control skills of children. When we look at the differences of students' self-regulation based learning strategies according to their room status, no statistically remarkable differentiation was observed. It can be said that the fact that the relationship between this variable and self-regulation skills is not encountered in the literature makes the study important in this sense. When we look at the difference of students' self-regulation based learning strategies according to family income level, the following results are obtained: There is a statistically remarkable differentiation, as a result of binary comparisons, this difference is due to 0-1000 TL and 2021-5000 TL groups; In the comparison of these two groups, the self-regulated learning scores of the students were statistically important ($p < 0.05$), and the median value of the self-regulated learning scores of the students with a family income level of 0-1000 TL was lower; The median value of self-regulated learning scores in motor skills of students whose family income level is 2021-5000 TL. In the literature, Dadli (2015) didn't find a remarkable differentiation among this variable and self-regulation skills.

Aktan (2012) examined socio-economically in his research. The researcher found a meaningful difference between the self-regulation strategies and the socio-economic level of the family and stated that as the income level increases, it also increases in self-regulation based learning strategies. It can be said that it shows parallelism with this study.

Considering whether students' learning strategies based on self-regulation in motor skills differ according to the frequency of doing sports, it was concluded that there was a statistically remarkable differentiation and as a result of the pairwise comparisons, this difference was caused by the group that didn't do sports at all. It was observed that the lowest median value of self-regulated learning scores in motor skills was in students who didn't do sports at all, and the highest median value was in students who did sports for at least 2 days a week.

Considering similar topics and studies for this variable; According to the findings obtained in the study of Arslantürk (2018); It was found that there was no significant difference between physical education and sports teachers' self-efficacy belief levels and not doing sports, how many hours a week they did sports. It can be said that it differs with the results of this research.

No statistically remarkable differentiation was observed in terms of whether students' learning strategies based on self-regulation in motor skills differ according to their going to the gym. It can be said that the relationship between self-regulation strategies in this sample was not found in the literature, making the study important in this sense. Considering whether students' learning strategies based on self-regulation in motor skills differ according to their participation in competitions in any branch of school sports; It was concluded that there was a statistically significant difference and the median value of the self-regulated learning scores in the motor skills of the students participating in the competition was higher than the students who didn't participate in the competition.

When we look at the literature, although there is no study on the relationship between this variable and self-regulation strategies, it has been determined in studies conducted on similar subjects that participation in competitions from out-of-school events increases students' level of attachment to school and their self-confidence is improved. In the Yanık (2018); Goodenow, (1992); Arastaman, (2009); Kalaycı and Özdemir (2013), studies, they found that there was a remarkable differentiation among students' involvement in school sports, their level of commitment to the school and their self-confidence. In this sample, it can be said that the relationship between self-regulation strategies is not frequently encountered in the literature, making the study important in this sense.

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New Istanbul B1 Level Turkish Course Book for International Students in Terms of Listening Strategies

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Abstract

Language has been a means of agreement since the first humanity existed. With the diversity of languages spoken around the world, the need for societies to learn a foreign language other than their mother tongue is also increasing on a global scale. Speaking of Turkish in wide geographies and the number of immigrants coming to our country make it necessary to teach Turkish as a foreign language more systematically. In this respect, course books are one of the most used tools for language learning. In the course books that include four basic language skills, listening skill is seen as a neglected skill both in the mother tongue and in learning a foreign language, so it has been examined in different course books in various studies. In the course books, listening skills are included as before, during and after listening. In this study, New Istanbul Turkish B1 level course book listening activities were examined in terms of the distribution of listening activities before, during and after listening in accordance with the determined classification. Document analysis method, one of the qualitative research models, was used in the study. In the light of all findings, it was concluded that the distribution of pre-listening activities to unit themes was not balanced, the strategies used were repeated, certain strategies were constantly included in the while-listening activities, and post-listening activities and strategies were not included. According to the results, it was suggested to distribute listening activities to all units in a balanced way, to provide enrichment by using different strategies and to include post-listening activities in terms of the integrity of learning.

Keywords: Teaching Turkish, Listening Activities, Listening Strategies, Course Books, Listening Skill

1. Introduction

Language is the most human-specific means of communication. It is stated that 7.117 languages are spoken in the world (Explore The World's Languages, 2021). Among these languages, Turkish ranks 14th in the list of languages according to the number of languages spoken as a mother tongue worldwide. The number of speakers of Turkish as a foreign language is stated to be 220 million, including Central Asia (List of languages according to the number of languages spoken as mother tongue, 2021). In the light of all the data, it is stated that Turkish

is the fifth most spoken language in the world (5th most spoken language in the world, 2021). In this respect, teaching Turkish as a foreign language gains great importance. It has been observed that there have been large increases in the number of students coming to study abroad in Turkey in recent years. In addition to this, the number of immigrants coming to our country from Syria in Turkey as of January 2021 is 3,645,557 people (Syrians in Turkey, 2021). The efforts of the Ministry of National Education and the Ministry of Culture to teach Turkish abroad are also gaining momentum in this direction. The establishment of the Ministry of Education Foundation, cultural and educational activities of the Yunus Emre Institute, International Student Academy and Turkey Scholarships of Presidency for Turks Abroad and Related Communities have great importance in the promotion of Turkish and Turkish culture. All these situations increase the importance of teaching Turkish as a foreign language. The Ministry of Education within the borders of Turkey undertakes important duties for immigrants to learn Turkish correctly and systematically. Turkish Language Teaching, Application and Research Centers, established within universities, also constitute the higher education part of this education. In this process, the systematic teaching of Turkish under four basic language skills has gained great importance both abroad and at home. These skills are listening, speaking, reading and writing specified in the Common European Framework of Reference for Languages (CEFR, 2001).

Listening is one of the first skills that human beings meet before they are born. Listening is of great importance in gaining the native language of the individual compared to other skills. Güneş (2013) states that listening is a process that begins in the mother's womb. The development of listening skills in early childhood is important. Ingram (1989) states that the first grammar patterns that children have been acquired through listening. The importance of listening is seen when considering the order in which a healthy individual begins to acquire language. Listening skill is the pioneer of speaking skill; therefore, the baby is subjected to a listening test in a short time after birth. Listening takes an important place in the average human life with auditory abilities. Adler, Rosenfald, and Proctor (2001) state that the time spent communicating is 70 percent in the entire time frame, and approximately 45 percent of this rate is through listening. The importance of listening with the school life of the individual gains great importance among other skills. In this sense, it is important that the ministry adopts a sound-based approach with the new curriculum, especially in primary reading and writing education. Before proceeding with reading and writing, the child is asked to recognize and be aware of sounds. Then he/she is asked to read and write words, sentences by combining the sound. In this respect, "listening, which is one of the learning areas and forms the basis of other learning areas, has an important place in human life" (Doğan, 2017: 1). People can learn foreign languages other than their mother tongue during the average life span. Listening is of great importance in learning a foreign language, just like in the native language. Unlike the listening skill that the individual is naturally exposed to in his/her native language, acquiring a listening skill in a foreign language requires more effort. Brown (2000) states that the answers to questions such as who teaches and learns the language, what their mother tongue is, what their educational and socio-economic status are, who their parents are, what their cognitive competencies are, what their individual differences are, where the language is learned and taught, why it is learned, and most importantly, what the relationship between learner and teacher is in the language learning process are of great importance in determining the degree of this effort. Listening is one of the most common skills that an individual is exposed to in learning the target language. While the individual is learning a foreign language, whether it is in the classroom or natural environment, listening is the pioneer of other skills. When the course books written on teaching English today are examined, it is seen that listening skills are not only included as a separate section, but also listening sections are included in grammar and vocabulary teaching, which are sub-skills.

Listening is of great importance in sentence examples related to grammar, vocabulary acquisition given under the theme, vocalization of reading activities, and post-listening skills leading to writing and speaking activities that are productive skills. However, this situation is not given enough attention by educators in both mother tongue and foreign languages. Nunan (2002) states that listening is ignored by remaining behind speaking skills, but the prominence of verbal skills in the 1960s, later in the 1980s, Krashen's ideas on comprehensible input, and finally the Total Physical Response method based on these ideas of Krashen, causes listening skills to come to the fore. Harmer (2007) states that listening skills can be improved in classroom and outdoor listening with rich comprehensible input. However, the thought that listening is an innate skill is seen as the reason why this skill is not considered adequately among all skills (Wilson, 2008; Brown, 1954; Thompkins, 1998; Özbay 2002).

In teaching Turkish as a foreign language, it is essential that all skills are taught and learned effectively. In this respect, course books are one of the most useful resources for educators. Harmer (2007) states that a good course book consists of a consistent curriculum, satisfactory language control, and engaging text. In this direction, the quality and quantity of the books written to teach Turkish as a foreign language are increasing day by day. Especially *Yedi İklim*, *Yeni Hitit*, *Gazi University Tömer* and *İstanbul Turkish Teaching Sets* are seen as the most frequently used sets for the adult group. This situation is examined by researchers as a field of study. The qualitative status of the skills in the books as well as the quantitative number are also considered within the scope of listening skills. In teaching listening skills, the skills presentation strategies of the course books are as important as the strategies applied by the educators. Although many authors such as Wilson (2008), Oxford (1990), Chamot and O'mally (1990) describe strategies as deliberate behavior that enables learners to use knowledge more effectively and enrich learning, there is no consensus. In this respect, strategies are expressed by different names by different authors. In this direction, strategies are discussed under three main headings in the relevant literature. These strategies are listed as cognitive, metacognitive and affective, respectively. Wilson (2008), who made examples of what these strategies are, included the following statements.

Cognitive strategies are those that we use in order to complete an immediate task. For example, a student may find out about the topic (perhaps using information in L1) before listening, in order to predict content.

Metacognitive strategies are related to learning in general and often have long-term benefits. For example, students might choose to tune in to a BBC recording once a week as a strategy for improving their listening. Socio-affective strategies are concerned with the learners' interaction with other speakers and their attitude towards learning. For example, they may choose to rehearse a telephone conversation in L2 with another student in order to develop confidence, or reward themselves with a doughnut when they successfully complete some task in the target language. (Wilson, 2008:34).

When these general strategies are considered within the listening processes, a process-based sequence is observed. It is important that the listening sections are listed within a certain period, like other skills in published course books. This order is known as before listening, while-listening and post listening.

Pre – listening activities include both the mental and physical preparation process for the text that the learner will listen to. İnce and Boztilki (2016:164) states that “pre-listening process in modern approach is the stage where the teacher informs the learners about the content of the text they are going to listen to, or tries to motivate the students to the piece they will listen to, and explains the students about what kind of exercise they will encounter.” Rost (2013) states that pre-listening activities are a stage designed for students' preparation for listening, and they can consist of a short activity for the discourse frames, concepts or vocabulary in the text that helps students to concentrate on the listening text.

While -listening activities, on the other hand, are seen as a process that allows the text to be listened to in general and in detail, to better understand the texts and to check the predictions made before listening. Field (2009) sees the listening process as a stage where students take selective notes, evaluate the speaker's perspective in important parts of the speech, use reminder cues, and mentally identify the points that the speaker refers to. İnci and Boztilki (2016:166) state that “while-listening activities are aimed at revealing the messages by the students and improving the students' decoding skills.”

Post-listening activities include answering questions after listening, using the information learned by integrating with skills such as speaking or writing, and making evaluations of the listened text. In addition, “At this stage, students are expected to find the main idea of the text, express the text in written or oral form, and make some comments by summarizing it (İşcan ve Aydın, 2018: 440). Richards (2008) defines post-listening as a stage in which students express their opinions about the subject they listen to, examine the structures of the listening text, and analyze their speech discourse. Wilson (2008: 61) generally includes the following information about the processes of listening.

Table 1: Listening Processes

Pre-listening	1 Activate schemata: What do I know? 2 Reason: Why listen? 3 Prediction: What can I expect to hear?
While-listening	1 Monitor (1): Are my expectations met? 2 Monitor (2): Am I succeeding in the task?
Post-listening	1 Feedback: Did I fulfil the task? 2 Response: How can I respond?

In the study conducted by Kurudayıoğlu and Kiraz (2020), these processes were scanned in the sources they determined and the following results were obtained:

Pre - listening: Guessing, setting goals, preparing, activating prior knowledge, working with words, working with questions, visualizing, Identifying Type, Method and Technique, introducing, setting outlines, brainstorming.

While - listening: Taking notes, guesswork, visualization, question studies, paying attention to stresses and intonations, listening again, relating, comparing, analyzing, repeating what has been heard, working with organizing charts, establishing analogy, empathy, working with words (keywords , unknown words), determining the subject, determining the main idea, making markings, classification, sorting, title generation, solution generation, interim summary.

Post Listening: Summarizing, evaluating, question studies, inferencing, re-expressing, producing titles, discussing, establishing cause-effect relationships, self-evaluation, questioning, completion studies, comparing work with organizing tables, giving feedback, criticizing. (Kurudayıoğlu and Kiraz, 2020: 400).

Wilson (2008), who was not seen as a source in the study of Kurudayıoğlu and Kiraz (2020), explained these processes as follows:

Before Listening: Brainstorming, using images, filling in the blank, keywords, working with groups, using quotes, guessing.

While Listening: Finding the main idea, listening in detail, making inferences, making inferences, pausing and guessing, listening and guessing, transferring information, taking notes, dictating, duplicating.

Post Listening: Reflecting, Checking and summarizing, discussion, creative answers, critical responses, exchange of information, problem solving, unitary solution of the listening text, reconstruction of the listening text.

In the literature, there are studies to examine Turkish teaching course books for foreigners, but the number of course books on strategy-based analysis is few. In addition, Istanbul Turkish Teaching Set has recently been renewed and released as the New Istanbul Turkish course book. The aim of this study is to examine the listening sections in the New Istanbul Turkish Teaching Set (B1 Level) on the basis of quantitative and qualitative classification in terms of procedural listening strategies. For this purpose, the following questions were sought.

1. What are the pre-listening strategies used in listening activities?
2. What are the while- listening strategies used in listening activities?
3. What are the post-listening strategies used in listening activities?

2. Method

2.1 Research Model

In this study, document analysis method, one of the qualitative research models, was used. Bryman (2008) states that qualitative research emphasizes words rather than numbers or quantities in the analysis of data. Sandelowski (2004) identifies qualitative research as an umbrella term aiming at discovering how human beings understand, interpret the world around them. One of the qualitative research models, “Document review covers the analysis of written materials containing information about the phenomenon or events aimed to be investigated” (Yıldırım and Şimşek, 2013: 217). Yıldırım and Şimşek (2013) state that document analysis can be used alone or in

combination with other methods. In this respect, it can be concluded that document analysis is a method that can be used alone in this study.

2.2 Data Collection Tool

The document of this study is the New Istanbul B1 Level Turkish Course book, published by the Culture and Art Publishing House in 2020. New Istanbul Turkish Teaching Set for International Students consists of A1, A2, B1, B2, C1 levels. The teaching kit can be used both in print and digital. Listening contents can be accessed using QR reader programs.

The B1 level examined in this study consists of six units. The Common European Framework of Reference for Languages (2001) defines the B1 level as the first of the independent user level. Since the B1 level of the book was not included in previous studies, this level was examined in the study. Each unit theme is divided into three sub-themes. Reading, grammar, listening, writing and speaking skills are included in each unit, respectively. When Table 2 is examined, New Istanbul B1 Level Turkish Course book consists of six units in total. Each unit is divided into three sub-themes. The number of listening skills subject to the study is eighteen. Listening parts are compatible with the unit's theme and subthemes.

Table 2: Distribution of units, subthemes and listening activities in the book

Unit Headings	Unit Sub-Theme Headings	Listening Activity Headings
Ünite 1 Yeni Bir Hayat	1A Taşınma	Taşınma Telaşı
	1B Hava Bedava Su Bedava	Ulaşım
	1C Yeni Bir Şehirde Hayat	Meryem'den Lisa'ya
Ünite 2 İş Dünyası	2A İş Hayatı	Çalışma Koşulları
	2B Başarı Öyküleri	Sıfırdan Başlamak
	2C Meslekler	İşten Çok Sıkıldım
Ünite 3 Her Şeyin Başı Sağlık	3A Can Boğazdan Gelir	Sağlıklı Yaşam İçin Spor
	3B Şifa Olsun	Çok Hastayım
	3C Ruh Sağlığı	Radyo Sağlık
Ünite 4 Eğitim Hayatı	4A Üniversite Hayatı	Alaylı mısın? Mektepli mi?
	4B Öğrenme Tarzları	Yabancı Dil Öğrenmenin Beş Yolu
	4C Eğitim Habeleri	Finlandiya Eğitim Sistemi
Ünite 5 Hayallerimiz	5A İnsan Hayalleri İle Yaşar	Keşke
	5B Son Pişmanlık Fayda Etmez	Keşkeler
	5C Şikayetlerimiz	Her Şerde Bir Hayır Vardır
Ünite 6 Bir Dünya Kültür	6A Kültürel Farklılıklar	Batıl İnançlar
	6B Hayat Tarzları	Şehirden Köye, Köyden Şehire
	6C Festivaller	Festivale Gitmek İstiyorum

2.3 Data Analysis

The data were analyzed by descriptive analysis method. Yıldırım and Şimşek (2013) state that in descriptive analysis, the data are handled according to a predetermined framework. In the study, the data were analyzed as before, during and after listening in line with the classification determined by Kurudayıoğlu and Kiraz (2020:399).

Table 3: Strategies According to Listening Stages

Pre Listening	While Listening	Post Listening
<ul style="list-style-type: none"> • Guessing • setting goals • preparing • activating prior knowledge • working with words • working with questions • Envisioning • Identifying Type, Method and Technique • Introducing • Setting outlines • brainstorming. 	<ul style="list-style-type: none"> • Taking Notes • Forecasting Studies • Visualization • Question Studies • Paying Attention to Emphasis and Intonation • Listen Again • Attribution • Comparison • Analyzing • Repeating Rest • Working with Organizational Charts • Establishing Analogy • Empathize • Working with Words (Key words, unknown words) • Making Topic Detection • Determining the Main Idea • Making Markups • Classification • Ranking • Creating a Title • Solution Generation • Making Interim Summary 	<ul style="list-style-type: none"> • Summarizing • Evaluation • Question Studies • Inference • Re-expression • Creating a Title • Discussion • Building Cause-Effect Relationships • Self-assessment • Inquiry • Completion Studies • Working with Organizational Charts • Comparison • Providing Feedback • Criticism

2.4 Validity and Credibility

The listening activities examined for the validity of the analysis of the data were analyzed by two different experts according to the use of strategies before, during and after listening. Then the experts came together and the analyzes were compared. In cases where two experts disagreed, the analysis of the data was completed by obtaining a third expert opinion.

3. Results

3.1 Listening activities in terms of pre-listening strategies

The pre-listening strategies used in the listening activities in the B1 level course book examined within the scope of the research are shown in Table 4.

Table 4: Strategies used in pre-listening

Pre-Listening Strategies	Distribution of Unit Theme and Sub-Theme Contents																		F		
	1 A	1 B	1 C	2 A	2 B	2 C	3 A	3 B	3 C	4 A	4 B	4 C	5 A	5 B	5 C	6 A	6 B	6 C			
Guessing												x								1	
Setting goals																					
Preparing		x	x		x			x		x	x						x				7
Activating Prior Knowledge		x	x		x			x		x	x						x				7
Working with words		x			x			x									x				4
Working with questions			x							x	x										3
Envisioning																					
Identifying Type, Method and Technique																					
Introducing								x													1
Setting outlines																					
Brainstorming												x					x				2
Total (f)		3	3		3			4		3	5						4				25

When Table 4 was examined, the following findings were obtained regarding the strategies used before listening. When the listening activities related to the sub-themes of the first unit were examined, pre-listening strategies were included only in the first two themes. Among the pre-listening strategies, activating preliminary information, making preparations stand out as common strategies used in the first two themes.

When the listening activities related to the sub-themes of the second unit were examined, pre-listening strategies were included only in the first sub-theme. The pre-listening strategies in only the first sub-theme are similar to the first unit. These strategies are viewed as activating prior knowledge, preparing and working with words. Unlike the first unit, pre-listening strategies were not used in the second and third sub-themes of this unit.

When the listening activities related to the sub-themes of the third unit were examined, pre-listening strategies were included only in the first and third sub-themes. The pre-listening strategies in the first theme in all three themes are similar to the strategies in the previous units and sub-themes.

When the listening activities related to the sub-themes of the fourth unit were examined, pre-listening strategies were included only in the first sub-theme. Pre-listening strategies in the first theme are similar to the strategies in

the previous units and sub-themes. In the first sub-theme, two separate activities were presented before listening. In this respect, pre-listening strategies take more place in the first sub-theme compared to the previous units.

When the listening activities related to the sub-themes of the fifth unit were examined, it was seen that there were no pre-listening activities.

When the listening activities related to the sub-themes of the sixth unit were examined, pre-listening activities were included only in the first sub-theme. It was seen that pre-listening strategies were not included in the second and third sub-themes. The determined strategies were similar to those in the previous units.

When the listening activities related to the sub-themes of the sixth unit were examined, pre-listening activities were included only in the first sub-theme. It was found out that pre-listening strategies were not included in the second and third sub-themes. The determined strategies were similar to those in the previous units.

Unit sub-themes that mostly include pre-listening strategies were seen as 4A, 3A and 6A, respectively. On the other hand, pre-listening strategies were not included in 11 sub-themes. These sub-themes were seen as 1C, 2B, 2C, 3B, 4B, 4C, 5A, 5B, 5C, 6B, 6C. The distribution of pre-listening strategies is not balanced in this regard. Pre-listening strategies were included in only 7 of a total of 18 sub-themes. It was found to be 38.88% and was insufficient quantitatively.

The most used pre-listening strategies were, in order, preparation, activating pre-knowledge, and working with words. These three strategies were used 18 times.

The total number of strategies used was determined as 25. The three strategies used in question were seen as 72% of the strategies used in total. This showed that pre-listening strategies were not in a quantitatively balanced distribution.

In addition, the strategies of setting goals, envisioning, identifying type, method and technique, setting outlines were not included. Besides the unbalanced quantitative distribution, it does not appear in a qualitative distribution in pre-listening strategies.

3.2 Listening activities in terms of while - listening strategies

The while-listening strategies used in the listening activities in the B1 level course book examined within the scope of the research are shown in Table 5.

Table 5: Strategies used in while- listening

While- Listening Strategies	Distribution of Unit Theme and Sub-Theme Contents																		F
	1 A	1 B	1 C	2 A	2 B	2 C	3 A	3 B	3 C	4 A	4 B	4 C	5 A	5 B	5 C	6 A	6 B	6 C	
Note Taking																			
Prediction Studies																			
Envisioning																			
Question Studies	x	x		x	x	x	x		x		x	x		x			x	x	12
Paying Attention to Emphasis and Intonation																			
Listening Again		x							x									x	3
Attribution																			
Comparison																		x	1
Analyzing																			
Repeating																			
Working with Organizational Charts																		x	1
Setting up an analogy																			
Empathize																			
Working with Words (Keywords, unknown words)									x				x	x				x	4
Identifying Topic																			
Identifying the main idea																			
Making Markings			x			x		x		x	x						x	x	7
Classification																			
Sorting	x													x			x		3
Finding Title																			
Producing Solution																			
Summarizing																			
Total (f)	2	2	1	1	1	2	1	3	1	1	2	2	2	1	2	1	4	2	31

When Table 5 was examined, the following findings were obtained regarding the strategies used in while-listening.

When the while-listening strategies related to the sub-themes of the first unit were examined, strategies for the while-listening were included in each theme. In the last theme of the first unit, only 1 while-listening strategy was used. When the content of the question studies strategy was examined, it was seen that there were true-false and open-ended comprehension types for the content of the listening text.

When the while-listening strategies related to the sub-themes of the second unit were examined, it was seen that each theme included while-listening strategies. The strategies used during listening showed similar characteristics to the first unit. When the content of the question studies strategy was examined, the question types of true-false, matching and filling the gap were included.

When the while-listening strategies related to the sub-themes of the third unit were examined, it was seen that each theme included while-listening strategies. The number of while-listening strategies used in the book's 3D theme was more than the previous unit subthemes. When the content of the "question study" strategies was examined, the types of true-false, matching and sentence completion were included.

When the while-listening strategies related to the sub-themes of the fourth unit were examined, it was seen that each theme included while-listening strategies. The strategies used during listening showed similar features with the previous unit subthemes. When the content of the "question studies" strategy was examined, matching and multiple choice question types were included.

When the while-listening strategies related to the sub-themes of the fifth unit were examined, it was seen that each theme included while-listening strategies. The strategies included show similar features with the previous unit subthemes. Matching question type was used in question studies that were included only once.

When the while-listening strategies for the sub-themes of the sixth unit were examined, it was seen that each theme included while-listening strategies. Working with comparison and organizing tables was used for the first time in the sixth unit sub-themes. Among all themes, the most common while-listening strategy was included in the 6B theme. When the content of the question studies strategy was examined, it was seen that comprehension and matching question type were included.

In all unit subthemes, strategies of while-listening were included. In the content of the while-listening strategies, "question studies" strategies were included in all unit subthemes except for the sixth unit sub-themes. Question studies were seen as the most used strategy among while-listening strategies. The most frequently used question types in the content of question studies strategies were seen as true-false (5 times) and matching (4 times). Following the question studies strategies, the most used strategy was seen as the strategy of making markings. The total use of both strategies was determined to be 19. This figure constituted 61.29% of other strategies used. Although there were 22 while-listening strategies in the classification, more frequent use of two strategies was considered insufficient in terms of quality. Similarly, 15 out of the 22 strategies included in the classification were never used. This situation was considered insufficient quantitatively.

3.3 Listening activities in terms of post-listening strategies

Post-listening activities in the B1 level course book examined within the scope of the study are: "summarizing, evaluating, question studies, making inferences, re-expressing, producing titles, discussion, establishing cause-effect relationships, self-evaluation, questioning, completion studies, working with organizer tables, comparing, giving feedback, criticizing" strategies. However, the strategies used after listening were not tabulated as they were not encountered in any unit sub-theme. It was found out that the information acquired by the learner before and after listening was not integrated, as there were no post-listening activities, which are the steps of evaluation and creation.

The distribution of the listening sections in number throughout the units was seen equally. On the other hand, while-listening activities were included in the sub-themes of all units. Post-listening activities weren't included. There is no systematic approach in ordering the listening activities according to their processes. For example, while pre-listening strategies were included in some units and sub-themes, they were not included in other units and sub-themes.

4. Discussion

Speaking of Turkish in a wide geography from east to west and the large increase in the number of immigrants coming to our country in recent years made it necessary to have a more systematic Turkish education for foreigners. The importance of listening activities included in the content of the course books prepared in this direction has been the subject of various studies in the literature. In this study, the listening activities of the New Istanbul Turkish Teaching course book were examined in terms of listening processes. There is no previous

study on the course book that is the subject of our study. However, there are studies on the previous edition of the book in question, Istanbul Turkish Teaching course book for foreigners and other Turkish teaching course books for foreigners.

The pre-listening activities of the New Istanbul Turkish course book, which is the subject of our research, were examined in terms of procedural strategies within the scope of the determined classification. In the examination, pre-listening strategies were included in only 7 of 18 sub-themes. It was a great deficiency that pre-listening strategies were not included in some units. Although strategies were used in all units during listening, certain strategies were seen to be repeated. Question studies and marking strategies constitute 61.29% of all strategies. Post-listening strategies were not included. The evaluation and synthesis steps were seen as a deficiency in this regard. Gün and Bakırdöğen (2020), Özbal and Genç (2019), Biçer (2019), Yalçın (2018), Gün, Yalçın and Memiş (2017), Tabak and Göçer (2017), Şimşek (2016), Yavuz (2016) and Tuzcu (2011) examined the listening activities of Turkish course books for foreigners in different publications and contents. Similar results were discussed by comparing these studies with our research.

Gün and Bakırdöğen (2020) analyzed Gazi University B1 level listening texts according to the criteria in the Common European Framework of Reference for Languages in their study titled "Analysis of Gazi University Level B1 Course book Listening in Teaching Turkish as a Foreign Language". There are a total of 5 units in the studied B1 level course book. Four listening activities are included in each unit. A total of 20 listening activities were analyzed in this study. In our study, the content of question studies strategies were seen to be similar to the types of questions in Gazi University course book activities.

Özbal and Genç (2019) in their study titled "Evaluation of Exercises Used in Listening Skills in Course books of Teaching Turkish as a Foreign Language," the basic level (A1-A2) course books of the sets "Istanbul Turkish for Foreigners," "Yedi İklim Turkish," "Gazi Turkish for Foreigners" and "New Hitit Turkish for Foreigners" were analyzed in terms of exercises for listening skill. The result is similar to our study that it is necessary to increase the variety of exercises in the listening activities in Istanbul Turkish for Foreigners and Gazi Turkish for Foreigners (A1-A2).

Biçer (2019), in his study titled "Evaluation of Reading and Listening Activities in Course books on Teaching Turkish to Foreigners According to the Revised Bloom Taxonomy," the reading and listening activities of the B1 level course books of the Istanbul, Gazi and Yedi İklim Turkish teaching sets were evaluated in terms of their suitability to recall, comprehension, practice, analyze, evaluate and create classifications. In the evaluation made, it was found out that 26 of the 28 listening activities in the previous edition of the New Istanbul Turkish (B1) book, which is also the subject of our study, were at the comprehension level. In this respect, the result that the activities repeat each other is similar to the repetition of the strategies determined in our research. The results of the absence of post-listening activities in our study and the use of similar strategies during listening activities are consistent with the results of this study.

Yalçın (2018) in his master's thesis titled "Examination of Listening Activities in the Course books of Teaching Turkish as a Foreign Language in terms of Language Learning Strategies," reached some conclusions by examining Journey to Turkish Teaching Set C1, Yedi İklim Yunus Emre Institute Turkish Instruction Set C1, Gazi Turkish for Foreigners C1, İzmir Turkish C1 for Foreigners and Istanbul Turkish C1 for Foreigners in terms of Oxford's language learning strategies. The previous edition of the New Istanbul B1 course book, which is the subject of our research, Istanbul B1 course book was examined at C1 level in this study. It is similar to the result of our study, especially in terms of the lack of diversity in language learning strategies.

Gün, Yalçın and Memiş (2017), in their study titled "Comparison of Basic Level Course books Used in Teaching Two Different Languages as a Foreign Language" in terms of Listening Activities, has examined the basic level of Yunus Emre Institute's Turkish Teaching Course book and basic level of New English File course book used in teaching English as a foreign language in terms of listening activities. In the examination, it was found out that there was no pre-listening activity in the basic level course book of the Yunus Emre Institute Turkish Teaching course book. In New Istanbul (B1) level course book examined in our study, pre-listening activities

were included in only 7 sub-themes of 18 sub-themes. In this respect, our study seems to be in close similarity with this study.

Tabak and Göçer (2017) examined 5 A1-C1 level course books published by Gazi TÖMER in terms of procedural listening activities in their research titled "Examination of A1-C1 Level Listening Activities in Teaching Turkish as a Foreign Language". As a result of the examinations, it was concluded that the activities were mostly post-listening activities, pre-listening activities were neglected, while-listening activities were not sufficiently included, and similar types of activities were included in the listening processes. This study shows similar features to our study in terms of neglecting pre-listening activities and including similar types of activities in listening processes.

In his master's thesis titled "Comparative analysis of course books used in teaching Turkish to foreigners in the context of basic language skill," Şimşek (2016) examined Yunus Emre Institute Turkish Teaching B2 level course book and Istanbul Turkish Teaching B2 level course book for foreigners comparatively. In the study, four basic language skills were examined on the basis of the determined criteria. Quantitatively, more listening activities were found in the B2 course book of Yunus Emre Institute. While 24 listening activities were included in the Yunus Emre Institute B2 course book, 18 listening activities were included in Istanbul Turkish for foreigners course book. It was concluded that the listening activities included in the Yunus Emre Institute B2 book did not contain pre-listening strategies, and the questions during listening consisted of the same type of questions. In this respect, it can be said that similar results were obtained with our research.

Yavuz (2016) stated that in his master's thesis titled "Listening Activities of Gazi TÖMER Turkish teaching set for foreigners (A1, A2, B1, B2)", the number of activities aimed at improving the listening skill was not sufficient, that pre-listening activities were not sufficiently included, that there were not equal number of activities during and after listening, and that they were not distributed evenly in number, and that students should be able to perceive different aspects of listening by using different types of activities in the procedural listening stages. This study shows similar characteristics to our research. Among the common results of our research, especially the low number of pre-listening activities and not being balanced, and the insufficient listening activities and not benefiting from different activity types can be shown.

Tuzcu (2011), in her master's thesis entitled "Comparison of Basic Level Listening-Comprehension Activities in Teaching Turkish and English as a Foreign Language," examined and evaluated the "New Headway A1-A2" and "New Hitit 1" course books according to the criteria determined based on the Common European Framework. In the evaluation made, it was concluded that listening activities should be organized as before, during and after listening, 'Yeni Hitit 1' course book included basic listening-comprehension activities, but there were mistakes or deficiencies in the organization of the activities, pre-listening activities were not related to the activities during listening, listening activities were similar, post-listening activities were not always included, and listening activities should be diversified. The result expressions for the procedural listening regarding the book "Yeni Hitit 1" are similar to our study.

5. Conclusion

There is no study on the listening activities of the New Istanbul Turkish (B1) level course book and the previous edition of Istanbul Turkish (B1) level course book for foreign students. For this reason, the results were compared in the context of different books and publications discussed in other studies. In the reviewed studies, listening activities were not evaluated on a strategy basis, except for one study. The common deficiencies in the course books examined in terms of results are the low or unbalanced distribution of the number of listening activities, not being associated with other skill areas, insufficient cognitive strategies, not including different activities in procedural listening activities, lacking of language learning strategies, and repetition of activities. It is similar to the results of this study and supports our research. Especially the comparisons made with English teaching books in the literature are important in terms of highlighting these deficiencies.

Attention should be paid to the balanced distribution of procedural strategies in the activities related to listening skills. It should not be forgotten that listening is a process by including strategies before, during and after listening in listening activities in every activity. If post-listening activities are not included, the activities will not go beyond the steps of remembering, understanding, applying and analyzing. This distribution in the contents of the course books should also be taken into account in other skill activities. Different strategies should be used in different listening activities. In addition, this situation should be differentiated according to the student level. It would be particularly useful to combine post-listening activities with a different skill. It is important to use the information acquired before and during listening and transfer it to their own lives. Therefore, post-listening activities should be included and diversity should be provided.

Listening skills can be combined with speaking and writing activities to ensure the integrity of listening activities. Thus, integrity in language learning will be achieved by linking all skills to each other. Since similar situations are detected in other course books examined in the studies, it should be ensured that the activities are strategically enriched and systematically presented in Turkish teaching books for foreigners in terms of quantitative and qualitative aspects.

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Determining Social Sciences Teachers' Views for Specific Days and Weeks in the Distance Education Period: A Mixed Method Study

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Abstract

In the study, it was aimed to determine the opinions of social studies teachers in distance education for specific days and weeks. An explanatory sequential pattern, one of the mixed method designs, was used. The quantitative sample consists of 204 social studies teachers. 112 of the teachers are women and 92 are men. The qualitative study group consists of 14 teachers selected from the quantitative sample. The quantitative data collection tool is the "Opinions of Social Studies Teachers on Benefiting from Specific Days and Weeks in Raising Social Responsibility Awareness." The scale was developed by Yazıcı, Koca and Dönmez (2017). Qualitative data were collected using a semi-structured interview form developed by the researcher. Data were collected by e-mail. IBM SPSS 24.0 package program was used in the analysis of the data. Qualitative data were analyzed with content analysis. No difference was found in the variables of gender, age and professional seniority of teachers for specific days and weeks. In terms of school type, a difference was found in favor of teachers working in primary schools. It was found that teachers mostly used expression, presentation and question-answer techniques. It was determined that the importance of the day could not be grasped by the students. The attendance to the lessons was low and this was due to digital reasons. Teachers suggested an increase in digital support and sharing platforms.

Keywords: Special days and weeks, social studies, teachers' opinions.

1. Introduction

Schools are institutions that constitute the basic building blocks of social education. In these institutions, science and social sciences are taught to students. Behaviors that will bring the individual to the benefit of society and make the individual active in social life are also acquired in these institutions. Achieving the goals of the school is possible by considering the school culture as a whole. This integrity is norms, ethical behaviors, values, beliefs, rituals, ceremonies, physical features, symbols and stories (Blandford, 2006; Balcı, 2014). Today, what is expected of students is to absorb what they have learned at school and to apply them in real life. For this

reason, education to be carried out only within the boundaries of the school cannot meet the expectations of the society. Because students need to be active in learning and learn by doing and experiencing. The most basic strategy of education is to associate students' social life with the subjects they learn. Contemporary teaching programs also act with this strategy. In addition to the compulsory courses that students must learn, they include social and cultural activities (Tokcan & Topkaya, 2015).

Social and cultural activities within this scope are held on specific days and weeks in our country. Specific days and weeks are the body language of the societies they belong to. They are the elements that complement the national and traditional structure of the society. It is possible to experience sadness while being very happy on these specific days and weeks. With these emotions, events, customs, rituals and memories in the past come to the fore. This situation contributes to the formation of social unity and integrity. The meaning and importance of specific days and weeks and the days determined by the education system are symbolized. With the activities to be carried out, values related to the meaning and importance of that day are emphasized. The students' attention focuses on a specific topic. The importance of the subject is grasped. It is ensured that they gain experience with activities performed for all levels. Students gain positive emotions and behavior. Thus, the awareness of social and cultural duty is created (Şiringel, 2006: 16; Karapınar & Alp, 2019) This awareness gives students dynamism. Of course, all these affect students' other lessons positively.

Specific days and weeks in our country were included as additional units in the 1968 Primary School Program for the first time. It is included as a separate activity in the Educational Studies Regulation in 1976. In 1986, it was stated that specific days and weeks would be held in "Life Studies" class in 1st, 2nd and 3rd grades and in 4th and 5th grades in "Social Studies" class. It was stated that specific days and weeks would be celebrated in the 1998 Primary Education Program within the Life Studies lesson in the 1., 2., 3. grade and in the Social Studies lesson in the 4., 5., 6., 7. grade. In November 2005 "Ministry of National Education Primary and Secondary Education Institutions Social Activities Regulation" was put into practice (Çınar, 2012, p. 25). Today, specific days and weeks are carried out in accordance with the "Ministry of National Education Primary and Secondary Education Institutions Social Activities Regulation." The aim of the regulation is to develop self-confidence and sense of responsibility in individuals. It is the acquisition of national, spiritual, moral and cultural values by creating new areas of interest (Ministry of National Education, Educational Institutions Social Activities Regulation, 2021).

Social studies course enables the individual to take his place in the society. Its subjects are people, people's life, their environment and social life. Effective citizenship skills and social understanding are gained. Students do not memorize information. They learn the knowledge, skills, attitudes and values necessary in their lives in a connected way (Yazıcı, Uslu, & Arık, 2016). Social studies course is a course that covers specific days and weeks. In the Social Studies Curriculum (2018: 10), emphasis is placed on the development of historical sensitivity and national consciousness with specific days and weeks. National and religious holidays, local liberation and celebration days, and the teaching of important events are carried out in this context. Specific day and week activities are prepared by the teachers and the school administration. Achieving the goals of the activities depends on being well-planned and organized. Students' interests and abilities should be taken into account in the activities. The subjects are expected to be told in a non-artificial way. Thus, students are given responsibility and they socialize with specific days and weeks. It is ensured that the students adapt to the society, recognize their own selves, and exhibit democratic behaviors.

Covid-19 Coronavirus emerged in China in December 2019 and spread all over the world. Due to the spread, the World Health Organization has declared a pandemic. The pandemic has affected all areas of life around the world. Educational activities are one of the areas most affected by the pandemic. Face-to-face education was suspended in our country on March 13, 2020. As of March 23, 2020, emergency distance education started. In the fall semester of 2020, education started gradually and in smaller classes. Due to the epidemic, distance education started on 23 November 2020 and continued until the end of the semester (Yamamoto & Altun, 2020; Akyavuz & Çakın, 2020). In the spring semester of 2020-2021, distance education has continued in smaller classes. Teachers have played a key role in the distance education process. Teachers' views on distance education activities will guide future educational activities. The purpose of this research is to determine if the

opinions of social studies teachers on specific days and weeks in the distance education period. For this purpose, answers were sought for the following sub-goals:

- 1-Do social studies teachers' views on specific days and weeks differ according to their gender, age and professional seniority in the distance education period?
- 2- What are the methods and techniques they use on specific days and weeks in the distance education period?
- 3- What are the difficulties teachers experience in the distance education period in terms of specific days and weeks?
- 4- What should be done to increase the effectiveness of specific days and weeks in the distance education period?

2. Method

Research Model

Explanatory sequential design, one of the mixed method designs, was used in the study. In the first stage of this design, quantitative data are collected and analyzed. In the second stage, qualitative data are collected and analyzed. Qualitative results are used to explain the quantitative results. Thus, the subject under investigation is understood in more detail and comprehensively (Creswell & Clark-Plano, 2007). In this direction, the quantitative dimension of the research was arranged in accordance with the general scanning model. The aim of this model is to reach a general judgment about the universe in a universe with many elements. For this purpose, scanning is performed on the whole universe or on a sample taken from the universe (Karasar, 2011). The qualitative dimension of the research is designed as a case study. In the research, descriptive case study type was used. This type answers why and how questions about a situation (Kaleli Yılmaz, 2014).

Working group

Participants from whom quantitative data were collected in the study were determined by criterion sampling method, one of the purposeful sampling methods (Yıldırım & Şimşek, 2011). Teachers' volunteerism and high expression potential were taken as criteria. In this context, 204 social studies teachers working under the Niğde Provincial Directorate of National Education were determined. 112 of the teachers are women and 92 are men. The qualitative study group of the research consists of 14 teachers in the quantitative study group. Teachers were determined with maximum diversity sampling from purposeful sampling types. In the research, it was aimed to find and define the themes that contain differences (Patton, 2014). For this reason, teachers' graduate education, age, gender, and the school they work in were taken into account. At the point of research ethics, the names of the participants were not used directly. Teachers are numbered and coded between K1 and K14. They were named with these codes in the research.

Data Collection Tools and Data Collection

In the study, as a quantitative data collection tool, "Opinions of Social Studies Teachers about Benefiting from Specific Days and Weeks in Raising Social Responsibility Awareness" scale was used. Semi-structured interview form was used as a qualitative data collection tool.

Social Studies Teachers' Views on Benefiting from Specific Days and Weeks in Raising Social Responsibility Awareness: The scale was developed by Yazıcı, Koca, and Dönmez (2017). The scale consists of 23 items. There are options that show the level of each item. Options have a value of 1, 2, 3, 4, and 5 points. Negative items were scored in reverse.

Table 1: Cronbach-Alpha Internal Consistency Number for the Scale

		Cronbach's Alpha	Number of Items
Benefiting from Specific Days and Weeks	Student Outcomes	.69	10
	Value Education	.84	5
	Teaching Program	.78	4
	Teaching Material	.88	4
	Total	.90	23

Table 1 contains findings regarding the Cronbach-Alpha internal consistency coefficients for the scale. Yazıcı, Koca, and Dönmez (2017) found the internal consistency coefficient for the overall scale as .85. In this study, the internal consistency coefficient for the total of the scale was found to be .90.

Semi-Structured Interview Form: Qualitative data were collected with a semi-structured interview form developed by the researcher. There are 3 open-ended questions in the form. The relevant literature was scanned in order to ensure the content validity of the form. The prepared questions were presented in the opinion of two field experts and two teachers. The necessary corrections were made with the feedback received, and the form was finalized.

Data Collection and Analysis

Qualitative data were collected through an open-ended e-mail interview form. E-mail interview form is a data collection tool that adapts to scanning approaches. It provides an advantage compared to face-to-face interview during the pandemic period. It facilitates access to participants in different places. It also reduces the cost of the study (Hamarat, 2014; Çepni, Kılcan, & Palaz, 2019). In this context, data were collected from 14 teachers working in 8 different schools. The teachers who participated in the quantitative study were informed about the study via e-mail. A form was sent to the volunteers among the teachers who replied the e-mails. The teachers' questions were answered via phone and e-mail. The obtained data were analyzed according to the descriptive analysis method. In descriptive analysis, the data are summarized and interpreted according to the determined themes (Yıldırım & Şimşek, 2013). Direct quotations are included to ensure the validity of the research. An expert researcher helped to ensure reliability.

Quantitative data were collected via e-mail. IBM SPSS 24.0 package program was used in the analysis of the data. The level of significance in the analyzes was taken as $p \leq .05$. Normal distribution analyzes were made on the research data. Average score, minimum, maximum score width, skewness and kurtosis coefficients were calculated with this analysis. Kolmogorov-Smirnov normality test was performed (Tabachnick & Fidell, 2013). As a result of the test, it was concluded that the distribution was not normal. For this reason, in analyzing the data belonging to the sub-problems, analyzes were performed with Independent Samples t-Test and One-Way ANOVA test. The data regarding the normality test of the scale are shown in Table 2.

Table 2: Skewness and Kurtosis Table of the scale data

	Skewness	
	s	ss
Benefiting from Specific Days and Weeks	-.193	.170
	Kurtosis	
	s	ss
	-.170	.339

In Table 2, Skewness and Kurtosis values are between +1 and -1. This range shows that the distribution of the scale is normal. Thus, parametric tests were used in the analyzes performed.

Findings and Comments

1. Findings About Sub-Problem

Table 3: Independent t-Test Results of Mean Scale for the Gender Variable

Factor	Gender	N	\bar{X}	Ss	sd	t	P
Student Outcomes	Woman	112	39.06	5.64	202	.107	.915
	Male	92	38.98	5.48			
Value Education	Woman	112	20.57	3.35	202	.163	.871
	Male	92	20.65	3.73			
Teaching Program	Woman	112	14.95	3.25	202	1.215	.226
	Male	92	15.52	3.50			
Teaching Material	Woman	112	13.29	4.18	202	.686	.493
	Male	92	13.71	4.37			
Total	Woman	112	87.88	13.54	202	.498	.619
	Male	92	88.86	14.60			

Table 3 contains Independent Samples t-Test results. According to the table, for the factors, namely, student attainment of the gender variable ($t_{(202)} = .107$; $p > .05$), value education ($t_{(202)} = .163$; $p > .05$), curriculum ($t_{(202)} = 1.215$; $p > .05$), teaching material ($t_{(202)} = .686$; $p > .05$) and the overall scale ($t_{(202)} = 1.215$; $p > .05$), it was determined that there was no statistically significant difference. It can be said that the gender variable does not have an effect on the opinions about the scale.

Table 4: One-Way ANOVA Results of Scale Data Regarding Age Variable

Factor		Sum of Squares	df	Average of Squares	F	p
Student Outcomes	Between Groups	19.368	3	6.456	.207	.892
	Within Groups	6249.510	200	31.248		
	Total	6268.877	203			
Value Education	Between Groups	19.368	3	6.456	.383	.765
	Within Groups	6249.510	200	31.248		
	Total	6268.877	203			
Teaching Program	Between Groups	17.163	3	5.721	.500	.682
	Within Groups	2286.190	200	11.431		
	Total	2303.353	203			
Teaching Material	Between Groups	19.184	3	6.395	.349	.790
	Within Groups	3665.738	200	18.329		
	Total	3684.922	203			
Total	Between Groups	94.125	3	31.375	.158	.924
	Within Groups	39698.165	200	198.491		
	Total	39792.289	203			

According to Table 4, in the opinions of social studies teachers regarding the age variable of the scale; for the following factors, namely, student learning outcomes ($F_{(3-200)} = .207$; $p > .05$), value education ($F_{(3-200)} = .383$; $p > .05$), curriculum ($F_{(3-200)} = .500$; $p > .05$), teaching material ($F_{(3-200)} = .349$; $p > .05$) and in the overall scale ($F_{(3-200)} = .158$; $p > .05$), a statistically significant difference was not found. It can be said that the age variable does not have an effect on the opinions about the scale.

Table 5: One-Way ANOVA Results of Scale Data Regarding Occupational Seniority Variable

Factor		Sum of Squares	sd	Average of Scores	F	p
Student Outcomes	Between Groups	64.195	4	16.049	.515	.725
	Within Groups	6204.682	199	31.179		
	Total	6268.877	203			
Value Education	Between Groups	24.186	4	6.046	.484	.748
	Within Groups	2486.441	199	12.495		
	Total	2510.627	203			
Teaching Program	Between Groups	12.720	4	3.180	.276	.893
	Within Groups	2290.633	199	11.511		
	Total	2303.353	203			
Teaching Material	Between Groups	94.135	4	23.534	1.304	.270
	Within Groups	3590.787	199	18.044		
	Total	3684.922	203			
Total	Between Groups	565.135	4	141.284	.717	.581
	Within Groups	39227.154	199	197.121		
	Total	39792.289	203			

According to Table 5, professional seniority variable in social studies teachers' opinions about the scale; for the following factors, namely, student learning outcomes ($F_{(3-200)} = .515$; $p > .05$), value education ($F_{(3-200)} = .484$; $p > .05$), curriculum ($F_{(3-200)} = .276$; $p > .05$), teaching material ($F_{(3-200)} = 1.304$; $p > .05$) and in the overall scale ($F_{(3-200)} = .717$; $p > .05$), there was no statistically significant difference. It can be said that the professional seniority variable does not have an effect on the opinions about the scale.

Table 6: Independent t-Test Results for Scale Data Regarding School Type Variable

Factor	School Type	N	\bar{X}	Ss	sd	t	P
Student Outcomes	Primary	57	40.70	5.22	202	2.727	.007*
	Middle	147	38.37	5.57			
Value Education	Primary	57	21.72	3.02	202	2.860	.005*
	Middle	147	20.18	3.61			
Teaching Program	Primary	57	16.35	3.34	202	3.086	.002*
	Middle	147	14.76	3.28			
Teaching Material	Primary	57	15.12	4.57	202	3.524	.001
	Middle	147	12.84	3.97			
Total	Primary	57	93.89	13.98	202	3.648	.000*
	Middle	147	86.16	13.44			

* $p \leq .05$

According to Table 6, in the school type variable; for the following factors, namely, student learning outcomes ($t_{(202)} = 2.727$; $p \leq .05$), value education ($t_{(202)} = 2.860$; $p \leq .05$), curriculum ($t_{(202)} = 3.086$; $p \leq .05$), teaching material ($t_{(202)} = 3.524$; $p \leq .05$) and in the overall scale ($t_{(202)} = 3.648$; $p \leq .05$), it is seen that there is a statistically significant difference. This difference is in favor of primary school teachers. It can be said that they have views on value education, curriculum and teaching material.

2. Sub-Problem Results

Table 7: Methods Used by Teachers in Distance Education on Specific Days and Weeks

Methods and Techniques	f
Expression	7
Question answer	5
Case study	4
Presentation	5
Empathy	3
Research Review	3
Thinking Six Hats	1

According to the answers given, it was determined that the teachers mostly used the expression (7) technique. Question-answer (5), presentation (5), case study (4), empathy (3) research and investigation (3) and six thinking hats are other techniques they use. Teachers' views in this context are as follows: K3 "Although there were few students, I used the narration technique. I gave information in advance about the specific day I will commit the following week. I also told the students to do research. But I didn't get much feedback. I usually taught in the lessons." K12 "The continuation of specific days and weeks in distance education is an effective practice in order not to make students forget our important days and values. I think national holidays have been a bit enthusiastic. Most of my students hung our flag on their windows. We tried to empathize even remotely during the week of the disabled." K8 "Students should be informed about the importance of weeks on specific days during the live lesson. I tried to encourage students with activities they can do at home. They expressed their opinions about the meaning of the day from different perspectives using the six thinking hats technique.

3. Sub-Problem Results

Table 7: Problems Teachers Encounter in Distance Education on Specific Days and Weeks

Theme	f
Digital-Technical	5
Lack of Excitement	4
Absence of the Transfer of Emotions	5
Failure to Comprehend the Meaning and Importance of the Day	6
Low Participation	5
Keeping Subjects Abstract	3
Insufficient Time	4
Insufficient Teaching Value	3

In line with the answers given, the most common problems faced by teachers in distance education on specific days and weeks are the inability to comprehend the meaning and importance of the day (6), digital-technical (5), lack of enough participation (5) and lack of emotion transfer. Other problems are lack of excitement (4), insufficient time (4), subjects remain abstract (3) and insufficient value teaching (3). Teachers' views in this context are as follows: K9 "One of the main problems is the low attendance at the classes. Students fall behind on topics. Of course, I have students who do not have tablets, internet or share their belongings with their siblings. Emotions were not experienced as intense as in face-to-face training." K6: "Completing the curriculum

on time, the problem of participating in distance education by students, being unable to come together at any time outside of the course have restricted the work to be done on specific days and weeks." K4 "Students often get bored while listening and the subjects remain abstract. It lacked the spirit of celebration. I encountered the problem that it was more difficult to understand by the students.

4. Sub-Problem Results

Table 8: Teachers' Solution Suggestions for the Problems Experienced in Distance Education in Specific Days and Weeks

Theme	f
Cooperation with Parents	3
Digital- Technical Support	4
Website	3
Online Sharing Platform	4
School Administration Support	2
Documentary	2
Live broadcast	4
Media	2

According to Table 8, it was determined that teachers suggested the following items, namely, digital-technical support (4), online sharing platform (4) and live broadcast (4) to solve their problems in distance education. Cooperation with parents (3), website (3), school administration support (2), documentary (2) and media (2) are other suggestions. Teachers' views in this context are as follows. K7 "We formed Whatsapp parent groups. Here, I gave information about the specific day I will process. I wanted them to do an activity. The indifference of some parents obviously upset me. " K14 "Websites, events and online information platforms that might attract the students' attention to the specific weeks are offered. These platforms need to be more. Especially for the children's age group. " K5 "In order to overcome the problems I encountered, I directed the students to research the subject and share what they learned with the family. I wanted them to look at the documentaries I suggested in their spare time."

3. Results

Within the scope of the scale applied in the study, no significant difference was found in the variables of gender, age and professional seniority. In the school type variable, a difference was found in favor of teachers working in primary schools. Yazıcı, Koca, and Dönmez (2017) found difference in favor of female teachers in terms of student outcomes. They also found that male teachers were more positive in the value education sub-dimension. Specific days and weeks contribute to the socialization of students, gaining traditions, customs, national and spiritual values, empathy, human rights and patriotism. They carry the bond they have gained with the roots of society into the future. It is possible to say within the scope of the study that the teachers act in line with this contribution, regardless of gender, age and seniority.

It was determined that the teachers mostly used the expression, question-answer and presentation techniques. These techniques do not require tools. In techniques; depiction, explanation and storytelling are used. The teacher is more active. Teachers' tone of voice, knowledge, speaking tempo, gestures are important. Students are encouraged to think about a specific subject (Saban, 2014). Therefore, it can be said that it is used in digital classrooms. Empathy must be established correctly in techniques. Real empathy is achieved through education. Teachers enter their students' inner worlds with empathy. This creates a safe and positive classroom environment, albeit digital. If students are not empathized, their focus on the meaning of the day and their motivation will not be realized. Because the values to be transferred are abstract concepts.

The findings show that students do not grasp the importance of specific days and weeks. Concepts are learned if they are modeled correctly in the student's mind. Cognition of the student is effective in modeling. Family,

environment, society, student's abilities, physical condition, needs and pre-concepts are also effective (Tokcan, 2015). Misunderstanding of these factors causes students to misunderstand. In distance education, the source and the receiver are in different environments. Learner and teacher interaction may be lost. Transferring the excitement in formal education to the digital environment is, of course, limited. Students can feel isolated. Drama, role play, travel, review, group conversation etc. are limited and less realized (Özdoğan & Berkant, 2020). This situation affects students affectively. Activities with more participation can be organized in order to understand and internalize the importance of the days. These events can be in the form of digital platforms, live broadcasts, online groups.

Digital-technical support and lack of time are among the biggest problems encountered in distance education. This situation is also negative in terms of equal opportunity. In the literature; Özdoğan & Berkant, 2020; Koç, 2020; Akbal & Akbal; Keskin & Özer Kaya, 2020; Serçemeli and Kurnaz (2020) also encountered similar findings in their research. Since it is assumed that the pandemic will prolong, these problems must be permanently solved. It is seen that the solutions suggested by teachers on this issue are of digital origin. Digital-technical support is performed by Ministry of Education, non-governmental organizations etc. (Ministry of Education, 2021). In the findings, teachers stated the cooperation between school administration and parents. The family atmosphere has a great effect on the meaning, excitement and feeling of the specific days. Children take their parents as models. It is important at this point for families to act consciously. School administrations take into account the feedback from teachers and parents during the pandemic period (Turan, 2020). At this point, on specific days, teachers should guide the administration in line with their needs.

4. Discussion

The research is limited to social studies teachers. The opinions of the teachers of Turkish, Music, visual arts lessons where specific days and weeks are taught, as well as parents can be taken. Thus, arrangements can be made in line with the opinions of other partners. Specific days and weeks should be more affective. For this purpose, it is recommended to spread active platforms for teachers and students. Technical support for students should be increased. It is recommended that new criteria for specific days and weeks are determined by policy makers.

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An Alternative Way to Improve the Writing Skills of Secondary School Students: The Social Cognitive Model of Sequential Skill Acquisition (SCM Intervention)*

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Abstract

The aim of this study is to examine the effect of SCM-based self-regulation writing instruction on the expository writing and self-regulation skills of middle school 7th grade students. In the research, explanatory sequential mixed method, in which qualitative and quantitative research designs are used together, was used. In the quantitative dimension of the study, the quasi-experimental pre-test-post-test paired control group design was used, and in the qualitative dimension, the case study was used. The study group consists of 66 middle school students attending the 7th grade. It was used two quantitative data collection tools in the study. T-test and Covariance (ANCOVA) analysis were used for independent samples to compare the means of pre-test post-test scores. On the other hand, the qualitative data of the study were collected with a semi-structured interview form and analyzed through content analysis. As a result of the findings obtained from the post-test results in the study, it was observed that the expository writing and self-regulated writing skills of the experimental group students were significantly higher compared to the control group students. Qualitative data were grouped under four main themes: motivation, text production, use of strategy, and negativities.

Keywords: Self-Regulated Writing, The Social Cognitive Model of Sequential Skill Acquisition, Writing Instruction, Expository Texts

1. Introduction

Writing skill is a language skill that including knowledge of the process as well as requires accumulation of knowledge of the product. In fact, it has been understood that product based approach to teaching writing is not

* This study was presented as an oral presentation at the 3rd International Symposium of Limitless Education and Research held in Bodrum / Muğla on 24-27 April 2019.

sufficient in the world especially in the last quarter of the twentieth century. Moreover, the prominence of cognitive processes in learning has also affected the teaching of writing, made the process of creating this product as important as the product presented in the writing process. In this direction, primarily, the first models of process-based writing (Britton, 1979; Graves, 1975; Rohman, 1965) have emerged. But these models have been criticized by Flower and Hayes (1981) in terms such as being linear, focusing more on the written product, neglecting the author's internal processes and these researchers presented a cognitive process model that included follow-up, the author's long-term memory, and task environment in the writing process. After this model, a great improvement was achieved in understanding the cognitive processes in the writing process (Garcia-Sanchez & Fidalgo-Redondo, 2006) and interest in writing has increased. With further studies, it was understood that writing is a demanding and complex skill that requires a high level of self-regulation, which is related to working memory and motivational structures as well as long-term memory (Graham & Harris, 1997; Harris, Graham, Mason & Saddler, 2002; Hayes, 1996; McCutchen, 2000; Zimmerman & Risemberg, 1997).

It is very difficult to make a precise and comprehensible definition of the term self-regulation, which is at the center of writing; because self-regulation has a complex structure consisting of all high-level processes such as cognition, problem solving, decision making, metacognition, motivation, and self-control (Boekaerts & Corno, 2005). On the other hand, considering the Social Cognitive Learning Theory, which forms the basic theoretical basis of this study, according to the self-regulation capacity, the individual; evaluates and directs their own personal, behavioral and environmental processes through sub-functions such as self-judgment and self-reaction (Bandura, 1991). According to this theory, learning is the interaction of environmental, personal and behavioral processes (Bandura, 1977, 1986). From the point of view of Social Cognitive Learning Theory, writing includes self-regulation processes that are planned, initiated, maintained by the author (Zimmerman & Risemberg, 1997) and requires the author to constantly compare his / her goals with his / her performance (Zimmerman & Bandura, 1994). Accordingly, self-regulation in writing is that the author directs the writing process and supervises the personal (cognitive and affective), behavioral and environmental processes that interact during this process and related strategies (Zimmerman & Risemberg, 1997).

Zimmerman and Kitsantas (2007), who discuss writing in the context of Social Cognitive Learning Theory, developed a cyclical model of self-regulation for writing. According to this model self-regulation in writing consists of forethought, performance / volitional control and self-reflection stages. To summarize briefly, at the forethought stage, the writer sets goals for herself/himself by considering her/his environment and writing tasks and does strategic planning (Zimmerman & Kitsantas, 2007). In this direction, the author will set goals for both the text s/he will write (content of the text, structure, etc.) and the writing process (completing the article in three hours, etc.) and develops strategies for both. One of the key elements of the forethought phase is motivation. According to Zimmerman (2000), if the individual is not motivated enough to use self-regulated learning skills, these skills have no value for her/him. Motivational structures such as interests, self-efficacy belief, outcome expectations, task values, goal orientation are effective in determining goals and strategic planning (Zimmerman, 2002; Zimmerman & Schunk, 2008). This is also valid for the writing process.

Another stage of the cyclical model for writing is the stage of performance. Writer at the performance stage; uses strategies to help her/him effort by focusing on the task. Successful writers; effectively use personal (affective and cognitive), behavioral and environmental self-regulation strategies (Zimmerman & Kitsantas, 2007; Zimmerman & Risemberg, 1997). Cognitive strategies take place at the top of the self-regulation strategies in writing. These strategies include actions for editing, producing and transforming the text, such as planning, drafting, and revising the text specified by researchers who focus mainly on the cognitive aspect of writing skill (Albertson & Billingsley, 2001; Flower & Hayes, 1981; Zimmerman & Risemberg, 1997). In addition to these, successful authors also use personal, behavioral and environmental strategies such as goal setting, time planning and management, focusing attention and organizing the environment, social modeling of writing knowledge, self-recording and monitoring their own performance, self-rewarding or punishing, self-instruction, seeking social assistance (Graham & Harris, 2000; Graham, Harris & Troia, 1998; Zimmerman & Kitsantas, 2007; Zimmerman & Risemberg, 1997).

The last stage of the cyclical model for writing is the stage of self-reflection. At this stage, the author compares her/his performance with a certain standard and purpose, gives positive or negative reactions, and bases her/his results on the causes (Zimmerman & Kitsantas, 2002). Because, at this stage, the authors make inferences about how to improve their behavior in their following actions. In this direction, successful writers avoid defensive inferences such as escaping from the task, postponing the task, and make adaptive inferences such as setting hierarchical goals, choosing a more effective strategy (Zimmerman, 2000; Zimmerman & Kitsantas, 2007). With these aspects, the stage of self-reflection is extremely important for following writing tasks. The aspect that enables the model to be cyclical is the author's attitude, reaction and inferences in self-reflection.

According to the perspective of Social Cognitive Learning Theory, cyclic self-regulation processes can be taught through "a social cognitive model of sequential skill acquisition" (SCM) with four-stage (Schunk, 1999; Schunk & Zimmerman, 1997, 2007; Zimmerman, 2000, 2002). This model, which is generally valid for all skill acquisitions, can also be applied to writing skills and can be used for students to acquire cyclical processes of writing (Zimmerman & Kitsantas, 1999, 2002, 2007). According to SCM, observing master models gives students information about learning how to successfully develop successive actions (Schunk & Zimmerman, 2007). In compliance with SCM, learning starts through social resources (teacher, student, etc.) and is gradually transferred to the control and supervision of the individual (Schunk & Zimmerman, 2007). SCM basically consists of four phases: observation, emulation, self-control and self-regulation.

To summarize briefly, in the observation phase, the teacher becomes a writer and expresses the writing process, which passes until a qualified text is created, and his feelings and thoughts in this process through thinking aloud. Thus, is/he becomes a model for students (Garcia-Sanchez & Fidalgo-Redondo, 2006). In this process, the student observes the teacher and cognitively learns the observed skill and strategy (Schunk & Zimmerman, 2007). In the emulation phase, students learn to simulate the performance of an expert. The student does not copy the actions of the expert / teacher who is a model, but instead tries to emulate the general style of the expert / teacher (Schunk, 1999). The emulation phase provides some kind of feedback for aspiring writers to improve their self-regulation standards (Zimmerman & Kitsantas, 2002). To give an example, the student can start by asking questions to the text, similar to the teacher / expert, but does not copy the teacher's sentences. At the phase of self-control, students can use the skill or strategy independently while performing the task. At this phase, the skill or strategy is internalized by the student, but the performance of the expert / teacher is taken into account (Schunk, 1999). For example, the student has now learned that the text can be started by asking questions, if the student is at the phase of self-regulation, students can adapt and use skills and strategies according to the situation. At this level, students can make adjustments according to the characteristics of the task, set personal goals and implement plans for them, and maintain their motivation through a sense of self-efficacy to achieve their goals (Schunk & Zimmerman, 1997, 2007; Zimmerman & Kitsantas, 2002). When faced with a different writing task at this level, students can adapt the strategies they have acquired according to their own writing goals.

SCM, whose theoretical framework is presented, is similar to other models (e.g. the Self-Regulated Strategy Development Model, Cognitive Strategy Instruction in Writing Model, Strategy Content Learning Instruction,) that can be considered within the scope of self-regulated writing instruction interventions. All these models provide strong evidence for the effectiveness of self-regulated writing strategies in improving writing performance (Garcia-Sanchez & Raquel Fidalgo-Redondo, 2006). In this study, the effectiveness of SCM in writing instruction has been tested. The reasons and importance of discussing SCM in this study can be explained as follows.

When the studies in the literature are examined, it is seen that the Self-Regulated Strategy Development Model (SRSD) is predominantly applied in the intervention studies in the field of writing instruction based on self-regulation. Graham and Perin (2007), in their meta-analysis study on adolescents, determined that this model is very effective in developing the writing skills of different target audiences (students with learning disability, child with typical development etc.). Similarly, in studies supported by SRSD and SRSD applied in the dates after this meta-analysis study, it has been revealed that this model is also effective on different target groups (e.g., Festas et al. 2015; Ozdowska, Wyeth, Carrington, & Ashburner 2021; Palermo and Thomson 2018;

Rosário et al. 2019; Traga Philippakos, & MacArthur). However, the SRSD model is a strategy teaching model (Garcia-Sanchez & Raquel Fidalgo-Redondo, 2006; Uyar, 2015). SCM compared to SRSD, SCM includes the processes of modeling more than SRSD, in SCM, students can encounter different models (e.g. expert / teacher, novice / student) and SCM is more effective in improving students' self-efficacy perceptions (Garcia-Sanchez & Raquel Fidalgo-Redondo, 2006). The main reason for using SCM in this research is that SCM is more dominant in terms of modeling processes.

Secondly, research is important for the following reasons. This research has been implemented in Turkey. Intervention studies in the field of writing instruction based on self-regulation in Turkey are quite limited. Moreover, in these studies, similar to the general literature, the SRSD model was predominantly applied (e.g. Bi, 2020; Can & Güneş, 2017; Çağlayan Dilber, 2014; Güzel-Özmen, 2006; Öğülmüş & Melekoğlu, 2021; Uygun, 2012). It was seen that the SCM was applied together with SRSD in writing teaching studies, and only one study related to this was found (Müldür & Yalçın, 2019). A model that is quite similar in scope to the SCM has been applied only in the reading education, and studies in this direction are also very limited (Türkben, 2019; Uyar, 2015). For these reasons, investigating the effect of these reasons SCM of literacy education in Turkey has been remarkable.

Thirdly, the research is important in terms of dependent variables of the research. One of the dependent variables of this research is the expository writing. Referring to the situation in Turkey, students expository writing is weak (e.g. Duran & Özdil, 2020; Müldür & Çevik, 2019; Temel & Katrancı, 2019; Ülper, 2011). In addition, researches conducted within the scope of intervention in both national and international literature focus on students' narrative, persuasive and argumentative texts. Intervention studies on students' expository texts are very limited (e.g. Graham & Perin, 2007; Karatosun, 2014; Temizyürek & Çevik, 2017; Ülper, 2008; Müldür & Yalçın, 2019). In this study, expository texts in which students are weak are discussed. It is thought that the study will contribute to the literature in this respect. A second variable of this research is students' self-regulated writing skills. In the literature, mostly products are evaluated in the studies conducted within the scope of self-regulated intervention and there are a limited number of studies aiming to examine the effects of the model such as self-efficacy perception, metacognitive knowledge for writing, and self-regulation (e.g. Chen, 2020; Graham, Harris, MacArthur & Schwartz, 1991; Harris, Graham & Mason, 2006; Sawyer, Graham & Harris, 1992; Müldür & Yalçın, 2019; Zumbunn, 2010). This research is thought to be important in terms of filling this gap in the literature.

In line with this justification and importance, the main purpose of this study is to determine whether there is a significant difference at expository writing and self-regulated writing skills between 7th grade secondary school students who are given writing instruction based on the SCM in line with the cyclical model of self-regulation and the Turkish Teaching Program. In this respect, the sub-problems of the research can be listed as follows:

Sub problems

1. Is there a significant difference between the students who are given writing instruction based on the SCM and Turkish Teaching Program in terms of expository writing?
2. Is there a significant difference between the students who are given writing instruction based on the SCM and Turkish Lesson Curriculum (TCC) in terms of self-regulated writing skills?
3. What are the experimental group students' opinions about the SCM?

2. Method

2.1. Research Design

In the study exploratory sequential mixed method was used. In the exploratory sequential mixed method, quantitative data are collected first, and then qualitative data are collected. In this pattern where the research problem is more quantitatively oriented, the researcher uses the qualitative stage to explain quantitative data in more detail (Creswell & Clark, 2017).

For the quantitative dimension of the study, quasi-experimental design with pretest-posttest control group was used. Quasi-experimental designs are an effective model that can be used in research in the field of education where it is not possible to control all variables (Cohen, Manion & Marrison, 2007). The qualitative research design in the research is a case study. In case of studies, one or more events, settings, social groups, programs or interconnected systems are examined in depth (McMillan, 2000). The case study represents a method by which a phenomenon is studied in its own reality (Yin, 1984). In this research, SCM is examined within its own context and reality.

2.2. Participants

Quantitative Study Group: The quantitative study group of the study consists of 66 middle school students studying in the 7th grade of a state school with a middle socioeconomic level, from a province located in the center of the Mediterranean region, in Turkey. In determining the study group, the unbiased assignment method was used, in which the subjects were assigned to the experimental or control group objectively (Eckhardt & Ermann, as cited in Büyüköztürk, 2011). In the school where the study was conducted, two classes were considered to be equal to each other in academic and socio-economic terms by the administrators and teachers. And one of these classes was assigned as the experimental group and the other as the control group.

Qualitative Study Group: Thirteen students in the experimental group constitute the qualitative study group of the study. The maximum variation sampling method was used in determining the qualitative study group. In the maximum variation sampling method, the researcher increases the possibility of reflecting on different perspectives and differences of the findings by selecting the participants that differ from each other (Creswell, 2013). In this study, the experimental group students were divided into three groups: those with low performance in terms of writing performance, those with moderate performance and those with high level of performance, considering the difference scores between pre-test and post-test scores. In this direction, five students were selected from each group and a semi-structured interview was conducted with fifteen students in total.

2.3. Intervention

In the research, before starting the experimental applications, pre-tests were applied. Following the pre-tests, writing instruction based on the SCM was applied to the students in the experimental group for sixteen lesson hours during eight weeks. Writing instruction was applied to the students in the control group in line with the activities in the textbooks prepared according to the Turkish Teaching Program. At the end of the process, final tests were conducted and qualitative data were collected after the quantitative data collection process.

In the first two sessions, which were applied to the experimental group students, the students' general knowledge of the writing process, text structures knowledge, and self-regulation processes were developed. For this purpose, teaching techniques such as brainstorming, group discussion, direct and explicit instruction, activating previous knowledge, and gamification were used. Since the third session, the SCM has been applied so that a different expository text structure is addressed each week. Accordingly, the sequence text structure in the third session, the description text structure in the fourth session, the cause and effect text structure in the fifth session, the problem and solution text structure in the sixth session, and the comparison text structure in the seventh session were discussed. Between the third and seventh sessions, the teacher initially modeled her students by using cognitive modeling and think aloud techniques in accordance with the SCM. She applied self-regulation processes loudly in writing through cognitive modeling (forethought, performance and self-reflection) and self-regulated writing strategies (such as goal setting, clustering, graphic organizers, organizing and transforming, self-monitoring and self-evaluation, focusing attention and environmental structuring, seeking social assistance, self-instruction) in the classroom. Later, students collaborated with their peers and teachers and received feedback from them and prepared a text about the text structure of that day. In this process, they applied the cyclical writing process based on self-regulation. From the third to the end of the seventh session, the teacher gradually reduced the processes of modeling, observation processes and social support through thinking aloud. In the eighth session, students wrote a text by using the text structure they choose and by managing their own self-editing processes.

Applications in the control group were carried out in eight sessions as in the experimental group. In the control group, a writing training based on the Turkish Lesson Curriculum (2015) was applied and the students did the writing activities in their Turkish textbooks. Within the scope of the writing activities in the textbooks, the students were given the activities of creating a text by putting the displaced sentences in a logical order, completing the text, creating an expository text about a topic, and creating an expository text about a maxim. While implementing the activities instructions in the book were taken into account. In this direction, pre-writing preparatory work such as question-answer, sample text analysis was carried out in some activities. Students were asked to draft their articles, share their drafts with their desk mates, and rewrite their articles by taking into account their friends' evaluations. In some activities, students were asked to obey spelling and punctuation rules, plan their writings around a main idea, support the main ideas in their writings with supporting ideas, put the information in order, conclude their writings with impressive expressions, enrich them with idioms, and evaluate them in terms of spelling and punctuation. While the activities are being implemented, the course of nature has not been interfered with. In line with his / her field and professional knowledge, the teacher reminded the students in a number of issues such as limiting the topic, developing main ideas and supporting ideas, and ways of developing ideas, and gave examples. The process of being a model, starting with the cognitive modeling of the teacher and continuing to independent writing, applied in the experimental group, was not included in the control group. When the students in the control group requested help, they have not been refused, and the students received help from their teachers and friends whenever they wanted. The teacher mostly gave feedback to the students about the texts they produced when needed. Post-tests were applied after the intervention studies. Qualitative data were then collected.

2.4. Data Collection Tools

Expository Writing Evaluation Form: In the research, the Expository Writing Evaluation Form (EWEF) developed by Müldür and Yalçın (2019) was used to determine students' writing skills. The form consists of seven parts; main idea/focus, supporting details, organization and coherence, language and style, cohesion, spelling and punctuation, legibility. The criteria are scored 1-5 in the form, which is designed as a rubric. In the research process, for the reliability study of the rubric, the texts written by the students in both the pre-test and the post-test were scored separately by two experts and the correlation coefficient (Pearson correlation) between the scores was examined. By means of Pearson correlation analysis, the correlation coefficient between the two raters was 0.82 for the pre-test and 0.86 for the post-test. Since this result is above 0.80, it can be said that there is a high level of reliability between the scores given by 2 raters.

Self-Regulated Writing Scale: The Self-Regulated Writing Scale (SRWS) developed by Müldür and Yalçın (2019) was used to determine students' self-regulation writing skills. The scale developed in 5-point likert type was graded as "I never do: 1", "I rarely do: 2", "I occasionally do: 3", "I often do: 4" and "I always do: 5". According to the exploratory factor analysis, the scale consists of four factors with an eigenvalue greater than 1 and explaining 46.543% of the total variance. These sub-dimensions are effort, monitoring and managing the process, seeking assistance and text generation. The 21-item scale includes 6 items in the effort sub-dimension, 6 items in the monitoring and managing the process, 5 items in the seeking assistance sub-dimension, and 4 items in the text generation sub-dimension. As a result of the confirmatory factor analysis of the scale, fit indices were determined as RMSEA=0.044, GFI=0.916, AGFI=0.894, CFI=0.927 and NFI=0.827. The internal consistency coefficient of the scale was calculated as 0.85. The Cronbach Alpha internal consistency coefficient of the scale was calculated for the sample included in this study. For the pre-test Cronbach Alpha is 0.87 and for post-test Cronbach Alpha is 0.90. This result shows that the SRWS is reliable enough to be used within the scope of the research.

Semi-Structured Interview Form: In the research, semi-structured interview form was used to determine the opinions of the experimental group students on self-regulated writing instruction. A semi-structured interview form was used in this study, and while preparing the interview form, criteria such as the form being suitable for the purpose, being clear and understandable, and not containing directive expressions were considered (Creswell, 2013; Merriam, 2009; Patton, 2014). Form was applied after reviewing and editing by three experts.

2.5. Data Analysis

Analysis of Quantitative Data

Independent samples t-test and Covariance (ANCOVA) analysis were used to interpret the scores obtained through EWEF and SRWS in the pre-test and post-test stages of the experimental design. ANCOVA is a sensitive and useful method to examine the differences between groups in random control design when random assignment to groups is not possible (Tabachnick & Fidell, 2013). In order for both analyzes to be carried out, some assumptions must be provided. According to the assumptions of the independent samples t-test, the measurements of the dependent variable should exhibit normal distribution in both groups. The variances of the distributions of measurements in both groups should be equal. Samples whose averages are to be compared should be unrelated (Büyüköztürk, 2012). According to the assumptions of ANCOVA analysis, the intragroup regression slopes should be equal, there should be a linear relationship between the dependent variable and the covariate, the scores of the dependent variable should be normally distributed in each group, and the variances of the scores should be equal (Büyüköztürk, 2012). Before applying both analyzes, the assumptions for both dependent variables were examined and it was concluded that the assumptions were met. Further the intervention's effect size was interpreted using partial eta squared (η_p^2) with the traditional decision rules: .01–.059 = small, .06–.139 = medium, and $\geq .14$ = large (Cohen, 1988).

2.6. Analysis of Qualitative Data

In the research, the qualitative data collected through semi-structured interviews were analyzed with content analysis. In the content analysis, the stages of organizing the data obtained, creating codes based on the data, separating the codes into categories or themes, organizing and reviewing the material according to these categories and evaluating in the light of previous studies (Creswell, 2013) were followed.

In qualitative research, validity and reliability are considered differently from quantitative studies. Qualitative research requires criteria such as credibility, consistency, conformability and transferability rather than validity and reliability. Researchers in a qualitative research should meet these four criteria by using different strategies such as participant confirmation, expert opinion, purposeful sampling, and negative situation analysis (Creswell, 2013; Merriam, 2009; Patton, 2014). In this study, maximum variation sampling was used and students were classified as low (LP), medium (MP) and high (HP) performance students in terms of difference scores between pre-test and post-test. While giving quotations about student views, the performance qualities of the students are specified. Thus, the different perceptions and experiences of the participants with different qualities were tried to be presented as a whole. In addition, direct quotations on students' views were included. Adverse situation analysis was also used in the study. In the research, unexpected findings such as seeing some practices boring and negative were encountered and these were also reported. Finally, expert opinion was consulted, and qualitative data were analyzed by the researcher and another expert. After the analysis, the codes and themes were reviewed and rearranged by another expert. In this way, the credibility, transferability and consistency of the research were tried to be increased.

2.7. Ethic

Before the study, administrators and Turkish-language teachers of three schools in the city center where the application was conducted were interviewed, and administrators and teachers in one of the schools stated that they could participate in the study voluntarily. For the school to volunteer to participate in the study, official permission was obtained from the *Provincial Directorate of National Education*. In addition, the parents of the participants were informed about the content and duration of the application through *the Parent Consent Form*, and the parents were asked to sign the participation consent.

Confidentiality was adhered to during the research process. It was stated to the participants that their participation in the research was on a voluntary basis. It was stated that their names would not be used either in the experimental application process or in the interviews. For this, the participants were asked to identify a

pseudonym that would not reveal their identity. In this way, the confidence of the participants about the application was tried to be increased.

3. Results

3.1. Quantitative Results

The quantitative findings of the research are discussed under separate headings in terms of dependent variables and sub-problems of the research. In this direction, first the pre-test results, then the post-test results are reported.

3.1.1. Results Related to Expository Writing

Before the experimental procedure, independent sample t-test was applied to compare the pre-test scores of the students obtained from EWEF. The pre-test scores of the experiment and control groups obtained from EWEF were compared with the independent sample t-test. Analysis results are presented in Table 1.

Table 1: Independent Samples T -Test Results for the EWEF Pre-test Scores of the Groups

Variable	Group	N	\bar{X}	Sd	t	p	η^2
Expository writing	Experimental	33	12.394	3.544	0.531	0.597	0.00
	Control	33	12.909	4.297			

Note: The highest score that can be obtained from the form consisting of 7 items is 35.

According to t-test results for independent samples given in Table 1, there was no significant difference between the pre-test scores of the experimental group ($\bar{x}=12.091$, $Sd=3.565$) and control group ($\bar{x}=12.909$, $Sd=4.297$) students obtained from EWEF [$t_{(64)}=0.531$, $\eta^2=0.00$, $p=0.597>0.05$]. According to the pre-test results, it was seen that the groups were similar in terms of expository writing.

Although there was no significant difference between the EWEF pre-test scores of the groups, the post-test scores were compared with one-way analysis of covariance (ANCOVA) in order to eliminate the effect of the pre-test scores. ANCOVA analysis results that reveal whether there is a significant difference between the posttest scores when the EWEF pre-test scores of the groups are taken under control are given in Table 2.

Table 2: ANCOVA Results for the EWEF Post-test Scores of the Groups

Source of variation	Sum Squares	df	Mean Square	F	p	η^2
Pre test	641.109	1	641.109	67.251	0.000	0.156
Group	337.886	1	337.886	35.443	0.000	0.360
Error	600.588	63	9.533			
Total	1521.939	65				

One-factor ANCOVA analysis was conducted to determine the effect of the experiment on the expository writing of middle school 7th grade students and the results are presented in Table 2. In the analysis, the type of education students received (writing instruction based on the SCM for the experimental group, writing instruction based on the TCC, for control group) were defined as the independent variable, the posttest EWEF scores were defined as the dependent variable, and the pretest EWEF scores were defined as the covariate.

Accordingly, when the pre-test scores of the students were under control a significant difference was found between the post-test scores of the control (corrected $\bar{x}= 13.763$) and experimental (corrected $\bar{x}= 18.298$) groups.

These results show that writing instruction prepared according to the SCM has a significant effect on students' expository writing. On the other hand, the effect size calculated for the difference of group averages is $\eta^2 = 0.360$. This value shows that the intervention has a broad impact on expository writing.

3.1.2. Results Related to Self-regulated Writing Skills

Before the experimental procedure, independent sample t-test was applied to compare the pre-test scores of the students obtained from SRWS. The pre-test scores of the experimental and control groups obtained from SRWS were compared with the independent sample t-test. Analysis results are presented in Table 3.

Table 3: Independent Samples T - Test Results for the SRWS Pre-test Scores of the Groups

Variable	Group	N	\bar{X}	Sd	t	p	η^2
self-regulated	Experimental	33	68.939	12.420	-1.267	0.210	0.00
writing skills	Control	33	64.667	14.867			

Note: The highest score that can be obtained from the form consisting of 21 items is 105.

According to t-test results for independent samples given in Table 3, there was no significant difference between the pre-test scores of the experimental group ($\bar{x}=68.939$, $S_s=12.420$) and control group ($\bar{x}=64.667$, $S_s=14.867$) students obtained from SRWS [$t_{(64)}=-1.267$, $\eta^2=0.00$, $p=0.210>0,05$]. According to the pre-test results, it was seen that the groups were similar in terms of self-regulated writing skills.

Although there was no significant difference between the SRWS pre-test scores of the groups, the post-test scores were compared with one-way analysis of covariance (ANCOVA) in order to eliminate the effect of the pre-test scores. ANCOVA analysis results that reveal whether there is a significant difference between the posttest scores when the SRWS pre-test scores of the groups are taken under control are given in Table 4

Table 4: ANCOVA Results for the SRWS Post-test Scores of the Groups

Source of variation	Sum Squares	df	Mean Square	F	p	η^2
Pre test	6105.597	1	6105.597	75.885	0.000	0.546
Group	1517.934	1	1517.934	18.866	0.000	0.230
Error	5068.888	63	80.459			
Total	13859.955	65				

One-factor ANCOVA analysis was conducted to determine the effect of the experiment on the self-regulated writing skills and the results are presented in Table 4. In the analysis, the type of education students received (writing instruction based on the SCM for experimental group, writing instruction based on the TCC for control group) were defined as the independent variable, the post-test SRWS scores were defined as the dependent variable, and the pretest SRWS scores were defined as the covariate.

Accordingly, when the pre-test scores of the students were under control a significant difference was found between the post-test scores of the control (corrected $\bar{x}= 69.554$) and experimental (corrected $\bar{x}= 79.265$) groups. These results show that writing instruction prepared according to the SCM has a significant effect on students' self-regulated writing skills. On the other hand, the effect size calculated for the difference of group averages is $\eta^2 = 0.230$. This value shows that the intervention has a broad impact on expository writing (Cohen, 1988; Gay & Airasian, 2000).

3.2. Qualitative Results

The qualitative findings obtained from the semi-structured interviews conducted with the experimental group were collected under four main themes (categories): motivation, text production, use of strategy and negativities. These are presented as subheadings.

3.2.1. Results Related to Theme of Motivation

Sub-themes and codes under the motivation theme are presented in Table 5.

Table 5: Motivation

Sub-themes	Codes	f
Self-efficacy	More confidence in writing	14
	To be able to easily share texts with others	2
	Ability to write on any topic	2
	Ability to send articles to the journal, to write a book	1
	Being able to help others	1
	Being able to write without the support of someone else	1
	Total	21
Attitude	Love to write more	13
	To love Turkish lesson more	8
	Total	21
Percieved value	To put more emphasis on writing	8
	Believing that one can always use it in life	7
	To give more importance to Turkish lessons	5
	Total	20
Goal Orientation	Writing better and more effectively	8
	To impress one's readers	3
	Improve oneself	2
	Total	13
Total		75

Students in the qualitative study group stated that their self-efficacy perceptions and positive attitudes towards writing increased after the SCM. Some of the students also stated that their goal orientation had changed. Students who had performance goal orientation such as getting rid of, wanting to finish, writing for writing, writing texts better than the ones of their friends before the application, had a goal-goal orientation such as being able to write more beautiful texts, impress readers, and improve themselves. It has been observed that, students value writing and Turkish lesson more after the instruction and find writing useful throughout their lives. Some of the students' statements regarding their motivations are as follows:

"I used to think that I would never write. Now I can even send my article to a children's magazine. I can easily participate in composition competitions." (Student 4, MP).

"I think the activities were great, I wouldn't have written beforehand. I wouldn't want to write. But thanks to the activities, my enthusiasm for writing increased... So I like to write more." (Student 8, LP).

"... I used to write so that I could get rid of it in 10 minutes, in 5 minutes. Now I do not think like that. I'm trying to write better." (Student 13, MP).

3.2.2. Results Related to Theme of Text Production

Sub-themes and codes under the text production theme are presented in Table 6.

Table 6: Text Production

Sub-themes	Codes	f
Focus	Limit the subject	14
	Determining the main idea	8
	Total	22
Supporting details	Include a different idea in each paragraph	13
	Generating ideas more easily	6
	Ability to develop ideas	2
	Total	21
Organization	Getting started with text effectively	5
	Ending text effectively	4
	Finding the right title	4
	Total	13
Language and style	Using expressive expressions	4
	Using words in their proper meaning	2
	Total	6
Length	Lengthening of the text	3
	Total	3
Toplam		65

The students stated that they found a focus by limiting the subject and determining the main idea in their text during the instructions and did not pay attention to these issues before the intervention. The students stated that they were more successful in producing ideas, and stated this with expressions such as generating ideas more easily, being able to develop ideas, and including a different idea in each paragraph. Some of the students stated that they had difficulties in starting and ending the text effectively, finding an effective title for the text before the instruction; they stated that they started to be more successful in these subjects with the intervention. Four of the students pointed out that their expressions changed by taking into account the issues such as using impressive expressions, using words correct and in accordance with their meaning. Three of the students stated that their texts were lengthened. One of the students' views on the subject is as follows:

“I did not know that I had to address different supporting ideas in each paragraph. I used to write whatever comes to my mind. I was not limiting the subject. Now I started to pay more attention in the lessons. ... Before starting this activity, I did not know what to do at the introduction. I did not know how to develop ideas... Later, I used ways to improve my ideas, for example. ... Now I see if the ideas are compatible, the title is compatible.” (Student 2, HP).

3.2.3. Results Related to Theme of Use of Strategy

Sub-themes and codes under the use of strategy theme are presented in Table 7.

Table 7: Use of Strategy

Sub-themes	Codes	f
Seeking Help from Teachers and Friends	Have the text read in order to have it checked	6
	When having difficulty generating ideas	5
	When having difficulty starting text	5
	When having difficulty in the writing process	5
	To increase motivation	1
	Total	22
Planning	Using the clustering	8
	Using graphic organizers	8
	Total	16
Self-motivation	Increase motivation by talking by oneself	5
	Reward oneself	2
	Prepare motivation cards	1
	Try to make writing fun	1
	Total	9
Text Review	Control text paragraph by paragraph	6
	Reading after finishing text	3
	Total	9
Modeling the Teacher	Modeling the teacher's writing process	7
	Model the teacher's text	2
	Total	9
Organizing the Environment	Noise reduction	3
	Prepare to arrange your stuff	3
	Sit next to a friend where one can get help	1
	Total	7
Total		72

Students in the qualitative study group stated that they did not use most of the strategies specified in Table 7 before applying the SCM. They stated that they used the strategies specified in the relevant table together with SCM. Two of the students expressed their views as follows:

“... we sometimes argued with friends about how to write. In particular, I was having difficulty at introduction and asked for your help. I got help from my friends. I thought about how I could write a paragraph on this subject, I asked him. I also wouldn't have done it before, but now I say myself you can do it, if you write you can do this....” (Student 1, LP).

“In this tutorial, the clustering and graphic organizer worked best for me. It was helpful in limiting the subject, generating ideas, and drafting. In the past, I could not produce ideas; I would list whatever I had in mind. I empty the ideas in my brain with the clustering. I choose the ones I like. I put it in my graphic editor.” (Student 3, HP).

3.2.4. Results Related to Theme of Negativities

Sub-themes and codes under the negativities theme are presented in Table 8.

Table 8. Negativities

Sub-themes	Codes	f
Noise	Due to the crowded class	5
	The noise generated during the teacher support process	2
	Students, who do not like to write, do not focus on the activity	2
	Total	9
Individual problems	Dislike to write	2
	Lack of time	1
	Having no idea	2
	Dislike expository text	1
	Total	6
Total		15

The experimental group students stated that they were disturbed by the crowd of the class, the students, who do not like to write, not wanting to write, and the noise generated during the teacher support process, and that this interrupted the writing processes. Some students stated that they did not like to write, they had difficulty in generating ideas, they wanted to write simpler texts such as stories instead of expository texts, and that they could not use time efficiently.

"I did not try hard with these events. ... I did not want to participate. I don't like to write anyway. I did not feel like it. I did not want to write either. I'm already tired of studying. Frankly, I don't want to write." (Student 14, LP)

"Sometimes some of our friends in the classroom started talking while you were helping us." (Student 7, MP).

4. Discussion, Conclusion and Suggestions

Within the scope of the research, firstly, the effect of the intervention on the seventh grade students' expository writing was examined. The findings revealed that the SCM has a wide effect on students' expository writing. Qualitative findings, especially in the theme of text production, revealed that the students in the experimental group have showed improvement in determining the focus of the text, planning the text, generating supplementary ideas, expressions and length of the texts compared to the pre-experimental application. This result shows that the SCM is effective in improving expository writing. Researches in the literature show that SCM and SCM-like models are effective on writing skills (Garcia-Sanchez & Fidalgo-Rodendo, 2006; Müldür & Yalçın, 2019; Zimmerman & Kitsantas, 1999, 2002) and reading skills (Türkben, 2019, Uyar, 2015). In addition, previous studies on strategy training models using cognitive modeling processes also support the findings (e.g. Adams, 2020; Englert, Raphael & Anderson, 1992; Festas vd., 2015; Mason, Snyder, Sukhram & Kedem, 2006; Palermo & Thomson, 2018; Rodríguez-Málaga, Cueli, & Rodríguez, 2020; Rosário et al. 2019; Saddler, Asaro-Saddler, Moeyaert, & Cuccio-Slichko 2019; Uygun, 2012).

Secondly, the effect of the intervention on seventh grade students' self-regulated writing skills was examined. The findings obtained from the research revealed that the SCM has a wide effect on students' self-regulated writing skills. The motivation and use of strategy findings of the qualitative results support the quantitative data. In the qualitative findings, seventh grade students in the experimental group stated that their self-efficacy perceptions, positive attitudes and positive perceived values increased after the intervention. Moreover, students who had performance-goal orientation before the intervention showed goal-goal orientation after the intervention. Students' use of self-regulation strategies for writing also increased. Some previous studies also support these findings (e.g. Adams, 2020; Can & Güneş, 2017; Englert et al., 1992; Güzel Özmen, 2006; Harris et al. 2006; Müldür & Yalçın, 2019; Sawyer et al., 1992; Uygun, 2012, Zimmerman & Kitsantas, 1999, 2002;

Zumbrunn, 2010). However, Akhmedjanova (2020) has found that the implementation of strategy does not affect self-regulation skills. The researcher associated this result with the inadequacy of the measurement tool.

All results reveal that the SCM is more effective than writing education based on Turkish Education Program and SCM is applicable in Turkey. It is thought that the reasons why SCM is effective are as follows. The cyclical model of self-regulation is a cognitive, social and affective model, includes cognitive writing strategies such as goal setting, planning, reviewing, drafting, and different processes and strategy training such as self-teaching, self-assessment, organizing the environment (Zimmerman & Bandura, 1994; Bandura, Zimmerman & Kitsantas, 2007; Zimmerman & Risemberg, 1997). Writing in the experimental group was handled within this framework, and not only the cognitive but also the social and motivational structure of writing was emphasized. In the observation phase of the SCM, the teacher benefited from cognitive modeling, and produced sample texts as models for students not only on cognitive strategies in writing, but also on different strategies such as affective and environmental. In the experimental group, teacher and peers also supported each other in the writing process during the emulation and self-control stages. Students also applied the cyclical writing model in the writing process. Modeling processes were not used in the control group and a collaborative learning environment was not created. In the control group, students did the activities in the textbooks.

It is thought that the aforementioned intervention in the experimental group facilitated the writing process by guiding students, improved their texts, and developed self-regulation writing strategies. In this context, it can be said that peer and teacher support is effective in the experimental group considering that students model their peers who are similar to them in terms of their characteristics such as especially age, gender, achievement, interest, etc. (Schunk, 1987) and classroom dialogues is an impressive element improve students' writing skills (Englert et al., 1992). But, the experimental group students stated in their opinions that the noise that emerged during peer and teacher support made the writing process difficult. In environments with crowded classes like in the Turkey, the implementation of SCM can complicate the process of writing. It can be said that one of the most important factors affecting the development of the writing skills of the students in the experimental group is the steps that students put into practice what they have taken as a model. Self-regulated learners effectively construct their own paths, goals, methods based on the information in their own minds and the information in the external environment (Pintrich, 2000). In the current study, modeling has been reduced over time, allowing students to use strategies independently. As can be seen in the qualitative findings, in their writing process students made use of techniques such as clustering, graphic organizers, idea generation and drafting, idea generation and editing, and strategies such as teacher modeling, help-seeking, planning the process, self-instruction, reviewing the text, organizing the environment independently. It can be said that students' use of these strategies has an effect on all sub-problems of the research. However, in line with the qualitative findings, it is seen that the SCM may not be effective on students who do not like to write at all. The result in the control group can be explained by not including cognitive modeling and peer support. On the other hand, the result in the control group is thought to be related to the writing approach adopted in the textbooks. Müldür and Çevik (2020), in their research examining the writing activities in Turkish textbooks, revealed that the activities in the textbooks are weak in terms of process-oriented. The result in the control group is thought to be related to not adopting a writing and genre-based writing approach in the textbooks.

In line with the findings and limitations of the study, the following suggestions can be made for future studies: This research was conducted with middle school seventh grade students. Similar studies can be conducted at different grade levels. In this study, the effect of SCM on expository writing and self-regulation writing skills was examined. The effects of the model on variables such as self-efficacy perception and metacognitive awareness can also be examined. In this study, a retention test was not applied. A retention test can also be applied in similar studies to test whether the development of students' writing skills is permanent or not. In this study, in accordance with the exploratory sequential mixed method, quantitative data were collected and the qualitative data were limited to the interviews made with the experimental group students after the experiment. In order to investigate and examine the effectiveness of this instruction in depth, qualitative data can be collected by using different ways such as observation besides interview. In addition, these can be applied to cover the pre-experiment, the post-experiment and the experimental process. Since it shows the effectiveness of SCM in the

research, self-regulated writing instruction can be included in Turkish teaching programs, and programs and textbooks can be prepared accordingly.

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A Text Comprehension Activity Based on the Standards of Textuality for Turkish Courses*

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Abstract

The purpose of this study is to determine the effect of text comprehension activities based on the standards of textuality on reading skill, reading comprehension, and reading habit. To reach necessary competence in skill areas in a proper process, the child needs to be provided with sufficient activities starting from early ages. It is evident that the students who fail to acquire reading skills are not motivated enough. To overcome this negativity, students should be guided with the right activities. In this respect, many studies suggest that the data contributed by text linguistics should be used especially in the selection of texts and activities related with the texts. In this way, the student will be able to understand the context, purpose, intention, situation, and cause-effect relationships much better. The standards of textuality are as important as strategies, methods, and techniques in the enhancement of reading comprehension skills. The texts that meet these standards are considered to be sufficient texts in terms of improving reading skill. In this study, an activity for 6th grade students has been developed for these purposes. The correspondence of the activity with the standards of textuality was evaluated by two field experts and two Turkish teachers. In the light of their opinions, the activity was given its final form. It is believed that this activity will contribute to the studies in the field and will be helpful for Turkish teachers.

Keywords: 6th Grade Students, Turkish Course, Reading Skill, The Standards Of Textuality, Text Comprehension Activities

Introduction

Reading is defined as a precise process involving “exact, detailed, sequential perception and identification of letters, words, spelling patterns and larger language units” (Goodman, 1967: 126). Besides being a significant

* This study is based on the doctoral dissertation titled “Mother Tongue Teaching in Turkey and the USA: Comparing the Texts in Mother Tongue Textbooks at the 6th Grade” which was completed by the first author with the supervision of the second author in 2012 at Marmara University Graduate School of Education

field that feeds all skill areas, reading, as stated by Sever (1990: 721), is a mental activity that feeds, shapes, and develops thoughts. The act of reading, which starts with the basic reading skill and develops into a habit and into critical reading, is at the same time the ability to make inferences about the letter, word, text, and text body on paper.

When the social structure is examined, it is apparent that there are many problems concerning reading skills; and these problems are observed to be the problems concerning reading comprehension or reading habit (Ülper, 2011a: 941). If there are communication problems related to linguistic incompetence in a society with a common language, this situation stems from misunderstanding or not fully understanding the messages transferred in reading, listening/watching activities (Sever, 1998: 53) or is due to the fact that skill areas could not reach the necessary competence in a proper process starting from early ages.

Individual's competence in communication skills determines the success of the individual in social life. Considering that a skill area exists affecting another skill area, it is thought that all the activities for skill areas will increase student's reading and writing skills. For example, in a study which examined the relationship between children's book reading frequency in the 1st grade and word recognition skills in the 2nd grade (Morgan & Fuchs, 2007: 165), it was observed that word recognition skills of the students who read a lot of books in the previous year increased in the following year. In addition, there are also studies which hypothesised that there is a two-way causal relationship between reading skill and motivation (Aunola, Leskinen, Onatsu-Arvilommi & Nurmi, 2002; Chapman, Tunmer & Prochnow, 2000). These studies show that student's reading skill increases if the student is motivated to read, and it becomes easier for the student to be motivated to read the text if the student has developed reading skill. Researchers indicated that the children who constantly fail to acquire necessary skills also lose their reading motivation in time. In this context, Stanovich (1986: 360) assumes that these reading difficulties result in behavioural, cognitive, and motivational side effects or negative Matthew effects.

School is the most important environment to acquire skills and competencies. For this reason, starting from preschool, particular emphasis should be put on reading and all kinds of activities concerning reading because the ability provided by this effort will transform into reading habit. Morgan and Fuchs (2007: 166) suggest that the students who constantly fail to acquire reading skills should focus on eliminating skill deficiencies in the first place if they are not motivated enough; and early intervention should be provided if this poor motivation results from different factors (for example, a parent's own opinions concerning reading) because in this case there might be both skill and motivation deficiencies.

Since reading comprehension has a dominant significance in the development of reading skills, children should gain this skill during the education process (Ateş & Yıldırım, 2014: 237). The mental schemes that develop in time can lead the student step by step to a more excessive search for meaning and consequently, the student advances to the level of critical reading. Thus, critical thinking skills start to develop, which is related to "learning and innovation skills among the 21st century student outcomes" ([P21]).

Turkish courses and the textbooks used in these courses are the most suitable environment where the author's effort to tell and the reader's effort to understand can be actualised. The guiding materials of Turkish courses are the reading texts. The texts included in Turkish textbooks have an important role in fulfilling the objectives of Turkish courses (Solak & Yaylı, 2009: 445). Considering Turkish courses, which are universally mother tongue courses, merely as informative courses means ignoring the love, interest, aesthetic pleasure, and cognitive and affective skills that will develop in the context of this course. Most particularly the activities which skip all these steps; which are produced from the previous activity; which are imitated; which keep on repeating themselves will prevent the student from gaining these skills. In this sense, a text is not merely the sentences that make up a body with a single topic and convey a certain idea but an extension of language that can be understood in a coherent language area and context whose borders are widened with visuals (picture, photograph, graphics, figures, etc.).

Barton and Lee (2013: 3) indicate that text is a construction that refers to the content rather than the form, and the information related with and given together with the text (author's name, publisher, date of publication, etc.) is a part of the text and this is called the paratext. In the changing world, digital materials (emojis, symbols, etc.) are also included in the concept of text and the meaning of text has expanded. Thus, the concept of text is not stable. Accordingly, in their study, Barton and Lee (2013: 3) state that texts have become more fluid and interactive with the changing media and add that intertextuality is common in online environments. For instance, a news story in a newspaper may contain references to an online article and provide a link to that source. Hence, as the socio-cultural environment changes, it becomes difficult to explain the concept of text (Nordquist, 2019).

Aktaş (2015: 15) defines text as the tool used for telling and agreeing which is constructed for the purpose of communicating and realised in different levels. Since texts are used to improve students' comprehension and narration skills within the framework of a theme, as expressed by Arı (2011), the basic instrument for the Turkish course is the book, and the most important element of the book is the texts. Texts also serve as the mortar in the construction of the activities. Sevindik (2019: 1) has pointed out that a text-oriented education is carried out in Turkish courses for the development of language skills and cognitive skills related to language. For texts to serve the purpose and to function properly, he has suggested that the data contributed by text linguistics should be used particularly in the selection of texts. He has also emphasised that the selected texts should meet the standards of textuality.

For the text to meet its goal and to be a text, it needs to meet the standards such as cohesion, coherence, intentionality, situationality, informativity, intertextuality and acceptability (Dilidüzgün, 2017). In the enhancement of reading comprehension skills, the standards of textuality are as important as strategies, methods and techniques. The texts which meet these standards can be considered as sufficient texts for the development of reading skills. While defining text competence, Dilidüzgün (2020: 33) talks about distinguishing sufficient texts from others and explains the process of producing texts based on these standards and states that "The fundamental criterion of textuality is including a communicational purpose" (Dilidüzgün, 2020: 34). In short, the function of language elements together with the information concerning the discourse and the context serves this purpose. As explained by Dilidüzgün (2020: 34), text construction standards are classified as text-oriented standards and context-oriented standards as the information concerning the discourse are obtained while the text is being analysed. Therefore, the textuality of a text is identified not only with text-oriented standards such as cohesion and coherence, but also with context-oriented standards such as intentionality, acceptability, situationality, intertextuality, and informativity (Beaugrande, 1991: 48 as cited in Dilidüzgün, 2020: 34). It is believed that including the texts and text activities having these standards in Turkish textbooks will also involve the stages of "finding the meaning, understanding the meaning, interpreting the meaning" (Güneş, 2004; 61-62) in the process of reading comprehension.

Reading and Reading Skill

Reading is knowing the meaning of what is written, producing meanings from what is written or the ability to understand what is written. According to Sever (2004: 12), reading is "a mental activity based on making sense of, comprehending and interpreting words perceived by the sense organs." In his study, Özdemir (2007: 18) highlights the importance of reading by stating that a reading person is a free person and indicates that reading is a power that can defeat obsessions such as ignorance and blind faith.

One of the most fundamental needs of the human is the need to know. In the process of fulfilling this need, one of the most important personal actions is to read. For this purpose, the human needs to learn reading. Here, to learn reading means to know well how and for what purpose the written thing can be used. As Binyazar and Özdemir (2006: 156) quote from Goethe, "to learn reading is the hardest of all art" because reading is not merely articulating a printed letter. As the person reads, the signs the person sees on a surface will be perceived consciously and unite/become homogeneous with the experiences from former readings and will transform into a new concept and meaning. This manner of the reader during the act of reading will constitute an attitude that is based completely on the unique experience and free will of the reader.

Just as the author uses a unique style while constructing the text, after the construction of the text, the author leaves the position to the reader and the reader will discover his/her own reading style. In fact, the act of reading is a problem of style for both sides (the author and the reader). For instance, students start to understand how the text they have read was written or the author's personal way of narrating at a certain age (10-14 years/5th-8th grades). The basic structure that reveals this concept starts to be shaped at primary and secondary school level. The students in the position of the reader in lower class levels (1st-4th grades) mostly read the texts to have fun and pleasure. Then, aesthetic needs change depending on the development steps and students read not only to have fun but also to know (deep knowledge). As the need to read and to know increases, the concept of reading habit is involved. Henceforth, reading starts to make sense for students and this is a conscious move towards reading. The most fundamental course for a conscious act of reading to occur is the mother tongue (Turkish) course.

Besides being one of the most important learning areas in providing the individual's cognitive and affective development, reading skill has a significant impact on the individual's learning life (Epeçan, 2018: 618). At the same time, academically, and socially, reading skill contributes to the development of comprehending and narrating skills which are the two most significant dimensions of mother tongue education process. As indicated by Epeçan (2018: 620-623), for reading skill which is the process of making sense of and constructing the shapes and symbols in a text in the mind, the eyes and the brain work together and reading skill is a construction that constitutes the basis for other language skills. Reading comprehension skill which is achieved in primary school years affects the student's all learnings in a positive or a negative way lifelong. This effect reflects positively in the courses of the individuals who have developed reading comprehension skills; whereas in the courses of the individuals with poor reading comprehension skills, it is reflected in a negative way (Epeçan, 2018: 624).

Activities for Reading Skill

Words and sentences go through various cognitive operations in the mind and the information obtained by reading is made sense of and constructed in the mind. By means of reading learning area, the mind continuously stores information, and this information integrates with the previously learnt and new information is formed. Thus, reading learning area has an important role in the development of the mind and on the basis of all other academic learnings (Epeçan, 2018: 620).

In order to develop critical language skills, activities for improving thinking skill should be carried out in mother tongue education. Mother tongue courses should be based on thinking skills; and students' being able to think critically and creatively, solve problems, communicate, use Turkish effectively and accurately should be accepted as basic learning principles in designing the activities with the objectives and outcomes of language skills (Karadüz, 2010: 1572). Karadüz (2010: 1574) indicates that Turkish courses should be constructed using application, analysis, synthesis, and evaluation steps in all the activities in class or out of class and adds that the concept learning activities with such an approach will have a positive effect on mental development. According to Karadüz (2010: 1579), one of the most important tools of language education activities is the texts and these texts related to language education are included in Turkish textbooks.

In order to improve reading skill which is a versatile skill area, it is necessary to design multi-dimensional activities and make the student comprehend the information, thought, purpose, culture, aesthetics "from word to sentence, from sentence to paragraph, from paragraph to text" (Karadüz, 2010: 1581). These activities can be considered as a mutual expression of opinions between the student and the text. When the activities that will be included in the learning environments for language skills are constructed considering critical thinking steps as the basic principle, they can be supported by methods such as text completion, text analysis and interpretation.

As stated by Yıldız, Okur, Arı and Yılmaz (2006: 46), mother tongue education is a programmed and planned activity that a nation starts in the family and brings to the learning environments. The objective, purpose, outcome, method and programme are important in mother tongue education as it is based on reading and understanding what is written accurately; writing or narrating what is heard accurately; and applying the rules of

Turkish grammar accurately. Two significant concepts lie at the heart of developing and implementing these skills: perception and understanding. In other words, linguistic communication will not occur if the student does not perceive and understand the object of the course (listening or reading text). The reading text does no good to a student who cannot find the answers to the questions of ‘what are the suitable language elements for the situation?’ and ‘how are they used?’

Students develop their perception worlds in primary school years (1st-8th grades) especially in Turkish courses; they start to see the texts they hear or read as a whole. The texts in Turkish textbooks for every class level contribute to reading skills, and the activities in the books are important in terms of improving students’ skill areas and increasing their capacities to understand. In his study concerning class teachers, Ateş (2011) has analysed teacher’s practices for reading comprehension skills. In this learning-teaching process, he particularly has looked for the answers to questions such as: 1) How much time do the teachers spend on teaching comprehension? 2) What type of meaning construction activities do the teachers carry out? 3) What strategies do they use in interpreting the text? 4) What is the level of the questions about the text? etc. In the same study, Ateş has also focused on the strategies to improve comprehension skills.

Activities become a significant part of education processes when they are carried out in a planned and programmed way. Furthermore, the reading activities in which the students can make inferences, improve their mental and critical skills, build a bridge between former knowledge and new information will improve students’ reading skills and will bring the student from the present reading situation to a more interactive environment. This change in the environment means the mind concretises the abstract information, schematises after processing it in a systematic way and makes it more permanent. For the individual to understand what he/she reads, he/she needs to construct it completely in his/her mind after the text is gone through a series of processes. Before reading, during reading and after reading steps known as the stages of reading are designed for the student to understand the text well. The stage of understanding cannot only consist of reading and analysing the text. With the reading activities in each of these stages, the purpose, information, thought, feeling, etc. that the text wants to give will be conveyed easily by the text.

This type of activities makes it easier for the student to perceive and interpret the text. The text comprehension activities that we have designed for the present study consist of three parts: *Before-text* (summary, visual summary, inference, planning), *text comprehension* (reading follow up/strategy) and *text interpretation* (genre analysis) tasks. It is assumed that the type, language and expression features, and the vocabulary of the text along with the ideational and emotional development in the text will easily be understood through these activities.

The Development Process of Text Comprehension Activity

Theoretical information is not enough to make the students like their mother tongue. For this reason, Turkish courses should be saved from being courses loading information and should be based on application for creating an environment in which the student can present his/her characteristics in all aspects (Solak & Yaylı, 2009: 446). The 2019 Turkish course curriculum was based on thematic approach and the reading outcomes were constructed to provide meaning construction by means of in-text, non-text, and intertextual reading (MEB, 2019: 8). In the Turkish course curriculum, which is prepared in accordance with the constructivist approach, one of the most significant objectives concerning reading outcomes is to make the student *read accurately, understand completely, and interpret* the text. Considering the purpose of the study, 6th grade reading outcomes in the 2019 curriculum which are in accordance with textuality are shown below:

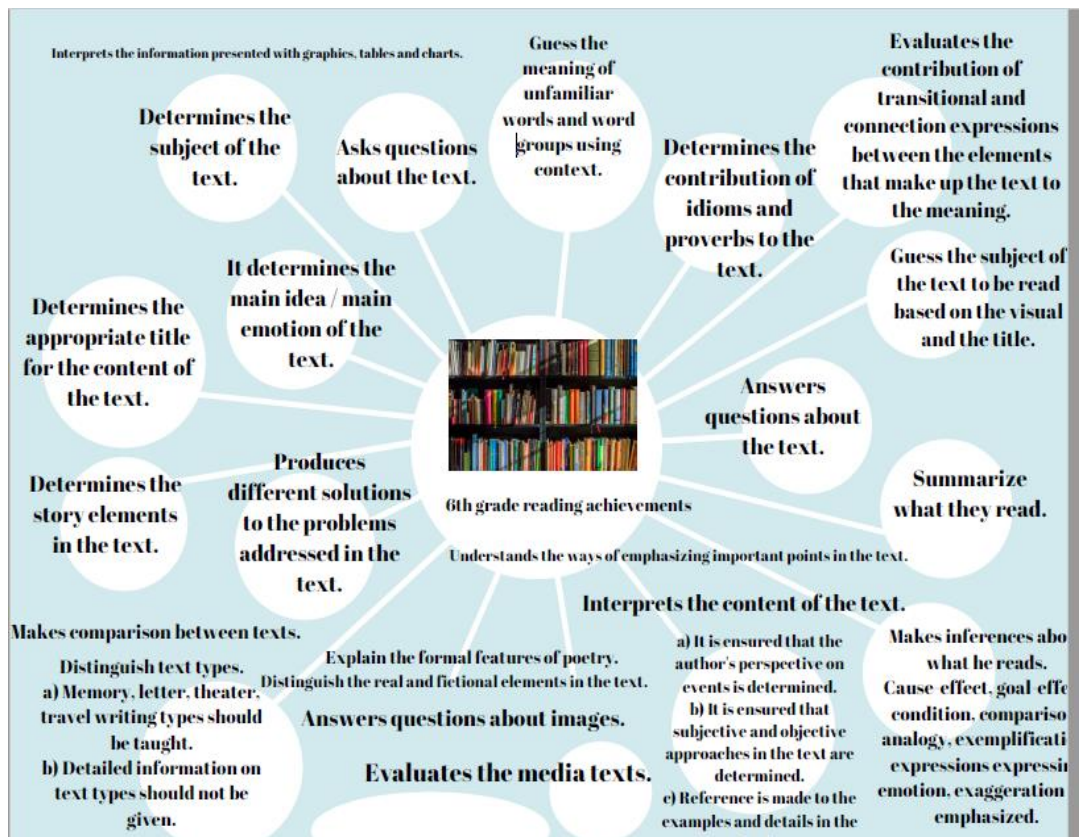


Figure 1: 6th grade reading outcomes in the 2019 Turkish curriculum

In order to meet the objective of the text comprehension activity we have developed, students should be supported with *text comprehension activities* after reading the texts in Turkish courses. In this way, the students can establish a link based on meaning between their former knowledge and the new as the information on the activity has been designed to associate each other. Generally, in all education systems, the main purpose after reading a text is to get the message of the text. Therefore, activities are very important for all courses but particularly for language courses. This is a kind of *evaluation* activity. Text comprehension activities, which we can consider as an evaluation, are the gathering of the elements that make up the text after reading.

With the activity developed for this study, it was hypothesised that following outcomes would be achieved at the end of the activities done after text reading in Turkish courses:

- Use former knowledge to make sense of what is read
- Develop different thoughts concerning the topic of the text
- Make inferences more easily
- Distinguish reality from fiction
- Identify similarities and differences between the text types

To actualise the above-mentioned outcomes and the reading outcomes stated in the 2019 Turkish course curriculum, it is believed that text comprehension activities based on the standards of textuality should be carried out. The standards of textuality are the criteria used in the semantic and grammatical analysis of a text. Since the standards of textuality consist of both text-based and reader-based criteria, the necessity of both a linguistic processing and an individual cognitive and affective processing peculiar to the person emerges in the construction process of the text (Ülper, 2011b: 851).

In this study, *text comprehension activities* are based on the standards of textuality; and in the interpretation process after reading the text, these activities include tasks to improve abilities such as guessing, analysing, establishing links, generating ideas, and taking lessons. The activities are grouped under three parts: *before-text tasks*, *text comprehension tasks* and *text interpretation tasks*. While preparing the activities, the standards of

textuality which correspond to the reading comprehension skills mentioned in the 2019 Turkish course curriculum were taken into consideration. For this reason, the 2019 curriculum was analysed in terms of 5th, 6th, 7th, and 8th grade reading skills outcomes, and questions were produced based on the information obtained from these outcomes. Although the activity developed in the study is prepared for the 6th grade level, the reading outcomes for other class levels (5th, 7th, and 8th grades) were also taken into consideration. Then, a table was formed showing which standard of textuality the questions correspond to. So as to clarify this match, opinions of two field experts and of two Turkish teachers were sought, and after revisions, Table 1 was created.

Table 1: Questions concerning reading skills associated with the standards of textuality

Coherence	<ul style="list-style-type: none"> • Can you tell the topic of the text? • What is the main idea of the text? • What are the supporting ideas in the text? • Can you make guesses about the text? • Can you see the semantic relationships between the words? • Can you make a list of the new words you have learnt?
Cohesion	<ul style="list-style-type: none"> • Can you make up stories related to before/after the text? • Can you see the chronological order? • Can you summarise the text? • Can you make the plan of the text? • What can you say about the language and expression features of the text?
Intentionality	<ul style="list-style-type: none"> • Can you find the cause-effect relationships in the text? • Can you find the purpose-result relationships in the text?
Situationality	<ul style="list-style-type: none"> • Can you determine the point of view of the text? • Do you know the features of the text type? • Can you find different titles for the text?
Informativity	<ul style="list-style-type: none"> • Do you know anything about the author or the poet? • Can you make up sentences with the words, idioms, and proverbs in the text? • Do you know the words in the text?
Acceptability	<ul style="list-style-type: none"> • Are there differences or similarities between the events, characters, feelings, information, and thoughts in the text? (making comparisons) • Can you pretend to be the characters in the text and interpret the events, feelings, thoughts, and dreams from your own point of view? • Can you find different solutions to the problems addressed in the text?
Intertextuality	<ul style="list-style-type: none"> • Can you compare the things you have read with your own life or daily life? • Can you interpret the visuals related to the text? • Can you identify the relationship between the title of the text and the text content?

When Table 1 is observed, it is seen that appropriate questions for each standard of textuality can be found for the 6th class level which is the focus of the study. In addition, the activities consist of questions which consider the text unity and the semantic and grammatical relations in the text; which foreground characters, setting, and events; and which underline the main idea. By the help of these activities, in general, the student achieves the following outcomes:

1. Comprehend the lexical area of the text and create a small dictionary
2. Determine the topic of the text
3. Determine the main idea of the text
4. Comprehend the plan of the text
5. Determine the supporting ideas in the text
6. Make guesses about the text by the help of the clues in the activity
7. Evaluate the text in terms of content
8. Identify the semantic relations between the words
9. Make up stories related to before and after the text (establish relations between characters, events, or situations)
10. Determine the chronology of the events in the text
11. Summarise the text
12. Have an idea about the language and expression features of the text
13. Find the cause-effect relationships in the text
14. Find the purpose-result relationships in the text
15. Determine the point of view of the text
16. Know the features of the text type
17. Find different titles for the text.
18. Want to learn about the author or the poet.
19. Make up sentences with the words, idioms, and proverbs in the text.
20. Make comparison of the elements in the text.
21. Pretend to be the characters in the text and interpret the events, feelings, thoughts, and dreams from his/her own point of view
22. Find different solutions to the problems addressed in the text
23. Compare the things he/she has read with his/her own life or daily life
24. Interpret the visuals related to the text
25. Identify the relationship between the title of the text and the text content

Considering the above-mentioned outcomes, text comprehension activities based on the standards of textuality for improving reading skills in Turkish courses will improve reading skills. A 6th grade student should know that the text does not only consist of words, sentences, and paragraphs; it is a semantic and grammatical whole. This is a requirement for the interpretation of the text. Doing sufficient text comprehension activities, the student will start to find out the meanings of the text and the references in the text to other texts. There are some ways of perceiving and evaluating a text. “When the reader comes across a text, he/she evokes the former knowledge and prejudices in his/her head and has an expectation; and his/her interpretation is created accordingly. Evaluating a text is in a way related to our former knowledge about the author or the genre; that is, to our background knowledge” (Erkman-Akerson, 2010: 30).

In the summary and visual summary parts in before-text tasks which is the *first part* of the activities, the student gets a general idea of the text and learns the basic definitions used in the text. The review part helps the student comprehend the event happening in the text. Thus, the student is directed to the reference aimed by the author.

In text comprehension tasks which is the *second part* of the activities, previous experiences related to the topic are reviewed. By means of the reading follow up part in the same activity, the *lexical field* of the text becomes clear. In this way, the student realises which words are together with the words in the text. Text interpretation tasks which is the *third part* of the activities, is the part in which the *genre* is discussed, and text analysis is done. After comprehending the text, the student starts to interpret the text, and is no longer passive. The student can then synthesise the former knowledge brought to the 6th grade with the new information.

The most significant objective of the 2019 Turkish course curriculum is to make the student read and comprehend accurately. In this study, an activity based on the standards of textuality has been developed for understanding the texts that can be used in 6th grade Turkish courses. For this activity, a *fable* written by Yalvaç Ural titled “La Fontaine at the Forest Court” was taken as an example. The standards of textuality were matched with the questions used in the text comprehension activities. Then, a sample text comprehension activity was created from these questions. Oran and Temizyürek (2016: 43) indicated that the text titled “La Fontaine at the Forest Court” “is an important work which includes Turkish idioms and expressions. This is significant for children’s language development and contributes to Turkish education.”

The purpose of the Study

The purpose of the study is to develop a text comprehension activity based on the standards of textuality for improving 6th grade students’ reading skills in Turkish courses. The research question was determined as “Is it possible to develop an activity based on the standards of textuality for improving reading skills and a better understanding of the reading text?” Another purpose of this study is to determine “how this activity is perceived by the field experts and whether the activity meets the standards of textuality or not.” In order to meet these objectives, the study looks for the answers to the following questions:

1. How are the standards of textuality represented in this activity?
2. How do the participants (field experts) evaluate the text comprehension activity that is developed?
3. What do the participants think about the contribution of the standards of textuality to the activity?
4. In what direction does this activity change the participants’ perception of traditional activities?
5. How are the visuals and the text bodies in the visuals perceived by the participants?
6. Have the participants evaluated a text activity taking into consideration the standards of textuality before?

Method

Research Model

The main objective of the study is to find out how a text comprehension activity can be developed based on the standards of textuality to improve reading skills in 6th grade Turkish courses. A basic qualitative research design has been used in the study. Basic qualitative research design is among the most common qualitative research designs which can be seen in all disciplines and in application fields in practice. Basic qualitative research design is defined as a basic and interpretative type of study that is conducted without dealing with phenomenology, case study or grounded theory (Merriam, 2013: 22). For the present study, it was decided that opinions of experts should be sought for determining the level of relevancy of the text comprehension activities to the standards of textuality.

Limitations of the Study

This study was conducted for providing the students with a better understanding of reading texts and pleasure in 6th grade Turkish courses. A fable which had been included in 6th grade Turkish textbook in previous years was chosen as the reading passage. The researchers think that the basis for choosing fable as the genre for this study is well-grounded. That is to say, the role of children’s books in the development of child’s mother tongue skills is very important. By the help of these books, children can use their mother tongue in an effective way. Moreover, introducing right works that address to the child’s world and support the child’s development starting from early ages not only contributes to the child’s development in a multidimensional way, but also helps the child to catch the clues about his/her mother tongue and like his/her mother tongue (Otmar & Erdem, 2019: 8).

To make the child get especially the messages that are considered universal, literary works should be used. Literary texts provide the child with moral, cultural, universal, and individual sensitivity and help them exhibit good behaviour. Authors of children’s books generally construct their works with proper messages that will take

the children to the meaning of the text to make them achieve this development in real life. One of the most important factors that reveal the quality of author, illustrator, and child interaction and make the book a work of children's literature is the success in presenting the literary clues which provide the universal messages that will help children in their relationships in real life. Containing these features, fables are works of children's literature that give children reading pleasure. At the same time, the genre is very suitable for children to gain reading habit while having fun (Ungan, 2006). A short story that features animals and conveys a moral is called a fable (Oğuzkan, 1997).

The word fable is derived from the Latin "fabula" which means story. Morals are dominant in the inner structure of the text. It is a strong fiction designed with symbolic stories that make up a lesson from a short text. As characters are animals, personification is used in the genre. Thus, students are introduced to one of the figures of speech that they will learn at the high school level. In fables, which are quite didactic, lessons about life and universal messages (virtues) are conveyed symbolically. Fables that feature animals as characters help children to develop more interest in the story and focus their attention (Ungan, 2006). Oğuzkan (1997) divides fable into four parts:

Exposition: Events and characters are presented.

Conflict: Events become problematic.

Resolution: Problems are resolved.

Moral: The idea underlying the events is explained.

Ungan (2006) indicated in his study that the fable genre has positive effects on child education. The fable genre has a unique structure that scrutinises, criticises, ridicules, and implies the right way. The proverb at the end of resolution contributes to the language awareness of the child. "However, the students who could not complete language development will have hard times in understanding the metaphorical dimension of the proverb, but the proverbs given at the end of fables serve as a ground for an easier understanding of this genre through an application which is the mixture of theory and practice" (Ungan, 2006). It was believed that these characteristics of the fable genre would contribute to the student's language development and reading habit. For this reason, "La Fontaine at the Forest Court" which was written by Yalvaç Ural and was included in 6th grade Turkish textbooks in 2012 was chosen as the most suitable text for developing this activity. This is the first limitation of the study. Only one activity has been developed for this study. The participants were asked to focus on one text. This is another limitation of the study. Additionally, the study is limited to two field experts and two Turkish teachers who wanted to participate in the study voluntarily.

Data Gathering

In basic qualitative research, the data is gathered through observation, interviews, or document analysis (Merriam, 2013). The questions, the observation, and the documents are linked to theoretical framework (Merriam, 2013). In the present study, interview was used as the data gathering technique. The interviewer had prepared the interview questions before the interview, and was flexible during the interview with the participant. It is sometimes necessary to think of new questions depending on the development of the interview. That is why the researcher allows the participant to reconstruct or discuss the questions during the interview (Karasar, 2009). In the present study, it was aimed to gather the data by seeking the opinions of experts and teachers for the evaluation of a text comprehension activity based on the standards of textuality for improving reading skills.

In the interview process, the group consisting of two field experts and two Turkish teachers who were thought to be experienced in activities was given an information note and a file of activities. Then, after discussing whether the activity meets the standards or not; the design of the activity; and the relationship between activity-visual and activity-text, an analysis was made to determine whether this text comprehension activity is for improving reading skills or not. The steps of the activity were associated with the dimensions of the standards of textuality. For this purpose, the experts and the teachers were asked to write in the file whether these activities meet the standards of textuality or not with reasons. Next, the steps of the activity which were prepared based on these standards were reconstructed according to the answers of the field experts and the teachers in the interview. Additionally, an in-depth investigation was made on the research topic by noting down the ideas,

recommendations, and experiences of the participants and observing their reactions concerning the activity. At the end of the evaluations of the experts, the activities were reconstructed considering the opinions of the participants. One month later, another interview was made with the participants to determine whether the activities meet the standards of textuality or not. As a result of this interview, the activities were given their final form.

Data Analysis

The data obtained from the interview was organised, interpreted, and described in a logical and understandable structure and presented to the reader. Descriptions were interpreted, cause-effect relationships were scrutinised, and some results were achieved (Yıldırım ve Şimşek, 2005: 95). Notes were taken during the interview with each expert and teacher.

In the interviews for this study, information such as the time of the interview, the interviewee and his/her affiliation were noted. The researchers put together the interview data concerning the correspondence of the activity to the standards of textuality and checked whether there was an agreement between the four participants. Only one of the participants wanted changes in some of the questions. The other three participants indicated that the activity meets the standards of textuality. However, in the last interview with these four people, it was pointed out that the activity contributes to reading skills.

Findings

The main purpose of education systems is to raise individuals who read; who can understand what they read; who can tell what they think; who have discovered their learning methods and techniques; who can apply what they have learnt in a practical context (Epeçan, 2018: 619). In mother tongue education, the outcomes are achieved as a result of the activities in four basic skill areas (listening, speaking, writing, reading). The 2019 Turkish Course Curriculum aims to make the students gain certain behaviour concerning the skill areas. For this purpose, it is also aimed to reach a high level in skill areas in general through the activities suggested by the curriculum (MEB, 2019: 8-9-13-14-28).

Particularly in the activities for reading skill area, text is used as the basic material. "Every activity is prepared to achieve an outcome coherent with itself. If the author of the text has an objective and intention, the activities during text interpretation stage should have an objective and intention" (Şimşek, 2012: 271). With the help of the activities having these features, students can understand the purpose and intention of the text; author's attitude; and the narrative type of the text more easily.

"Actually, the knowledge the reader achieves while reading a literary text is not instant; it is the new stage of the accumulation developed throughout the reading process. The special thing about a literary text is that it can fill the text field with a lot of information, and at the same time, convey different information to different readers. Throughout the reading process, the text gives the reader both information and a language to evaluate the similar semantic data at the moments of reading the following sentences, parts" (Göktürk, 2010: 83). In this study, it was aimed to create different activities based on the standards of textuality for the student's reading process. The activities that are mentioned here can differ depending on the genre. Whatever the genre is, it is important to prepare appropriate text comprehension activities for the genre. In some cases, it might be difficult to find out the message of the text. In such a situation, the student should be supported with the activities.

Before-text tasks define the process before the student reads the text. A text without former information will be shallow for students at this class level, and the meaning of the text will be implicit. All the activities done before reading the text aim to direct the student to the text and make the student active. In higher class levels, this part can be shortened so as to make the student think harder. Text comprehension tasks are done after the text is read. A reading activity combined with former knowledge and later supported with activities will be more effective. Text interpretation tasks are the activities that go one step further than the text and provide the ground for other texts to be read later. Hence, the student starts to develop a style and point of view independent from the text.

After this stage, it will be much easier for the student to find the main idea, type, and message of the text. Text comprehension activities consist of before-text tasks (summary, visual summary, inference, plan), text comprehension tasks (reading follow up/strategy), and text interpretation tasks (from the whole text to the genre). It is hypothesised that the type, language and expression features, emotional and ideational development, and vocabulary of the text can easily be recognised; and it is believed that the students will perceive and interpret the texts more easily.

Application

The text comprehension activity concerning the fable “La Fontaine at the Forest Court” is as follows:

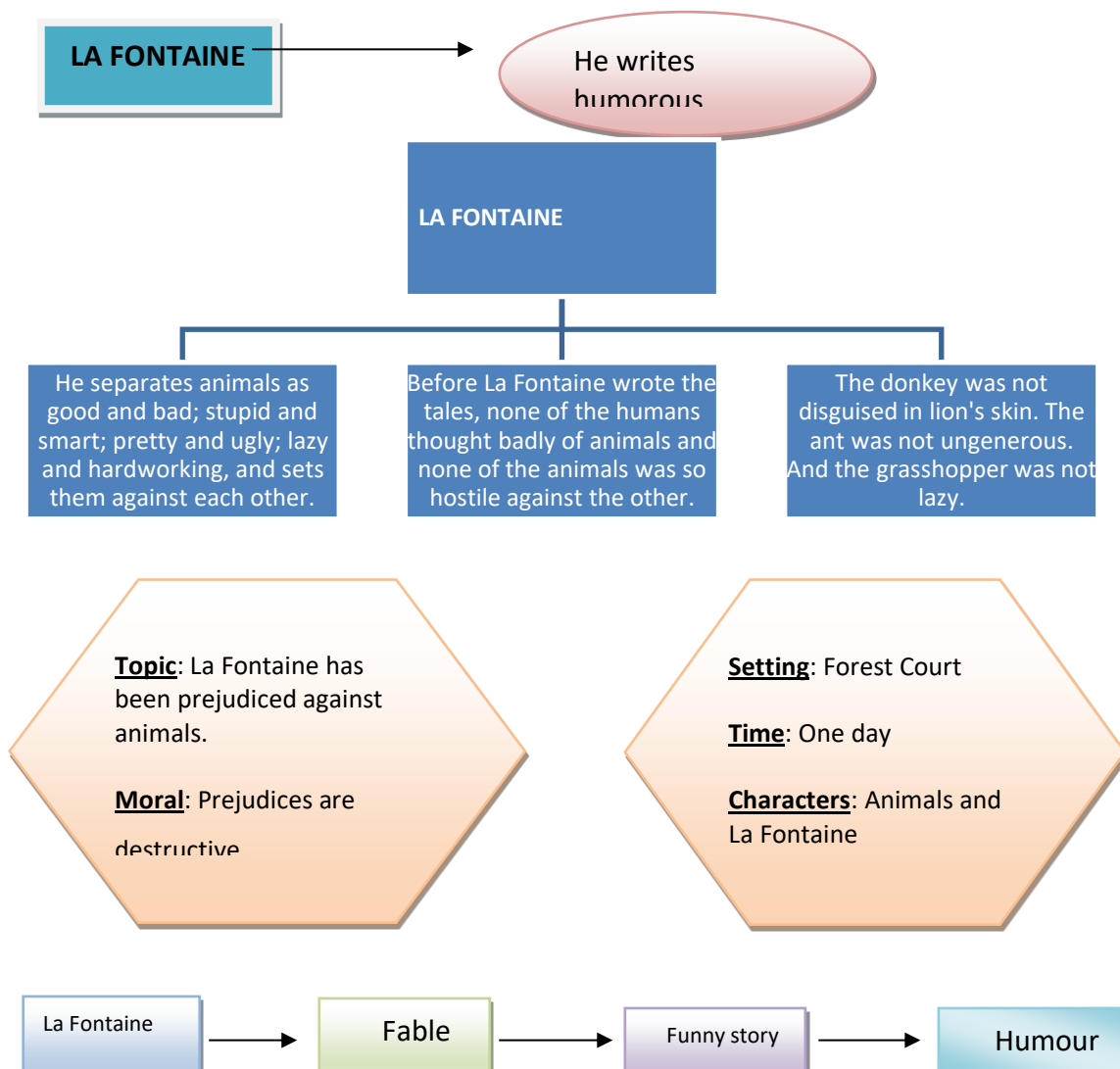
1. Before-text Tasks-Review

LA FONTAINE AT THE FOREST COURT

Summary

One day, famous fable writer La Fontaine is arrested by the animals and taken to the forest court because he has been prejudiced against animals and provoked the hospitality of humans against animals.

Visual Summary



2. Text Comprehension Tasks

Text Comprehension Tasks

Let's review our previous experiences!

- Have you ever heard the name La Fontaine?
If yes, WHERE?.....
- Have you ever read/listened to an animal tale?
If you read, WHERE?.....
If you listened to, FROM WHO?
- Why do you think the lion is the judge in this text?.....
- According to you,
WHAT is the duty of judges?.....

LET'S MATCH!

Judge	Humorous story
Fable	Court
Lazy	Grasshopper

You can find the characteristics of the animals below and write them in your notebooks☺

goat lion fox

ant grasshopper

king cunning

stubborn lazy

hardworking



—————→ **Target Text**
(What about taking a trip to the lexical field of the story and create a little dictionary?)

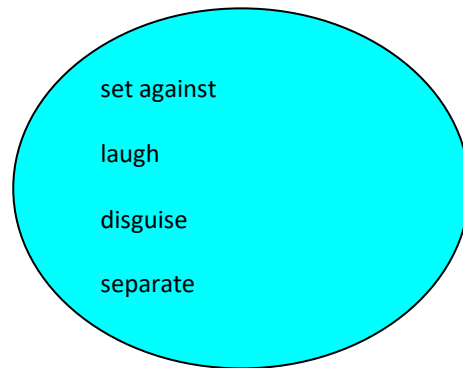
- Do you think each text you read can have a dictionary?.....
- Which words are included in this dictionary?.....

- Underline and highlight the words given below in the text. In this way, you will see the **lexical field** of the text.

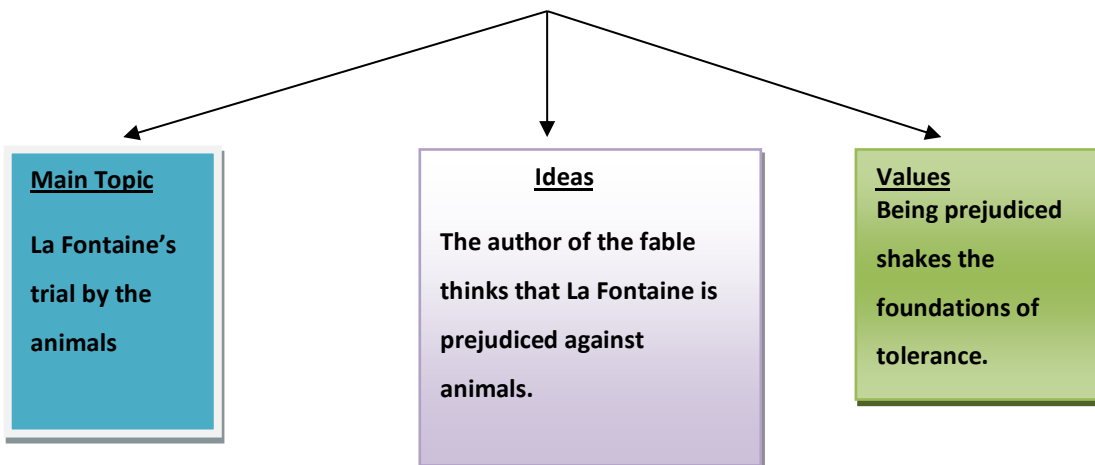
Note for the teacher and the student☺

Lexical field: “It groups the words of a text related to the same concept, that is, it consists of lexical signs and the relations between them” (Günay, 2007: 89).

Reading Follow up: It refers to the process aiming at determining the lexical field words in the related text and reaching to the whole text from these words.



LA FONTAINE AT THE FOREST COURT



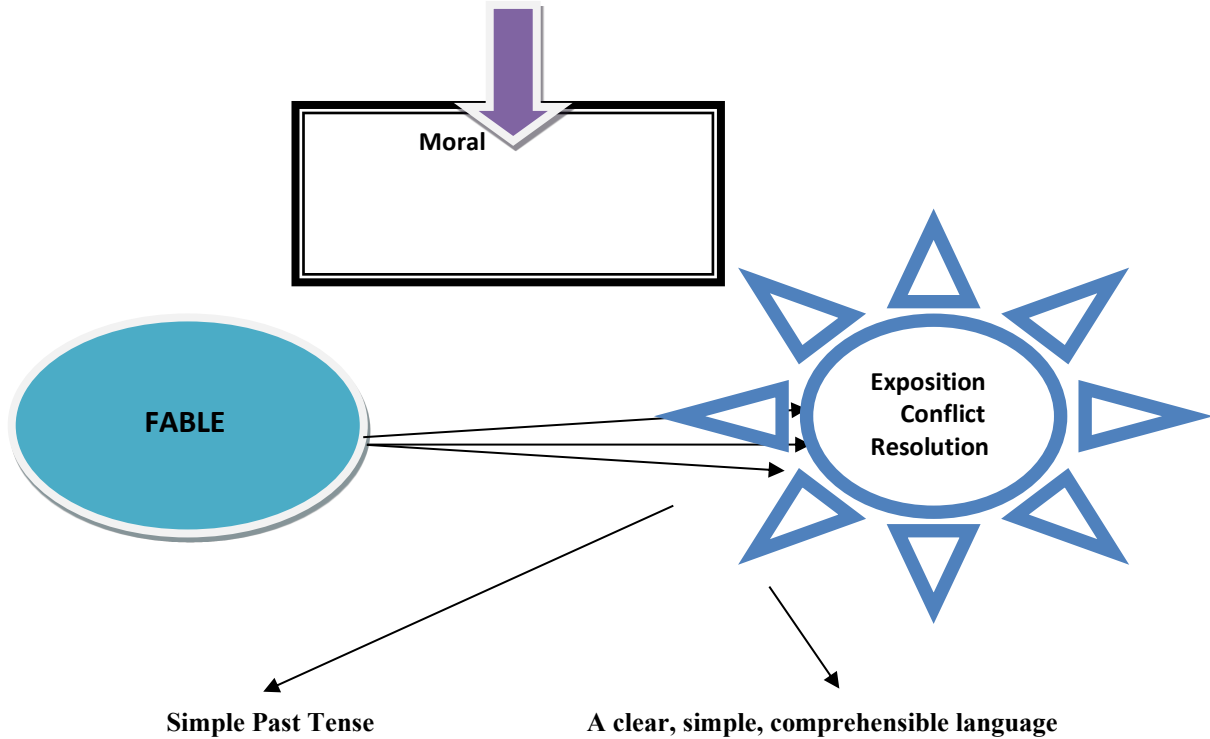
If you were the author of the fable, what else would you say about La Fontaine?

Does reading this text make you feel like writing a fable?

3. Text Interpretation Tasks

Text Interpretation Tasks

What can you say about the type of the text?.....



- What can you achieve from reading a fable?
- Can you underline the sentences that show the characteristics of this genre?
- If a text has exposition, conflict, and resolution parts, what other genres can we talk about?
- Have you read a similar text before?
- Have you read an animal tale before?

{ **Let's consider the possibility of experiencing the events in the text!** }

{ **Do you think such an event can be real?** }

Note: Fable means “tale, legend” in French. Fables are short stories featuring other living things than humans which convey a moral.

Conclusion and Recommendations

The *text comprehension activities* exemplified above is based on the standards of textuality. The student who reads a text given in the 6th grade Turkish textbook is in a passive situation as he/she has not seen this text before. A preliminary preparation is necessary for the student to understand and interpret the text. The tasks that we name as *Before-text* is a textual activity which foregrounds the student and in which former knowledge is expressed. This textual activity is expected to be actualised by means of *cohesive* and *coherent* activities. Therefore, every grammatical and semantic preliminary preparation will make it easier to read and understand the text. While the student is in this position, he/she will get the opportunity to analyse the relationship between himself/herself and the text. Learning to establish relations between the texts (*intertextuality*) by the help of the activities he/she does after each text he/she reads, the student will be able to associate his/her former experiences (*intentionality*) with the clues in the text he/she reads in the text comprehension stage. When the student puts himself/herself in the place of the author or a character from the text, it will show that the student accepts the text (*acceptability*). Again, in this part, the informative aspect of the text (*informativity*) will gain importance when the ideas and the values given in the text are brought to the foreground. In text interpretation tasks, the student will be able to realise whether the events in the text can occur in the real world or not (*situationality*).

When a text is read in the classroom environment, it is a whole shared by everybody; however, it will remain an incomplete whole as students' former knowledge and reading experiences are different and its impression on the ones who completely understand the text will be different. In order to eliminate this difference and constitute a common '*text language*,' *text comprehension activities* reinforced with *before-text tasks* should be done. In this way, each text that is read in the classroom will be a common text for the class. For instance, a student who has not heard of La Fontaine before will be ready for the text with the help of *before-text tasks* and will be able to get involved. In conclusion, rather than considering these activities as ordinary preparation activities, these activities should be prepared precisely by using text linguistics. Recommendations of the study are noted below:

1. Considering the class levels of students, the parts regarding reading skills in Turkish course curriculum should be reconstructed in the light of text linguistics.
2. The literature on reading should be reviewed, and alternative activities should be developed by commissions consisting of researchers, field experts and teachers.
3. Taking into consideration that reading is an important skill for every course and discipline, reading objectives and outcomes in the curriculum should be reconstructed.
4. "Text linguistic reading" should be considered as a type of reading.
5. "Text linguistic reading" activities should be included in the programme starting from the 4th grade.
6. The curriculum should be improved in terms of text comprehension activities and text comprehension activities should be included in Turkish textbooks.
7. New activities for other class levels can be developed by the researchers in this field.

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An Investigation of High School Students' Continuous Anxiety Towards Physical Education and Sports Course

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Abstract

The main purpose of this study is to evaluate the continuous anxiety of high school students towards physical education and sports course and to examine these data in terms of demographic variables. The study group consists of 322 students. "Physical Education Continuous Anxiety Scale" has been used for data collection. In addition to percentage and frequency distributions, one-way ANOVA, t-test, scheffe Test and two-way variance analysis tests have been applied in the analysis of the data. According to the results of the study, while a significant difference has been reached between the gender and doing sports status variable and all sub-dimensions of the Physical Education Continuous Anxiety Scale, a significant difference has been reached in the "Cognitive Processes" and "Anxiety" sub-dimensions with the class variable. In addition, the interaction effect (gender * doing sports status) has not been statistically significant. In the light of the findings, it is thought that the gender variable is a determining factor in determining the continuous anxiety of high school students towards physical education and sports course and this is due to the differences in motoric characteristics between male students and female students and it is also due to the higher participation of male students in physical activities.

Keywords: Physical Education And Sports Course, High School, Student, Anxiety

1. Introduction

Physical education and sports is an enjoyable course that plays an effective role in educational and training processes (Ozturk, 1998). For this reason, its place and importance in educational and training curriculum have been recognized in terms of both being enjoyable and providing benefits (Eurydice Report, 2013). In this direction, it has also formed an integral part of the educational programs of all developed countries (Inan et al., 2019). It is of great importance that the teachers make their students love and actively participate in this course

in order to ensure that students benefit from the outcomes of the physical education and sports course at a high level and achieve the aim of the course. Although physical education and sports course seems interesting and entertaining at first sight (Barr-Anderson et al., 2008), the results of the researches (Ntoumanis, Barkoukis and Thøgersen-Ntoumani, 2009; Sallis, Prochaska and Taylor, 2000) show that the participation of adolescent students in physical education and sports course, exercises and physical activities is negatively affected. This situation is thought to be caused by the attitudes of the students during their adolescence. Because while attitudes form the behaviors in individuals, they also determine the participation of individuals in activities (Rikard and Banville, 2006). In addition, it can be deduced that student attitudes affect cognitive, psychological, emotional and physical processes such as participation in the course, positive or negative thoughts about the course, interest or lack of interest in the course, even in-class homework, etc. (Bloom, 1995). Accordingly, it can be said that positive student attitude positively affects participation in physical education and sports course (Silverman and Scrabis, 2004).

One of the factors affecting the learning process is the concept of anxiety (Phillips, 1984). According to Boz (2019), "Anxiety is defined as a negative emotional state associated with the level of arousal of the tense, angry and worried body in line with the circumstances" (as cited. Boz, 2019). Anxiety in sports is defined as the psychological reaction to the tension arising from the task and performance situation, which is desired to be performed under pressure (Cheng, Hardy et al. 2009). In terms of students, depending on the level of anxiety, desired behaviors and performances in physical education and sports course may be disrupted, misperception of movements and attention disorders may occur (Kaya and Varol, 2004). This resulting condition is thought to be especially due to the continuous anxiety (Kyosti, 1992; Kapıkıran, 2006).

According to Kazelskis (1999), while the mental dimension of anxiety stems from the individual finding his / her own achievements insufficient, the emotional dimension consists of the reactions people give to the situations they encounter, tension experienced, and nervous emotions (as cited. Tekindal et al., 2010). When physical education and sports course is examined from an affective perspective, it should be done carefully by the teacher who teaches the course (Bauman, 1994).

It is of great importance to identify high school students' continuous anxiety about physical education and sports course according to different variables and to make suggestions in terms of factors such as the quality of physical education and sports education. In this context, the aim of the study is to investigate the continuous anxiety levels of high school students in Bartın province towards physical education and sports course and to analyze these data in terms of demographic changes.

2. Method

In this section, explanations about the model used in the research, the research group and the analysis processes have been given.

Research Model: The scanning model, which is one of the descriptive methods, has been used in the research. The purpose of the scanning model is to determine the current situation depending on the selected sample as it is (Karasar, 2013).

Population-Sample: The population of the study consists of high school students who received physical education and sports education in Bartın province in the 2018-2019 academic year and also the sample of the study consists of 322 randomly selected students from "Sehit Sinan Oruc Multi-Program Anatolian High School," "Davut Fırıncıoğlu Anatolian High School" and "Koksal Toptan Anatolian High School."

Data Collection Tools: Within the scope of the research, "Demographic Information Form" and "Physical Education Continuous Anxiety Scale" have been used as data collection tools. The demographic information form has been used to obtain demographic information of the participants. This form, which contains a total of 4 items (gender, class, state of sports, branch of sports if doing sports), has been created by the researchers. Necessary permissions have been obtained for the use of the scale. Physical Education Continuous Anxiety

Scale (PECAS) was developed by Varol in 2014. The scale is a 5-point Likert type and consists of 18 items and 3 sub-dimensions (Cognitive Processes (.865), Somatic Anxiety (.872) and Anxiety (.834)). The total reliability coefficient of the scale has been found to be 0.916.

Data Analysis: In this study, Shapiro-Wilk and Kolmogorov-Smirnov normality tests have been used. In these tests, even if sig.000, the skewness and kurtosis values of the data were examined and according to Tabachnick and Fidell (2013), it was stated that the distribution would be accepted as normal distribution when the skewness and kurtosis values were between +1,500 and -1,500 values. Since the skewness and kurtosis values of these scale expressions are between +1.50 and -1.50; In our study, assuming that the distribution is a normal distribution, analysis tests that can be done with a normal distribution have been performed.

In this study, the KMO value has been found to be 0.908 and the Barlett test has been found to be significant ($p < .001$) as a result of the KMO and Bartlett test, which is the value and test that explains whether the sample is sufficient for analysis. Within the scope of the research, the arithmetic means and standard deviations of the answers obtained have been determined. Demographic information and physical education and sports course continuous anxiety level have been tested using One-way ANOVA from parametric tests, t-test, Scheffe Test and two-way variance analysis tests.

3. Results

The results section of the study includes the presentation and interpretation of the results obtained as a result of data analysis through a table.

Table 1: Frequency and Percentage Distributions by Gender and Class Variable

Property	N	%
Female	127	39,4
Male	195	60,6
Total	322	100,0
9th Grade	108	33,5
10th Grade	96	29,8
11th Grade	61	18,9
12th Grade	57	17,7
Total	322	100,0

Table 1 shows the frequency and percentage distribution of the students participating in the study according to gender and class variables. 127 of the 322 students that make up the participants are girls and 195 are boys. 33.5% of the students are from the 9th grade, 29.8% are from the 10th grade, 18.9% are from the 11th grade and 17.7% are from the 12th grade.

Table 2: Frequency and Percentage Distributions by the Variable of Doing Sports

Doing Sports Status	N	%
Yes	168	52,2
No	154	47,8
Total	322	100,0

Table 2 shows the frequency and percentage distributions of the students participating in the research related to the variable of doing sports. Accordingly, when the distribution of students doing sports is examined, it is seen that 168 students (52.2%) answered yes and 154 students (47.8%) answered no.

Table 3: Frequency and Percentage Distributions According to The Sports Branch Variable Indicated by Those who Do Sports.

Specified Branch	N	%
Athletics	12	3,7
Badminton	6	1,9
Basketball	9	2,8
Billiards	1	,3
Bike	1	,3
Bocce	4	1,2
Boxing	3	,9
Dart	1	,3
Fitness	4	1,2
Football	55	17,1
Futsal	3	,9
Traditional Archery	1	,3
Wrestling	11	3,4
Folk Dances	1	,3
Weightlifting	7	2,2
Handball	2	,6
Karate	2	,6
Kick Boxing	3	,9
Table Tennis	4	1,2
Archery	1	,3
Orienteering	3	,9
Pilates	2	,6
Chess	3	,9
Taekwondo	1	,3
Tennis	2	,6
Volleyball	24	7,5
Swimming	2	,6
Total	168	52,2

Table 3 contains the frequency and percentage distributions of the sports branches indicated by the students. In the branches, the highest share was stated as "Football" with 17.1%, followed by "Volleyball" with 7.5% and "Athletics" with 3.7%, respectively. As can be seen, the sports branches indicated by the students participating in the study vary with 27 different branches.

Table 4: Arithmetic Average and Standard Deviation Values of the Scale Sub-Dimensions

Sub Dimension No	Sub Dimension Name	N	\bar{X}	SS
1	Cognitive Processes	322	2,09	,867
2	Somatic Anxiety	322	2,06	,957
3	Anxiety	322	2,27	,966

In Table 4; When the arithmetic mean of the scores obtained by the participants from the sub-dimensions of the scale is examined, it is seen that the highest score is in the "Anxiety" sub-dimension. The average score of the students participating in the study on the physical education continuous anxiety scale is 38.65. It is seen that the physical education continuous anxiety levels of the students are "moderate."

Table 5: T Test for The Physical Education Continuous Anxiety Scale by Students' Gender Variable

Dimensions	Gender	N	\bar{X}	SS	t	p
Cognitive Processes	Female	127	2,24	,891	-2,637	,009*
	Male	195	1,98	,837		
Somatic Anxiety	Female	127	2,32	,961	-3,933	,000*
	Male	195	1,90	,919		
Anxiety	Female	127	2,46	,973	-2,795	,006*
	Male	195	2,15	,944		

*p<0.05

When the results in Table 5 are examined, as the results of the independent groups t-test conducted to indicate whether the sub-dimensions of the students' physical education continuous anxiety scale show a statistically significant difference according to the gender variable, there are statistically significant differences in all sub-dimensions of the scale ($p<0.05$). When the arithmetic averages are examined, it is seen that this difference is generally in favor of female students.

Table 6: ANOVA Test for The Physical Education Continuous Anxiety Scale by the Class Variable of the Students

Dimensions	Class	N	\bar{X}	SS	F	p	Scheffe Test
Cognitive Processes	9th Grade	108	2,10	,841	2,490	,060*	3-4
	10th Grade	96	2,04	,932			
	11th Grade	61	1,91	,855			
	12th Grade	57	2,31	,771			
Somatic Anxiety	9th Grade	108	2,03	,879	1,515	,211	-
	10th Grade	96	1,95	,949			
	11th Grade	61	2,10	1,047			
	12th Grade	57	2,28	,997			
Anxiety	9th Grade	108	2,35	,924	2,841	,038*	3-4
	10th Grade	96	2,18	,975			
	11th grade	61	2,05	,886			
	12th Grade	57	2,51	1,060			

As seen in Table 6, a statistically significant difference has been found in the "cognitive processes" and "anxiety" sub-dimensions as a result of the one-way analysis of variance (ANOVA) between the sub-dimensions of the scale and the class variable of the students ($p<0.05$). The Scheffe test from multiple comparisons was used to determine which group caused the difference for the sub-dimensions where the difference occurred. When the Scheffe test results are examined at the level of sub-dimensions:

- In the "Cognitive Processes" sub-dimension, it has been in favor of the 12th grade between 11th and 12th grade ($x= 1.91- x= 2.31$).
- In the "Anxiety" sub-dimension, it has been in favor of the 12th grade between 11th and 12th grade ($x= 2.05 - x= 2.51$).

Table 7: T Test for Physical Education Continuous Anxiety Scale by Students' Doing Sports Variable

Dimensions	Doing sports	N	\bar{X}	SS	t	p
Cognitive Processes	Yes	168	1,93	,852	-3,476	,001*
	No	154	2,26	,857		
Somatic Anxiety	Yes	168	1,88	,899	-3,692	,000*
	No	154	2,27	,980		
Anxiety	Yes	168	2,11	,965	-3,295	,001*
	No	154	2,46	,936		

*p<0.05

When the results in Table 7 are examined, as the results of the independent groups t-test conducted to indicate whether the sub-dimensions of the students' physical education continuous anxiety scale show a statistically significant difference according to the doing sports variable, there are statistically significant differences in all sub-dimensions of the scale ($p < 0.05$). When interpreted with arithmetic averages, it is seen that this difference arises from those who answer "No."

Table 8: F Values Regarding the Physical Education Continuous Anxiety Scale Scores According to Gender and Doing Sports Status

Source	Sum of Squares	Average of Squares	Sd	F	p
Gender	1711,529	1711,529	1	9,292	,002*
Doing Sports Status	2643,013	2643,013	1	14,349	,000*
Gender Doing Sports	307,528	307,528	1	1,670	,197
Total	63940,758	-	-	-	-

When looking at the two-way variance analysis table in Table 8, it has been found that the variables have been statistically significant at the 0.05 significance level according to gender and doing sports status. In addition, the interaction effect (gender * doing sports) was not statistically significant. This situation has revealed that there has been no difference in physical education continuous anxiety scores depending on the doing sport status of male and female students.

4. Discussion

As anxiety is an inevitable factor in many sports fields, it is known that it exists in high school students, although its level varies (Alp, 2018; Inan et al., 2018; Varol, 2014; Inan et al., 2019).

As the results of the independent groups t-test conducted to indicate whether the sub-dimensions of the students' physical education continuous anxiety scale show a statistically significant difference according to the gender variable, there are statistically significant differences in all sub-dimensions of the scale ($p < 0.05$). When the arithmetic averages are examined, it is seen that this difference is generally in favor of female students. Ozturk (2019) has reached a significant difference between the gender variable and continuous anxiety according to the results of the study, which the sample group formed by darts athletes and similar to the results of our study, it is seen that this difference is in favor of female athletes. According to the results of the study conducted by Boz (2019), Oktem and his/her friends (2020), no significant difference has been found between the continuous anxiety levels of elite athletes and the gender variable. It is thought that this difference is due to the fact that elite athletes share the same environment regardless of gender, and therefore the gender variable is not a determining factor in measuring anxiety levels. It is thought that the gender variable is a determining factor in determining the continuous anxiety of high school students towards physical education and sports course and this is due to the differences in motoric characteristics between male students and female students and it is also due to the higher participation of male students in physical activities.

A statistically significant difference has been found in the "cognitive processes" and "anxiety" sub-dimensions as a result of the one-way analysis of variance (ANOVA) between the sub-dimensions of the scale and the class variable of the students ($p < 0.05$). The Scheffe test from multiple comparisons was used to determine which group caused the difference for the sub-dimensions where the difference occurred. When the Scheffe test results are examined at the level of sub-dimensions, in the "Cognitive Processes" sub-dimension, it has been in favor of the 12th grade between 11th and 12th grade ($x = 1.91 - x = 2.31$) and in the "Anxiety" sub-dimension, it has been in favor of the 12th grade between 11th and 12th grade ($x = 2.05 - x = 2.51$). In line with these results, it is thought that the 12th grade students have high continuous anxiety due to the fact that they are at the turning point in their educational life such as exam and university preferences, and also because there are no questions about physical education and sports course in these exams.

As the results of the independent groups t-test conducted to indicate whether the sub-dimensions of the students' physical education continuous anxiety scale show a statistically significant difference according to the doing sports variable, there are statistically significant differences in all sub-dimensions of the scale ($p < 0.05$). When interpreted with arithmetic averages, it is seen that this difference arises from those who answer "No" to the status of doing sports. Physical education and sports are known to have multiple benefits. These benefits positively affect the psychomotor, physical, mental and emotional development of the individual. Because of this, various developments are expected in individuals who do sports. Therefore, it can be said that it is expected that individuals who do sports have low anxiety towards physical education and sports course. It can be said that the reason for this difference is the positive effect of psychological and emotional development caused by the experience of the sports environment.

According to the scale total score and gender and doing sports status, it has been found that the variables have been statistically significant at the 0.05 significance level. In addition, the interaction effect (gender doing sports) was not statistically significant. This situation has revealed that there has been no difference in physical education continuous anxiety scores depending on the doing sport status of male and female students. In this respect, it can be said that doing sports regardless of gender reduces the continuous anxiety towards physical education and sports course.

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Music Teachers' Burnout Levels in terms of Some Variables

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Abstract

The disappointments of Nurse Jones, who is well-known by education researchers working in burnout have been seen frequently among teachers in recent years. Research results show that, contrary to the established perception existing in society, music teachers are one of the groups that experience burnout most heavily. The international literature offers a rich knowledge on this subject. However, in Turkey, the literature in which we can discuss the subject has not yet matured. There is a need for empirical research on the subject. The purpose of the study is to examine whether the burnout levels of music teachers differ according to gender, seniority, institution, and participation in in-service training. The study, structured according to the survey model, was carried out with 48 music teachers. The data were obtained using the Personal Information Form and Maslach Burnout Inventory-Educators Survey. ANOVA, Kruskal-Wallis, t-test, and Mann-Whitney U test were used for data analysis. The results showed that music teachers' burnout was not differed according to gender, seniority, institution, and participation in in-service training.

Keywords: Music Teachers, Burnout, Gender, Seniority, Institution, In-Service Training

1. Introduction

Burnout is one of the current themes used to explain the problems faced by teachers who represent one of the most strategic organizations of societies. Although the concept; was processed in a few studies until the 1970s, it was first introduced into the academic literature by clinical psychologist H. J. Freudenberger (Maslach & Schaufeli, 2017; Maslach, Schaufeli, & Leiter, 2001). Freudenberger defines the concept of burnout that he uses to explain the process of loss of motivation and commitment; as “to fail, wear out, or become exhausted by making excessive demands on energy, strength, or resources” (Freudenberger, 1974, p. 159). The first comprehensive studies on the subject were conducted by social psychologist Maslach. Maslach argues that the stress and coping strategies experienced by people working in jobs that have a direct relationship with people have significant effects on professional identity and work behavior. According to Maslach, burnout “is a psychological syndrome that occurs due to chronic work stress and manifests itself in the form of exhaustion,

cynicism and low work productivity” (Maslach & Leiter, 2007, p. 368). Maslach handled burnout with a multidimensional structure and conceptualized it as emotional exhaustion, depersonalization, and personal accomplishment. Existing models, especially the Maslach Model, have formed the theoretical basis of many scientific studies that contribute to our analysis of teacher burnout. Clinical studies in the 1970s and systematic research conducted after the 1980s thanks to scales developed specifically for the subject have enabled to create of rich literature. The current knowledge provides important findings of the presence, causes, and consequences of teacher burnout, and forms a reliable basis on which we can discuss in depth.

1.1 Teacher Burnout

Teacher burnout; is a complex problem that needs to be addressed from a broad perspective and is associated with many organizational, social, and individual variables (Ballantyne & Retell, 2020; Lens & Jesus, 1999; McLain, 2005). For example; while factors such as organizational discrimination, mobbing, and external control increase teacher burnout (Alkan, 2011; Byrne, 1994; Çelik, 2011); it is seen that organizational commitment, organizational trust, organizational justice, positive organizational climate, effective and democratic class management, perceived executive support and social support reduce burnout (Durak & Seferoğlu, 2017; Karataş, 2009; Polatcan, Cansoy, & Kılıç, 2019). In addition to these results; factors such as undesirable student behavior (Baysal, 1995; Durak & Seferoğlu, 2017; Hastings & Bham 2003; Mancini, 2008; Polatcan et al., 2019; Şahin, 2007), role conflict and role (Baysal, 1995; Byrne, 1994; Cunningham, 1983; Friedman, 1993; İnce, 2014; Kyriacou, 1987), work overload, crowded classes, inadequate physical conditions, negative school and classroom climate, limiting participation in decision-making processes, poor support from managers and colleagues (Baysal, 1995; Byrne, 1999; Girgin, 1995; Polatcan et al., 2019; Şahin, 2007; Tümkaya, 1996), low motivation (Byrne, 1994), the inability of the organization to meet teacher demands (Farber, 1984) and low salary policies (Baysal, 1995; Hamann, Daugherty, & Sherbon, 1988; Mancini, 2008; Tümkaya, 1996), etc. are also known to have an effect on teacher burnout.

The above factors, which are shown as the source of teacher burnout, cause negative attitudes and behaviors in teachers, and this situation can be reflected in the teaching processes. Related research shows that teacher burnout; has a series of results including psychological such as depression, anger, emotional instability, anxiety, rejection of emotions, self-incrimination, pessimism, wrath, alienation, disappointment, paranoia, difficulty with attention/focus, reduced ability to cope with stress, despair, loss of self-esteem (Farber, 1984; Hamann & Daugherty, 1985), etc. and behavioral such as absenteeism, low job performance, carelessness in planning lessons, low tolerance to students, weakness in classroom discipline, conflict with the social environment, inability to retain the energy or enthusiasm required for effective teaching (Farber, 1984; Hamann, Daugherty, & Mills, 1987; Lens & Jesus, 1999; McLain, 2005), etc. These results raise the concern that teacher burnout will become increasingly common in educational institutions and that it will cause irreparable harm to education systems, especially unless some organizational measures are taken. For this reason, the resolution of teacher burnout, which is defined as a dangerous occupational disease, is important in both individual and social contexts.

1.2 Burnout in the Music Teaching Profession

Music teaching is one of the branches which has intense burnout, stress, high attrition rates, and dangerous leaving rates from the system (Figueras, 2014; Hodge, Jupp, & Taylor, 1994; Kertz-Welzel, 2009; US National Center for Education Statistics [NCfES], 1997; Robertson, 1986). In a study conducted with the participation of 3200 music teachers in the USA, it was found that 52% of the teachers experienced burnout (Texas Music Educators Association [TMEA], 2016). There are also findings showing that music teachers experience emotional exhaustion and depersonalization despite their high perception of personal accomplishment (Figueras, 2014; Hendry, 2001; Hodge et al., 1994; McLain, 2005; Nimmo, 1986). Many organizational and individual factors such as lack of student motivation and discipline, salary, crowded classes, workload, manager apathy, role ambiguity, budget insufficiency, etc. leading to teacher burnout, in generalisable nature; are also valid for music teachers (Figueras, 2014; Gordon, 1997; Haack & Smith, 2000; Hamann et al., 1987; Hamann et al., 1988;

Hodge et al., 1994; Mancini, 2008; McLain, 2005; Nimmo, 1986; Sandene, 1995; Scheib, 2006; Varona, 2019). However, studies report that burnout differs according to branches and that music teachers experience more burnout than other branch teachers. For example, McLain (2005) determined that music teachers experienced more emotional exhaustion than other groups in her comparison of the results of five different teacher groups. Figueras (2014) comparing teacher burnout with national norms, similar to McLain's results, found that music teachers experienced higher levels of emotional exhaustion and depersonalization compared to norms. In the study conducted by Hodge et al. (1994) with music and mathematics teachers working in secondary schools, the levels of emotional disturbance and burnout of music teachers consisting of anxiety, depression, and distressing physical symptoms were significantly higher than math teachers. It is possible to support these examples with different studies (Hamann et al., 1987; Madsen & Hancock, 2002; NCfES, 1997; Nimmo, 1986; Robertson, 1986).

Burnout is discussed in some relevant research in Turkey. For example, Korkmaz (2004) found that music teachers experience medium level of burnout in emotional exhaustion and personal accomplishment and low level in depersonalization. In İnci and Burak's (2017) study; it is observed that music teachers experience medium level in emotional exhaustion, low level in depersonalization and high level in personal accomplishment. Some studies conducted by researchers outside of the field also present important findings. For example, in the study of Koruklu et al. (2012), it was determined that art and physical education teachers and music teachers experienced the medium level of burnout in emotional exhaustion and depersonalization and high level of personal accomplishment. According to the study, although no statistically significant difference was found, the burnout level of personal accomplishment dimension of music teachers was higher than 9 different branches. This finding is similar to the results of the relevant international literature. Karakuş (2008) found that although there is no statistically significant difference, the personal accomplishment perceptions of painting and music teachers are higher than classroom, science, and social studies teachers. In Şahin's (2007) study, it is seen that there is no significant difference between the burnout scores of music teachers and teachers from more than 10 different branches.

1.3 Purpose of the Study

This study carried out in Turkey is focused on the question; 'Does burnout of music teachers; differ according to gender, seniority, school-level worked and participation in in-service training programs?'¹. As can be understood from the summary of the literature, studies focus on organizational resources that cause burnout in music teachers. While "personal variables cannot be excluded in the analysis of burnout" (Dalkılıç, 2014, p. 88), it can be said that organizational factors have more significant effects on burnout than personal factors. Empirical research also provides strong evidence on this matter. On the other hand, individual characteristics may have an effect that increases or decreases burnout in the face of organizational factors that cause burnout in some cases (Ari & Bal, 2008; Örmən, 1993, cited in Dalkılıç, 2014, p. 77). However, studies that focus on the relationship between individual characteristics and burnout present inconsistent results, contrary to research on organizational factors. In other words, the relationship between teacher burnout and individual characteristics still remains uncertain. The uncertainty continues in the literature of music teaching. While the current situation supports the view that 'organizational factors are more effective on burnout' on the one hand, and on the other hand, it shows that there is a need for more findings that can clarify the uncertainty between individual characteristics and burnout. However, a precautionary approach is necessary to the relationship between burnout and individual variables (İnce, 2014; Sandene, 1995). Because some individual variables that affect behaviors, attitudes, and lifestyles can be shaped according to the culture in which they live. For example, teaching that is defined as a 'feminine profession' with its 'mother compassion' may turn into a profession that is very challenging and leads to burnout for women. In this sense, all research to be conducted in geographical regions with different dynamics can offer some clues that will help explain the relationship between individual characteristics of music teachers and burnout. This study focuses on demographic variables, one of the two dimensions of individual characteristics. Personality characteristics of the study group were not included in the study. In a provincial city, this narrow-scoped study conducted with a group of music teachers who work at

different educational levels and have different professional experience and equipment is expected to contribute to the related literature in Turkey.

Gender and seniority are the variables most studied in relevant national studies. The school-level worked is among the least processed. On the other hand, the variable of participating in in-service training, which is frequently discussed in teacher burnout studies, has been overlooked by researchers of the music field. Although nearly 30 variables were examined in the studies, it was not explained by which criteria the variables were determined. Based on the variables not determined for a certain purpose, the author argues that the relationship between burnout and individual variables should be addressed with an in-depth approach, not an in-beam approach in Turkey. For this reason, it would be meaningful to briefly explain the reason for choosing the variables discussed in this study, with the idea that it will also be beneficial for readers.

One of the most emphasized variables in disciplines that focus on individual and interpersonal relations, such as social psychology, organizational psychology, educational psychology, etc. is gender. The gender differences question, which has gained importance especially in educational research since the 1970s (Slavin, 2006) and is controversial (Figueras, 2014), also remains unclear in the burnout literature of music teachers. With Kertz-Welzel's (2009) statement; burnout affects male and female music teachers in different ways. Examining the gender variable, which is related to many factors such as personality structure, gender roles, culture, etc. in different contexts, may present some crumbling findings, especially for meta-analysis studies to be conducted on teacher burnout.

One of the field-specific factors that lead to burnout in music teachers is the praxis shock experienced in the early years of the profession. The international literature offers detailed and understandable findings on this subject. However, related research in Turkey has not addressed the seniority-praxis shock link. The seniority variable may give some clues about the presence of the praxis shock in music teachers in Turkey.

'Undesirable student behavior,' which is frequently observed in schools, is one of the main sources of teacher burnout today. Current ideological/political transformation has negatively affected music classes. Music lessons are the classes with the most discipline problems compared to most other branch classes. The discipline problem, which is related to many individual and environmental factors, manifests itself as different behavioral patterns according to age. The discipline problem, which manifests itself in different school levels, in different types and different severities, may also affect teachers' burnout in different ways.

In-service training programs are educational processes that contribute to teachers' professional and personal development. In-service training is an effective practice in the context of organizational measures that can be taken to prevent teacher burnout. It is known that music teachers who receive in-service training support experience less burnout than those who do not (McLain, 2005). Since 1960 in Turkey, although there have been some chronic problems in the development of professional music teacher, important strategic changes have been made by the Ministry of National Education in the field of in-service training in recent years (Öztürk, 2018; Ö. Öztürk & G. Öztürk, 2019). For this reason, current developments in the field of professional development necessitate the updating of in-service training programs and studies on burnout.

2. Method

This study is quantitative descriptive research structured according to the survey model. The purpose of survey models is the qualitative and quantitative description of the living, the existing, and what happened.

2.1 Study Group and Scope of Research

The working group consists of 48 permanent music teachers at central state schools in a province located in the central Black Sea region of Turkey. 50% of the study group is female and 50% is male; 41.7% of them work in

secondary schools, 27.1% in Fine Arts High School, 18.8% in high schools, and 12.5% in special education institutions; 12.5% have 1-5 years of professional experience, 35.4% have 6-10 years, again 35.4% have 11-15 years, 16.7% have 16 and more years; 35.4% of them participated in in-service training programs, 64.6% of them did not.

The research was supported by the Scientific Research Projects Commission of the university located in the same province (*project number: 2017/35*) and was carried out in cooperation with the Provincial Directorate of National Education. Since the research was conducted in a provincial province in terms of socio-economic structure, the results are not generalizable. However, the results obtained in this study; are considered to be comparable to the results of the research to be conducted in different cities with the same or similar characteristics as the city where the study was conducted.

2.2 Data Collection Tool

In the research, Maslach Burnout Inventory-Educators Survey (MBI-ES) developed by Maslach, Jackson, and Schwab (Maslach, Jackson, & Leiter, 1996) and adapted to Turkish by İnce and Şahin² (2015) was used. The survey consists of emotional exhaustion (EE), depersonalization (Dp), and personal accomplishment (PA) dimensions. Dp dimension of MBI-ES refers to the feeling of fatigue and exhaustion due to energy exhaustion; EE dimension indicates the educator's negative feelings and behaviors towards students; PA dimension expresses the sense of success experienced by the educator due to perceived competence and high productivity. The level of burnout is evaluated with three separate total scores from the dimensions instead of a single score. The total score for each dimension is obtained by collecting up the item scores. A single score is not obtained by combining the total scores of the dimensions. The inventory does not have any sub-dimensions to be scored backward (İnce & Şahin, 2015, p. 389). High scores in EE and Dp dimensions indicate high level of burnout, while a high score in PA dimension indicates low level of burnout (Figueras, 2014; Girgin, 1995; İnce & Şahin, 2015, p. 389; Maslach et al., 1996). PA dimension; can also be interpreted as a sense of lack of personal accomplishment or reduced personal accomplishment due to the inverse relationship between scoring and interpretation (İnce & Şahin, 2015).

In the form, corresponding to teachers' attitudes and behaviors; there are a total of 22 items, 9 in the EE dimension, 5 in the Dp dimension, and 8 in the PA dimension. The form is structured according to 7-Likert type grading. Degrees; is scored as '0-Never, 1-A few times a year or less, 2-Once a 461e efor461 less, 3-A few times a month, 4-Once a week, 5-A few times a week, 6-Every day'. The highest score that can be obtained in EE dimension is 54, 30 in Dp dimension, and 48 in PA dimension. The scores obtained from each dimension can be expressed as low, average, and high. The scores are interpreted that for EE, 27 and above is high, 17-26 is average, 0-16 is low; for Dp, 14 and above is high, 9-13 is average, 0-8 is low; for PA, 0-30 is high, 31-36 is average, 37 and above as low burnout (461e efor categories and numeric cutoff points; Bernhard, 2006, p. 8; Figueras, 2014, p. 113; İnce & Şahin, 2015, p. 390). It is especially recommended by Maslach et al. To use original numerical scores rather than categorization when performing statistical analysis (Figueras, 2014, p. 97).

2.3 Analysis of Data

Data were analyzed with SPSS software. Statistical hypothesis tests were applied to determine the univariate normality assumption. For this purpose, Shapiro-Wilk statistics analytical test values ($N < 30$) and skewness-kurtosis values of each data group were analyzed. In the literature ± 1 , ± 1.5 , ± 1.96 , ± 2 , ± 3 , ± 3.29 values are suggested for the assumption of normality. In this study, the ± 2 approach was taken into account in examining the skewness and kurtosis values (George & Mallery, 2019, p. 114-115). T-test and One Way Analysis of Variance (ANOVA) for normally distributed data groups; Mann-Whitney U and Kruskal-Wallis tests for data groups not normally distributed were used. For the significance level, $p < .05$ was taken as a reference.

3. Results

In this section, results showing whether the burnout of music teachers differs according to gender, seniority, school-level worked, and participation in in-service training are included.

3.1 Burnout Levels of Music Teachers according to the Gender

Table 1: Burnout and gender related t-test and Mann-Whitney U test results

Gender	n	Emotional Exhaustion	Depersonalization	Personal Accomplishment
		\bar{X}	\bar{X}_{rank}	\bar{X}
Female	24	14.46	22.38	37.42
Male	24	15.08	26.63	38.96
		t=-.2	U=237	t=-1.00
		p=.86	p=.28	p=.32

According to Table 1, emotional exhaustion ($t_{(46)}=-.25$ $p>.05$), depersonalization ($U=237$ $p>.05$) and personal accomplishment ($t_{(46)}=-1.00$ $p>.05$) scores of music teachers do not differ significantly according to gender.

3.2 Burnout Levels of Music Teachers according to the Seniority

Table 2: Burnout and seniority related ANOVA and Kruskal-Wallis test results

Seniority	n	Emotional Exhaustion	Depersonalization	Personal Accomplishment
		\bar{X}	\bar{X}_{rank}	\bar{X}
1-5 years	6	7.83	28.83	40.17
6-10 years	17	16.24	24.24	37.47
11-15 years	17	14.94	25.47	37.76
16 and more years	8	16.50	19.75	39.12
		F=1.45	$\chi^2=1.68$	F=.48
		p=.24	p=.64	p=.70

According to Table 2, emotional exhaustion [$F_{(3,44)}=1.45$ $p>.05$], depersonalization [$\chi^2_{(3)}=1.68$ $p>.05$] and personal accomplishment [$F_{(3,44)}=.48$ $p>.05$] scores of music teachers do not differ significantly according to seniority. On the other hand, the emotional exhaustion ($\bar{X}=7.83$) and personal accomplishment ($\bar{X}=40.17$) score averages of the music teachers with 1-5 years of experience can be interpreted that they experienced lower levels of burnout compared to other groups and their personal accomplishment perception was higher.

3.3 Burnout Levels of Music Teachers according to the School-Level Worked

Table 3: Burnout and school-level worked related ANOVA and Kruskal-Wallis test results

School level	n	Emotional Exhaustion \bar{X}	Depersonalization \bar{X}_{rank}	Personal Accomplishment \bar{X}
Secondary	20	14.15	24.40	37.45
High school	9	14.56	22.67	37.78
High school of fine arts	13	15.38	27.04	38.46
Special education	6	15.83	22.08	40.67
		F=.08	$\chi^2=.81$	F=.57
		p=.97	p=.85	p=.64

According to Table 3, emotional exhaustion [$F_{(3,44)}=.08$ $p>.05$], depersonalization [$\chi^2_{(3)}=.81$ $p>.05$] and personal accomplishment [$F_{(3,44)}=.57$ $p>.05$] scores of music teachers do not differ significantly according to school-level worked.

3.4 Burnout Levels of Music Teachers according to the Participation in In-Service Training

Table 4: Burnout and participation in in-service training related t-test and Mann-Whitney U test results

In-service training	n	Emotional Exhaustion \bar{X}	Depersonalization \bar{X}_{rank}	Personal Accomplishment \bar{X}
Participated	17	15.12	26.74	37.88
Not participated	31	14.58	23.27	38.35
		t=.19	U=225.5	t=-.29
		p=.85	p=.34	p=.77

According to Table 4, emotional exhaustion ($t_{(46)}=.19$ $p>.05$), depersonalization ($U=225.5$ $p>.05$) and personal accomplishment ($t_{(46)}=-.29$ $p>.05$) scores of music teachers do not differ significantly according to participation in in-service training.

4. Discussion

In the study, it was found that emotional exhaustion, depersonalization and personal accomplishment scores of music teachers did not differ according to gender, seniority, school-level worked, and participation in in-service training. The results are discussed under separate headings according to the relevant variables.

4.1 Burnout and Gender

The question of gender differences, which remain uncertainty in the teacher burnout literature, is one of the most challenging discussion topics for researchers. It is possible to support the present result with some findings. In Turkey, in the studies conducted by Umuzdaş, Umuzdaş, and Baş (2015) and Karabulut (2019), it is observed that burnout of music teachers does not differ according to gender. Despite these results, Korkmaz (2004) reported that female teachers experienced more depersonalization than men, while Kılıç (2018) reported that female teachers' perception of personal accomplishment is lower than men's. Some studies originating from abroad also present similar results. For example, Gordon (1997) found that emotional and physical fatigue symptoms, which are indicators of burnout, are experienced significantly more in female music teachers. Hendry (2001) found that the depersonalization level of female teachers is higher than that of men. There are some studies showing that attrition, which is one of the sources of burnout, is more common in women (Hancock,

2008). Despite these findings, it would be meaningful to share two more study results. Figueras (2014) found that although there was no difference in depersonalization dimension, perceptions of emotional exhaustion and lack of personal accomplishment of male music teachers were higher than that of women. McLain (2005) reported that men have higher perceptions of depersonalization and lack of personal accomplishment than women. It is possible to support the results of Figueras and McLain with different studies (Hamann et al., 1988). Although the findings do not seem consistent, it can be said that there is a relative accumulation that female music teachers experience more burnout.

With the statement of Dođramacı (1997), the head of the family concept used for men in conventional structure in Turkey. Women, on the other hand, are responsible for childcare and housework. For this reason, women are expected to choose professions that do not interfere with their spouse and mother roles. Regardless of the education level of a woman, her participation in the workforce is significantly affected by housewife and mother roles. Despite this general acceptance in society, it is good to remind that one of the most important achievements of Atatürk's Turkey is 'women's rights.' It can be said that 'the teaching profession is the profession in which women take their first steps in social life in Turkey' (Dođramacı, 1997). In this sense, although it is a very criticized discourse, the author of this work considers the feminine label attributed to teaching in Turkey valuable. Because this reference is not an indication that female teachers are a group that has to choose to teach only because of their mother and spouse roles; it is also an indication that they are representative of contemporary education in Turkey. This duty attributed to female teachers means the handover of the role of 'Hatun,' representing gender equality in ancient Turks, to female teachers. This is why; teaching is one of the most preferred and loved professions by women in Turkey. On the other hand, the male-dominated structure of Turkish society reflected in social life requires female teachers to struggle with some difficulties in the professional process. In Kertz-Welzel's (2009) statement, there are certain aspects that distinguish female teachers' burnout from those of men. Professional and personal roles such as being a good wife and mother as well as being a good teacher are assigned to female teachers. On the other hand, female teachers often have different skills in resolving and dealing with conflicts. Female teachers have their unique teaching methods aim at a more understandable and creative environment and encourage students' personal and emotional development. Female teachers, who have a different position in schools because of these roles, tend to react to stress in different ways than men. However, in the current school system, female teachers cannot find suitable environments where they can implement their teaching skills. As in Turkey, a male-dominated and academic output-oriented school environment may sometimes not be a suitable place for female teachers to seek creativity and personal growth. This situation, which negatively affects socialization and leads to role conflict, can cause feelings of guilt and excessive demand among female teachers. This role conflict, which evolves into a cycle of self-wear and blame and results in emotional isolation, causes female music teachers to experience burnout.

Studies support the above view. However, our result is not in line with the results of empirical research. This situation can be attributed to the social, cultural, and economic structure of the city where the research was conducted. The city located in the inner part of the Central Black Sea Region differs from many in terms of socio-economic structure and dynamics such as employment, education, health, accessibility, quality of life, poverty, production, income, etc. according to the Socio-Economic Development Index (2013) and Middle Black Sea Development Agency (2014) Reports. The city, where the transformation from agriculture to the industry has not been achieved sufficiently, is well below the region and country average in terms of gross domestic product and other socio-economic development indicators (Barış, 2019). However, the city offers some advantages for female music teachers compared to metropolises. Metropolitan cities that demand a high cost-high income balance for a prosperous life can often be quite challenging for female teachers if there is no support of 'family elders'. The salary problem in the teaching profession is a problem that has been extending from the 1970s to the present. As can be seen in the relevant studies, teachers may have to do additional work to meet the minimum livelihood conditions, especially in big cities, due to the wage problem that causes loss of status and burnout. For female music teachers who are married and have children, this additional job means the addition of a new role Wezwel emphasized. In contrast, a female teacher's life in a provincial city can be relatively more economical provided that some social activities are compromised. Socio-economic factors are determinants of teacher burnout. According to Şahin's study (2007); teachers working in low socio-economic environments experience less burnout than those in high and medium socio-economic environments. As explained above,

although the city where the research was conducted means difficult living conditions for the local people, it is a preferable city in socio-economic terms for female teachers with a certain level of income. It is less costly for teachers to meet basic needs such as transportation, food, housing, etc. The city offers female music teachers a more comfortable life, especially in terms of transportation and time. In other words, although the roles and workloads of female music teachers working in metropolises and provinces are the same, it can be said that the teachers in the provinces focus better on their private lives. However, the city has a culture in which the traditional family structure relatively maintains its existence. This situation provides advantages for female music teachers in two ways. First, the status of female music teachers working in the city is at a more moderate point than in metropolitan cities. This position can have a reducing effect on burnout. On the other hand, considering that most of the female music teachers in the research group have family roots in this city, the city offers teachers a life where they can receive financial and moral support from 'elders.' Briefly, existing advantages may have created more field for female music teachers to resolve and manage conflicts between spouse, mother, and teacher roles and offset the impact of burnout sources for male and female teachers.

4.2 Burnout and Seniority

Research carried out in Turkey (Karabulut, 2019; Korkmaz, 2004; Umuzdaş et al., 2015) indicates that burnout in music teachers does not differ according to seniority. Despite these findings, Bernhard (2006) found that inexperienced music teachers experience more burnout than experienced teachers. Similarly, Figueras (2014) found that music teachers with less working years experience higher lack of personal accomplishment feelings than senior teachers. In a series of studies conducted by Hamann et al. and is firsts in the fields, it was determined that low-senior music teachers were more prone to burnout and experienced more burnout than senior teachers (Gordon, 1997; Hamann et al., 1987; Hamann et al., 1988). It can be said that the studies conducted at home and abroad provide consistent results in themselves. On the other hand, the result can be interpreted that in Turkey, music teachers were not exposed to praxis shock and/or burnout due to praxis shock is not experienced intensely.

One of the main problems leading to burnout in music teachers is the lack of methodological/pedagogical knowledge and skills arising from the workload and pre-service education. These problems are also the main sources of the praxis shock that new music teachers are exposed to. For example, in a large-scale study (Cross, 2016), 34% of music teachers showed workload as a source of burnout. The literature offers a lot of evidence on this subject. In Turkey, it is known that music teachers do not experience burnout due to workload, but there are some problems with pre-service training (Öztürk & Öztürk, 2020). The effect of praxis shock on burnout is related to the nature of the organizational measures taken. Because, as Ballantyne (2005) summarized, the praxis shock is an important element that determines a teacher's attitude towards teaching, understanding of the profession, in-classroom practices, and whether s/he will stay in the profession for a long time. In this context, the result can be attributed to the in-service training strategy developed by the Ministry of National Education in recent years and effectively implemented by the Provincial Directorate of National Education. Teachers who have started to attend classes directly after being appointed can enter the lessons after going through a training period. Newly recruited teachers receive a total of 654 hours of training, including classroom and in-school activities, out-of-school activities, and in-service training activities. The predominant part of the training consists of classroom observations, meeting with experienced colleagues, following academic and other publications, etc. Formal and informal environments are offered with many participation where teachers can share on entrepreneurship, motivation, combating cultural differences, career planning, and current practices during the candidacy process. This process is further strengthened with the support received from the university and some other institutions and organizations in the city (Ağar, 2017). In addition to formal activities, it is known that informal environments that allow teachers to share professionally among themselves are an effective professional development practice (Koner & Eros, 2019). Briefly; it is thought that this strategy of integration into the profession, carried out in well-planned environments and well-structured practices, reduces the effects of the praxis shock expected in music teachers in the first years of the profession and this effect is reflected in the result on hand.

4.3 Burnout and School-Level Worked

Relevant studies examining the relationship between burnout and the school-level worked studied present different results. In a study conducted in the USA, it was reported that 56% of music teachers working in middle schools experienced burnout and this rate was higher than teachers working in elementary schools (50%), high schools (50%), and colleges (43%) (Cross, 2016). Similarly, Bernhard (2006) found that although there is no statistically significant difference, the perceptions of emotional exhaustion, depersonalization, and lack of personal accomplishment of music teachers working in secondary schools are higher than teachers working in high schools and primary schools. It is possible to support these examples with different studies (Gordon, 1997; Hamann, 1989, cited in Gordon, 2000, p. 28-29; Varona, 2019). The findings presented show that the secondary school-level is the determinant of burnout. On the other hand, Korkmaz (2004) found that burnout of music teachers did not differ according to school-level worked in a study she conducted in a metropolis. Similarly, Hamann (1986, cited in Gordon, 1997, p. 37) found that music teachers at all levels are prone to burnout. Our result does not correspond to most research results. This situation can be attributed to the differences in practice regarding music education in the countries where the studies were conducted. For example; while in European and North American countries, music teachers teach in primary schools as well as high school and secondary schools, music teachers work only in secondary and high school levels in Turkey. On the other hand, the socio-economic/socio-cultural structure of the countries and the nature of the organizational measures taken may have different effects on the results. It is known that there is a need for national studies where we can discuss the subject in Turkey. However, it is possible to link the present result to some factors.

One of the most important sources of teacher burnout is undesirable student behavior. Today, many countries are dealing with the discipline problem in schools. For example, in Turkey, teachers are divided into approximately 27% of class time to maintain the order in classroom and administrative affairs (TEDMEM, 2019). According to the reports of the Ministry of National Education, most of the teachers demand in-service training on new approaches in education and educational technologies as well as guidance, conflict and stress management, communication skills, problem-solving techniques, classroom management, etc. (Ministry of National Education [MoNE], 2013, 2014). In other words, for teachers to guide students, they first need guidance on classroom and stress management issues. These expectations should be considered as clues to the existence of a disciplinary problem. As emphasized in the conceptual framework, the devaluation of school music education has led to a further increase in undesirable student behavior in music classes. According to the report of Cross (2016), 64% of the new music teachers reported disciplinary problems as a source of burnout. Indifference, negative behavior and attitudes of students, low motivation to learn in students are common sources of stress for music teachers and need to be addressed through in-service training (Gordon, 1997; Hamann & Daugherty, 1985; McLain, 2005; Sandene, 1995). However, in Turkey, it is known that the in-service training programs organized for music teachers could not meet the guidance demands of teachers in terms of stress and classroom management, therefore participants in in-service training activities developed negative attitudes towards the programs. In short terms; the tendency to resist authority and work discipline, which is seen in high school students and is one of the most distinctive behavioral patterns of adolescence (Andrews, 1996), has become widespread in lower levels today. This situation manifests itself clearly in music lessons. In-service training activities ignore this expansion in the discipline. In this context, the result can be attributed to the prevalence of the discipline problem in music classes at all levels and the structuring of in-service training programs without considering the issue of guidance.

4.4 Burnout and In-Service Training

International literature also deals with burnout in music teachers within the framework of professional development programs. However, the relationship between in-service training and the burnout of the music teachers in Turkey has been ignored. In this sense, the result can offer some ideas on this matter. Two studies on the subject are particularly noteworthy. In a study conducted by McLain (2005) with 514 music teachers, it was determined that professional development programs are the determinants of burnout in music teachers. The researcher reported that music teachers who are not satisfied with their professional development opportunities experience more emotional exhaustion and depersonalization than those who are satisfied. Gordon (1997), on the

other hand, determined that music teachers who work in urban experience higher and significant burnout in professional development than those in non-urban. The present result does not exactly match the limited number of findings. This is due to the quality of in-service training programs in Turkey.

As Koner and Eros (2019) stated; music teachers have varying professional development needs throughout their careers, and needs may be influenced by their professional experience. The need for development necessitates the revision of professional development programs. Because in-service training practices are one of the most effective organizational measures that can be taken in reducing burnout. In Turkey, two recent studies on the in-service training needs of music teachers, the expectations and regulated programs, offer some observations on the subject. The current system does not provide an effective professional development opportunity for music teachers, similar to professional socialization programs applied to new teachers. Programs for music teachers are insufficient in terms of number and content. It is seen that between the years of 2007-2017 in Turkey, nearly 7500 in-service training activities are organized by the Ministry of National Education, only 27 of these activities target music teachers, the activities focus on the promotion of the relevant teaching programs and the subjects aimed at the personal development of music teachers are ignored (Öztürk, 2018; G. Öztürk & Ö. Öztürk, 2019). The current situation, as reflected in the reports, leads the teachers to remain relatively low rates of participation in the in-service training program in accordance with European countries. Based on current findings; the result is thought to be related to the quality of the in-service training programs organized for music teachers.

Epilogue

Burnout was included in academic studies in North America in the 1970s. It has been addressed in the field of international music teaching since the early 1980s. It entered the national literature in the 1990s. During the 2000s, it has attracted the attention of researchers in the field of music education in Turkey. Thus, it can be said that the literature on music teacher burnout in Turkey needs to be maturation. In this context, it is recommended to conduct generalizable, well-structured, comprehensive, and well-attended studies throughout Turkey with research groups to be established at universities, via the modules offered by the Ministry of National Education for teachers. The data to be obtained at the end of these studies will partially close the gap in the national literature in a short time and contribute to the organizational measures to be taken nationally and regionally.

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Notes

Note 1. Burnout data of the study group was processed in a different study (Öztürk & Öztürk, 2020) in the context of the presence or absence status of burnout in music teachers in Turkey. For this reason, in this study, the findings regarding the absolute level of burnout were not presented. However, burnout levels were used to draw attention to some of the findings of this study and to make the comments more understandable. For this purpose, information about the cut-off points of the scale is specifically presented in the method section.

Note 2. The author would like to thank Nuri Barış İnce and Ali Ekber Şahin for approving the scale used in this research.



The Representation of Multiple Intelligences in the Secondary School Turkish Curriculum

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Abstract

This study aims to investigate to what extent learning objectives in the secondary school Turkish curriculum (2019) reflect and engage Gardner's theory of multiple intelligence. Furthermore, the study considers the frequency with which each intelligence type is presented in the curriculum. In the study, a total of 112 objectives are focused on. These objectives have been checked and rated by each of the experts. The study employs document analysis method as a research design. Research data has been collected and analysed through using document analysis descriptive and analysis techniques, respectively. Careful analysis of these objectives reveals that the intelligence profile of the curriculum is primarily verbal/linguistically (103). This is followed by mathematical/logical (17), visual/spatial intelligence (12), social/interpersonal (3), and bodily/kinesthetic intelligences (2), respectively. It further reveals that there are no objectives that cater to internal, musical/rhythmic and naturalistic intelligences. These findings suggest several courses of action for future researches.

Keywords: Secondary School Turkish Curriculum, Multiple Intelligence Theory, Qualitative Research.

1. Introduction

Humans exhibit many of the same characteristics as other creatures in nature. However, there are also some other abilities of humanity. For example, only human has capable of speech and complex language. Therefore, ancient philosophers believed man was a “rational animal”. According to Yılmaz (2018), these traits make him superior to all other creatures in the universe because they emphasize human intelligence. Only by intelligence his actions have an influence on thoughts and feelings. For this reason it has been a feature of philosophy from the beginning, and many definitions have emerged over the years. At first, intellect, inclination, etc. were used to denote intellectual thought or actions. But now the word “intelligence” is used to describe this concept. In the Great Turkish dictionary (2009: 2228), the intelligence is defined as “all the abilities of a person to think, reason, perceive objective facts, judge and draw conclusions, understand, resist, and foresight.” It is evident from this definition that there are two common basics of intelligence, i.e., the capacity to adjust to new situations, and general mental adaptability.

In some respects, every human being behaves like all other humans. For example, all human being has a physical body, a non-physical soul and free will. In other respects, they behave like no others. This reinforces the fact that not all people respond to any event in the same way, and share the same interests or perspectives. In fact, according to the scientists, the reason why people differ from each other is the intellectual competencies and abilities. For this reason, the theory of multiple intelligences suggested by Gardner has attracted much attention from philosophers, educators and scientists in general. His theory, which he calls "Multiple Intelligence Theory," suggests that human intelligence manifests itself in different forms, and includes eight different types of intelligence. These are as follows:

Verbal/Linguistic Intelligence: "refers to a person's ability to use words in speech and writing effectively." (Armstrong, 1994: 2).

Mathematical/Logical Intelligence: "refers to a person's ability to think in logical; understanding part-whole, whole-part relationships, making inferences, understanding cause-and-effect relationships, etc. " (Güney et al., 2010).

Visual/Spatial Intelligence: "refers to a person's ability to perceive, understand and analyze colors, lengths, shapes, forms, surfaces, and the relationships that exist between them" (Armstrong, 1994: 2).

Bodily/Kinesthetic Intelligence: "refers to a person's ability to convey emotions and thoughts through body language." (Güney et al. 2010).

Musical/Rhythmic Intelligence: "refers to a person's ability to express feelings and thoughts. People who possess this type of intelligence enjoy music and rhythm in their lives." (Güney et al. 2010)

Social/Interpersonal Intelligence: "refers to a person's ability to empathize, understand the mood and feelings of others." (Güney et al. 2010).

Intrapersonal Intelligence: "refers to a person's ability to direct oneself, and to be aware of his/her abilities." (Güney et al. 2010).

Naturalistic Intelligence: "refers to a person's ability recognize nature. This is the eighth type of intelligence introduced by Gardner in 1995." (Demirel, 1998: 144: cited in Sarıkaya, 2021).

The Secondary School Turkish Curriculum lists the objectives as follows: "support national and spiritual values; promote rights and responsibilities; provide necessary skills, attitude and competences required by Turkish Qualifications Framework; and improve students' academic competence." (MEB, 2019). Until now, a great many Turkish language curriculum has been designed for secondary school students. However, 2019 curriculum is the latest and current curriculum.

It is recognized that every curriculum define expected learning objectives or learning outcomes. Turkish language curriculum for 5th, 6th, 7th, and 8th grade also has learning objectives. The curriculum comprises the following areas: Listening/monitoring objectives, speaking objectives, reading objectives, and writing objectives. The number of objectives for each language skill is 17, 7, 62, and 26, respectively. In total, there are of 112 learning objectives. 20 of these objectives also encompass grammar topics. However, there are no listening/monitoring and speaking learning objectives dealing with grammar. Only 16 reading and 4 writing objectives deal with grammar.

The literature review shows that a great many studies have been devoted to understanding multiple intelligences such as multiple intelligence theory in Turkish lesson curricula (Güney et al. 2010), multiple intelligence theory in Turkish lessons (Kana and Demir (2017), multiple intelligence theory in Turkish textbooks (Kırbaçoğlu, Baki & Bayram, 2014; Bayram & Baki, 2014; İnan, 2015; Epeçan & Kırbaş, 2018; Sarıkaya, 2021) and studies investigating the relationship between grammar and multiple intelligences (Arici, 2012, Dolunay and Demir 2018). However, to date, there are no data in the literature that investigates to what extent learning objectives in the current Turkish curriculum (2019) reflect and engage Gardner's theory of multiple intelligence. The contribution of this study to the literature therefore is manifold.

With this in mind, this study seeks to answer the question: "To what extent the secondary school Turkish curriculum (2019) reflect and engage Gardner's theory of multiple intelligence?"

Sub-problems include:

1. To what extent listening/monitoring objectives reflect and engage Gardner's theory of multiple intelligence?
2. To what extent reading objectives reflect and engage Gardner's theory of multiple intelligence?
3. To what extent speaking objectives reflect and engage Gardner's theory of multiple intelligence?
4. To what extent writing objectives reflect and engage Gardner's theory of multiple intelligence?

2. Method

2.1. Research Design

The study employs document analysis method as a research design. Document analysis is the analysis of written materials that contain information about the facts and events intended to be investigated. It provides a comprehensive analysis of the research problem (Yıldırım and Şimşek, 2008). In addition, material readiness frees the data collection process from the subjectivity of the researcher (Mayring, 2000: 36-37). As such, this study takes document analysis method, in response to the nature of research data, i.e., the availability of written material.

2.2. Data Collection

Research data has been collected through using document analysis method. Document analysis is "a systematic examination of existing records or documents, which include the analysis of written materials containing information about the topics to be investigated. The essential condition for a successful document analysis is to find and examine the documents on the subject and to make the necessary arrangements to reach a synthesis that will reveal a certain situation or opinion." (Karasar, 2007). In the study, document analysis has been used to investigate the occurrences in which different intelligences are represented across the curriculum.

2.3. Analysis

In the analysis of research data, the descriptive data analysis technique has been used. Descriptive data analysis employs pre-determined codes or headings to guide the interpretation and data analysis. The focus here is reporting and discussing the research findings in an edited and interpreted manner (Yıldırım and Şimşek, 2008). In this study, after collecting the data, a framework has been developed, and then themes have been selected. Themes have been selected based on the existing literature, studies on similar subjects and expert opinions.

The study provides evidence of content validity using inter-coder reliability. Expert review ensures accuracy in data analysis and collection process. Four experts have been involved in the study. 2 of them are lecturers (Turkish education), 1 curriculum development specialist, and 1 Turkish teacher.

Following this process, expert opinions have been compared to quantify consistency. Experts have been asked to rate each objectives independently how well they represent the multiple intelligences. The results have been calculated using Miles and Huberman's (1994) formula ($\text{Reliability} = \frac{\text{Consensus}}{\text{Disagreement} + \text{Consensus}} \times 100$), and 89% agreement has been reached. This value suggests that data analysis process is truly reliable.

3. Findings

This part has the statement of the sub-problems.

3.1. Findings for the First Sub-Problem:

Findings for the representation of the multiple intelligences in the listening/monitoring objectives are shown in Table 1.

Table 1: The Representation of the Multiple Intelligences in the Listening/Monitoring Objectives

No.	Learning Objectives	Grade	Type of Intelligence
1	The students are able to: make predictions about the development and outcome of events that take place as they listen/watch.	5,6,7,8	Verbal/Linguistic
2	guess the meaning of words they don't know as they listen/watch.	5,6,7,8	Verbal/Linguistic
3	find the main idea/basic emotion of what they listen/watch.	5,6,7,8	Verbal/Linguistic
4	summarize what they listen/watch.	5,6,7,8	Verbal/Linguistic
5	answer the questions about what they listen/watch.	7	Verbal/Linguistic
6	answer the questions about what they are listening/watching.	5,6,8	Verbal/Linguistic
7	suggest different titles for what they listen/watch.	5,6,7,8	Verbal/Linguistic
8	animate narrative texts that they listen/watch	5,6,7,8	Verbal/Linguistic Bodily/Kinesthetic
9	comprehend non-verbal signals of the speaker.	5,6,7,8	Verbal/Linguistic Mathematical/Logical
10	evaluate the content of what they listen/watch.	5,6,7	Mathematical/Logical
11	express their opinions about what they listen/watch.	5,6,7,8	Verbal/Linguistic
12	use listening strategies.	5, 6,7,8	Verbal/Linguistic
13	identify critical thinking skills examples used in the listening text.	7, 8	Verbal/Linguistic
14	determine the topic of the listening text.	5, 6,7	Verbal/Linguistic
15	identify the topic of the listening text.	8	Verbal/Linguistic
16	gauge the consistency of the listening text.	7, 8	Verbal/Linguistic Mathematical/Logical
17	evaluates the media texts they listen/watch.	8	Mathematical/Logical Visual/Spatial

Table 1 shows that there are 17 listening/monitoring objectives in the curriculum. 15 objectives cater to the verbal/linguistic intelligence. This is followed by mathematical/logical (4), bodily/kinesthetic (1), and visual/spatial intelligence (1), respectively.

3.2. Findings for the Second Sub-Problem:

Findings for the representation of the multiple intelligences in the speaking objectives are shown in Table 2.

Table 2: The Representation of the Multiple Intelligences in the Speaking Objectives

No.	Learning Objectives	Grade	Type of Intelligence
1	The students are able to: prepare and give a speech.	5,6,7,8	Verbal/Linguistic Social/Interpersonal
2	give an impromptu speech	5,6,7,8	Verbal/Linguistic Social/Interpersonal
3	use speaking strategies.	5,6,7,8	Verbal/Linguistic
4	use body language effectively in their speeches.	5,6,7,8	Verbal/Linguistic Bodily/Kinesthetic
5	use words exactly according to their accepted meanings.	5,6,7,8	Verbal/Linguistic
6	use appropriate transitional expressions in their speeches.	5,6,7,8	Verbal/Linguistic
7	use Turkish equivalents for the words that came from other languages.	5,6,7,8	Verbal/Linguistic

Table 2 shows that there are 7 speaking objectives in the curriculum. All these objectives cater to the verbal/linguistic intelligence. This is followed by social/interpersonal (2), and bodily/kinesthetic intelligences (1), respectively.

3.3. Findings for the Third Sub-Problem:

Findings for the representation of the multiple intelligences in the reading objectives are shown in Table 3.

Table 3: The Representation of the Multiple Intelligences in the Reading Objectives

No.	Learning Objectives	Grade	Type of Intelligence
1	The students are able to: reads aloud and quietly, paying attention to punctuation marks.	5,6,7,8	Verbal/Linguistic
2	read the text in order to assign it to a genre.	5,6,7,8	Verbal/Linguistic
3	Reads the texts written in different fonts.	5,6,7,8	Visual/Spatial
4	use reading strategies.	5,6,7,8	Verbal/Linguistic
5	use context to determine the meaning of unknown word or word groups.	5,6,7,8	Mathematical/Logical Verbal/Linguistic
6	determine the purpose of idioms and proverbs in a text.	5,6,7,8	Verbal/Linguistic
7	find synonyms of words.	5	Verbal/Linguistic
8	find antonyms of words.	5	Verbal/Linguistic
9	distinguish the meanings of heteronyms.	5	Verbal/Linguistic
10	distinguish the roots and affixes.	5	Verbal/Linguistic
11	describe the function of derivational affixes.	5	Verbal/Linguistic
12	distinguish the text types.	5,6,7,8	Verbal/Linguistic
13	summarize what they read.	5,6,7,8	Verbal/Linguistic
14	find the main idea/basic emotion of the text.	5,6,7,8	Verbal/Linguistic
15	find a solution to the problems encountered in the text.	5,6,7,8	Mathematical/Logical
16	determine the fiction story elements in the text.	5,6,7	Verbal/Linguistic
17	interpret the text critically.	5	Verbal/Linguistic Mathematical/Logical
18	ask any questions about the text.	5,6,7,8	Verbal/Linguistic
19	answer the questions about the text.	5	Verbal/Linguistic
20	determine the topic of the text.	5,6,7,8	Verbal/Linguistic
21	identify the topic of the text using such clues as title and visuals.	5,6,7,8	Visual/Spatial
22	answer the questions about the visuals.	5,6,7,8	Visual/Spatial Verbal/Linguistic
23	understand in what ways the main points are emphasized in the text.	5,6,7,8	Verbal/Linguistic
24	suggest an appropriate title to the text.	5,7	Verbal/Linguistic
25	evaluate the media texts.	5,6,7	Verbal/Linguistic Visual/Spatial
26	evaluate the contribution of the transitional expressions that add up to the text meaning.	5,6,7	Verbal/Linguistic
27	make comparisons between the texts.	5,6,7,8	Verbal/Linguistic
28	use the information sources effectively.	5,6,7,8	Verbal/Linguistic
29	gauge the reliability of the information sources.	5,6,7,8	Verbal/Linguistic
30	distinguish the real and fictional elements in the text.	5,6,7,8	Verbal/Linguistic
31	make inferences about what they read.	5,6,7,8	Verbal/Linguistic Mathematical/Logical
32	identify the figure of speech in the text.	5,6,7,8	Verbal/Linguistic
33	distinguish between the real, metaphorical and locutional words in the text.	5	Verbal/Linguistic Mathematical/Logical
34	answer the questions about the information presented with the graphs, charts, and tables.	5	Visual/Spatial Verbal/Linguistic

Continuation of Table 3: The Representation of the Multiple Intelligences in the Reading Objectives

No.	Learning Objectives	Grade	Type of Intelligence
35	distinguish the functions of inflectional suffixes.	6,7	Verbal/Linguistic
36	describe the contribution of nouns and adjectives to the meaning of the text.	6	Verbal/Linguistic
37	describe the contribution of noun and adjective clauses to the meaning of the text.	6	Verbal/Linguistic
38	describes the contribution of prepositions, conjunctions, and interjections to the meaning of the text.	6	Verbal/Linguistic
39	distinguish between the simple, derivative and compound words.	6	Verbal/Linguistic
40	describe the contribution of pronouns to the meaning of the text.	6	Verbal/Linguistic
41	suggest an appropriate title to the text.	6	Verbal/Linguistic
42	answer the questions about the text.	6,7,8	Verbal/Linguistic
43	interpret the text content.	6,7,8	Verbal/Linguistic Mathematical/Logical
44	describe the formal elements of a poem.	6	Verbal/Linguistic
45	interpret the information presented with the graphs, charts, and tables.	6,7,8	Mathematical/Logical Visual/Spatial
46	distinguish between the simple, derivative, and compound verbs.	7	Verbal/Linguistic
47	describe the contribution of adverbs to the meaning of the text.	7	Verbal/Linguistic
48	notice the meaning properties of verbs.	7	Verbal/Linguistic
49	identify an ambiguity in a text.	7	Verbal/Linguistic
50	find the supporting ideas in the text.	7,8	Verbal/Linguistic
51	compare the media presentations with the written version of the texts.	7	Visual/Spatial Mathematical/Logical
52	identify the forms of expression in the text.	7,8	Verbal/Linguistic
53	identify the critical thinking skills examples used in the text.	7	Verbal/Linguistic
54	comprehend the process steps in the text.	7,8	Mathematical/Logical
55	identify the textual ambiguity in a text.	8	Verbal/Linguistic
56	comprehend the functions of gerunds in the sentences.	8	Verbal/Linguistic
57	evaluate the contribution of the transitional expressions that add up to the text meaning.	8	Verbal/Linguistic
58	suggest an appropriate title to the text.	8	Verbal/Linguistic
59	determine the fiction story elements in the text they read.	8	Verbal/Linguistic
60	analyze the media texts.	8	Mathematical/Logical Visual/Spatial
61	compare the media presentation with the written text of the literary work.	8	Mathematical/Logical Visual/Spatial
62	identify the critical thinking skills examples used in the text they read.	8	Verbal/Linguistic

Table 3 shows that there are 62 reading objectives in the curriculum. 55 objectives cater to the verbal/linguistic intelligence. This is followed by mathematical/logical (10), and visual/spatial intelligences (9), respectively. In addition to these, 16 of these objectives deal with grammar.

3.4. Findings for the Fourth Sub-Problem:

Findings for the representation of the multiple intelligences in the writing objectives are shown in Table 4.

Table 4: The Representation of the Multiple Intelligences in the Writing Objectives

No.	Learning Objectives	Grade	Type of Intelligence
1	The students are able to: write a poem.	5,6,7,8	Verbal/Linguistic
2	write an informative text.	5,6,7,8	Verbal/Linguistic
3	write a narrative text.	5,6,7,8	Verbal/Linguistic
4	use writing strategies.	5,6,7,8	Verbal/Linguistic
5	use the capital letters and punctuation marks where appropriate.	5	Verbal/Linguistic
6	write the process steps of any undertaking.	5,6	Verbal/Linguistic Mathematical/Logical
7	uses proverbs, idioms and sayings to add a new flavour to their writings.	5,6,7,8	Verbal/Linguistic
8	write the numbers correctly.	5	Verbal/Linguistic
9	edit what they write.	5,6,7,8	Verbal/Linguistic
10	publish what they write.	5,6,7,8	Verbal/Linguistic Social/Interpersonal
11	use correctly the words that undergone phonological change in their writings.	5	Verbal/Linguistic
12	use Turkish equivalents for the words that came from other languages in their writings.	5,6,7,8	Verbal/Linguistic
13	fill out the forms completely and accurately.	5,6,7,8	Verbal/Linguistic Mathematical/Logical
14	write a short text.	5,6,7,8	Verbal/Linguistic
15	suggest an appropriate title for what they write.	5,6,7,8	Verbal/Linguistic
16	use the appropriate transitional expressions in their writings.	5,6,7,8	Verbal/Linguistic
17	uses the charts and tables as needed to help in writing.	6	Visual/Spatial Verbal/Linguistic
18	uses the charts and tables to visualize data.	7,8	Visual/Spatial Verbal/Linguistic
19	write the process of an undertaking step by step.	7,8	Verbal/Linguistic Mathematical/Logical
20	use the forms of expression in their writings.	7,8	Verbal/Linguistic
21	write up their research results.	7,8	Verbal/Linguistic
22	use auxiliary verbs correctly.	7	Verbal/Linguistic
23	use humor in their writings.	8	Verbal/Linguistic
24	determine the parts of speech in a sentence.	8	Verbal/Linguistic
25	identify different types of sentences.	8	Verbal/Linguistic
26	comprehend the contribution of verb voice features to the meaning.	8	Verbal/Linguistic

Table 4 shows that there are 26 writing objectives in the curriculum. All of these objectives cater to the verbal/linguistic intelligence. This is followed by mathematical/logical (3), visual/spatial (2), and social/interpersonal intelligences (1), respectively. In addition, four of these objectives deal with grammar.

4. Result

This study aims to investigate to what extent learning objectives in the secondary school Turkish language curriculum (2019) reflect and engage Gardner's theory of multiple intelligence. In the curriculum, there are 112 learning objectives that learners will have acquired completing their studies. The study results show that each objective in the curriculum caters to at least one type of intelligence. However, 25 objectives cater to more than one intelligences. The study further reveals that out of 8 intelligence types only 5 of them have been represented in the curriculum. The objectives in the curriculum mainly represent verbal/linguistic intelligence (103). This is followed by mathematical/logical (17), visual/spatial (12), social/interpersonal (3), and bodily/kinesthetic intelligences (2), respectively. The ratio of the objectives representing verbal/linguistic

intelligence is 75%. The reason for this is that Turkish is a verbal and linguistic course. Another important finding is that there are no objectives in the curriculum representing intrapersonal, musical/rhythmic and naturalistic intelligences. The literature also provides enough evidence to support this finding. For example, Güney et al. (2010) in their study, investigated the profile and the extent of use of the multiple intelligences in the 2005 Turkish course curriculum. The study found that learning objectives represent the most verbal/linguistic intelligence, and mathematical/logical intelligences, respectively. However, no example of musical/rhythmic and naturalistic intelligences was found. Another study was conducted by Ergin (2007: 107). He investigated to what extent learning objectives in the 4th and 5th grade curriculum represent Gardner's theory of multiple intelligence. The study also shared the same results with the current and above mentioned researches. Learning objectives mostly catered to verbal/linguistic and mathematical/logical intelligences, leaving almost no place for musical, bodily-kinesthetic, social and naturalistic intelligences. Apart from these studies, there are also a few studies evaluating the activities in Turkish textbooks whether they can be described as appropriate based on multiple intelligence theory. For example, Sarikaya (2021) found that intelligence profile of the activities in the Turkish textbook is predominantly verbal-linguistic. Naturalistic and musical/rhythmic intelligences, on the other hand, were identified as the least intelligence type catered in the activities. Kırbaçoğlu, Baki and Bayram (2014: 83) also reached findings similar to those of Sarikaya (2021). The intelligence profile of the activities in the 8th grade Turkish teacher's guide book is predominantly verbal-linguistic. Epçaçan and Kırbaş's (2018) study again disclosed that the prominent intelligence type in the activities given in the 8th grade Turkish textbook is verbal/linguistic. However, no example of naturalistic and musical/rhythmic intelligences was found. Lastly, the studies in which the views of Turkish teachers were discussed shared also similar findings (Kana & Demir, 2017).

In the curriculum, there are a total of 15 listening/monitoring objectives. These represent the most verbal/linguistic intelligence (15). This is followed by mathematical/logical (4), bodily/kinesthetic (1), and visual/spatial intelligences (1), respectively. However, no example of social/interpersonal, internal, musical rhythmic, and naturalistic intelligences has been found. The study, conducted by Güney et al. (2010), also provides evidence to prove this finding. The study found that learning objectives represent the most mathematical/logical (19), and verbal/linguistic (15) intelligences, respectively. However, there were no learning objectives representing musical/rhythmic and naturalistic intelligences.

The number of speaking objectives in the curriculum, on the other hand, is 7. All these cater to the verbal/linguistic intelligence. This is followed by social/interpersonal (2), and bodily/kinesthetic intelligences (1), respectively. It seems to show that this skill is missing both in terms of the number of objectives and frequency distribution of intelligences. However, it seems plausible that learning objectives mostly cater to verbal/linguistic since speaking is an expressive skill (Başaran and Erdem, 2009: 744). In their study, Güney et al. (2010) also yielded the same results. Speaking objectives mostly catered to the verbal/linguistic intelligence. There are also a total of 62 reading objectives in the curriculum. These objectives again represent mostly verbal/linguistic intelligence (55). This is followed by mathematical/logical (10), and visual/spatial intelligences (9), respectively. These rates emphasize enough the importance of reading skill but despite this, no example of intrapersonal, musical rhythmic, and naturalistic intelligences has been found. This is one of the remarkable findings of the study. Many of the research results also provide evidence to prove this finding. For example, in his study, Epçaçan (2013) found that activities based on the theory of multiple intelligence improve students' reading habits and their perception of reading comprehension. In their study, Güney et al. (2010) also reached findings similar to the current study. Reading objectives mostly catered to the verbal/linguistic and mathematical/logical intelligences. However, no example of musical rhythmic and naturalistic intelligences was found.

Lastly, there are 25 writing objectives in the curriculum. These objectives again represent mostly verbal/linguistic intelligence (26). This finding is important because writing has a positive impact on a person's world of thought and language (Sarikaya, 2020: 44). Following verbal/linguistic intelligence, mathematical/logical (3), visual/spatial intelligence (2), and social/interpersonal intelligences (1) are identified as the most intelligence type catered in the writing objectives. Güney et al. (2010), also yielded also the same results. Writing objectives represented mostly verbal/linguistic, and mathematical/logical intelligences.

The following recommendations for future researches are based on the study finding:

1. It is noteworthy that there are no objectives which cater to internal, musical/rhythmic and naturalistic intelligences. This can be considered a deficiency in existing the curriculum. Therefore, activities that can help overcome this can be designed.
2. Conducting some courses in a natural environment, using musical tracks in some courses, or performing activities in which students are able to recognize and express themselves can make the curriculum more efficient.
3. Teachers and administrators can be informed about multiple intelligence theory.
4. Learning objectives in the curriculum of other courses can also be studied and discussed based on the theory of multiple intelligence.

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Development of Verbal Games Achievement Test of Primary School 3rd Grade Science Lesson “Let’s Know About Substance” Unit

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Abstract

The aim of the study is to develop an achievement test consisting of the questions in verbal intelligence games whose validity and reliability have been ensured and which are in accordance with the learning outcomes of the states of substance and knowing the properties of substance via the five senses taking place in the unit “Let’s Know About Substance” in primary school 3rd grade science lesson. In this framework; the games of find with code, anagram, the deleted word, deficient word and word tour being from the verbal intelligence games have been used in the test. Scanning method from quantitative research methods has been used during the development process of the test. Question inventory has been formed by the researchers. Content validity of the test has been carried out by preparing table of specifications and reliability calculations of the test have been carried out upon the data attained from 187 primary school third grade students in different cities of Turkey with random sampling method for the purpose of having a pilot study. The reliability coefficient for Primary School Third Grade Science Lesson “Let’s Know About Substance” Unit Verbal Games Achievement Test has been found as (α) 0.92. Cronbach Alpha The mean item difficulty and distinctiveness indexes of the test have been calculated with the conducted item analysis. Findings show that the developed achievement test is a valid and reliable test. An achievement test consisting of 15 items and three factors as coding games, circle games and word games, in which the distinctiveness of all questions is at sufficient level, which is at a difficulty level close to the average, whose mean difficulty index is at medium level, which is valid and whose points are highly reliable and which has been formed with verbal intelligence games has been developed within the direction of the aim of the study.

Keywords: Let’s Know About Substance, Science, Verbal Intelligence Games, Third Grade

1. Introduction

1.1 Problem Status

Today, states make many reformist innovations and modifications in the field of education to adapt to the rapidly changing world and to the life becoming more competitive with new arrangements. The developments

experienced also in the field of science give rise to the emergence of new information and they come into our daily lives in the form of new technologies. As the data obtained especially in the field of science affect human life directly, the need for education on this subject increases in the society and therefore, science education gains importance day by day.

In our current world, the impact of change shown in almost all areas of our lives by the rapidly developing technology and tools becomes inevitable also in the education-teaching environment. As an impact of this change, it is aimed to transform the education-teaching activities into satisfactory events for students in the teaching environments and ensure the students to conduct their own learning willingly and in an active way (Yükseltürk & Altıok, 2016). Within this context; game-based teaching environments are prepared by using the games popular for students in which they could freely express themselves and focus without any boredom also in the teaching process (Öztemiz & Önal, 2013; Ülküdür, 2016). Games could be handled as natural learning tools and the players could be ensured to be able to learn the phenomena such as habits, experiences, knowledge acquisition and cooperation through doing and living by using the information and skills necessary during the game.

Game is an activity also used in the education and teaching activities though it is mostly used for entertainment purposes. Game is one of the most important tools urging the students to be able to express themselves and realize their skills and supporting their mental, social, emotional, physical and linguistic developments. Also; game based teaching could be defined as supporting teaching with educative and informative games. The greatest benefit of game based teaching is that it makes teaching more entertaining and it increases motivation (Demirel, 2008). Game based teaching activities could be conducted in every area of education. Also, it increases the efficiency of teaching by urging the students to learn by doing and living (Yağız, 2007).

Kirriemur and McFarlane (2004) have stated that game is vitally important in developing the skills decision making as a group and data processing, discussion, practices on numbers, communication, planning, such as strategic thinking; and Bottino and Ott (2007) have specified that intelligence games are highly significant in developing the properties such as logical reasoning, thinking skills and strategic thinking. In addition; Devocioğlu and Karadağ (2014) have expressed that intelligence games support the critical thinking and authentic problem solving skills of the individuals such as visual and verbal intelligence, forming solution ways, developing approach peculiar to themselves, designing, problem solving, shaping and tactical development. The contributions of games towards behavior increasing attention and concentration (Garris, Ahlers, Driskell, 2002), such as increasing motivation (Rosas et al., 2003) and developing positive attitude towards learning (Lou, Abrami & D'Apollonia, 2001) could also be mentioned as well as its benefits towards teaching (Saygı & Alkaş Ulusoy, 2019). One of the intelligence games consisting of six sub-disciplines is verbal games (Head Council of Education and Morality [HCEM], 2013:3). Verbal games are the types of games in which vocabulary is used as well as logical inferences. Logical inferences of the individuals are necessary to be used together with their vocabulary knowledge. The games such as anagram, word finding, taboo, scrabble, dixit, word hunt, password games, contextualization and word ladder could be given as examples for these games (Marangoz, 2018; MEB, 2016). Recognition of students by teachers, knowledge of the methods and techniques to be used in teaching and supporting the teaching process with family contribution works are important for the concepts related to science to be taught via intelligence games (Kurupınar, 2020: 58). It is possible for most of these games to be able to be used in the teaching of the concepts/learning outcomes taking place in science teaching.

The organized games related to the subjects taught in science activities means that those learned emerge via experiences in a way. Especially the fact that the games arranged for teaching science significantly increase the learning success could be expressed as a main qualification. Game based on teaching could be said to ensure a more permanent learning of science.

The recent developments in the field of informatics and technology and the demands changing depending on these developments have made it obligatory to develop new approaches and searches in the area of education. Especially the new approaches in the area of learning such as constructivist learning theory, multiple intelligence

theory and project based learning have deeply affected the traditional learning, teaching and evaluation approaches (Fourie & Van Niekerk, 2001).

Together with this new approach, the inclusion of the learning process to the evaluation as well as the learning product has gained importance. This situation has brought to the forefront the alternative evaluation methods such as performance evaluation, project, portfolio, rubric, self and peer assessments (Anderson, 1998; Dochy, 2001; Sherpard, 2000). Assessment and evaluation being an inseparable part of the teaching process are conducted for the purpose of determining the achievements and deficiencies of students, understanding the efficiency of teaching methods and revealing the strong and weak sides of the program (MEB, 2004). Questionnaires, oral exams, true-false tests, multiple choice tests and matching tests are used in all branches of education so as to assess and evaluate the success of students (Kempa, 1986; Şimşek, 2009; Ogan Bekiroğlu, 2004; Yılmaz, 2004; İpek Akbulut & Çepni, 2013). Each one of these assessment tools has superior and inferior sides when compared to one another depending on their usage purpose. Multiple choice tests providing opportunities for assessing the success of students, examining all the lessons in an efficient way by asking so many questions within a test period and measuring both basic and complex concepts are one of the most frequently used assessment tools today. Teachers who could manage this process as required will be able to have an opportunity of being able to see their students and their capacities in a closer way and conduct extra activities that will fill the deficiencies if existent by reviewing the teaching process. Game based assessment and evaluation methods will contribute to the students to have more entertaining learning, obtain more permanent knowledge and develop high-level thinking skills.

1.2 The Aim and Significance of the Study

The aim of this study is to provide more permanent information in learning science at early ages, make science subjects more entertaining, provide students with high-level thinking skills and develop primary school third grade science lesson “Let’s Know About Substance” unit verbal games achievement test for the purpose of teaching science subjects with games. The subject “Let’s Know About Substance” is one of the main units containing concepts hard to understand for students. When the primary education teaching program is examined, it is seen that the unit “Let’s Know About Substance” contains many different subjects and concepts in its sub-heading. Many studies related to these concepts have been conducted regarding the revelation of the errors and readiness of the students of different ages and grades. Achievement tests have been developed in these conducted studies. In this study, teachers are believed to find an opportunity of being able to determine the errors, readiness and learning status of students and, in parallel to this, being able to arrange the learning activities together with the test developed with verbal intelligence games. Besides, it is thought that it will be an entertaining assessment and evaluation tool in all learning areas of science specific to “Let’s Know About Substance” unit of primary school third grade students.

2. Method

This study has been conducted using scanning pattern being from quantitative research methods. For this reason, some stages have been followed to develop the test in this study. These stages have been followed respectively as follows. Firstly, the aim of the test has been determined. The aim of the test for this study is to develop primary school third grade science lesson “Let’s Know About Substance” unit verbal games achievement test. After that; the properties/learning outcomes to be assessed in the test have been determined. Items have been written in the next stage and a trial test has been prepared after reviewing. The pilot scheme of the test has been conducted, results have been scored and statistical calculations have been made. Test has been finished as a result of the calculations (Gömlüksiz & Erkan, 2010: 144). Data have been attained via online methods and the ethical board permit for application has been taken with the date 22/02/2021 and no. 9178 from Afyon Kocatepe University.

2.1 Sample

The sample of this study consists of primary school third grade students having education in 8 cities of Turkey in 2020-2021 education-teaching term and voluntarily participating in the study. Within this scope, 187 primary school third grade students whose data have been collected via online methods have formed the sample group of the study. Convenience sampling method has been used in the study.

2.2 The Development Process of Primary School Third Grade Science Lesson “Let’s Know About Substance” Unit Verbal Games Achievement Test

In this part, the achievement test has been developed by also considering the four criteria taking place in the method developed by Webb (1997). Within this scope; firstly, the stage of the determination of the aim and area of the test has been conducted. At the second stage, the item number of the test has been determined, spell check has been conducted and expert opinions have been asked. At the third stage, the content validity of the test has been examined and at the last stage, the reliability of the test has been analyzed and the test has been finalized.

2.2.1 The Determination of the Aim and Area of the Test

As a result of the literature review; considering the problem situation, the aim of the study was determined as the development of the primary school third grade science lesson “Let’s Know About Substance” unit verbal games success test.

2.2.2 The Determination of Item Number, Spell Check and Expert Opinions

Firstly, a question inventory consisting of the questions produced by researchers regarding 5 verbal intelligence games handled for the learning outcomes determined within the theoretical framework formed at the data collection stage. 15 questions from this question inventory whose distribution has been given in Table 1 have been broached to the opinions of experts. Necessary corrections have been made by taking into consideration the feedbacks of 3 people expert in the areas of intelligence games and science education. Afterwards, the corrected 15 questions have been sent to 3 more experts and the test has been finalized by conducting spell check and controls within the direction of the feedbacks.

2.2.3 Provision of the Content Validity of the Test

Content validity forms the starting point in the development of achievement tests. Preparation of the table of specifications for tests is a way in increasing the content validity of the test (Büyüköztürk et al., 2012: 188). For this purpose; firstly, the table related to the learning outcomes covered by the questions has been prepared before the application to ensure the content validity of the test to be applied in the study.

2.2.4 Reliability of the Test

The statistical technique that may serve the reliability of the points taken by students from a test is Cronbach Alpha method. This method could be used in the test in which correct answers are given one point and wrong answers are given zero point (Atılğan, 2013). Interpretations could be made on the reliability of the points taken by the students from the test by considering the coefficient obtained with these statistical techniques. Reliability coefficient is expressed with a number changing between zero and one. The reliability of the points taken by students from the test increases as long as this value approaches to one (Gömleksiz & Erkan, 2010). Cronbach Alpha coefficient (α) being lower than 0.40 shows that the points taken by students from the test are not reliable; being between 0.60-0.90 shows that the points taken by students from the test are very reliable; and being above 0.90 shows that the points taken by students from the test are highly reliable (Can, 2014). Within this scope; the results of the analysis conducted in order to reveal the reliability of the test are given in the findings part.

3. Findings

The validity and reliability studies of the verbal games achievement test developed for 3rd grade Science lesson “Let’s Know About Substance” unit are given place in this part of the study.

3.1. Validity Study of the Test

3.1.1. Content validity

Content validity forms the starting point in the development of achievement tests. Preparation of the table of specifications for tests is a way in increasing the content validity of the test (Büyüköztürk et al., 2012: 188). For this purpose; firstly, the table related to the learning outcomes covered by the questions has been prepared before the application to ensure the content validity of the test to be applied in the study. The learning outcomes in the related unit and the distribution of the games corresponding to these learning outcomes are given in Table 1.

Table 1: Learning outcomes related to the content of the test and their distribution to the games

Learning Outcomes	Games				
	Find with Code	Anagram	Deleted Letters	Word Tour	Deficient Letters
Students will be able to explain the main characteristics qualifying the substance by using the sense organs.	x	x	x	x	x
Students will be able to classify substances in their environment according to their states.	x	x	x	x	x
Item Number	6	3	3	2	1

When Table 1 is considered, third grade science lesson “Let’s Know About Substance” unit learning outcomes corresponding to the games in the developed test are given. When the question distributions are considered, it is seen that 6 questions take place in Find with Code game, 3 questions take place in Anagram game, 3 questions take place in Deleted Letters game, 2 questions take place in Word Tour game and 1 question takes place in Deficient Letters game.

Another way used to be able to determine the content validity of the test is to rank the points of the students in an ascending sort, determine two groups as 27% lower group and 27% upper group and calculate the item distinctiveness and difficulty indexes of the questions according to these groups. The scores of 50 students being 27% of 187 students have been examined at the stage of the determination of the upper group. The point of the 50th student among these students is 14. Thereof; 19 more students having the same point have been included and in this way, the upper group has consisted of 69 students. Again; while determining the lower group, the point of the 50th student has been seen to be 11. Thereof; 21 more students having the same point have been included and in this way, the upper group has consisted of 71 students. After that; the item distinctiveness indexes (D) and item difficulty indexes (p) of the questions have been calculated according to the lower and upper groups and given in Table 2.

Table 2: Item difficulty (p) and distinctiveness (D) indexes of the items in the test

Items	p	D
1	0,778	0,414
2	0,792	0,385
3	0,792	0,385
4	0,800	0,371
5	0,792	0,357
6	0,821	0,328
7	0,592	0,671
8	0,728	0,514
9	0,7	0,571
10	0,45	0,871
11	0,657	0,628
12	0,785	0,400
13	0,778	0,414
14	0,778	0,414
15	0,464	0,614

Item distinctiveness index being 0.40 and above for each item shows that the distinctiveness power of that item is high, being between 0.30-0.39 shows that the distinctiveness power of the item is at medium level; being between 0.20-0.29 shows that the distinctiveness power of the item is at insufficient level and the item should be corrected and being 0.19 and below shows that the item has no distinctiveness power; namely, it should be extracted from the test (Tekin, 2010). As seen in Table 2, the item distinctiveness values of the questions taking place in the test are seen to be above 0.30. In this respect; it could be said that the distinctiveness of all questions is at sufficient level.

Item difficulty index approaching 1 means that that item is easy and it is hard for that item to approach 0; being 0.50 means that the question is at medium difficulty (Atılğan, 2009). Besides; if a test is desired to correctly define the variability between those knowing and not knowing the subject, it should consist of the items with medium difficulty (Gömleksiz & Erkan, 2010). When these values and explanations are taken into consideration, it is seen that the questions are close to being easy according to Table 2.

The average difficulty index of a test gives some information regarding the test. The average difficulty of the test being below 0.50 shows that the test is hard for students; being above 0.50 shows that the test is easy for students. Depending on this, it is necessary for the average difficulty index of a test to be around 0.50 (at medium difficulty) (Tekin, 2010). When the average difficulty index of the applied test ($p = 0.489$) is considered, it could be said that the test is in medium difficulty.

3.1.2. Construct Validity of the Test

There are two important conditions to be able to start exploratory factor analysis while developing an assessment tool. These are Kaiser-Meyer-Olkin (KMO) value and Bartlett's test results. KMO test gives information on whether the sample magnitude is sufficient or not. If this value is 0.7 and above, it means that it is good and if it is between 0.5-0.7, it means that it has sample that will provide sufficient relation. Moreover; number of individuals 5 or 10 times more than the item number taking place in the assessment tool is tried to be reached as a general way regarding the sample magnitude. Bartlett's test is used in the determination of whether the data come from normal distribution or not. The value related to this test should be significant (Can, 2014; Seçer, 2013). By taking these values into consideration, it could be said that the sample magnitude of 150 people regarding the 15-question test used in the study is sufficient. This number has been excessively met in this study by reaching 187 students. Furthermore; KMO value of the test has been found as 0.900 and Bartlett's test has been found as significant ($p=0.00<.05$). According to the results obtained from KMO and Bartlett's tests, it has been decided that the sample magnitude and the distributional normality of the data are convenient for continuation to the factor analysis.

When the matrix of components attained as a result of the exploratory factor (main components) analysis conducted to be able to turn the assessment tool into a tool that could assess the highest properties with the least number of items is considered, it has been seen that the first factor load value of all 15 items of the scale is 0,466 and above. The variance caused by this factor before rotation is 51.16%. In addition; there is no cyclical item in the test. Results of the analysis are given in Table 3.

Table 3: Factor distribution of the test after rotation

Item Number	Factor Common Variance	After Rotation		
		Load at 1 st Factor	Load at 2 nd Factor	Load at 3 rd Factor
6	,840	,963		
5	,808	,915		
2	,880	,893		
4	,830	,860		
3	,778	,820		
1	,731	,807		
14	,853		,903	
13	,833		,882	
7	,679			,849
9	,660			,730
10	,557			,726
11	,522			,552
8	,664			,547
15	,309			,521
12	,560			,362

As seen in Table 3, the emerging scale has three factors. The first factor explains 51.16% of the total variance regarding the scale, second factor explains 10.08% and the third factor explains 8.77%. The total factor explained by the three factors altogether is 70.02%. In this respect; the items taking place in each factor are as follows:

1st Factor: 6, 5, 2, 4, 3, 1

2nd Factor: 14, 13

3rd Factor: 7, 9, 10, 11, 8, 15, 12

After the determination of the factors, items taking place in each factor have been examined and these factors have been named by the researchers. In this respect; 1st factor questions have been named as coding games, 2nd factor questions have been named as circle games and 3rd factor questions have been named as word games. It could be said that the achievement test prepared in the study reveals a three-factor structure and this structure consists of the factors of coding games, circle games and word games.

Another element giving ideas for the factors in the assessment tool is “Scree Plot” graph. The graph has been given place in Figure 1.

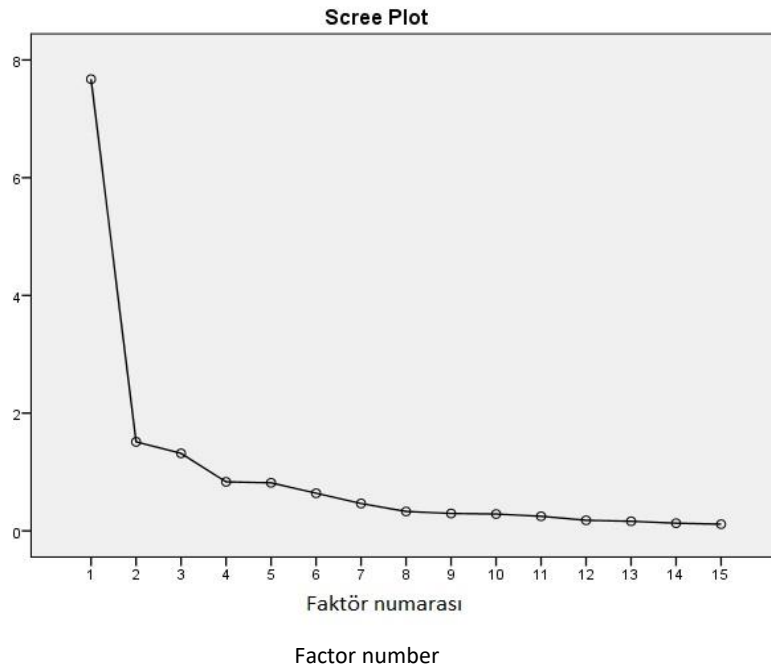


Figure 1: Scree plot graph of the test items

The distance between two points indicates a factor in “ScreePlot” graph. The curve gets smoother after a certain point in this graph. The contribution of the factors after this point to the variance is little (Çokluk, Şekercioğlu & Büyüköztürk, 2010). When the graph in Figure 1 is considered, it is seen that the curve starts to get smooth after the 3rd factor. In this respect, it could be said that the test significantly consists of three factors.

3.2. The Reliability Study of the Test

There are different statistical techniques that may serve the reliability of the points taken by students from a test. KR-20 and KR-21 statistical techniques have been developed for usage purposes in the tests in which correct answer is given one point and wrong answer is given zero point. KR-20 among them is used in the event of knowing the difficulty indexes of each item in the test and KR-21 is used in the event of not knowing it. Another statistical technique that may serve the reliability of the points taken by students from a test is Cronbach Alpha method. Because this method is established on the same logic, it could be used in the tests in which correct answer is given one point and wrong answer is given zero point (Atılğan, 2013). Interpretation could be made on the reliability of the points taken by the students from the test by considering the coefficient attained with these used statistical techniques. The reliability coefficient is expressed with a number changing between zero and one. The reliability of the points taken by students from the test increases as long as this value approaches to one (Gömleksiz & Erkan, 2010). Cronbach Alpha coefficient (α) being lower than 0.40 shows that the points taken by students from the test are not reliable; being between 0.60-0.90 shows that the points taken by students from the test are very reliable; and being above 0.90 shows that the points taken by students from the test are highly reliable (Can, 2014).

In this study, Cronbach Alpha coefficient has been used to determine the reliability of the points taken by students from the test. Reliability coefficient has been calculated as $\alpha=0.921$ for this test. As a result of the conducted analyses; it could be said that a verbal games achievement test which is valid for 3rd grade Science lesson “Let’s Know About Substance” unit and whose points are reliable has been developed in this study (Appendix - 1).

4. Result, Discussion and Suggestions

The aim of the study is to develop an achievement test consisting of the questions in verbal intelligence games whose validity and reliability have been ensured and which are in accordance with the learning outcomes of the states of substance and knowing the properties of Substance via the five senses taking place in the unit “Let’s Know About Substance” in primary school 3rd grade science lesson. While preparing the test; the stages of the determination of the aim and content of the test, determination of item number, spell check and expert opinions, content validity of the test and the calculation of the reliability of the test being the main criteria in the method developed by Webb (1997) have been followed (Güler, 2012; Özçelik, 2011).

An achievement test consisting of 15 items and three factors as coding games, circle games and word games, in which the distinctiveness of all questions is at sufficient level, which is at a difficulty level close to the average, whose mean difficulty index is at medium level, which is valid and whose points are highly reliable and which has been formed with verbal intelligence games has been developed within the direction of the aim of the study. When the literature is examined, it is possible to encounter with many test development studies prepared in the subjects of “Let’s Solve the Puzzle of Our Body, Granular Structure of Substance, Work and Energy, Simple Electric Circuits, Solutions, Heat and Temperature” and in different science subjects at various grade levels within the scope of Science education studies (Saraç, 2018; Açıkgöz and Karlı, 2015; Demir and Akarsu, 2014; Demir, Kızılay and Bektaş, 2016; Şener and Taş, 2017; Şen and Eryılmaz, 2011; Ayvacı and Durmuş, 2016; Tosun and Taşkesenligil, 2011). When these studies are examined, it can be said that the test development stages show similarities with those of this study.

Moreover; in the study conducted by Değirmenci and Doğru (2019), the realization levels of the learning outcomes of primary 4th grade science lesson “Let’s Know About Substance” unit have been examined and it has been concluded that the learning outcomes could not be gained to the students at the desired level. Üçüncü and Sakiz (2020) have developed a multiple-choice test with high validity and reliability and consisting of 35 items related to primary school 4th grade “Let’s Know About Substance” unit. Alkış Küçükaydın, Karamustafaoğlu and Uluçınar Sağır (2014) have also developed a multiple-choice achievement test consisting of 30 items for 4th grade “Let’s Know About Substance” unit. Again; when these studies in the literature are considered, it is seen that they have used the criterion stage of Webb and examined “Let’s Know About Substance” unit. The difference of these studies from this study is that they are the studies at primary school 4th grade level and they have used multiple-choice assessment and evaluation method in the tests they have developed. Primary school third grade Science lesson “Let’s Know About Substance” unit verbal games achievement test has been developed via intelligence games and it is at 3rd grade level and therefore, it shows differences from the studies in the literature.

It is also possible to encounter with the achievement tests developed using intelligence games and studies revealing the efficiency of intelligence games. Savaş (2019) has studied the impact of intelligence games on the critical thinking skills of science teacher candidates and stated according to the obtained results that intelligence games could be used in science education at the assessment and evaluation stages. Marangoz and Demirtaş (2017) have studied the impact of mechanical intelligence games on the cognitive skills of primary school 2nd grade students, Şahin and Tezci (2018) have examined the impact of intelligence games on the problem solving tendencies of primary school 4th grade students. Tarakçı and Yüksel (2020) have developed verbal games test using the deficient letters and anagram game in the subject of astronomy for science teacher candidates. Again; it is also possible to see many studies in the literature related to intelligence games. However, when the studies conducted about intelligence games are considered, no study could be seen for the development of science lesson “Let’s Know About Substance” unit achievement test with verbal games at third grade level. In this concept, it could be said that there is only one study conducted by Tarakçı and Yüksel (2020) having similarities with this study.

As known; today, multiple-choice tests, written exams and oral exams are frequently used to evaluate the student success in assessment and evaluation processes. These assessment tools both tire the students with many questions in a very short period of time, cause the students to get bored and may cause them to stay away from

the related lessons. The achievement test developed with verbal intelligence games is considered to be an efficient method in teaching the concepts in all science subjects specific to “Let’s Know About Substance” unit at especially primary school third grade level students and in measuring the obtainment degree of the learning outcomes.

Consequently; primary school third grade science lesson “Let’s Know About Substance” unit verbal games achievement test is a valid and reliable assessment tool that could be used during the in-class assessment processes in Science Education in terms of its preparation in accordance with both other scientific studies and the curriculum.

This developed test could be used as an alternative assessment tool in other grades of primary school and after adaptation to other disciplines. Again; an achievement test in which verbal games are used could be developed in accordance with the curriculum (middle school and high school) in the educational levels at different grades.

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Appendix A

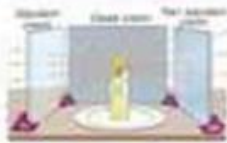
Primary School Third Grade Science Lesson “Let’s Know About Substance” Unit Verbal Games Achievement Test

Dear students, please carefully review what you have learnt in “Let’s Know About Substance” unit and the following image before starting the test.

What are the main properties qualifying a Substance? Please write in items.



Answer: The main properties qualifying a Substance



- 1- Hardness – softness
- 2- Flexibility
- 3- Fragility
- 4- Roughness – Smoothness
- 5- Color
- 6- Odor
- 7- Flavor
- 8- Transparent – Opaque



FIND WITH CODE

Please find the concepts related to “Let’s Know About Substance” unit by writing the letters in the given codes to their places.

	1	2	3	4	5
A	P	A	N	İ	O
B	F	R	D	T	E
C	L	V	Ş	C	U
D	S	M	Z	K	Ü
E	G	H	I	Y	Ö

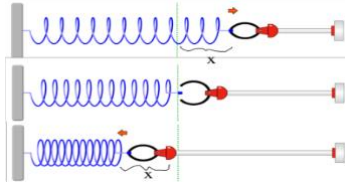
1. 4D, 2A, 4B, 3E

- 2. 4D, 5A, 4D, 5C
.....
- 3. 4B, 2A, 4B
.....
- 4. 2B, 5B, 3A, 4D
.....
- 5. 1D, 3E, 2C, 3E
.....
- 6. 1E, 2A, 3D
.....

ANAGRAM

Please produce a word related to “Let’s Know About Substance” unit using all letters of the given two words just once.

7.



SİNEK
KEL



.....

8.



AD
DEM



.....

9.

Please find the new word by replacing the places of the words below and using each letter once.

T	E	R	S	
---	---	---	---	--	-------	-------	-------	-------

THE DELETED LETTERS

One or two letters of the words or phrases below have been deleted and the remaining letters have been ordered in a mixed way. Please find these words or phrases whose clues have been given as related to “Let’s Know About Substance” unit.

10.

A	C	D	E	I	ı	ı	R	T	
---	---	---	---	---	---	---	---	---	--

ANSWER: AYIRT EDİCİ

A	T	E	İ
---	-------	-------	-------	---	---	-------	-------	-------	-------	---

11.

A	A	D	D	E	H	İ	İ	L	M	N	
---	---	---	---	---	---	---	---	---	---	---	--

ANSWER: MADDENİN HALİ

M	D	N	İ
---	-------	-------	---	-------	-------	-------	---	-------	-------	-------	---

12.

P	R	S	Ü	Ü	Ü	Z	
---	---	---	---	---	---	---	--

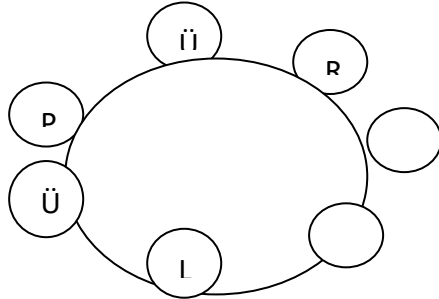
ANSWER: PÜRÜZSÜZ

.....	Ü	S	Z
-------	---	-------	-------	-------	---	-------	---

DEFICIENT LETTERS

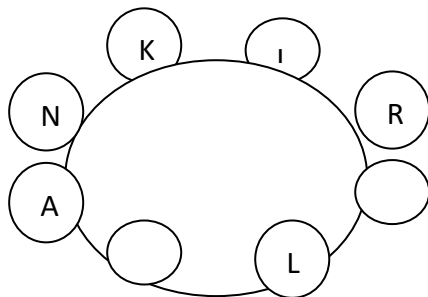
Please obtain a word by completing the deficient letter when you read by starting from a letter in clockwise or counterclockwise direction.

13.



ANSWER: PÜRÜZLÜ

14.



ANSWER: KIRILGAN

WORD TOUR

You are supposed to wander all squares on condition that you will be existent in every square exactly once and also supposed to find 2 words with respectively 7 and 9 letters.

- You can start from any square.
 - You can move to a square adjacent to the square you are in (horizontal, vertical, crosswise, right and left) at every step.
- Tip: The first letter of the words you will produce takes place in the colored boxes.

15.

B	E	N	K						
U	Ş	A	Z						
M	L	R	E						
U	Y	İ	K						
B

ANSWER: BENZERLİK

Y
---	-------	-------	-------	-------	-------	-------	-------

ANSWER: YUMUŞAK



Experiences of Turkish Middle School Science Teachers' First Science Fair Projects Coordination

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Abstract

This study aimed to reveal the experiences of science teachers conducting a science fair project for the first time. The research used quantitative data based on an online assessment survey for science fair projects. There are twenty-one questions (one of them is open-ended, the others are Likert type) developed by the researcher. The questionnaire was shared with science teachers on the science fair, 4006 science fairs, Tübitak science fairs themed social media pages between June and October 2018. 244 coordinator science teachers marked the survey. The data obtained from the questionnaire was presented in a tabular form by deducting % and frequencies. On the other hand, the last open-ended questions were analyzed by using content analysis. Based on these results, science teachers, who carried out the fair coordinator for the first time and to be able to do it again have some expectations of practicing positive experiences such as the students should gain scientific skills, the fair should be carried out in cooperation, the responsibilities were shared in a balanced way in the school, the school administrators should both support and help the process, the advisors should take ownership of the job, be appreciated by stakeholders with awards, etc. However, this first experience posed a sufficiently unexpected result at least for some of them.

Keywords: Science Fair Project, Science Education, Informal Learning, Project-Based Learning, Teachers' Experiences

1. Introduction

One of the most important aims of science education is to raise scientifically literate individuals. Scientifically literate individuals are those who know the nature and characteristics of scientific knowledge and can effectively use the concepts, principles, theories, and laws of science while interacting with their environment. A science-literate individual is expected to understand the nature of science and scientific knowledge, basic science concepts, principles, and theories, to use scientific process skills while solving problems, to be aware of and understand the interaction between science, technology, and society, and to have scientific attitudes and values (Abd-El-Khalick & Lederman, 2000; Küçük, 2006; Küçük & Yıldırım, 2020; McComas, 1996). Again, science-literate individuals are more effective individuals in accessing and using information, in solving problems, in making decisions about problems related to science and technology, taking into account the possible risks, benefits, and options available, and producing new knowledge. Due to the listed benefits, discussions on how individuals who make up the society can become science literate are increasingly continuing (AAAS, 1993;

Maarschalk, 1988). Since science is an important factor for the progress of societies, raising individuals who know how to obtain and use this scientific knowledge emerges as an important necessity for also sustainability. In the 21st century, improvement in science and technology determined the levels of the countries, so, new approaches in education are applied to make students love science, mathematics, and technology and to direct them to these fields.

The related literature indicated that one of the reasons students science fear is undoubtedly the way science education is taught (Kaya & Yıldırım, 2014). Many experts advocated that it is necessary to apply an education method that is not based solely on presenting scientific knowledge, but is made with scientific methods by questioning, makes the student feel like a scientist, and leads to the enthusiasm for more research and learning with the sense of success achieved during education (Cuevas, Lee, Hart, & Deaktor, 2005; Samarapungavan, Mantzicopoulos, & Patrick, 2008). In this context, the concept of "inquiry-based science and mathematics education" has emerged, based on the views that knowledge is structured through experiences in schools and that learning should be an active process. "Most would agree that the general purpose of scientific inquiry is to develop a comprehensive understanding of the world in which we live" (Haysom, 2013, p.41). This can be achieved not only with lessons in the classical classroom setting but also in an informal way (Küçük & Yıldırım, 2019). For this purpose, children need to have experience of doing projects individually and/or with a team to acquire 21st-century skills. Completing a science fair project teaches all of the 21st-century skills divided into 3 categories as learning and innovation skills, digital literacy skills, and career and life skills (Fadel & Trilling, 2009). Participating in the science fair experience is an effective way for students to learn of their physical world in a meaningful and educationally sound way and to form questions constructed by themselves implementing the scientific method. Although the counseling of teachers is important in this process, their role should be to provide the expert support needed for students to find original issues, to project, carry out and conclude them, rather than directing them. However, unfortunately, it reveals that students either do not participate in the calls made to make projects, or in case of possible participation, consultancy support causes the management of the process to be completely under the control of the teacher after a while. As a natural consequence of this, both the resulting product is not a student product, and the students do not enjoy experiencing this process, nor are they able to realize the targeted learning (Küçük & Küçük, 2017). However, project calls opened by the public or non-governmental organizations have an important function to spread the culture of science in the society and to direct children to scientific studies and therefore to career from an early age. Turkey also attaches great importance to this issue like other nations, and related public institutions are run through regular project work programs for students every year. These programs are implemented by TUBITAK (The Scientific and Technological Research Council of Turkey) depend on the Ministry of Industry and Technology in Turkey. TUBİTAK carries out these programs through two presidencies (Science and Society Presidency and Scientist Support Programs Presidency). One of the programs run by the Presidency of Science and Society is known as 4006-Science Fairs. This program has been running for nine years, and each year these science fairs are displayed in an increasing number of schools nationwide. The first fairs were supported in the 2012-2013 academic year by 1000 pilot schools. Then, 881 schools in 2014, 3201 schools in 2015, 5986 schools in 2016, 5334 schools in 2017, and 9876 schools in 2018 have been supported (Okuyucu, 2019).

The main aims of science education are; (i) encouraging the adoption of science and scientific studies by new generations, (ii) associating science with daily life, (iii) spreading research techniques, scientific reporting, and scientific presentation skills to the grassroots, (iv) making and sharing scientific projects creating new environments and possibilities; and (v) learning the importance of science and scientific studies by applying/experiencing the importance of science and scientific studies in finding solutions to real-life questions and problems. In a way that may be directly related to this purpose science, fairs are endorsed by science educators, the Academy of Science, the National Science Foundation, and the National Research Council (2012), and by TUBITAK in Turkey also as a premier tool to teach the process of inquiry through project-based instruction.

The 4006-Science Fair program aims 5-12. class students in carrying out scientific studies scientific process skills by encouraging and finding solutions to questions and problems, to contribute to gain; at different cognitive, affective and psychomotor levels, providing every student with the opportunity to prepare a project; scientific research method and teaching techniques, reporting and presentation skills to students; by eliminating

the competition pressure on students. Science fair is a way for students to choose a topic of discovery and demonstrate their understanding of the scientific method by framing their questions and constructing their procedures (Olive, 2017). Within the scope of this call, the relevant schools prepare projects for at least five of the areas specified in the thematic sub-project areas (see fair call) table. These projects can be prepared individually by a student or in collaboration with study teams. A teacher from the same school advises each project. These projects can be research, study, or design projects in kind. Each fair has a coordinator who is selected and/or assigned by the school administration from among the teachers in the same school and who is directly responsible to TUBITAK. This teacher prepares a standard suggestion form that includes the purpose, method, and expected result of the projects prepared in thematic sub-project areas by the announced calendar and uploads it to the system. Each of the purpose, method, and expected results sections of the project proposals should be written in a minimum of 20 and a maximum of 50 words. In this way, each school uploads up to 25 sub-projects to the system. Each project is scored by Tübitak by three expert faculty members and with a scoring key clearly stated in the call text. In this way, fair score averages are calculated. Support decisions are made based on these scores and contracts are signed. Project fairs are held by this contract and on the dates announced by TUBITAK. The budget was transferred to the coordinator's account. Project exhibitions are supervised by an audience assigned by TUBITAK. These fairs are held in a suitable environment inside or outside the school, other schools, teachers, etc. many people are invited to the exhibition. In these exhibitions, students prepare their posters and introduce them to the visitors. Numerous news about these fairs takes place in the print and visual media.

Some studies have been carried out for the last three years to reveal the reflections of the program that has been carried out for nine years. In these studies, teachers' views on science fairs (Avcı & Özenir Su, 2018; Balcı, 2019; Dede, 2019; Doğan, 2020; Okuyucu, 2019; Selçuk, Atalmış, & Ataç, 2020; Soyuçuk, 2018; Tortop, 2013), students' views (Balcı, 2019; Benzer & Evrensel, 2019; Bozdemir, 2018; Kececi, 2017; Kececi, Kırbag- Zengin, & Alan, 2018; Okuyucu, 2019; Selçuk, Atalmış, & Ataç, 2020; Sontay, Anar, & Karamustafaoğlu, 2019; Şahin & Önder-Çelikkanlı, 2014; Yasar & Baker, 2003; Yıldırım, 2020), school administrator views (Atalmış, Selçuk, & Ataç, 2018; Doğan, 2020), fair executive views (Atalmış, Selçuk, & Ataç, 2018), opinions of consultants (Yıldırım, 2020), its contribution to education and training (Çolakoğlu, 2018), its impact on students' science skills and problem solving skills perceptions (Çavuş, Balçın, & Yılmaz, 2018; Keskin, 2019; Jaworski, 2013; Özdemir & Babaoğlu, 2019; Schmidt & Kelter, 2017; Yıldırım, 2018), scientific beliefs (Türkmen, 2019; Yavuz, Büyükeksi, & Işık-Büyükeksi, 2014), attitude towards science lesson (Keskin, 2019; Jaworski, 2013; Özdemir & Babaoğlu, 2019; Yıldırım & Şensoy, 2016; Wilson, Cordry, & Unline, 2004), images of scientist (Kahraman, 2019), anxiety levels (Keskin, 2019) have been researched. Based on the results of these studies, students of the fairs have scientific knowledge. It is an effective activity that directs students to work and stakeholders have a common belief that it leads to an increase in knowledge. However, teachers noted that it is difficult to prepare a science fair report and that it is hard work. that the project budget is not sufficient, and some school administrators stated that they forced the teachers to hold fairs. Although the students participating in the fair with their projects, Although the claim that their solving skills have increased, there is no evidence to support this result. On the other hand, students claim that they get help from their parents and teachers while determining the project topics. There is uncertainty as to whether the scope of this assistance is aimed at projecting the subjects found or chosen by the students or directly giving the subject. Similarly, although it is stated that they have positive contributions to the schools where the fairs are carried out (Avcı & Özenir Su, 2018), the scope of this contribution is not clear enough. In a study done by (Soyuçuk, 2018), 57.5% of the teachers were not willing to join in science fair projects. They also requested seminars and informative meetings on how to construct a science fair Project. At this point, the efficiency of the teachers who participate in an activity by force appears like an issue that needs to be considered for a long time.

Nevertheless, being an executive in science fairs offers science teachers an opportunity to showcase their special field competencies. Based on the fourth special area qualification -cooperation with the school, family, and community- science teachers to be aware of the responsibility of the school and itself in making the school a center of culture and learning, for this purpose should identify institutions and organizations which can cooperate such as TÜBİTAK, science centers, libraries, museums, factories, non-governmental organizations, and technoparks, and inform students within the scope of the education program of these institutions (MEB,

2008). In this context, these science fairs offer important opportunities both for students to gain these competencies and for teachers to provide these competencies. Therefore, the reflections of science teachers working in this organization for the first time on planning, implementation, and finalization will reveal important information about the adequacy of teacher training undergraduate programs on the one hand, and the interventions to be made in-service on the other. On the other hand, it can also provide an opportunity for a more accurate understanding of the relationship between project calls and those made in the field.

This study aimed to reveal the experiences of science teachers conducting a science fair project for the first time. In this way, the results obtained from the research can guide schools' stakeholders that will participate in the science fair and teachers and also researchers who plan to work in this field.

2. Method

This research used quantitative data based on an online assessment survey for science fair projects. A survey is an appropriate tool for a non-experimental, descriptive research study to gather information from a group of subjects (Ary, Jacobs, Razavieh, & Sorensen, 2006). It serves to collect both quantitative and qualitative data to answer the research questions. This study especially aimed to examine the science fair management experiences of the participants. In this context, the study also has a phenomenology pattern in terms of examining the science fair experiences (Cresswell, 2003). This qualitative pattern is used as a study to reveal how a certain number of people make sense of a concept or a phenomenon they experience.

2.1. The Sample

The study group included 244, 86 male (35,2%) and 158 female (64,8%) science fair project coordinators who are the first time on this special duty. Besides, 211 (86.5%) of the participants are undergraduate and 33 (13.5%) of them were graduate programs. 115 (%47) of the participants declared that they participated in any project supported by TÜBİTAK before, while 129 (%53) of them did not take part. They were also from a wide group with professional experience periods of 1-3 to 22 and above. Table 1 includes the sample group's professional experience levels.

Table 1: Distribution of the professional experiences of the participants

<i>Professional experiences of teachers</i>	<i>f</i>	<i>%</i>
1-3 years	51	20,9
4-6 years	64	26,2
7-11 years	74	30,3
12-16 years	32	13,1
17- 21	12	4,9
22- above	11	4,5
Total	244	100,0

Table 2 also contains the channel through which participants were informed about the call for the relevant science fair project.

Table 2: Distribution of channels that make participants aware of the science fair call

<i>Information channel about science fair call</i>	<i>f</i>	<i>%</i>
Through the Directorate of National Education	133	54,5
Via friend/colleague	42	17,2
From the TÜBİTAK* website	40	16,4
Via social media	14	5,7
Other	13	5,3
By student request	2	,8
Total	244	100,0

* The Scientific And Technological Research Council of Turkey

2.2. Data Collection

There are twenty-one questions (one of them is open-ended, the others are Likert type) developed by the researcher. The questionnaire was shared with science teachers on the science fair, 4006 science fairs, TUBITAK science fairs themed social media pages between June and October 2018. These social media pages were established by the teachers who carry out 4006 projects to communicate and share their experiences. These pages have thousands of members. They marked the first 20 questions from five-point Likert type (I strongly agree, I agree, Partly I agree, I do not agree, I strongly disagree) and also wrote their views on the last questions (you can write about your experiences of managing a science fair for the first time as a science teacher).

2.3. Data Analysis

The data obtained from the questionnaire was presented in a tabular form by deducting % and frequencies. On the other hand, the last open-ended questions were analyzed by using content analysis. Although different analysis steps are followed in each of the qualitative research designs, there are some common steps followed in the data analysis process: (i) data processing, (ii) visualization of data, and (iii) interpretation of findings. Processing of data in the process, (i) decipher, (ii) encoding, and (iii) category creation steps were followed. The answers given to the last question to be used for qualitative analysis were already written, the printout was taken and only the errors caused by the spelling mistakes were corrected. In the new process, also called diving into data the researcher needs to read all the data, reread them over and over, and reflect on them (Barbour, 2014). To ensure data familiarity, both the data collection process and the data deciphering process were done by the researcher (Tracy, 2013). Coding, on the other hand, is the separation of the data converted to text into meaningful parts and preserving the integrity of meaning between these parts (Miles & Huberman, 1994); also text or the collection of visual data into small categories of information and different information used in a study. It includes the process of searching for evidence from databases (Cresswell, 2003). In this section, the researcher did not change the expressions of the participants (in-vivo coding) has made labeling (Cresswell, 2003). The author of this research has been a science fair manager for four times as a science teacher and has also made presentations at various scientific meetings on the subject. After the codes were created, they were carefully reviewed by the researcher. After that, the researcher should know when to stop coding. In this context, when all data is easily classified, codes are saturated (new code the coding process is complete when it cannot be written) and a layout is now created (Corbin & Strauss, 2007). The categories were considered as basic patterns, findings, or abstractions that emerged as answers to the questions were produced (Merriam, 2009). Creating a category starts inductively and becomes deductive progress. In creating a category, first, small parts were examined one by one, codes have been created. Then the codes were examined and temporary categories were determined. The suitability of these categories was checked by another expert faculty member in the field of science education from Recep Tayyip Erdoğan University. Every single data I have whether it fits the categories or not. What is important in this process is that the category reaches saturation it does not reach (inductive process). Any new information, perspective, or since the concept was not produced, the saturation decision was made. Post-created categories have been checked for compliance with the codes (deductive process). Visualizing data in qualitative analysis types (sorting, integration, for styling). Visual elements in qualitative data analysis are figures about what is in the report (Cresswell, 2003). In this context, categories and relationships are presented as visual elements.

3. Results

In this section, firstly the quantitative findings obtained from the answers given by the science fair project coordinators to the five-point Likert-type 20 questions, and then the analysis of the qualitative data obtained from the answers they gave to the last open-ended question are presented.

3.1. Quantitative Findings

The frequency and% distribution of the answers given to each question in the questionnaire by the science teachers, who conducted a science fair for the first time, are shown in Table 3.

Table 3: Distribution of answers to the questions in the survey for the evaluation of the science fair projects

Question Number	Questions	I strongly agree	I agree	Partly I agree	I do not agree	I strongly disagree
		<i>f</i> (%)	<i>f</i> (%)	<i>f</i> (%)	<i>f</i> (%)	<i>f</i> (%)
1.	I made an effort to create a science fair atmosphere in my school.	228 (%93,4)	13 (%5,3)	1 (%0,4)	-	2 (%0,8)
2.	I received support from the school administration for the science fair organization.	153 (%62,70)	46 (%18,85)	26 (%10,65)	13 (%5,32)	6 (%2,45)
3.	With the projects, students reached original data and results.	134 (%54,91)	87 (%35,65)	18 (%7,37)	4 (%1,6)	1 (%0,04)
4.	The project subject has the potential to contribute to the production of new projects in the related field.	132 (%54,0)	84 (%34,42)	23 (%9,42)	3 (%1,2)	2 (%0,08)
5.	I would like to carry out science fairs projects again in the following years.	112 (%45,90)	61 (%25,00)	37 (%15,16)	14 (%5,73)	20 (%8,19)
6.	The sub-project proposals were examined and feedback was given to the students.	159 (%65,16)	68 (%27,86)	15 (%6,14)	1 (%0,04)	1 (%0,04)
7.	Support was also received from other experts (eg academics) in the preparation and implementation of the project.	64 (%26,22)	61 (%25,00)	68 (%27,86)	28 (%11,47)	23 (%9,42)
8.	The project was carried out by the working schedule.	212 (%86,88)	28 (%11,47)	3 (%1,2)	-	1 (%0,04)
9.	Project topics were determined by the students.	95 (%38,3)	95 (%38,93)	33 (%13,52)	10 (%4,09)	11 (%4,5)
10.	The projects were prepared to have scientific content.	174 (%71,31)	59 (%24,18)	9 (%3,6)	2 (%0,08)	-
11.	I think students' interest in science has increased.	194 (%79,50)	46 (%18,85)	2 (%0,08)	2 (%0,08)	-
12.	Students' motivations were supported.	216 (%88,52)	24 (%9,83)	-	4 (%1,6)	-
13.	It was aimed to gain scientific process skills in the projects.	202 (%82,78)	37 (%15,16)	3 (%1,2)	2 (%0,08)	-
14.	The projects presented at the fair were prepared in a way that will direct students to new projects.	165 (%67,62)	60 (%24,59)	16 (%6,55)	2 (%0,08)	1 (%0,04)
15.	The projects were associated with daily life.	195 (%79,91)	44 (%18,03)	3 (%1,2)	1 (%0,04)	1 (%0,04)
16.	Care was taken to ensure that the projects were questioning.	174 (%71,31)	61 (%25,00)	6 (%2,45)	2 (%0,08)	1 (%0,04)
17.	Before the project, the students were given adequate training about the project processes.	170 (%69,67)	59 (%24,18)	11 (%4,50)	3 (%1,2)	1 (%0,04)
18.	The research question was included in the projects.	193 (%79,09)	45 (%18,44)	5 (%2,04)	1 (%0,04)	-
19.	The projects were prepared in a way that could solve the problem.	190 (%77,86)	45 (%18,44)	6 (%2,45)	-	3 (%1,2)
20.	Parents attended the science fair as visitors.	165 (%67,62)	50 (%20,49)	17 (%6,96)	5 (%2,04)	7

Based on table 3, the majority of the participating science teachers who declared that they were the coordinators of science fairs for the first time are strongly agreed and/or agree about they made efforts to create a fair atmosphere in the school (see Question 1), feedback was given to students about sub-projects (see Question 6), the projects were prepared in scientific content (see Question 10), student's interest and motivation for science

increased (see Question 11,12), they gained scientific process skills (see Question 13), the projects were prepared to daily life (see Question 15), and adequate training was given to the students (see Question 17). On the other hand, on some issues encountered in similar studies in the literature, the distribution of the answers appears to have varied somewhat from the same temptation to partially agree and/or disagree. Among these, the support of the administration in the fair organization (see Question 2), the projects that students have reached original data and results (see Question 3), the preference to work in the fair coordinator in the following years (see Question 5), the availability of support from other experts (see Question 7), selection of the project subjects by the students (see Question 9) and the participation of families in the exhibition (see Question 20).

3.2. Qualitative Data

In this section, the content analysis of the answers provided for the last question in the measurement tool by teachers who are conducting a science fair for the first time is included. In this analysis process, the contributions of the fair projects carried out by the students to them were analyzed by considering their main and sub-skills within the scope of their 21st skills. Besides, the themes of achievements for teachers, issues related to the nature of the projects, problems related to project management, honor share, consultant teacher inadequacy for the science fair process, and participation problem themes based on the written statements of the advisory teachers are given in separate tables and relation to the relevant categories. However, the codes describing the relevant categories are presented by directly quoting.

Table 4: Theme 1- 21st-century skill acquisitions for students

<i>Theme</i>	21st-century major skills	Category / 21st-century sub-skills	Code	f	tf
<i>21st Century Skill Acquisitions for Students</i>	Learning and Innovation (4C) Skills	Critical Thinking and Problem Solving Skills	They gain scientific skills.	1	3
			They are living the scientific process.	2	
		Creative Thinking and Innovation Implementing Skills	-		-
			-		
	Communication and Collaboration Skills	It helped children express themselves and increase their curiosity about something.	1	3	
			Quiet students had the opportunity to express themselves.		1
	Information, Media and Technology Skills Information Literacy Media Literacy Information and Communication Technology (ICT) Literacy		Scientific literacy of the students improved by taking part in scientific studies.	1	1
	Life and Career Skills	Flexibility and Adaptability	-	-	-
		Entrepreneurship and Self-Orientation	Some students give up participating in the process or who want to participate in projects because they did not want to work at first and later saw them from their friends.	1	1
		Leadership and Responsibility	-	-	-
Productivity and Responsibility		It was best to see them I am taking responsibility light in the students' eyes.	1	1	
Social and Intercultural Skills		-	-	-	

Continuation of Table 4: Theme 1- 21st-century skill acquisitions for students

Theme	21st-century major skills	Category / 21st-century sub-skills	Code	f	tf
<i>21st Century Skill Acquisitions for Students</i>	Uncertainty		I think that the experience students have gained through these fairs is very useful and valuable.	1	12
			The education model by doing and living was adopted in terms of students.	1	
			This fair was very effective in terms of the active participation of the student.	1	-
			It made students love science and increased their curiosity and increased research awareness.	3	
			It was useful for children.	4	3
			The 4006 fair gave students an experience they will remember throughout their lives.	2	

Table 5: Theme 2-learning outcomes for teachers

Theme	Category	Code	f	tf
<i>Learning Outcomes for Teachers</i>	Professional Contribution	It contributes to vocational guidance.	1	2
	Personal Contribution	I think it contributed greatly to my personal development.	1	

Table 6: Theme 3- issues regarding the nature of the projects

Theme	Category	Code	f	tf
<i>Issues Regarding the Nature of the Projects</i>	Unoriginal Quality Projects	It was a process in which children were not involved at all or enough and teacher-schools competed.	3	14
		More original projects should be included.	3	
		Students should take a more active role in determining projects.	1	
		It may be more efficient to showcase projects that reflect scientific skills.	1	
		Research projects should be weighted.	1	
		If the number of projects is reduced, more original and scientific projects may arise.	1	
		The fact that 50% of the projects were researched limited the choice of subject.	2	
		Experiments and projects on the market are carried out over and over again.	1	
		It would be more beneficial if a science application center was opened in each district instead of the money spent for the fair.	1	

Table 7: Theme 4- project management issues

Theme	Category	Code	f	tf		
<i>Project Management Issues</i>	Executive Issues	Mandatory/reluctant participation	1	40		
		The coordinator must have a sub-project limitation.	1			
		A completely individually coordinated fair process.	1			
		A tired and long process	3			
		I don't think to do it again because it is tiring and stressful.	1			
		In schools, there is a perception that the coordinators will do the subprojects	1			
		There is a need to share responsibility as a coordinator.	12			
		Project incentive bonus is not enough.	4			
		There is a misperception about science teachers being an advisor at the fair.	1			
		Lack of project management experience	1			
		There was a billing issue.	5			
		The responsibility for material affairs was very tired.	1			
		The anxiety created by the financial process in the preparation phase of the projects.	1			
		We experienced company-related difficulties in accessing materials.	4			
		The coordinator role should be given to technology and design teachers, especially with fewer lesson hours.	1			
		At least two teachers should be appointed as fair coordinators or no projects should be given to them.	1			
		The fair coordinator even made efforts for sub-projects in other fields in line with the inadequate participation of colleagues, and some of the advisory teachers did not work with devotion.	1			
		Issues arising from advisory teachers	Mandatory/reluctant participation		5	39
			Sub-project proposals that are not written according to the format		19	
	Limited guidance service for students.		2			
	Not owning the fair process.		4			
	Branch teachers not participating in a balanced way.		4			
	They took things slow.		1			
	They believe that the subjects of the project should be from the field of science.		3			
	Student-related Problems	Teachers to be appointed to other schools.	1	11		
		Lack of knowledge about chemicals	1			
		Scheduling for bussed students	1			
		More information should be given to teachers and students on how to prepare the report for participation in the Science Fair and the fair.	2			
		We had a hard time spending time with the students because there was no vehicle on the weekend. We ran this business together at lunch break every day, this worn us out and the school administration did not support us in finding a vehicle.	1			
		It should be included in students who are not only hardworking and successful but also have difficulties in expressing themselves.	1			
		Difficult for students to find topics.	1			
		It is a disadvantage that the students dropped out of the course, albeit a little at that time.	1			
		Excitement problem in presentations as it is the first experience of students.	1			
They do not want to stay at the stands for a long time.		1				

Continuation of Table 7: Theme 4- project management issues

Theme	Category	Code	f	tf
	School Administrative Issues	They are not motivating	1	10
		They should also bear legal responsibility.	2	
		No support	4	
		The unwillingness of the responsible administrator excludes teachers' active participation	1	
		School administrators should be informed more about the process.	1	
		The attitudes and evaluations of their administrations are problematic and they try to force more schools for financial support.	1	
	Parent-based Issues	There is no effective cooperation with parents.	2	2
	Problems Arising from the Fair Audience	Audiences are not equipped	1	4
		Audience not excited	1	
		No audience	2	
	Problems arising from the Physical Conditions of the School	Absence of the exhibition area	2	7
		Lack of exhibition equipment	1	
		School facilities are not enough	2	
		Projects have no storage space	1	
		Due to the weather, the exhibition area needs to be changed.	1	
	TUBITAK- Originated Problems	Having a limited budget	19	41
		There are problems in the project call schedule (result explanation, revision, approval, etc.).	9	
		The project budget is not timely.	3	
		Promotional and announcement posters are not enough.	3	
		No feedback is given for sub-projects whose applications are rejected.	2	
I think the criteria for the number of projects are wrong. The number of students and teachers, rather than the service area and region, should be the basic criterion.		1		
Applications must be started early		1		
If the same regional schools' presentations are made in a common area at the same time, it will be a bigger feast.		1		
Project responsible teachers should enter the project information themselves.		1		
Since our project was not accepted, it bothered me to give appropriate answers to some questions.		1		

Table 8: Theme 5- honor share

Theme	Category	Code	f	tf	
Honor Share	TUBİTAK Honor Share	Tübitak 4006 does not care enough, and positive feedback from both students and teachers makes the fair more self-sacrificing.	1	2	
		Work should be done in harmony with the Ministry of National Education, and the importance required for projects should not only be expected from us. The feeling that we care was unfortunately not felt.	1		
	School Administration Honor Share	Our efforts should be seen and thanks.	1	3	
		I suggest the reward mechanism work	2		
	Problems arising from Province / District Bureaucrats	Nobody from the District National Education Directorate was with us in the project.		1	3
			There was an insufficient number of participants.	1	
			School administration and national education should participate more actively in the fair	1	

Table 9: Theme 6- the inadequacy of advisors for the science fair process

Theme	Category	Code	f	tf
Inadequacy of Advisors for the Science Fair Process	Education Need	Scientific language use problem	1	8
		Lack of information about the fair	1	
		There is a problem in writing a research project	4	
		More education about science can be given to teachers in in-service training.	2	

Table 10: Theme 7- visit problem

Theme	Category	Code	f	tf
Visit Problem		Ensure the participation of teachers and students from other schools in the district.	1	4
		More people should join	1	
		The participation and support of all teachers and administrators within the scope of the project are very important for both the director and the students.	1	
		It is necessary to collaborate between schools to increase visitor participation during the fair.	1	

Table 11: Theme 8- no problem

Theme	Category	Code	f	tf
No Problem	No Problem	There was no problem.	44	46
	Cooperation	We solved all problems with my students and the school administration	1	
		We worked in harmony with my fellow teachers and the administration.	1	

4. Discussion

Science fair should be a way for students to choose a topic of discovery and demonstrate their understanding of the scientific method by framing their questions and constructing their procedure. Including science fairs in the science, the curriculum promotes the use of inquiry-based and project-based science instruction. It can also be used as a curriculum tool to teach science standards. In this study, the science fair, the scope and purpose of which were explained in detail in the introduction section of the paper, experiences of science teachers who were appointed for the first time as the coordinator of science fairs, were examined for the first time. There are many studies on science fairs in which stakeholders' views are presented. For example, teachers' views (Avcı & Özenir Su, 2018; Balçı, 2019; Dede, 2019; Doğan, 2020; Okuyucu, 2019; Tur, 2020), students' views (Benzer & Evrensel, 2019; Bozdemir, 2018; Selçuk, Atalmış, & Ataç, 2020; Sontay, Anar, & Karamaustafaoglu, 2019; Şahin & Önder-Çelikkanlı, 2014; Yıldırım, 2020) school administrators' views (Atalmış, Selçuk, & Ataç, 2018;

Doğan, 2020), fair coordinators' views (Atalmış, Selçuk, & Ataç, 2018) and also consultant teachers' views (Yıldırım, 2020) were examined. The other studies revealed that science fairs contributed to teaching (Çolakoğlu, 2018), developed students' both science and problem solving skills perceptions (Çavuş, Balçın, & Yılmaz, 2018; Keskin, 2019; Özdemir & Babaoğlu, 2019; Yıldırım, 2018), scientific beliefs (Türkmen, 2019; Yavuz, Büyükeksi, & Işık-Büyükeksi, 2014) and attitude towards science lessons (Keskin, 2019; Özdemir & Babaoğlu, 2019; Yıldırım & Şensoy, 2016), images of scientist (Kahraman, 2019), reduced anxiety levels of students (Keskin, 2019).

Based on these studies, it has been claimed that the fairs have produced important outcomes in terms of creating a rich environment for both students and also for society to value science culture. However, quite new and different inferences were made in the current study based on both quantitative and qualitative data referring to the experiences of the sample science teachers. To coincide with the findings of other studies, teachers in the study group provided the expected answers to the quantitative questions about the sub-projects prepared and exhibited by students (see table 3). However, it is understood from the qualitative data analysis that student outcomes were quite insufficient at the point of 21st-century skills introduced by Fadel and Trilling (2009). It was even surprising that no code for creative thinking and creative thinking and innovation implementing skills of learning and innovation (4C) skills that could be associated with the objectives of the fair project call was produced (see table 4). Similarly, no code appeared in the fields of flexibility and adaptability, leadership and responsibility, and social and intercultural skills of life and career skills. On the other hand, with the sub-projects carried out, the others, which are among the 21st skills that students earn, are quite limited and negligible. However, the limited code under the unspecified theme was not found sufficient, although it revealed some codes that are difficult to associate with 21st-century skills for students. Preparing students with the skills needed for 21st-century jobs, included in the new standards, such as writing and speaking well, analyzing complex problems, finding and synthesizing information from many sources for creative problem solving are skills needed for all citizens (Tucker, Darling-Hammond, & Jackson, 2013) and learned from the science fair experience. Based on this result, the fair experience of science teachers who are conducting a science fair for the first time makes it clear that it is an activity indirectly providing some learning outcomes for students but not an activity direct providing 21st century skills. This study examines the experiences of teachers as both the principal owner of the science fair process and as an expert who observes it in all its dimensions, the possible 21st-century skills acquired by the students can still be investigated by other studies.

It is another surprise that the fair coordinator teachers who run the fair for the first time should not have experienced the fairs as an event that provides professional and/or personal development (see table 5). Science fairs are not seen as an activity that contributes to coordinator teachers and counselor teachers in terms of professional knowledge and personal development. Perhaps science fairs are perceived only as an activity that contributes to the school and students. The focus on student learning outcomes in studies that examine the views of students, teachers, and even school administrators about science fairs supports this result. However, it is best to change the belief that this process is an important gain for all stakeholders, including teachers.

Participating in the science fair experience is an effective way for students to learn of their physical world in a meaningful and educationally sound way and to form questions constructed by themselves implementing the scientific method. It teaches students to think like a scientist, which can help them become better problem solvers (Ebbel, 2010; Wren, 2015). In this way, it is possible to initiate original student projects by consultants. In this context, although the option for originality was selected in the online survey regarding the projects exhibited at the fair, there is a situation that reveals the opposite in the qualitative data (see table 6). In other words, the fair is not structured as an experience in which original sub-projects are carried out. In support of this situation, other studies are showing that the subprojects are not specific and that they mostly consist of repetitions of what is known in the literature (Yıldırım, 2020).

The project management experience is structured as an experience in which intensive management problems are experienced in abundance, as in other studies. The participant teachers and administrators agreed that teachers do not have enough information on designing a project, the projects are considered as being compulsory, and they give rise to teachers' workload (Atalmış, Selçuk, & Ataç, 2018; Lu, 2013; Doğan, 2020). It is stated that

required support is received in the online survey, however, the production of critical codes for sharing responsibility reveals that teachers experience this science fair process not as an activity in which responsibility is shared equally, but as a difficult process in which the responsibility, unfortunately, remains on the only coordinator. In this management process, most of the fair coordinators refer to many problems such as advisors teachers, Tubitak, and school administrators (see table 7). The limited project management experience that coordinator science teachers are expected to gain in the pre-service period reveals this outcome. It can be accepted to some extent that teachers who experience this process as an intensely problematic subject are unlikely to be candidates for doing the same job again before the problem is solved. Teachers who are not experienced in projects face difficulties and are not productive.

It was also revealed that the coordinator teachers had an expectation of receiving an honor share in this fair, but this was not sufficiently met (see table 9). In other words, it is seen that the executive teachers have structured fair management as an activity where the honor share is earned, rather than an activity in which the labor of the expense is paid. Receiving a share of honor by the nature of human creation enables him to concentrate on his work and therefore perform more successfully. Therefore, this expectation when starting a new business, for example, a science fair coordinator is quite normal.

From the qualitative data, the theme about the inadequacies of counselor teachers (see table 9) made the fair coordinators realize the problem regarding the training needs of their colleagues. DeClue, Johnson, Hendrickson, and Keck (2000), Bulunuz, Tapan-Brouti, and Bulunuz (2016) pointed out that teachers have difficulty in finding original themes for the projects. The studies about projects and science fairs in the literature are examined, it is seen that teacher training about trained as mentors about project-based learning and projects management is one of the most common aspects of the suggestions (Çiğdemoğlu, Tekeli, & Köseoğlu, 2019; Ndlovu, 2013). It was noticed by the coordinators during the fair that the counselor teachers did not have experience in selecting, structuring, and directing students' sub-projects. In this process, the fact that the scientific language could not be used, the purpose, scope, method, and expected results were not written by the rule explained in the fair project call. Probably, to solve these problems, coordinators had to bear a higher workload than expected. In this context, the fair process was experienced as not a very positive experience in terms of coordinators, in which the inadequacies of advisors were also noticed and they had to be dealt with.

The other problem is that fairs are seen as an activity that cannot reach the expected number of visitors in qualitative data, either quantitatively or qualitatively, although it does not appear in quantitative data (see table 7). Regarding this issue, the fair coordinators attach importance to the participation of other students and teachers at the same school, parents, and especially the bureaucrats in the province and district. Similarly, they await a reward with a document as a result of this work, which is done and labor-intensive. This situation is also related to the honor share at the point of seeing and valuing the work done. If this is not met, they probably do not want to do this again.

5. Conclusion

Based on these results, for science teachers, who carried out the fair management for the first time, to be able to become a re-executive, it was stated that the students gained 21st century skills, carried out in cooperation, the responsibilities were shared in a balanced way in the school, the school administrators both supported and helped the process, the counselors took ownership of the job, etc. positive experiences are expected. However, this first activity poses the opposite situation. The studies on science fairs refer to many learning outcomes about students as a result of the fair. However, on the other hand, according to science teachers who are running a fair for the first time, the fair remains as not a positive enough memory that there were many problems related to the management, the project consultants did not own the job besides the skill inadequacies, the managers avoided sharing the responsibility, the project subjects were not original, the series was not sufficiently participated and the honor was not given. For this process to be initiated and finalized successfully, all stakeholders are expected to be aware of their responsibility, receive training, and realize that it is a rewarding activity. At this point, coordinator teachers' self-efficacy and professional training to initiate and manage projects and then train teachers who will provide consultancy and students who will do sub-projects can transform the work into an

effective way. Fair projects should be authentic and all stakeholders should participate in projects voluntarily. Thus, the correct model of science fair starts with a teacher certified in the appropriate field of science. This is to assure content confidence and experience in the application of the scientific method.

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Examining Parents' Ways of Coping With Their Children's Problem Behaviors and Their Perceptions of Causality

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Abstract

This study explored parents' ways of coping with their children's problem behaviors and their perceptions of causality. The study group was composed of 164 children aged 7-12 years (84 females and 80 males) and their parents (120 mothers and 44 fathers). In order to collect data, "General Information Form" for the demographical statistics and "Problem behavior Scale – Coping – Parents Form" and "Problem behavior Scale – Causal Factors – Parents Form" which was developed by Kaner (2007) were used. The study findings revealed that there was no significant difference between the subtest scores of both scales according to children's sex. Also, mothers use defective coping, negative coping, and preventive coping approaches more than the fathers. Compared to mothers who graduated from high school, mothers who graduated from elementary school and middle school used more effective coping methods while coping with their children's problem behaviors. Furthermore, compared to mothers who graduated from elementary school and middle school, mothers who graduated from university and above attributed their children's problem behaviors more to their children's negative relationships with the people important in their lives. Mothers who graduated from university and above believed that negative socioeconomic conditions of the family were more effective in the causality of their children's problem behaviors compared to mothers who graduated from elementary school and middle school. In addition, fathers with under graduate and higher degrees attributed the causality of their children's problem behavior to their children's negative relationships with the people important in their lives compared to fathers who graduated from elementary school and middle school.

Keywords: Parents, Problem behaviors, Coping Strategies for Problem Behaviors, Causal Factors

1. Introduction

Children acquire new knowledge and skills each time they enter a new developmental period. With these skills come new problems that need to be solved. Children's family, their environment, and other variables that affect them play an important role in coping with these problems. These problems may be normal and temporary in accordance with the age periods, or they may negatively reflect in later ages without being resolved over time (Sertbaş-Çimen, 2006). Behaviors that prevent learning new skills and using existing skills, that negatively affect

social interaction and that may harm the student are defined as problem behaviors (Erbaş, 2002; Kanlıkılıçer, 2005; Sucuoğlu & Kargın, 2006, as cited in Orhan, 2010).

Problem behaviors refer to behaviors that significantly affect children's learning and development, parents and educators' effective teaching and socialization of children, and harm both the child himself and others (Kaner, 2007). Assessment of whether a behavior is a problem or not should be based on factors such as age-appropriateness of behavior, intensity and continuity of the behaviors, compatibility with gender roles, and social factors. Behavior problems are classified into two dimensions, namely internalized problems, and externalized problems. Related to internal-emotional distress, internalized problems include symptoms of social shyness, anxiety, introversion, inhibited reactions, somatic problems, and depression. Externalized problems include aggression, rebellion against authority, and destructive and hyperactive behaviors (Quay 1986, as cited in Merrell, 1996). Behavioral problems seen in children differ from child to child (Le Compte, Okman, & Sükan, 1979), and emotional and behavioral problems are seen in children at different rates according to age. Arı, Bayhan, and Artan (1995) stated that 59.5% of 4-11 age group children have behavioral and emotional problems. Avcı (1990) conducted a study on the psycho-bio-social evaluation of kindergarten children aged 6–12 years. 71 children whose adjustment and behavioral disorders were identified were included in this study. The study results revealed that the adjustment problems of the participants were statistically significant. 52% of these problems were about bad temper, 50% about fighting, 46% about irritability, 38% about lying, 36% about running away from school, 32% about being messy, 32% about wastefulness, 24% about night urination, 21% about fearful dreams, and 13% about night fears.

Various factors cause behavioral problems in children. While some of them are related to the child, some of them are related to the unsuitable program or the conditions in the learning environment (Jones et al., 1999: 56). Therefore, behavioral problems in the child can be divided into internal and external causes. Socio-economic status, ethnicity, mother's depression, and illness may be listed as external causes, whereas parenting practices and traces of the child's illnesses left on the child may be listed as internal causes. Although these causes are not very important, when they come together, they create significant effects on the internal and external behaviors of the child (Pike, Ervolino, Eley, Price, & Plomin, 2006: 55,58). Studies put forth that the negative family-related experiences are at the root of behavioral problems in children. The studies also emphasized that the emergence of behavioral problems in children or the reinforcement of existing disorders are caused by being exposed to stress in social environments, parental mental health disorders, low income, parental depression, poor quality parenting indicators, increased current stress on parents, chronic parenting stress, wrong parenting practices that are known to be correct, negative attitudes of parents and parents' lack of knowledge about how to deal with problem behaviors (Işık, 2021).

Especially in the emergence of behavioral problems, the effect of parent and child communication is very high (Kandır, 2000). In particular, the family and demographic variables such as poverty, parents not getting along, one of the parents leaving the house, parents' health, and absence of one of the parents, may also have a negative effect on children's behavior (Sezer, 2006, as cited in Kaya, Açar, & Güneş; 2017). In addition, negative parenting, parents' competitive attitudes and behaviors presented in the relationships between siblings (Akbaş, 2019), parents' anxieties and their feelings of inadequate parenting (Manti et al., 2019), parents' difficulties in distinguishing problem behaviors from developmental period characteristics (Poulou, 2015), children's inability to find appropriate solutions for the problem situations they encounter (Yörükoğlu, 2008), and children being exposed to more than one risk factors (Arkan & Üstün, 2009; Dursun, 2010) are also effective in the emergence of externalization and internalization problems.

Problem behaviors serve four basic functions: (a) obtaining social attention and interest, (b) obtaining an object, (c) obtaining sensory stimuli, and (d) escaping from an unwanted situation (Erbaş, 2003). Therefore, problem behaviors continue due to environmental variables. It is predicted that more effective intervention programs may be developed by knowing the environmental variables continuing the problem behavior (Özyürek, 2004). It is believed that there is a relationship between the causal attributes made to problem behaviors and the ways to cope with these behaviors. For this reason, it is necessary to know which behaviors parents see as a problem, what kind of factors they attribute to unwanted behaviors and how they cope with these behaviors. In this

respect, in the present study, parents' causal attributions to problem behaviors and their ways of coping were analyzed comparatively according to independent variables such as sex, mother's education, father's education, and being a mother or father.

2. Method

2.1 Study Design

Exploring the causal factors attributed by parents to the problem behaviors of their children and whether the ways parents use to cope with their children's problem behaviors differ according to sex, mother's education, father's education, being a mother or father, and the number of children parents had, the study employed the causal-comparison design.

2.2 Study Group

Determined by the random sampling method, the study group was composed of 164 children aged 7-12 years (84 females and 80 males) and their parents (120 mothers and 44 fathers). The information on the demographic characteristics of the children and their parents participating in the study is presented in Table 1.

Table 1: Demographic characteristics of the study group

Demographic characteristics	F	(%)	
Sex	Female	84	51.2
	Male	80	48.7
Number of children	1 child	28	17.1
	2 children	93	56.7
	3 children	32	19.5
	4 and above	11	6.7
Mother's education status	Elementary-middle school	38	23.1
	High school	40	24.3
	Associate degree	22	13.4
	Undergraduate and above	64	39.0
Father's education status	Elementary-middle school	28	17.0
	High school	43	26.2
	Associate degree	18	10.9
	Undergraduate and above	75	45.7
Being a father or mother	Mother	120	73.1
	Father	44	26.8
Total	164	100	

2.3 Data Collection Tools

2.3.1 General Information Form

Developed by the researcher, the General Information form included information on the sex of the child, age of the child, sex of the parent who filled the form, the number of children had, the age of parents, and the education levels of the parents.

2.3.2. Problem Behavior Scale-Coping-Parent Form: Developed by Kaner (2007), the Problem Behavior Scale-Coping-Parent Form (PBS-PF-C) aims to measure the ways parents use to cope with the problem behaviors of their children and how often they use these ways. It consists of three subscales and a total of 25 items. The items of the PBD-PF-C are rated on a four-point Likert scale ranging as every day (3 points), several times a week (2 points), several times a month (1 point), and never (0 points).

Effective Coping: Effective Coping subscale (EC) includes items regarding the degree to which the child's unwanted behaviors can be eliminated without an increase and without spreading to their peers. Item numbers of the 11-item subscale are 1, 9, 12, 16, 17, 18, 19, 20, 21, 22, and 23. The highest score and lowest score that can be obtained from this subscale are 33 and 0, respectively.

Negative Coping: Negative Coping subscale (NC) aim to evaluate the degree of parents' use of negative and punitive ways to cope with their children's problem behaviors. Item numbers of the 10-item subscale are 2, 3, 4, 5, 10, 13, 14, 15, 24, and 25. The highest score and lowest score that can be obtained from this subscale are between 30 and 0, respectively.

Preventive Coping: Preventive Coping subscale (PC) includes items regarding parents' coping ways that prevent their child's unwanted behavior using verbal and non-verbal. Item numbers of the 4-item subscale are 6, 7, 8, and 11. The highest score and lowest score that can be obtained from this subscale are 12 and 0, respectively.

2.3.3 Problem Behavior Scale-Causal Factors-Parent Form (PDÖ-ABF-NF): Developed to determine the causal factors parents attribute to the problem behaviors of their children, Problem Behavior Scale-Causal Factors-Parent Form (PBS-CF-PF) consists of 29 items and four subscales. The items of the PBS-CF-PF are rated on a four-point Likert scale ranging as too much (4 points), much (3 points), some (2 points), a little (1 point), and never (0 points).

Negative Relationships with Significant People: The Negative Relationships with Significant People subscale (NRSP) includes items regarding the negative relationships the student has with people who have an important place in the student's life such as parents, siblings, peers and teachers. Item numbers of the 12-item subscale are 1, 2, 3, 6, 7, 8, 9, 10, 11, 12, 13, and 14. The highest score and lowest score that can be obtained from this subscale are 48 and 0, respectively.

Negative Teacher and School Conditions: The Negative Teacher and School Conditions subscale (NTSC) includes items regarding the teacher's teaching style, personality traits, classroom management skills, and methods used to prevent the occurrence of problem behaviors or to cope with problem behaviors. Item numbers of the 10-item subscale are 20, 21, 22, 23, 24, 25, 26, 27, 28, and 29. The highest score and lowest score that can be obtained from this subscale are 40 and 0, respectively.

Adverse Socioeconomic Conditions of the Family: The Adverse Socioeconomic Conditions of the Family subscale (ASCF) includes items regarding the low income and education level of the family. Item numbers of the 4-item subscale are 4, 5, 18, and 19. The highest score and lowest score that can be obtained from this subscale are 16 and 0, respectively.

Negative Factors Regarding the Child: The Negative Factors Regarding the Child subscale (NFC) includes items regarding the student's observation of the behaviors of the people around him/her, his/her desire to attract attention, and his/her desire to avoid unpleasant situations. Item numbers in the 3-item subscale are 15, 16, and 17. The highest score and lowest score that can be obtained from this subscale are 12 and 0, respectively.

2.4. Data Analysis

The causal factors attributed by parents to the problem behaviors of their children and whether the ways parents use to cope with their children's problem behaviors differ according to sex and being a mother or father was examined using in terms of the independent-samples t-test. Whether the ways parents use to cope with their children's problem behaviors differ according to the mother's education, father's education, and the number of children had was examined using one-way analysis of variance (ANOVA).

3. Findings

Table 2: The t-test results according to being a father or mother

	Parents	n	X	Ss	t	P
Effective coping	Mother	120	23.78	5.97	2.04	.04*
	Father	44	21.56	6.61		
Negative coping	Mother	120	26.75	2.87	3.05	.00*
	Father	44	24.84	4.98		
Preventive coping	Mother	120	8.36	2.86	2.61	.01*
	Father	44	7.04	2.91		
Negative relationships with significant people	Mother	120	32.60	13.57	.98	.33
	Father	44	30.31	12.23		
Negative teacher and school conditions	Mother	120	26.21	11.58	.67	.51
	Father	44	24.93	8.88		
Adverse socioeconomic conditions of the family	Mother	120	8.60	3.94	.69	.49
	Father	44	8.15	2.98		
Negative factors regarding the child	Mother	120	8.45	2.40	1.98	.04*
	Father	44	7.52	3.33		

As seen in Table 2, there was a significant difference between the subtest scores at the PBS-EC level ($t(162)=2.04$, $p<.05$), at the PBS-NC ($t(162)=3.05$, $p<.05$), and at the PBS-PC level ($t(162) 2.61$, $p<.05$) according to being a mother or a father. Accordingly, while dealing with their children's problem behaviors, mothers used more effective coping, negative coping, and preventive coping approaches compared to the fathers. In addition, in terms of being a mother or a father, there was no significant difference between the subtest scores at the PBS-NRSP level ($t(162) =.98$, $p>.05$), at the PBS-NTSC level ($t(162)=.67$, $p>.05$), at the PBS-ASCF level ($t(162)=.69$, $p>.05$), whereas there was a significant difference between the subtest scores at the PBS-NFC level ($t(162)=1.98$, $p<.05$). Thus, compared to fathers, mothers mostly attribute the problem behaviors of their children to the negative factors regarding the child.

Table 3: Results of the independent samples t-test regarding problem behavior scale-coping and problem behavior scale-causal factors according to the sex of the participating mothers' children

Scales	Sex	n	X	Ss	t	p
Effective coping	Female	65	23.03	6.08	-1.508	.134
	Male	55	24.67	5.78		
Negative coping	Female	65	27.08	2.79	1.322	.189
	Male	55	26.38	2.96		
Preventive coping	Female	65	8.48	2.80	.450	.649
	Male	55	8.24	2.96		
Negative relationships with significant people	Female	65	32.77	13.43	.141	.888
	Male	55	32.42	13.87		
Negative teacher and school conditions	Female	65	25.46	11.64	-.775	.440
	Male	55	27.11	11.56		
Adverse socioeconomic conditions of the family	Female	65	8.65	3.95	.114	.910
	Male	55	8.56	3.98		
Negative factors regarding the child	Female	65	8.52	2.49	.320	.750
	Male	55	8.38	2.31		

According to Table 3, there was no significant difference between the PBS-EF ($t(162)=.134, p<.05$), PBS-NC ($t(162)=189, p <.05$), PBS-PC ($t(162)=.649, p<.05$) subtest scores. The findings revealed that mothers used more negative and preventive coping methods for their daughters compared to their sons, and they used more effective coping methods for their sons compared to their daughters. However, these differences were not significant ($p>0.05$). In addition, there was a significant difference between the PDS-NRSP ($t(162)=.888, p>.05$), PBS-NTSC ($t(162)=.440, p>.05$), PBS-ASCF ($t(162) =.910, p>.05$), and PBS-NFC ($t(162)=.750, p<.05$) subtest scores. Although negative teacher and school conditions were more a reason for problem behaviors for males compared to females and although negative relationships with significant people, adverse socioeconomic conditions of the family, and negative factors regarding the child were more a reason for problem behaviors for females compared to males, these differences were not significant ($p> 0.05$).

Table 4: Results of the independent samples t-test regarding problem behavior scale-coping and problem behavior scale-causal factors according to the sex of the participating fathers' children

Scales	Sex	n	X	Ss	U	P
Effective coping	Female	19	21.53	7.04	230.000	.859
	Male	25	21.60	6.41		
Negative coping	Female	19	25.84	4.30	195.500	.317
	Male	25	24.08	5.42		
Preventive coping	Female	19	6.00	2.89	161.000	.068
	Male	25	7.84	2.73		
Negative relationships with significant people	Female	19	33.68	10.90	169.500	.107
	Male	25	27.76	12.78		
Negative teacher and school conditions	Female	19	25.11	9.16	233.500	.924
	Male	25	24.80	8.85		
Adverse socioeconomic conditions of the family	Female	19	8.37	3.22	231.000	.877
	Male	25	8.00	2.86		
Negative factors regarding the child	Female	19	8.05	4.08	212.000	.540
	Male	25	7.12	2.65		

According to Table 4, there was no significant difference between the PBS-EF ($t(162)=.859, p<.05$), PBS-NC ($t(162)=.317, p <.05$), PBS-PC ($t(162)=.068, p<.05$) subtest scores. The findings revealed that fathers used more negative coping methods for their daughters compared to their sons, and they also used more effective and preventive coping methods for their sons compared to their daughters. However, these differences were not significant ($p>0.05$). In addition, there was a significant difference between the PDS-NRSP ($t(162)=.107, p>.05$), PBS-NTSC ($t(162)=.924, p>.05$), PBS-ASCF ($t(162) =.887, p>.05$), and PBS-NFC ($t(162)=.540, p<.05$) subtest scores. Although negative teacher and school conditions, negative relationships with significant people, adverse socioeconomic conditions of the family, and negative factors regarding the child were more a reason for problem behaviors for females compared to males, these differences were not significant ($p> 0.05$).

Table 5: Variance analysis results of the problem behavior scale-coping according to the number of children parents have

Dimension	Number of Children Parents Have	n	M	Variability Source	Sum of Squares	sd	Mean Square	F
Effective Coping	1 child	28	23.39	Between Groups	139.40	3	46.47	1.21
	2 children	93	22.46	Within Groups	6147.74	160	38.42	
	3 children	32	24.66	Total	6287.14			
	4 and above	11	24.55					
Negative Coping	1 child	28	9.21	Between Groups	26.81	3	8.94	.66
	2 children	93	7.72	Within Groups	2147.44	160	13.42	
	3 children	32	8.59	Total	2174.24			
	4 and above	11	8.63					
Preventive Coping	1 child	28	7.54	Between Groups	23.98	3	7.99	.93
	2 children	93	7.89	Within Groups	1373.99	160	8.59	
	3 children	32	8.72	Total	1397.98			
	4 and above	11	8.18					

According to Table 5, there was no significant difference between group means at the EC level ($F(3, 160)= 1.21, p> .05$), at the NC level ($F(3, 160)= .66, p> .05$), and at the PC level ($F(3, 160)= .93, p> .05$) in terms of the number of children the parents had.

Table 6: Variance analysis results of the problem behavior scale-causal factors according to the number of children parents have

Dimension	Number of Children Parents Have	n	M	Variability Source	Sum of Squares	sd	Mean Square	F
Negative relationships with significant people	1 child	28	38.07	Between Groups	1384.73	3	461.68	2.16
	2 children	93	30.99	Within Groups	27150.27	160	169.69	
	3 children	32	31.19	Total	28534.99			
	4 and above	11	27.36					
Negative teacher and school conditions	1 child	28	28.43	Between Groups	695.35	3	461.68	1.89
	2 children	93	24.92	Within Groups	18710.96	160	169.69	
	3 children	32	28.09	Total	19406.31			
	4 and above	11	20.91					
Adverse socioeconomic conditions of the family	1 child	28	9.86	Between Groups	78.62	3	26.21	1.93
	2 children	93	8.17	Within Groups	2168.36	160	13.55	
	3 children	32	8.63	Total	2246.98			
	4 and above	11	7.27					
Negative factors regarding the child	1 child	28	9.21	Between Groups	57.24	3	19.08	2.63
	2 children	93	7.72	Within Groups	1133.71	160	7.09	
	3 children	32	8.59	Total	1190.95			
	4 and above							

According to Table 6, there was no significant difference between group means at the NRSP level ($F(3, 160)= 2.61, p> .05$), at the NTSC level ($F(3, 160)= 1.98, p> .05$), at the ASCF level ($F(3, 160)= 1.93, p> .05$), and at the NFC level ($F(3, 160)= 2.63, p> .05$) in terms of the number of children the parents had. Accordingly, parents' causality reactions were not affected by the number of children.

Table 7: Variance analysis results of the problem behavior scale-coping according to the mother's education level

Dimension	Mother's Education	n	M	Variability Source	Sum of Squares	sd	Mean Square	F
Effective Coping	1. Elementary-middle school	38	24.74	Between Groups	378.369	3	126.12	3.42*
	2. High school	40	20.72		6147.74	160	36.93	
	3. Associate Degree	22	24.59	Total	6287.14			
	4. Undergraduate and above	64	23.33					
Negative Coping	1. Elementary-middle school	38	7.89	Between Groups	81.422	3	27.14	2.08
	2. High school	40	8.27		2092.82	160	13.08	
	3. Associate Degree	22	8.55	Total	2174.24			
	4. Undergraduate and above	64	8.23					
Preventive Coping	1. Elementary-middle school	38	7.97	Between Groups	10.99	3	3.67	.42
	2. High school	40	7.78		1386.97	160	8.67	
	3. Associate Degree	22	8.64	Total	1397.97			
	4. Undergraduate and above	64	7.97					

According to Table 7, there was a significant difference between group means at the EC level ($F(3, 160)=3.42, p<.05$) according to the mother's education level. The Scheffe test was performed to determine the source of this difference. The test result revealed that mothers who graduated from elementary school and middle school used effective coping to cope with problem behaviors compared to mothers who graduated from high school. In terms of mother's education, there was no significant difference between group means at the NC level ($F(3, 160)=2.08, p>.05$) and PC level ($F(3, 160)=.42, p>.05$).

Table 8: Variance analysis results of the problem behavior scale-causal factors according to the mother's education level

Dimension	Mother's Education	n	M	Variability Source	Sum of Squares	sd	Mean Square	F
Negative Relationships with Significant People	1. Elementary-middle school	38	24.34	Between Groups	3071.37	3	1023.7	6.33*
	2. High school	40	33.72		25463.62	160	8	
	3. Associate Degree	22	32.72	Total	28534.99		159.14	
	4. Undergraduate and above	64	35.36					
Negative Teacher and School Conditions	1. Elementary-middle school	38	21.45	Between Groups	969.83	3	323.27	2.63
	2. High school	40	27.12		18436.47	160	115.22	
	3. Associate Degree	22	27.05	Total	19406.31			
	4. Undergraduate and above	64	27.31					
Adverse Socioeconomic Conditions of the Family	1. Elementary-middle school	38	24.97	Between Groups	118.25	3	39.41	2.96*
	2. High school	40	26.75		2128.72	160	13.30	
	3. Associate Degree	22	26.73	Total	2246.97			
	4. Undergraduate and above	64	26.52					

Continuation of Table 8: Variance analysis results of the problem behavior scale-causal factors according to the mother's education level

Dimension	Mother's Education	n	M	Variability Source	Sum of Squares	sd	Mean Square	F
Negative Factors Regarding the Child	1. Elementary-middle school	38	7.89	Between Groups	6.45	3	2.15	.29
				Within Groups	1184.49	160	7.40	
				Total	1190.95			
	2. High school	40	8.27					
	3. Associate Degree	22	8.55					
	4. Undergraduate and above	64	8.23					

According to Table 8, there was a significant difference between group means at the NRSP level ($F(3, 160)=6.33, p<.05$) according to the mother's education level. The result of the Scheffe test conducted to determine the source of this difference revealed that mothers with an undergraduate degree or above attributed problem behaviors more to people who had an important place in the child's life compared to mothers who graduated from elementary and middle school. According to the mother's education level, there were no statistically significant differences between group means at the NTSC level ($F(3, 160)=2.63, p>.05$), and at the NFC level ($F(3, 160)=.29, p>.05$), whereas there was a significant difference between group means at the ASCF level ($f(3, 160)=2.96, p>.05$). The result of the Scheffe test conducted to determine the source of this difference determined that mothers with an undergraduate degree or above attributed problem behaviors more to negative socioeconomic conditions of the family compared to mothers who graduated from elementary and middle school.

Table 9: Variance analysis results of the problem behavior scale-coping according to the father's education level

Dimension	Father's Education	n	M	Variability Source	Sum of Squares	sd	Mean Square	F
Effective Coping	1. Elementary-middle school	38	24.74	Between Groups	97.44	3	32.48	.84
				Within Groups	6189.70	160	36.69	
				Total	6287.14			
	2. High school	40	20.72					
	3. Associate Degree	22	24.59					
	4. Undergraduate and above	64	23.33					
Negative Coping	1. Elementary-middle school	38	7.89	Between Groups	63.65	3	21.22	1.61
				Within Groups	2110.59	160	13.19	
				Total	2174.24			
	2. High school	40	8.27					
	3. Associate Degree	22	8.55					
	4. Undergraduate and above	64	8.23					
Preventive Coping	1. Elementary-middle school	38	7.97	Between Groups	57.37	3	19.12	2.28
				Within Groups	1340.60		8.38	
				Total	1397.97	160		
	2. High school	40	7.78					
	3. Associate Degree	22	8.64					
	4. Undergraduate and above	64	7.97					

As seen in Table 9, there were no statistically significant differences between group means at the EC level ($F(3, 160)=.84, p>.05$), at the NC level ($F(3, 160)=1.61, p>.05$), and at the PC level ($F(3, 160)=2.28, p>.05$) according to the father's education level. Accordingly, the strategies fathers use to cope with their children's problem behaviors were similar to each other.

Table 10: Variance analysis results of the problem behavior scale-causal factors according to the father's education level

Dimension	Father's Education	n	M	Variability Source	Sum of Squares	sd	Mean Square	F
Negative Relationships with Significant People	1. Elementary-middle school	38	38.07	Between Groups	2393.68	3	797.89	4.88*
	2. High school	40	30.99	Within Groups	26141.30	16	163.38	
	3. Associate Degree	22	31.19	Total	28534.99	0		
	4. Undergraduate and above	64	27.36					
Negative Teacher and School Conditions	1. Elementary-middle school	38	28.43	Between Groups	171.645	3	239.21	2.05
	2. High school	40	24.92	Within Groups	18688.66	16	116.80	
	3. Associate Degree	22	28.09	Total	19406.31	0		
	4. Undergraduate and above	64	20.91					
Adverse Socioeconomic Conditions of the Family	1. Elementary-middle school	38	9.86	Between Groups	113.058	3	37.69	2.63
	2. High school	40	8.17	Within Groups	2133.91	16	13.34	
	3. Associate Degree	22	8.63	Total	2246.97	0		
	4. Undergraduate and above	64	7.27					
Negative Factors Regarding the Child	1. Elementary-middle school	38	9.21	Between Groups	5.45	3	5.45	.25
	2. High school	40	7.72	Within Groups	1185.50	16	1185.5	
	3. Associate Degree	22	8.59	Total	1190.95	0	0	
	4. Undergraduate and above	64						

According to Table 10, there was a significant difference between group means at the NRSP level ($f(3, 160)=4.88, p<.05$) according to the father's education level. Scheffe test was performed to determine the source of this difference. Compared to fathers who graduated from elementary and middle school, fathers with an undergraduate degree or above attributed problem behaviors to people who had an important place in the child's life. According to the father's education level, there were no statistically significant differences between group means at the NTSC level ($f(3, 160)=2.05, p>.05$), at the ASCF level ($f(3, 160)=2.63, p>.05$), and at the NFC level ($f(3, 160)=.25, p>.05$).

4. Discussion and Result

In the study, there was a significant difference between the PBS-EC, PBS-NC, and PBPC subscale scores according to being a mother or being a father. Compared to fathers, mothers used effective coping, negative coping, and preventive coping approaches more in coping with their children's problem behaviors. In their study, Özen, Çolak & Acar (2003) determined that mothers use all the methods of explaining why that behavior should not be done, applying physical punishment and verbal warning while they cope with problem behaviors. This study result coincides with the findings of the present study.

The findings of the present study determined that mothers used more negative and preventive coping methods with their daughters and more effective coping methods with their sons. However, these differences were not significant ($p> 0.05$). As seen in Table 3, for mothers, negative relationships with significant people were more a reason for problem behaviors for boys and negative teacher and school conditions, adverse socioeconomic conditions of the family, and negative factors regarding the child were more a reason for problem behaviors for

girls compared to boys. Yet, this difference was not significant ($p>0.05$). Similarly, in a study conducted with mothers of different socioeconomic levels, Yaşar, Kızıltepe, and Uyanık (2013) put forth that there was no significant difference between the PBS-EF, PBNC, and PBS-PC subscale scores according to children's sex. In addition, the findings of the present study revealed that fathers used negative coping methods with girls more than boys and used effective and preventive coping methods with boys more than girls. However, these differences were not significant ($p>0.05$). As seen in Table 4, for fathers, negative relationships with significant people, negative teacher and school conditions, adverse socioeconomic conditions of the family, and negative factors regarding the child were more a reason for problem behaviors for girls compared to boys. However, these differences were not significant ($p>0.05$). Similar results were found in the study conducted by Kaner (2007).

The study findings showed that the number of children parents had did not make a difference in the ways mothers and fathers cope with their children's problem behaviors and their causal responses. The literature presents different results. In their study with mothers of different socioeconomic levels, Yaşar, Kızıltepe, and Uyanık (2013) determined that behavioral problems differ according to the number of children. Also, Kaner (2007) determined that the causal factors parents attributed to the problem behaviors of their children differ according to the number of children they have. In the present study, although there was no statistically significant difference between the sub-dimensions of the scales according to the number of children mothers and fathers have, the number of children in the family affects the problem behaviors of the children, and depending on the number of children, the family has difficulty in allocating sufficient time for each child to monitor the child's problems (UyanıkBalat et al., 2008). This suggests that mothers and fathers may ignore children's unwanted behaviors and the causality of these behaviors.

The present study revealed that there was a significant difference at the PBS-EC level according to the education level of the mothers. The mothers who graduated from elementary school and middle school used more effective coping methods in coping with problem behaviors of their children compared to mothers who graduated from high school. Mother's education level is an important determinant of children's behavioral outcomes. The literature stated that an increase in a mother's education level has a positive effect on the psychosocial development of children (Nagin & Tremblay, 2001).

According to the findings of the present study, there was a significant difference at the PBS-EC level, at the PBS-NC level, and at the PBS-PC level in terms of the education level of the fathers. Accordingly, the fathers used similar strategies to cope with their children's problem behaviors. It can be stated that fathers who spend less time with their children may be more tolerant of their children's unwanted behavior.

In the present study, according to the mother's education level, there were no statistically significant differences between group means at the NTSC level and the ASCF level. About the causes of the behavioral problems in their children, compared to mothers who graduated from elementary school and middle school, mothers who had undergraduate or above degrees attributed the problem behaviors of their children to negative relationships of their children with the people who had a significant place in their lives. Mothers who had undergraduate or above degrees attributed more to the negative socioeconomic conditions of the family for the causality of their children's problem behaviors compared to mothers who graduated from elementary school and middle school. In his study, Kaner (2007) revealed that as the education levels increase, the causal attributions of parents to problem behaviors decrease. On the other hand, the higher the education level, the more effective the parents were able to cope with unwanted behaviors.

According to the findings of the present study, in terms of the father's education level, there were no statistically significant differences between group means at the PBS-EF level and the PBS-PC level. It can be stated that the strategies fathers use to cope with their children's problem behaviors are similar. Furthermore, in terms of the father's education level, there was no significant difference at the NTSC level, the ASCF level, and the NFC level. However, there was a significant difference at the NRSP level. The study results showed that fathers who had undergraduate or above degrees attributed the problem behaviors of their children more to negative relationships of their children with the people who had a significant place in their lives compared to fathers who

graduated from elementary school and middle school. These findings suggest that mothers and fathers perceive the unwanted characteristics of their children to temporary circumstances and attribute them to external causes.

5. RECOMMENDATIONS

In line with the findings from the literature, the followings recommendations are presented.

- Educational workshops should be developed for couples before they become parents.
- Coping with problem behaviors will be much easier when the reasons behind these problem behaviors are uncovered. Therefore, it is important that parents try to understand their children's behavior.
- When positive solution methods are put into practice in coping with problem behaviors, parents or other individuals around the child should show the same determination and consistency.
- In order for parents to learn the ways to cope with the problem behaviors of their children, it can be ensured that they receive support from institutions giving guidance to families such as family counseling centers and parent schools.
- The fact that negative parental attitudes and erroneous disciplinary practices increase children's behavioral problems should be emphasized through various communication tools. In this regard, the media should show the necessary sensitivity and raise societal awareness by giving more positive examples.
- Behavioral assessments of people whom the child considers important to him/her, such as parents and teachers, are considered important in determining and classifying problem behaviors of children and adolescents. Conferences, seminars, etc. can be offered to help parents gain positive behavior examples for their children.
- Mothers and fathers should give children the opportunity to express their feelings and thoughts. They should appreciate positive examples of behavior. Instead of acts such as threatening, criticizing, comparing, and pressure, they should try to develop internal discipline in the child. At this point, they should develop a sense of trust and offer unconditional love to the child.
- Experts, educators, and especially school psychological counselors working in this field should pay more attention to raising conscious and self-confident individuals who can stand on their own legs.

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The Effect of Intelligence Games on the Vocabulary Knowledge of Refugee Students Learning Turkish as the Second Language

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Acknowledgement: This article is derived from Derya Akçelik's master thesis entitled "Teaching vocabulary with intelligence games in teaching Turkish as a second language", conducted under the supervision Bircan Eyüp.

Abstract

The purpose of the research is two-fold: firstly, to determine the effect of vocabulary teaching with intelligence games on the vocabulary knowledge of refugee students studying in primary school and learning Turkish as a second language, and secondly to investigate the opinions of the students about vocabulary teaching with intelligence games. The research was designed in the explanatory sequential design of the mixed methods research. The study group consisted of 40 refugee students studying in a state-affiliated primary school in Istanbul. Teaching Turkish words in the experimental group was carried out with intelligence games whereas activities in the current textbook were utilized in the control group. As a result of the research, it was found that vocabulary teaching carried out with intelligence games was effective in improving students' Turkish vocabulary knowledge. Furthermore, it was revealed that the students enjoyed vocabulary teaching activities with intelligence games and learned the words more easily.

Keywords: Teaching Vocabulary, Intelligence Games, Teaching Turkish as a Second Language, Refugee Students

1. Introduction

Words are the ways in which emotions, thoughts, objects and concepts in the mind are expressed in voice and in writing (Karatay, 2007), and they are formed by one or more units of sound (Vardar, 1998). People need words to express themselves verbally or in writing and to communicate with people. The more words people know, the easier they can analyze the world, expand their field of concepts and develop their ability to solve relationships

between phenomena or see different relationships (Diliduzgun, 2014). Although they are at the center of human life, the value and power of words are not sufficiently emphasized. However, words both shape people showing who they are and reveal their educational and social infrastructure (Stahl and Nagy, 2006). This reveals the importance of vocabulary teaching.

Vocabulary teaching constitutes the backbone of second language teaching and learning (Ghazal, 2007). As a matter of fact, no matter how well the grammar rules of the second language are known, it is not possible to communicate fully without the help of words. Because when people learn a new language, they express themselves not with the rules of that language and grammar patterns but with the words they learn (Demirel, 2013). Therefore, people with rich vocabulary can express their feelings and thoughts comfortably and correctly (Karatay, 2007). In this regard, the value of vocabulary increases as it helps communicate in a short time without learning the mother tongue acquisition and development process, modeling, etc (Maden and Dincel, 2015). This suggests that vocabulary knowledge is needed to be improved based on the importance of second language teaching.

The researchers emphasize that vocabulary teaching strategies should provide students with the opportunity to interact with newly learned words, enable them to use words in their own sentences and focus on using them rather than keeping them in mind. At the same time, they agree that the choice and use of effective vocabulary teaching strategy depends on the task, the learner and the learning condition, and that words should be the basis of communication and an important part of the second language curriculum (Larrotta, 2011). Oxford (1990) created two basic teaching strategies: indirect and direct teaching strategies by considering the four most important basic skills in language learning. Direct teaching aims to teach words directly through classroom activities such as games, puzzles. In indirect teaching, the main purpose is not vocabulary teaching. Vocabulary teaching occurs indirectly when another language skill is taught. Similarly, Schmitt (2008) divided vocabulary teaching into two categories as purposefully and randomly. Purposeful vocabulary teaching is made according to the interest and need of the student or the request of the teacher. In random vocabulary teaching, it is generally vocabulary teaching while another activity such as listening and reading activities takes place. Vocabulary teaching takes place over a long period of time. Words are thrown into short-term memory when they are first heard. If words cannot be transferred to long-term memory, they will not be permanent and will be forgotten in a short time (Cetinkaya, 2005). The more different activities are used for the words to be taught, the more permanent the words become.

Games which are exciting and interesting provide active participation in the course, are used as an effective activity in second and foreign language teaching, especially in vocabulary teaching. In the second language teaching, which is facilitated with the participation of individuals in the process, the use of games use contributes to students' learning by attracting their attention to the lesson and helps their affective, mental and social development (Isik, 2016). Since language should be used in a significant part of the games, the game supports children's language development. While playing the game, the child speaks comfortably, establishes sentences correctly, asks questions, gets answers, and gets new information. Thus, the vocabulary of the child develops (Akandere, 2006). Uberman (1998) also confirmed as a result of analyzing his own teaching experiences on vocabulary teaching, his observations on students and different expert opinions that the use of games in vocabulary teaching enables students not only to enjoy and have fun in the language they have learned, but also to practice without notice. Therefore, games are useful and effective tools that should be used in vocabulary teaching.

Intelligence games are one of the types of games that enable teaching to be both instructive and entertaining for students with the innovative education approaches adopted today (Ott and Pozzi, 2012). At the same time, intelligence games support skill development with the richness and original structures of game materials (Bottino, Ott and Tavella, 2013). Since students' perception and learning levels are different from each other, different intelligence games enable different attainments to be achieved in each student. Students who observe each other while playing games also notice these attainments that they do not normally see through their friends and gain new ones. The environment with intelligence games created for students enables them to relax and understand each other by developing the ability to fully express themselves in the relationships between students

(Sadikoglu, 2017). The use of intelligence games in the course creates positive changes in students such as self-expression, socialization, multi-directional thinking, creative and critical thinking, problem solving, attention and focus. It also contributes to academic, linguistic and mental development such as practical thinking, strengthening memory, developing visual perception, making people taste the sense of accomplishment, and giving opportunities to learn by having fun (Baki, 2018). This suggests that intelligence games will contribute to improving the vocabulary of students while teaching vocabulary.

The current study focused on refugee students living in Turkey, studying in Turkish schools and learning Turkish as a second language. Because of the civil war in Syria, the number of refugees who started to live in Turkey after 2011 has increased greatly. One of the most important needs that emerged as a result of this situation was language (Unal, Taskaya and Ersoy, 2018). Various activities, projects and practices have been developed by the Ministry of National Education to meet the needs of refugees to communicate with the people in their regions in order to continue their daily lives. This has highlighted the teaching of Turkish as a second language intensively in public schools in refugee-intensive regions (Canaz and Kucuker, 2019). As a matter of fact, students constantly need Turkish while communicating with their friends and teachers in the school environment and following their other courses. For this, Turkish vocabulary knowledge must be at least at a certain level.

Based on the literature review, it might be noted that the number of the studies on vocabulary teaching for refugee students living in Turkey was inadequate. Because when the situation of refugee students (Morali, 2018) studying in state-affiliated schools today and experiencing serious language problems in the school environment is considered, it is obvious that this field is quite incomplete. In this respect, it is thought that this study on Turkish vocabulary teaching to refugee students will contribute to the field. In addition, the literature provided few studies on intelligence games (Altun, 2019; Baki, 2018; Bas, Kuzu and Gok, 2020; Bottino, Ott and Benigno, 2009; Bottino, Ott and Tavella, 2013; Cagır, 2020; Demirel, 2015; Demirel and Karakus Yilmaz; 2019; Fiangga 2014; Lin, Shao, Wong, Li and Niramitrannon, 2011; Sadikoglu, 2017). However, although there are findings that intelligence games improve linguistic skills, when these studies are examined, no studies on vocabulary teaching have been found. In this respect, our research is distinguished from other studies.

The purpose of this research is to determine the effect of vocabulary teaching with intelligence games on the vocabulary knowledge of refugee students studying in primary school. Accordingly, answers to the following questions were sought:

1. Is there a significant difference between the pre-test scores of the experimental and control groups?
2. Is there a significant difference between the post-test scores of the experimental and control groups?
3. Is there a significant difference between the pre-test and post-test scores of the experimental group learning the word with intelligence games?
4. Is there a significant difference between the pre-test and post-test scores of the control group learning the word based on the activities in the textbook?
5. Is there a significant difference between the pre-test and post-test scores of the experimental and control group students according to the gender?
6. What are the opinions of the experimental group students about teaching vocabulary using intelligence games?

2. Method

2.1. Research model

Since both quantitative and qualitative data were collected and both designs were used in the research, the research is a mixed method study. Since quantitative data were predominant and supported by qualitative data, the research was conducted with the explanatory sequential pattern of the mixed method. While explaining the quantitative results obtained in the first stage, the researchers utilize the qualitative results obtained in the second stage and support the quantitative results (Creswell and Plano-Clark, 2018). In this research, firstly, experimental

study was conducted, and quantitative data were collected and analyzed. Afterwards, quantitative results were further explained with qualitative data obtained from interviews based on the results of quantitative data. Since the research compared vocabulary teaching with intelligence games and vocabulary teaching through activities in textbooks, the research had an experimental part. Therefore, the quantitative data of the research were obtained from the experimental methods using the experimental model of the quasi-experimental design with the post-test control group. Qualitative data of the study were collected only from interviews with the experimental group after the analysis of quantitative data. The model of the research is indicated in Table 1.

Table 1: The model of the research

Groups	Pre-test	Procedure	Post-test
Experiment	Vocabulary Knowledge Achievement Test (VKAT)	Teaching with intelligence games	VKAT Interview form
Control	VKAT	Teaching with activities in the textbook	VKAT

2.2. Study group

The study group consisted of 40 refugee students studying in the 3rd and 4th grades of a primary school affiliated with the Ministry of National Education in Istanbul. All students were Syrian. These students were selected by considering the evaluation results of the Turkish Proficiency Examination held at the end of the 2018-2019 academic year within the scope of the project carried out jointly by PICTES and the Ministry of National Education in the institution where the research was conducted. Matching method was used when creating the control and experimental groups. The scores of the students from the Turkish Proficiency Examination were taken into consideration and the students who received the same scores were distributed equally into two groups (Table 2). In this way, two equally distributed groups were formed. One of these classes was randomly determined by the researcher as the control group and the other as the experimental group.

Table 2: Comparison of the Turkish proficiency test scores of the groups

Groups	n	\bar{X}	SS
Experiment group	20	52.6	8.13
Control group	20	52.6	8.13

When Table 2 is examined, it is evident that the success levels of the experimental and control groups were the same before starting the application.

The research was conducted with a total of 40 refugee students, 20 students in the experimental group and 20 students in the control group. Students are 9 to 10 years old. 50% of the students in the experimental group were female and 50% were male. 55% of the control group were female and 45% were male.

2.3. Collecting of data

As a data collection tool, vocabulary knowledge achievement test and a semi-structured interview form were used for this study.

2.3.1 Vocabulary knowledge achievement test (VKAT)

In the research, 'Vocabulary Knowledge Achievement Test' (VKAT) was developed by the researchers to determine the effect of the intelligence games on the vocabulary knowledge levels of refugee students in Turkish vocabulary teaching as a second language. First of all, the units to be addressed during vocabulary teaching were determined according to the curriculum. In the textbook, the words which were taught to the students in these units were examined. A trial test was created to measure the words that the curriculum provided to the students.

The trial test was prepared as 52 questions with 3 options. Three expert academicians and three Turkish teachers were consulted for the trial test. The pilot study was conducted with 100 refugee students attending the 4th grade in 3 different schools in Istanbul.

After the pilot study, the construct validity and reliability analyses of the test were performed. According to the data obtained from the analysis of the pilot study results, the distinctiveness and difficulty levels of the substances were calculated. As a result of the calculations, 22 items were excluded from the test. In addition, since 1 item was not approved by the provincial permission commission, it was eliminated from the test and the achievement test consisting of 29 questions was finalized. The information about the final version of VKAT is presented in Table 3.

Table 3: Information on article distinctiveness and item difficulty of VKAT

No	P (Item difficulty)	R (Article Distinctiveness)	No	P (Item difficulty)	R (Article Distinctiveness)
1	0.42	0.70	16	0.55	0.62
2	0.39	0.40	17	0.49	0.62
3	0.33	0.47	18	0.49	0.59
4	0.55	0.70	19	0.42	0.55
5	0.60	0.70	20	0.65	0.59
6	0.55	0.33	21	0.67	0.48
7	0.67	0.59	22	0.64	0.55
8	0.44	0.40	23	0.50	0.66
9	0.55	0.62	24	0.42	0.62
10	0.67	0.55	25	0.38	0.48
11	0.49	0.40	26	0.56	0.37
12	0.41	0.44	27	0.59	0.55
13	0.59	0.33	28	0.57	0.62
14	0.49	0.37	29	0.56	0.62
15	0.53	0.51			

Table 3 demonstrates that the distinguishing value of all items in the final form of VKAT was higher than 0.33, and therefore has a good distinguishing value. The item difficulty value is between 0.33-0.67. Based on the item difficulty values of the items, the questions were neither very difficult nor very easy. It was calculated that the mean difficulty index of VKAT was 0.52 and the mean distinguishing index was 0.53.

Validity studies: The validity of the test was ensured by referring to the opinions of 3 academicians who are experts in the field of Turkish education and two Turkish teachers working in the teaching of refugee students. In the questions selected for VKAT, attention was also paid to the distribution of the subjects within the scope of the application.

Reliability studies: As a result of the reliability analysis, it was found that the Cronbach's alpha value of VKAT developed by the researcher was .88, the mean difficulty index was 0.52 and the mean distinguishing index was 0.53, and therefore, the developed VKAT was a reliable and usable measurement tool.

2.3.2. Semi-structured interview form

'Semi-Structured Interview Form' was used to determine refugee students' views on intelligence games and applications. In the semi-structured interview technique, questions are prepared in advance. It is important to try the prepared questions with a group of people and to make the necessary changes as a result of this experiment and to write new questions if necessary (Yildirim and Simsek, 2008). In the current research, firstly, a questionnaire was created for the interview. While preparing the questions, question patterns that can be easily understood by considering the Turkish levels of the students were created. The interview form prepared based on the questions in the pool was shown to three experts working in the field and the opinions of the experts were taken. Some of the questions in the interview form were removed and minor changes were made in some of them

in compliance with the opinions received. Afterwards, the form was applied to three refugee students studying in the school. With the feedback obtained from this application, a semi-structured interview form finalized.

Interview questions:

1. Did you like the intelligence games in class? Why do you like it?
2. What is your favorite intelligence game? Why?
3. Did you have any problems playing intelligence games? What kind of problems did you have?
4. Did the intelligence games help you learn new words?

2.4. Data collection process

In the research, first of all, legal permission was obtained from Istanbul Directorate of National Education for the applications to be made in 2019-2020 academic periods. After the application was allowed, VKAT, which was used as a pre-test and post-test, was developed in the research. At the same time, lesson plans were prepared for the subjects to be addressed every week for the researchers. In the next stage, VKAT was applied to both the experimental and control groups as a pretest. Afterwards, the experimental study was initiated. The courses were conducted according to the activities in the Turkish Teaching to Foreigners textbook prepared by Ministry of National Education with the control group students and intelligence games planned with the experimental group students. At the end of eight weeks, VKAT was applied to both the experimental and control groups as a post-test. After determining the post-test results, the semi-structured interview form was applied only to the experimental group students. Face-to-face interviews were carried out with all students in the group. Each interview took approximately 8-10 minutes. The working schedule for the application process is shown in Table 4.

Table 4: Application schedule

Application date	Lesson hour	Subject	Intelligence games used
1. Week	40'	Pre-test application	
2. Week	40'+40'	Occupations	Dixit
3. Week	40'+40'	Places	Tik Tak Bomm
4. Week	40'+40'	Me and My Close Circle	Come on Tell me
5. Week	40'+40'	Time	Double
6. Week	40'+40'	Opposite Words	Dixit
7. Week	40'+40'	Our Body	Tik Tak Bomm Extra
8. Week	40'+40'	Fruits and Vegetables	Painting Matching
9. Week	40'+40'	Fruits and Vegetables	Scrabble (Word Building Game)
10. Week	40' 170'	Post-test application Semi-structured interview	

Procedures performed in the experimental group

Throughout the application, the subjects were taught with intelligence games for 8 weeks with two lesson hours (40'+40') per week in accordance with the course plans prepared in advance. Intelligence games specified in Table 4 were used to teach the subjects determined according to the curriculum. In the applications, the teacher came to the classroom with the intelligence game planned in line with the subject of the week and tried to draw the attention of the students to the intelligence games first. After drawing the attention of the students, researcher informed the students about the game and emphasized how to play the game and what they should pay attention to. After the necessary information was given, the students actively participated in the process and played intelligence games. The teacher also benefited from question-answer and discussion techniques while teaching with intelligence games. However, question-answer and discussion techniques were also used in the control

group. In the process of vocabulary teaching with intelligence games, worksheets were used to reinforce words and visuals were utilized with the help of smart boards. During the evaluation of the information on the subject, the evaluation activities in the workbooks were carried out by the students.

Procedures performed in the control group

The courses with the control group were taught by the researcher in accordance with the curriculum by considering the MoNE's "Compensation Education Framework Curriculum for Foreign Students" for 8 weeks. Courses were continued with the activities in the 2019-2020 academic year textbook prepared by MoNE with these students. Throughout the application, words were taught in accordance with the plans in the curriculum. Textbooks, workbooks and worksheets were used as tools and direct expression, question-answer and discussion methods were used as methods. All studies conducted to reinforce the words with the experimental group were also conducted with the control group. The same worksheets were also used in this group. As an evaluation, the evaluation activities in the student workbooks were carried out.

2.6. Data analysis

Quantitative data obtained from the research were analyzed by SPSS 22 program. Mann-Whitney U Test, one of the non-parametric analysis methods, was used to compare the pre-test and post-test results of the experimental and control groups. Wilcoxon Signed Ranks Test was used to compare the pretest post-test scores of the groups. The opinions of the experimental group students about teaching with intelligence games were analyzed by content analysis. "The main purpose of content analysis is to bring together similar data within the framework of certain concepts and themes and to organize and interpret them in a way that the reader can understand" (Yildirim and Simsek, 2008: 227). In this research, firstly, the transcribed interviews were read several times by the researchers and tried to make sense of the whole. Important places were noted in this process. In the following process, coding was started. The purpose of coding is to extract meaning from the data available, to divide them into text or visual parts, to label these parts with codes, to examine whether the coding overlaps or is used unnecessarily and to narrow these codes down to broad themes (Creswell, 2017). After making individual coding, the researchers tried to determine the similarities and differences between them by making comparisons. Thoughts on differences were shared and met in common. After the coding was completed, similar codes were brought together and themes were created. During the data analysis, the names of the participants were named with S1... S20 for ethical considerations.

3. Results

3.1 Results of quantitative data

Mann-Whitney U-Test results of the pre-test performed to determine whether there was a success difference between the experimental and control groups before the research are given in Table 5.

Table 5: Pre-test results of the experimental and control groups

Group	n	Mean rank	Rank sum	U	p
Experimental	20	20.38	407.50	197.500	.946
Control	20	20.63	412.50		

*p> .05

Table 5 showed that there was no significant difference between the achievement pre-test mean scores of the control group students and the experimental group students (U=197.500, p=.946, *p>.05). Wilcoxon Signed Ranks Test was performed to determine whether there was a difference between the pre-test and post-test scores of the students in the experimental group where intelligence games were used. The analysis results are given in Table 6.

Table 6: Pre-post test results of the experimental group

	n	Mean rank	Rank sum	z	p
Negative rank	0	.00	.00	3.924*	.000
Positive rank	20	10.50	210.00		
Equivalent	0	-	-		

* Based on negative ranks, $p < .05$

Table 6 displayed that there was a statistically significant difference between the pretest and posttest scores of the experimental group students ($z=3.924$, $p=.00$; $*p<.05$). When the mean rank and the sum of the difference scores were taken into consideration, it was evident that this difference observed is in favor of positive ranks, that is, post-test.

Wilcoxon Signed Ranks Test results regarding whether there was a significant difference between the pre-test and post-test results of the control group are given in Table 7.

Table 7: Pre-post test results of the control group

	n	Mean rank	Rank sum	z	p
Negative rank	0	.00	.00	3.430*	.001
Positive rank	15	8.00	120.00		
Equivalent	5				

* Based on negative ranks, $p < .05$

The results of the analysis indicated that there was a significant difference between the success scores of the control group students before and after the application ($z=3.430$, $p=.001$; $*p<.05$). It was evident that this difference observed is in favor of positive ranks, that is, post-test when the mean rank and the sum of the difference scores are considered.

Mann-Whitney U test results of the control group students who were taught with the activities in textbook and the experimental group using intelligence games are given in Table 8.

Table 8: Pro-test results of the experimental and control groups

Groups	n	Mean rank	Rank sum	U	p
Experimental	20	26.28	525.50	84.500	.002
Control	20	14.73	294.50		

* $p < .05$

Table 8 showed that there was a significant difference between the success post-test scores of the experimental group students and the control group students ($U= 84.500$, $p=.002$; $*p < .05$). The mean ranks demonstrated that the pre-test scores of the experimental group students are quite high compared to the pre-test scores of the control group students.

Mann-Whitney U test results of the pre-test and post-test scores of the experimental group students according to the gender variable are given in Table 9.

Table 9: Pre-test and post-test results of the gender variable of the experimental group

	Gender	n	Mean rank	Rank sum	U	p
Pre-test	Female	11	8.09	89.00	23.000	.043
	Male	9	13.44	121.00		
Post-test	Female	11	8.77	96.50	30.500	.147
	Male	9	12.61	113.50		

*Pre-test, $p < 0.05$

**Post-test, $p > 0.05$

Table 9 indicated that when the pre-test results of the experimental group in terms of gender were examined, a significant difference was found in favor of male ($U=23.000$, $p=.043$, $*p<0.05$). When the post-test results of the gender variable of the experimental group are examined, no significant difference was found between the female and male students ($U=30.500$, $p=.147$, $**p>0.05$).

Mann-Whitney U test results of the pre-test and post-test scores of the control group students according to the gender variable are given in Table 10.

Table 10: Pre-test and post-test results of the gender variable of the control group

	Gender	n	Rank average	Rank sum	U	p
Pre-test	Female	10	12.25	122.50	32.500	.182
	Male	10	8.75	87.50		
Post-test	Female	10	11.90	119.00	36.000	.284
	Male	10	9.10	91.00		

**Pre and post-test, $p>0.05$

As shown in Table 10, when the pretest results of the gender control group were examined, no significant difference was found between the pre-test results of the male and female students ($U=32.500$, $p=.182$, $**p>0.05$). When the post-test results of the gender variable of the control group are examined, no significant difference is seen between the female and male students ($U=36.000$, $p=.284$, $**p>0.05$).

3. 2. Results of quantitative data

Firstly, the students were asked whether they liked the intelligence games used in the lessons and the findings regarding the answers received are presented in Table 11.

Table 11: Whether the use of intelligence games in lessons is liked or not

Liking status	Students	f	%
I like it.	S1, S2, S3, S4, S5, S6, S7, S8, S9, S10, S11, S12, S13, S14, S15, S16, S17, S18, S19, S20	20	100
I do not like it	-	0	-
Total		20	100

As shown in Table 11, it was found that all of the students liked to play with intelligence games. These considerations about the reasons why students liked intelligence games are given in Table 12.

Table 12: Reasons why students like intelligence games

Reasons	Students	f	%
Enjoyable	S2, S3, S5, S7, S9, S10, S11, S12, S13, S14, S15, S16, S17, S18, S19	15	43
Nice	S2, S4, S5, S7, S8, S14, S16,	7	20
Learning new things	S1, S2, S5, S6, S18, S20	6	17.1
Intelligence development	S9, S13	2	5.7
Like to play	S8	1	2.9
Having pictures	S10	1	2.9
Making friends	S11	1	2.9
Not tiring like a lesson	S14	1	2.9
Having a good time	S19	1	2.9
Total		35	100.3

When Table 12 was examined, the reasons why they liked intelligence games were grouped under 9 headings. 43% of the students stated that they liked intelligence games because they were fun, 20% because they were beautiful, 17.1% because they learned new things, 5.7% because they developed intelligence, 2.9% because they liked playing, 2.9% because they had pictures, 2.9% because they made friends, 2.9% because they did not feel like teaching and did not tire, 2.9% because they had a good time.

While S17, one of the students who stated that they liked it because it was fun, expressed their thoughts as “I had a very fun, good time,” S2, S3, S10, S11, S20 expressed themselves with the sentence “because it was very fun.” For the same reason, S15, one of the students who stated that I liked intelligence games, expressed his/her thoughts with the sentence “Because I played, I had fun, it was fun.” While S2, one of the students who stated that I liked it because it was beautiful, shared the idea of “I learned very fun and beautiful new things” S7, I liked to play. Because it is fun, the games are good”. While S1, S2, S5, S6, which stated that they learned new things as the reason for liking, expressed themselves with the sentence “I loved, learned new things.”

Stating that s/he liked the way intelligence games were played, S8 expressed his/her thoughts as “It was very beautiful, I liked playing.” One of the students who said that they liked it because it improved intelligence, S9 said “I liked it because it improved our intelligence.” S11, who stated that s/he liked mind games as a reason for making friends, said “I liked it. Because it is very fun, we played with friends. I found new friends; I talked to them” s/he expressed his/her thoughts.

The findings about the intelligence games that students like the most and the reasons why they like these games are given in Table 13.

Table 13: The most popular intelligence game and reasons for being loved

Intelligence game	Reasons	Students	f	%
Tik Tak Bomm	Finding new words	S4, S5, S8, S9, S10, S12, S14, S17, S18, S20	20	66.3
	Enjoyable	S2, S6, S7, S14		
	Pictures are good	S3, S8, S10, S17		
	Having a competition	S2		
	Very good.	S3		
Picture Mapping	Nice.	S1, S15, S19	7	23.3
	Finding the same pictures	S1, S15		
	Strengthening memory	S13		
	Having pictures	S19		
Word Generation Game	Learning new words	S11	2	6.7
	Self-improvement	S11		
Come on, tell me.	Being able to play well	S16	1	3.3
Total			30	99.6

Table 13 showed that there were four games that students loved the most during the application process. 66.3% of the students stated that they liked the ‘Tik Tak Bomm’ game the most. Students stated that they liked it to be fun, to have beautiful pictures, to have new words, to be very beautiful, to offer the opportunity to compete. S2 from students expressed his/her thought that “Tik Tak Bomm, racing is very nice and fun,” S3 “the pictures in the game were beautiful,” S14 “taught some words. I didn’t know, I learned, it was fun.” 23.3% of the students stated that they liked the ‘Picture Mapping’ intelligence game the most. S1, one of the students said “The game is very beautiful. When you find two similar fruits, you buy them.”

6,7% of the students stated that they liked the ‘Word Generation Game’ intelligence game the most. S11, one of the students, stated that the reason for liking this intelligence game was that it provided the opportunity to learn

new words and improved him. S11 said, “Because I think I have improved myself. I learned new words. 3.3% of the students stated that they liked the 'Come on, tell' intelligence game best.

Results regarding students' have problems while playing intelligence games and what kind of problems they experienced are given in Table 14.

Table 14: Students' situations of having problems while playing intelligence games

Problem status	Reasons	Students	f	%
I had no problems		S1, S2, S3, S4, S7, S9, S11, S12, S13, S15, S16, S17, S20	13	65
I had problem	Not understanding the rules	S5, S6, S8, S10 S14, S18, S19	7	35
Total			20	100

Table 14 indicated that 65% of the students stated that they did not have problems while playing intelligence games, while 35% stated that they had problems. The students who answered “I had a problem” were asked what kind of problems you experienced. The reason why students have problems is grouped under a single heading as not understanding the rules. Among the students who stated that they had problems, S8 stated that “it was a little while ago, in the rules”, S10 stated that “it was yes, I could not understand the rules in the word production game.”

Table. 15: The state of intelligence games helping to learn new words

Help status	Students	f	%
It helped.	S1, S2, S3, S4, S5, S6, S7, S8, S9, S10, S11, S13, S14, S15, S16, S17, S18, S19, S20	19	95
Did not help	S12	1	5
Total		20	100

Table 15 displayed that 95% of the students answered that intelligence games helped them learn new words while only one student answered that they did not. This showed that almost all of the students could learn new words with intelligence games

4. Conclusion, Discussion, and Suggestions

In the current research, no significant difference was found between the groups in the pre-test applied to the groups before the application ($U=197.500$, $p=.946$, $p>.05$). However, in the post-test applied to the groups after the application, a significant difference was found in favor of the experimental group students where word teaching was performed with intelligence games ($U=84.500$, $p=.002$; $p<.05$). When the literature was reviewed, no study could be found on word teaching with intelligence games. However, the results of vocabulary teaching studies using other types of games are in parallel with the results of this study. In their studies, Rueb, Cardoso and Grimshaw (2018) and Zengin (2019) investigated the effect of teaching words using digital and educational computer games, Isik (2016) with educational games, Erdogan (2014) and Taheri (2014) with language games, Ozturk (2018) with word games and computer games, Yip and Kwan (2006) with online word games. They found that vocabulary teaching with games was more effective on vocabulary knowledge of students than curriculum or vocabulary teaching with traditional methods. In our research, a significant difference was also found between the pre-test post-test scores of both groups (EG: $z=3.924$, $p=.00$; $p<.05$, CG: $z=3.430$, $p=.001$; $p<.05$). In this respect, it was found that vocabulary teaching carried out with textbooks had a positive effect on vocabulary knowledge of students. However, when the post-test scores of the two groups were compared, it was determined that vocabulary teaching carried out with intelligence games gave more positive results on Turkish vocabulary knowledge of refugee students compared to vocabulary teaching carried out with activities in textbooks.

When considered in terms of gender, while no significant difference was found between the success scores of the female and male students in the control group ($U=32.500$, $p=.182$, $p>0.05$), it was found that there was a significant difference in favor of the male students in the experimental group ($U=23.000$, $p=.043$, $p<0.05$). However, in the post-test conducted after the applications, no significant difference was found between the success scores of the female and male students in both groups (EG: $U=30.500$, $p=.147$, $p>0.05$, CG: $U=36.000$, $p=.284$, $p>0.05$). Zengin (2019) also examined the effect of vocabulary teaching with educational computer games on success by gender and found that there was no difference in the success of girl and boy students. Al Zangana (2018) also determined that there was no gender-based difference in his study investigating the effect of educational game techniques on students' English word learning. Likewise, in this context, it is obvious that the results of this research are in parallel with the results of the studies in the literature.

The interviews indicated that all of the students ($n=20$) in the experimental group liked intelligence games; they found the use of intelligence games in lessons fun and also thought that they helped them make friends. Similarly, in other studies on the use of games in vocabulary teaching, it was revealed that the majority of the students found this experience fun (Kosemehmetoglu, 2019), supported the use of game activities and welcomed them positively (Durmus, 2019). In parallel with the findings we obtained in our interviews, there are also studies that determine that students like to play games and are very enthusiastic about playing games (Fisser, Voogt and Bom, 2013). Demirel (2015) examined the effect of using intelligence games in Turkish and mathematics lessons on students' affective and cognitive skill development and determined that there was an increase in students' participation and academic achievement at the end of his study.

Another view of the students was that using intelligence games in lessons helps them make friends in the classroom environment. Friendship acquisition is of great importance for language teaching. Each friend creates an opportunity to use newly learned words. As a matter of fact, Tierney and Readence (2000) stated that any experience with word plays an important role in the easy learning of that word and making it permanent in the mind. When the literature was examined, it was seen that intelligence games increased peer cooperation in the study conducted by Lin et al. (2011). Sadikoglu (2017) also found that the use of mind intelligence in learning processes positively affected students' interpersonal relationships.

When the other opinions of the students about the use of intelligence games were examined, it was determined that the students thought that intelligence games were effective in teaching new things and improving intelligence. The fact that students are aware that they have learned new things during the application process shows that the teaching process has been efficient. The idea is that students will learn new things increases their interest and participation in the course. Baki (2018) also stated that after playing intelligence games, students learned to be patient, to try and be determined, not to give up, to comply with the rules of games and to comply with these rules, to succeed in difficulty or to do it by working and thinking, to use intelligence and to develop it. It was found that the experimental group students liked 'Tik Tak Bomm' and 'Picture Mapping' intelligence games the most during the application process. The reasons for liking these games include that games are fun, that there are beautiful visuals and that learning new words strengthens their memories. The fact that intelligence games are rich in visuals is also more effective in students' concepts of words. Sadoski (2005) states in his study that using various visuals in vocabulary teaching ceases to be abstract and helps to embody the word. He stated that establishing a relationship between the visual and the meaning of the word helps to encode the word in the mind.

It was seen that most of the students did not have a problem while playing intelligence games, and seven students who had problems were found to have problems in understanding the rules. Bakhsh (2016) also examined the difficulties faced by teachers in English lessons while teaching words through games and found that students could have difficulty in understanding the rules of games. Altun (2019) determined that mind games were effective in improving visual perception and attention. However, while selecting the games to be played, she stated that first of all, simple games should be selected and games whose rules are difficult in the future should be switched to, she also stated that children should be given the feeling of accepting losing as well as being able to experience the feeling of success in competitive games. Demirel (2015) similarly stated that

during his research, some students broke away from the game while playing games with difficult rules and therefore difficult games can reduce motivation. The results of this research and other studies showed that the rules of play should be expressed to the students in the simplest way when using intelligence games.

It was revealed that most of the students found the use of intelligence games in lessons useful and thought that intelligence games and teaching contributed to learning new words. Erdogan (2014) found that language games facilitated vocabulary learning in English vocabulary teaching and were one of the most effective ways in vocabulary teaching. Similarly, in their study, Huyen and Nga (2003) determined that educational games were effective in vocabulary teaching and increased the permanence of information. It can be said that vocabulary teaching with intelligence games provides language development, motivates students, provides fun learning, and strengthens communication based on both this study and the other studies obtained as a result of the literature review.

As a result, in the research, it has been revealed that intelligence games are effective in teaching Turkish words to refugee students. In addition, it was determined that the refugee students in the experimental group stated that they learned new words in a more fun way through intelligence games. In this respect, it was observed that they thought intelligence games helped them while learning new Turkish words. However, it was concluded that some students sometimes had difficulties in adapting to the process as they had difficulty understanding the rules of the games.

The following suggestions can be made in line with the results obtained.

- It was determined that the experimental group students liked “Tik Tak Bomm” and “Picture Mapping” intelligence games the most during the application process. Therefore, language teachers can teach vocabulary by using these games in their lessons.
- Intelligence games can be used not only to teach vocabulary in language teaching but also to improve speech, listening, writing and reading skills.
- In line with this research, which has been determined that intelligence games are an effective tool in Turkish vocabulary teaching, the effect of intelligence games on teaching other languages can also be examined.
- While conducting this study, it has been realized that there is not enough research on the use of intelligence games in lessons, although seminars on intelligence games are frequently organized in Turkey and their importance is emphasized. In order to eliminate this deficiency, new studies should be carried out in this field.

Acknowledgments

The research revealed a significant increase in the students' vocabulary knowledge after 8 weeks long the intelligence games applied to the experimental group. In addition, vocabulary teaching with intelligence games contributed to students' enjoyment of the process, while contributing to their communication with each other. The control group showed less progress in improving their vocabulary knowledge. However, in the research, while taking the opinions of the refugee students in the experimental group about the process, they were not asked sufficiently detailed questions due to their language level. This situation created a limitation for the study. While collecting data in similar studies, getting help from experts who know the mother tongue of the students will contribute to collecting detailed data.

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Teaching Note-Taking Skills to Students with Learning Disabilities: CUES+CC Strategy

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Abstract

The main purpose of this research is to examine the effectiveness of the CUES+CC strategy in improving the note-taking performance of students with learning disabilities. Within the scope of this purpose, the effect of the CUES+CC strategy on students' note-taking and exam performances and maintenance of the performance was investigated. Moreover, the students' level of generalizing of their note-taking performance to Turkish lesson was also examined. Three students who were diagnosed with learning disabilities in the study. 'Multiple Probe Design Across Subjects,' one of the single subject designs, was used in this study. The students' note-taking percentages and exam performance were used to score the data. The findings revealed that the CUES+CC strategy is effective on note-taking and exam performance of students with disabilities and upon learning the strategy, the students displayed the same improved performance on note-taking after one, three, and five weeks, and they extended this performance to a different course as well. The findings of the research were discussed within the framework of the relevant literature and theoretical opinions, and suggestions were made to researchers working in the field for future research.

Keywords: Learning Disabilities, CUESS+CC Strategy, Middle School, Note-Taking, Cognitive Strategy, Self-Regulated Strategies Development

1. Introduction

Students must not only require academic skills and knowledge but also know how to learn to meet the academic demands in the general education curriculum. A large body of research reveals that students have difficulties in learning many skills required to be successful in middle school and high school (Baharev, 2016; Boyle, 2010a). The primary learning method in middle school and high school is to acquire effective note-taking and study skills (Boyle & Weishaar, 2001). Many studies that were conducted in recent years showed that students generally lack study skills such as note-taking and doing homework (Boyle, 2010a; Boyle, 2012; Boyle & Forchelli, 2014). In the meantime, these difficulties are even greater for students with learning disabilities (Baharev, 2016).

Studies in the literature showed that students used insufficient note-taking and ineffective studying strategies (Karpicke et al., 2009; Titsworth & Kiewra, 2004). According to Neef et al. (2006), students often take missing notes, have difficulty in distinguishing relevant and irrelevant information, use inadequate learning strategies or use no strategies at all. Generally, students with learning disabilities experience problems in reading, reading comprehension, mathematical operations, problem solving and transferring verbal knowledge to written format (Boyle & Forchelli, 2014). Note-taking is a much more difficult skill for students who have difficulty in acquiring academic competencies and learning difficulties and who use inadequate learning strategies (Boyle, 2010b; Boyle & Forchelli, 2014).

When the literature is examined, the findings of the studies that were conducted with middle school children revealed that when the note-taking skill is taught with a strategy in the middle school, successful results are obtained. Note-taking strategies that were taught to secondary school students were tested on students with learning disabilities (Baharev, 2016; Ciullo et al., 2015).

Literature provides various studies conducted with normally developing individuals on note-taking skills (Bachhel & Thaman 2014; Butler, et al., 2001; Call, 2000; Campbell & Mayer, 2009; Chiu, et al., 2013; Gier & Kreiner, 2009; Haynes et al., 2013; Igo et al., 2008; McKinney & Luber, 2009; Stringfellow & Miller, 2005; Suritsky & Hughes, 1991; Titsworth & Kiewra, 2004). However, there is limited number of studies carried out with students with learning disabilities (Baharev, 2016; Boyle, 2010a; Boyle, 2010b; Boyle, 2012; Boyle & Forchelli, 2014; Boyle & Rivera, 2012; Stephen et al., 2015). Some of these studies compared the note-taking performance of individuals with learning disabilities with their normally developing peers (Boyle 2010a; Boyle, 2012; Boyle & Forchelli, 2014). Their findings mainly indicated that students with learning disabilities performed significantly lower in all variables. On the other hand, some studies were conducted with students with learning disabilities to improve the quality of their note-taking, comprehension and remembering (Boyle, 2010b). In a general manner, findings reported that introducing the note-taking strategies and other supporters such as guided notes also improved the quality of note-taking.

One of the effective approaches to improve students' note-taking skills is to help students gain strategic note-taking. Strategic note-taking provides continuity of cognitive processes at a higher level and it is more detailed than basic memorization techniques (Baharev, 2016; Boyle, 2010b; Boyle et al., 2014). Some of the strategies that were developed for note-taking are strategic note-taking paper and CUES + strategies.

Strategic note-taking paper is based on Mayer's learning model, which has three steps: selection, organization, and integration (Mayer, 1996). The first question in SN is to ask students to define the topic of the lesson and associate it with their current prior knowledge. Next, students are given the clue (CUES) strategy that they must follow. In the first step, students put together three to six main points along with the details of the lesson. Then, the students are asked to summarize how ideas are associated to make it easier to code new information. In the second step, the students are asked to pay attention and to listen and record the clues that are given by the teacher. In the following step, the students need to list new words and terms in their notes. During the summarizing step, the students enter some words to categorize the three to six lecture points that they have listed. Finally, the students are required to record five important notes from the lesson and define the details of each note (Boyle, 2010b; Boyle, 2012). Boyle & Weishaar (2001) examined the effects of strategic note-taking on recall and comprehension of high school students with mild intellectual disabilities, and strategic note-taking was found to be effective. The students who received strategic note-taking training recorded more words in their notes. Later, Boyle (2010a) conducted a study on the strategic note-taking skills of sixth through eighth-grade students with learning disabilities. While the students in the experimental group were trained in strategic note-taking and how to do homework, the students in the control group were asked to take notes in the classroom in a conventional way. The students' notes were analyzed in several ways: cued lecture points, non-cued lecture points, total lecture points, and total words. Moreover, immediate free recall measure, long-term free recall measure, comprehension test, and a strategic note-taking questionnaire were also administered. The results revealed that the students who used strategic note-taking recorded more notes and displayed better performance on recall and comprehension measures. In light of the studies in the literature, the CUES+CC strategy was

developed for middle school students with learning disabilities. CUES+CC strategy is the adapted version of the CUES+ strategy that was developed by Boyle et al. (2014).

Table 1: Steps of the CUES+CC strategy

CUES+CC Strategy	
Cluster	Did I read the topic before the lecture?
	Is my classification paper in front of me?
	Have I written three to six main points that I find important?
Use	Is my cue paper and notepaper in front of me?
	Have I recorded all the cues that I heard from the teacher?
Enter	Have I written down everything important to me from what the teacher told me?
	Did I write the words that I do not know in the "I don't know" section?
Summarize	Is my summary paper in front of me?
	Have I written a summary sentence about the lecture I listened to?
	Have I written the five most important points?
	Have I explained these points in my own words?
Compare	Are my summary paper and classification paper in front of me?
	Did I find the differences between summary and classification papers?
Check	Did I answer the questions?
	Did I check the questions with my notes?
	Have I mentioned the points that I should pay attention to for the next lecture?

CC steps of the CUES+CC strategy are different from the CUES+ strategy that was developed by Boyle et al. The CC (compare and check) step was effectively used in Harris and Graham (1992)'s study (Graham & Harris, 2003). The compare step shows students the difference between what they predicted and what comes out as a product. In this way, it is expected that students' prediction skills will be improved, and they will be aware of the points that they should pay more attention to. The student must associate the difference between his/her first and final product. The term association refers to the results of students' success or failure, that is, the ability to establish cause and effect relationships on their academic success. (Graham & Harris, 2003). Children with learning disabilities have problems with the association and it was emphasized that it needs to be improved (Graham & Harris, 2003). With the step of the check, upon using the strategy, the students are expected to check their answers to the questions. When students check their answers, they get the opportunity to realize their mistakes and identify the points that they should pay more attention in the next lecture. For all these reasons, the CC steps were added to the CUES+ strategy.

As a result, the CUES+CC strategy in this research was used in the following ways; a) the steps of the strategy were adapted from CUES+ as "cluster, use, enter, summarize, +, compare, check," b) self-regulation and self-monitoring were integrated into the strategy, c) supporters were used for the student to achieve independence, d) self-regulation strategies were formed according to the instruction stages (Activating Prior Knowledge, Discussing the Strategy, Modeling, Memorizing the Strategy, Guided Application, Independent Practices), e) the feature of being criterion-based, which is also the feature of self-regulation approach, was adopted. There is a scarcity of research in the literature that investigated strategic note-taking with students with learning disabilities (Baharev, 2016; Boyle, 2010a). It is thought that this research will contribute to the field of special education in two ways. The results of this research will provide information on teaching strategic note-taking and note-taking skills to students with learning disabilities. At the same time, this strategy aimed to investigate how students' ideas about their own learning change with the strategy and to determine the processes of how students transferred what they had learned to their notes and using information.

The aim of this study was to determine the effect of CUES+CC strategy on the note-taking performance of middle school students with learning disabilities. In accordance with this aim, answers were sought to the following questions:

1. Does the CUES+CC strategy affect the note-taking skills of students with learning disabilities?

2. Is the CUESS+CC strategy effective in the exam success of students with learning disabilities?
3. After teaching with the CUESS+CC strategy, do students with learning disabilities continue their note-taking performance after one, three, and five weeks?
4. After teaching with the CUESS+CC strategy, does exam success of students with learning disabilities continue after one, three, and five weeks?
5. Can students with learning disabilities generalize their note-taking performance to a different course after being taught with the CUESS+CC strategy?

2.Method

2.1 Research Design

'Multiple Probe Design Across Subjects,' one of the single subject designs, was used in this study to examine whether strategic note-taking is effective in the note-taking skills and exam success of middle school students with learning disabilities. In this model, the effectiveness of a method on a target behavior is investigated in more than one subject with the same characteristics (Gast, 2010).

2.2 Participants and Their Selection

Three students with a Specific Learning Disability (SLD) who attend an inclusive class in a middle school participated in this study. Potential participants were required to meet some criteria to participate in the study: they need to have reading comprehension skills (to be able to answer all the 5W1H questions), to have mechanical writing skills (to be able to write what is heard), to attend middle school, and being diagnosed with SLD. To select the participants of the study, firstly the middle schools in the city center of Bolu, where inclusive education is given, were determined. Permission was obtained to conduct research in these schools. Classroom teachers were interviewed by going to the designated schools. By interviewing these teachers, students with SLD, who meet the study's participant selection criteria were determined. The teachers selected the students who would participate in this study. Then, a meeting was arranged with the counselor of these students, and detailed information about their SLD diagnosis was obtained. An evaluation was carried out to investigate whether the chosen students with SLD meet the participation selection criteria of the study. For this purpose, firstly, students' reading comprehension and mechanical writing skills were evaluated. To that end, texts containing the 5W1H questions were given to the students and they were asked to write down their answers. Three students were randomly selected and included in the study among nine students, who met the prerequisite performance criteria. Permission was taken from the parents and teachers of the participants for being involved in this study. Table 2 presents the characteristics of the participants.

Table 2: Demographic Information

Participants	Gender	Age	Grade	IQ	Types of Disabilities
Participant 1	Female	13 years old and 3 months	7	101	Learning Disability
Participant 2	Male	13 years old and 5 months	7	105	Learning Disability
Participant 3	Male	13 years old 2 and months	8	105	Learning Disability

2.3 Dependent and Independent Variables

The dependent variable is the percentage of note-taking performance and exam success performance. The independent variable is the strategic note-taking strategy.

2.4 Environment and Time

The application process was carried out in the classrooms for individualized education in the school. The classroom for individualized education was 6 m x 6 m in size. The students sat at a square table, and the researchers sat next to them. The sessions were held every weekday between 10:30 and 12:30, once a day.

2.5 Qualifications of Participants

One of the researchers had a doctorate from the Department of Special Education, and the other was doing a master's thesis. Other researcher had publications on strategy instruction for students with special needs (Karabulut et al., 2015; Karabulut & Özmen, 2018; Karabulut & Özkubat, 2019, 2021; Özkubat et al., 2020a, 2020b; Özkubat & Karabulut, 2021; Özkubat et al. 2021). Besides, the researchers took the Cognitive Strategy Instruction course in their doctorate and master's education. The researchers carried out the experimental process together.

2.6 Application

The application process was carried out in five stages: baseline sessions, instruction sessions, post-instruction sessions, generalization, and monitoring sessions.

2.7 Baseline Sessions

The note-taking performances of the participants and their exam performances at the end of the lessons were determined. During this period, students watched videotaped lessons, and they were provided with pen and paper so that they could take notes. At the end of the lesson, they were asked to answer 10 open-ended questions. By evaluating the notes and worksheets, the students' baseline performances were calculated as a percentage and shown on the graph.

2.8 Instruction Sessions

Instruction sessions were set up with the participants who obtained stable data at the baseline level. The instruction sessions were continued until the students' note-taking performance during the lectures with the CUESS+CC strategy reached %80, and they answered 10 open-ended questions that were given after the lecture with %90 accuracies. Worksheets that contain strategy instruction were used in the instruction sessions. In this process, videotaped lectures were presented to the students. The instruction was created in five stages according to the instructional stages of self-regulation strategies (SRS): *Develop and Activating Background Knowledge, Discuss the Strategy, Modeling, Guided Application, and Independent Performance*. The papers that were used to support the instruction stages are presented in Table 3.

Table 3: Supporters used in CUESS + CC Strategy

1. Tracing Paper	It is a supporter that includes the steps of the CUESS+CC Strategy and helps the student determine the step he/she is in while applying the strategy. The tracing paper consists of four columns. The first column contains the names of the steps of the strategy. The second column contains the substages of each step. The third column is the “yes” column. The fourth column is the “no” column. If the student has completed the step, he/she will mark the yes column, if not, he/she will mark the no column.
2. Classification Paper	It is a supporter that was developed to facilitate the classification step of the strategy. This column consists of one column and seven lines. The title is written in the first line, while a minimum of three and a maximum of 6 sentences on the topic are written in the other lines.
3. Cue Paper	It is a supporter that was developed to facilitate the ‘Use’ step of the strategy. This supporter consists of three columns. The student should capture the cues, one of the prerequisite skills, during the lecture and write to this supporter.
4. Notepaper	It is a supporter that was developed to facilitate the ‘Enter’ step of the strategy. The front and back of this paper will be used. There is a lined blank page on the front side of the paper for the student to take note. On the back of the paper, there is the ‘I don’t know’ section. In this section, the student will note the words that he/she does not know during the lecture, to learn later.
5. Summary Paper	It is a supporter that was developed to facilitate the ‘Summarize’ step of the strategy. This supporter consists of one column and six lines. The first line asks the student for a summary sentence. The first line asks the student for a summary sentence. The other five lines want him/her to explain the five most important points on the student in his/her own words.

2.9 Application Stages of the CUES + CC Strategy

Developing and activating background knowledge: At this stage, teacher tips that are necessary for the student to apply the CUES + CC Strategy and note-taking skills were taught (This topic is important, it may be asked in the exam, especially, it needs to be learned, etc.).

Discussion: Discussing the strategy enables students to learn and adopt the strategy. At this stage, the strategy introduced was introduced and students were helped to believe that the strategy would guide them. CUES + CC Strategy included steps such as classification, find a clue, take note, summarize, +, compare, check. Students were told what to do in which step. The importance of the steps was discussed with the students.

Modeling: At this stage, the use of strategy was modeled. The modeling stage consists of the realization of all steps by the researcher through tracing papers and thinking aloud. By stopping the course recordings at the required steps, the researcher performed the step loudly, and then the student took the researcher as a model. The practitioner became a model by thinking out loud about how the step should be realized. The modeling process continued in the same way for each step. The course was conducted simultaneously with the student. This stage continued until the student stated the steps of the strategy and until the student applied self-instruction and monitoring in all steps.

Guided Application: At this stage, the student started to take notes using the strategy and the teacher helped the student if necessary. Aids and supporters were withdrawn as the student gained experience in the use of strategies. Teacher guidance continued until the student succeeded in using the strategy alone.

Independent Performance: At this stage, the student started to apply the strategy on his own. The teacher made only observations to keep this performance of the student constant. The independent performance stage was

completed when the students took notes with an accuracy of more than 80% and met the correct answer criteria for 9 of the 10 questions determined for the course.

2.10 Post-Instruction Sessions

In this process, the process carried out in the baseline sessions was followed. Students watched videotaped lessons, and they were provided with a blank paper and a pen so that they could take notes. At the end of the lesson, they were asked to answer 10 open-ended questions. After level students' papers and worksheets, their post-instruction performances were calculated as percentage and shown on the graph. Considering the baseline level, the criterion determined for the students was 80% for note-taking performance at the end of the teaching and 90% for the 10-question exam. Instruction and post-instruction sessions were terminated when stable data were obtained for at least 3 consecutive sessions for each student.

2.11 Generalization Sessions

Generalization sessions were held to determine the students' generalization levels of note-taking and exam performances to different courses. Generalization data were collected with pre- and post-test. At the end of the lesson, students were asked to watch the videotaped Turkish lessons, take notes and answer the 10-question exam. After evaluating their answers and grades, correct answer percentages and quality grade percentages were determined and graphed. Once the teaching was completed, generalization post-test sessions were started. As in the pre-test sessions, students were asked to watch the videotaped Turkish lessons, take notes and answer the 10-question exam at the end of the lesson. Again, students' answers and grades were evaluated, and correct answer percentages and quality grade percentages were determined and graphed. Students were observed to use the CUES + CC Strategy while taking notes in the post-test sessions.

2.12 Monitoring Sessions

After the teaching was completed, monitoring sessions were initiated. In the monitoring sessions, it was aimed to determine students' level of continuing the CUES + CC Strategy in the first, third and fifth weeks after the completion of the instruction. Monitoring sessions were held in the classroom where the students were studying. In these sessions, similar to the post-instruction sessions, students watched videotaped lessons, and they were asked to take notes and take a 10-question exam after the lesson. After evaluating the worksheets, the students' post-instruction performances were calculated as a percentage and noted on the monitoring data section of the graph. A monitoring session was held for each student in the determined weeks. Thus, monitoring data were collected, and their note-taking performances and correct response percentages were graphed.

2.13 Data Collection Tools

Data collection tools included strategy papers to be used during the instruction, exam questions, a laptop, pencils and erasers, and a camera.

2.14 Data Analysis

The data were shown with a line chart and analyzed visually. The horizontal axis of the graph presented the number of sessions, while the vertical axis showed grade taking and exam performance percentages. When analyzing the data on note-taking and test performance skills, the level of the data obtained at the baseline level was compared with the level of the data obtained at the end of the instruction practices. the data obtained at the baseline level was compared with the data obtained at the end of the instruction practices. Considering the baseline level, at the end of the application of the CUES + CC strategy, the increase in the level of the data revealed the effect of the applied strategy. The follow-up data were compared with the post-instruction data to determine whether there was a difference in the level. Generalization data were analyzed by column graph. The baseline data and the end of instruction data were compared to determine whether there was a difference in the level.

2.15 Interobserver Agreement and Application Reliability

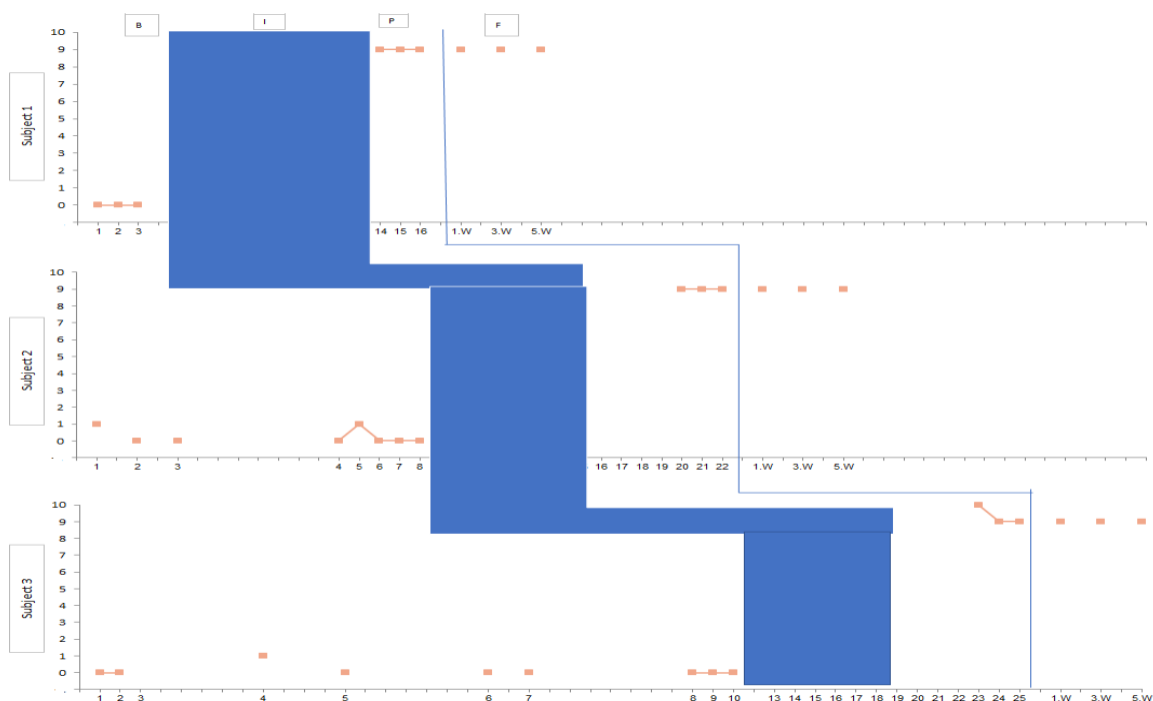
Interobserver agreement was calculated via the following formula: Researcher and observer total consensus was divided by the sum of consensus and disagreement and multiplied by 100 (House et al., 1981). Interobserver reliability was calculated for at least 30% of the research data by taking samples from each student, including all evaluation stages (baseline, post-instruction, generalization, and monitoring). Observers were experts who had bachelor's and master's degrees in special education and who took a single subject research design course. They were provided with the student's note-taking strategy papers and exam questions related to the lesson. The observers were asked to determine the student's grade-taking level and their correct answers. The observers were told how to score the data and they were asked to fill the Observer Reliability Registration Form by marking the "Yes" and "No" columns. Interobserver agreement for all three students was found to be 88%.

Application reliability was calculated by dividing the observed behaviors of the researcher by the planned behaviors of the researcher and multiplying the result by 100 (Billingsley, et al., 1980). Accordingly, the application reliability for all three students was found to be 86%.

3. Findings

Graph 1 presented students' baseline levels, end of instruction and monitoring findings regarding their note-taking skills.

Graph 1: Students' Baseline Levels, End of Instruction and Monitoring Findings Regarding Their Note-Taking Skills



At the baseline level, the first student did not take any notes while she was required to take 10 important notes during three consecutive sessions. However, at the end of the CUES + CC strategy instruction, she could take nine notes. During the monitoring sessions, she was observed to take nine notes one week later, nine notes three weeks later, and nine notes five weeks later. Thus, there was no decrease in the student's grades regarding monitoring sessions.

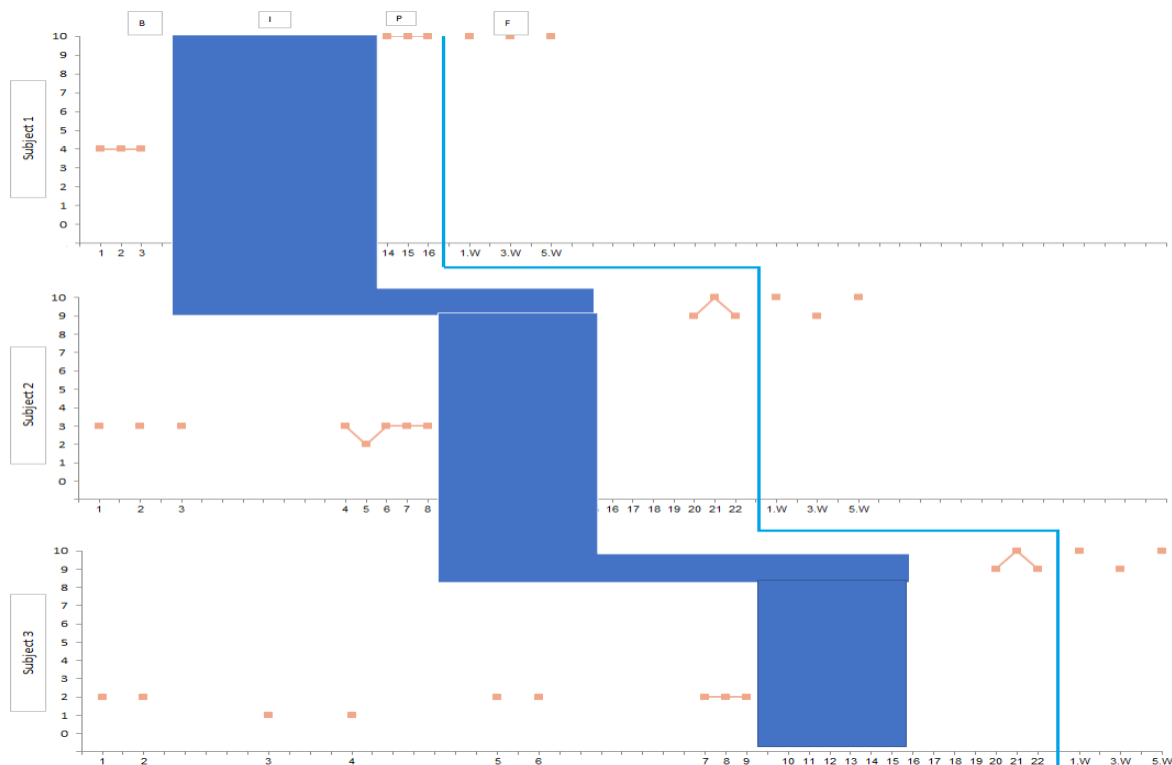
The second student took only one note in two sessions but did not take notes in the remaining six sessions at the baseline level. Yet, at the end of the CUES + CC strategy instruction, he was observed to take nine notes in three consecutive sessions. During the monitoring sessions, he could take nine notes one week later, nine notes three weeks later, and nine notes five weeks later. Therefore, no decrease was observed in the student's grades regarding monitoring sessions.

The third student took only one note in one session but did not take notes in the remaining sessions at the baseline level. However, at the end of the CUES + CC strategy instruction, he was observed to take ten, nine and nine notes in three consecutive sessions, respectively. During the monitoring sessions, she was observed to take nine notes one week later, nine notes three weeks later, and nine notes five weeks later. Thus, there was no decrease in the student's grades regarding monitoring sessions.

As a result, a difference was found between the note-taking skills performances of all three students regarding the baseline level and the end of the CUES + CC strategy instruction. As is seen in Graph 1, the level of data obtained at the end of the instruction is higher than the baseline level. Students met the criteria determined at the end of the instruction. This progress was not observed before the application of the independent variable, but it was observed after applying the independent variable. Therefore, the CUES + CC strategy was found to be effective in note-taking skills. Besides, there was no decrease in the monitoring sessions after the instruction compared to the end of the instruction. This finding shows the effectiveness of the CUES + CC strategy in maintaining the note-taking skills performances after one, three, and five weeks.

Graph 2 included students' baseline levels, end of instruction and monitoring findings regarding their exam success.

Graph 2: Students' Baseline Levels, End of Instruction and Monitoring Findings Regarding Their Exam Success



At the baseline level, the student gave correct answers to an average of four questions in the sessions related to 10 questions asked in the exam. However, after the CUES + CC strategy instruction, she gave correct answers to 10 questions in three consecutive sessions. In the monitoring sessions, she could give correct answers to 10 questions one week later, three weeks later, and five weeks later. Thus, there was no decrease in the correct answers of the student in the monitoring sessions.

The second student gave correct answers to an average of three questions in the sessions related to 10 questions asked in the exam. At the end of the CUES + CC strategy instruction, he gave correct answers to nine, 10 and nine questions in the three consecutive sessions, respectively. In the monitoring sessions, he gave correct answers to 10 questions one week later, nine questions after three weeks and 10 questions five weeks later. Thus, no decrease was observed in the correct answers of the student in the monitoring sessions.

The third student gave correct answers to an average of two questions in the sessions related to 10 questions asked in the exam. At the end of the CUES + CC strategy instruction, he gave correct answers to nine, 10 and nine questions in the three consecutive sessions, respectively. In the monitoring sessions, he could give correct answers to 10 questions one week later, nine questions three weeks later and 10 questions five weeks later. Thus, no decrease was observed in the correct answers of the student in the monitoring sessions.

As a result, a difference was found between the baseline level and the end of the CUES + CC strategy instruction regarding the exam performances of all three students. As is seen in Graph 2, the data path level obtained from all students at the end of the instruction was higher. All three students met the criteria determined at the end of the instruction. This progress was not observed before the independent variable; it was observed after applying the independent variable. Therefore, the CUES + CC strategy was found to be effective in students' exam performance. Besides, no decrease was observed during the monitoring sessions after the instruction compared to the end of the instruction. This finding shows that the CUES + CC strategy is effective in maintaining exam performances after one, three and five weeks.

Figure 1 presents the findings of pre- and post-instruction regarding the generalization levels of the students' note-taking skills to different lessons.

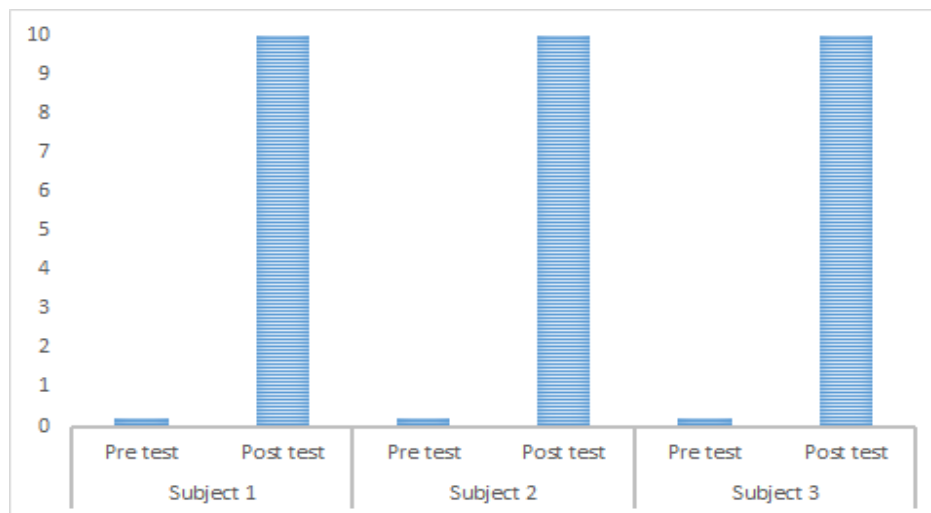


Figure 1: Levels of Generalization of the Students' Note Taking Skills Performance to Different Lessons (Turkish)

While all students took 0 notes out of 10 important notes that should be noted in the generalization pre-test phase, they were observed to take 10 notes in the post-test performed at the end of the CUES + CC strategy instruction. Consequently, a significant difference was found between pre- and post-test data of all three students. They reached a 100% accuracy level in note-taking skills at the end of the instruction. Therefore, students with learning disabilities participating in the study generalized their note-taking skill performances to a different course (Turkish).

4. Discussion

This paper investigated whether the CUES + CC strategy had an effect on the note-taking skills and exam success of students with learning disabilities and examined the permanence of their performance. Findings showed that the CUES + CC strategy affected note-taking skills and exam success, and students could maintain their performance for up to five weeks. Based on these findings, the CUES + CC strategy affects the note-taking skills and exam success of students with learning disabilities. Research underlines the effectiveness of the CUES + CC strategy (Boyle et al., 2014). In this study, the impact of the adapted version of the CUES + strategy on students with learning disabilities was examined, and it was found effective. This finding confirms research conducted with normally developing students, low performing students, and students with learning disabilities (Baharev, 2016; Boyle, 2010a; Boyle 2010b; Boyle, 2012; Boyle et al., 2014; Boyle & Forchelli, 2014; Boyle & Rivera, 2012; Boyle & Weishaar, 2001; Stephen et al., 2015).

After the CUES + CC Strategy instruction, the participants got more grades on average during the lesson, and their exam success showed that these grades were significant. Participants with a baseline data of 0% to 10% started writing by using abbreviations or by interpreting the sentence instead of writing what was said as it was. Also, it was observed that their note-taking levels increased to 90%. This helps the lesson to be understood and remembered better (Baharev, 2016; Boyle, 2010a). Research advocates that having the grades at a workable level later will lead to better learning; thus, test performance will be higher (Boyle & Rivera, 2012; Titsworth, 2004).

The literature provides many cognitive processes that affect note-taking. Cognitive processes are attention, working memory, understanding language, basic knowledge level, learning strategies, and transcription fluency. Disruption in any of the processes or steps can result in insufficient grades. Students who have difficulties in all these skills need a strategy to achieve note-taking skills (Boyle, 2010a; Baharev, 2016). Many studies have aimed to overcome these situations that affect the note procession. With the CUES + CC strategy used in the study, it was aimed to regulate the cognitive processes that the students experienced during the note-taking process, and it was created in a way to include self-instruction and monitoring (one of the self-regulation strategies). The difference between the CUES + CC strategy and CUES + (Boyle et al.) is the CC steps. The CC steps (compare, check) were used effectively for a long time in classroom settings (Graham & Harris, 2003). The steps used in the CUES + CC Strategy are classification, find a clue, take note, summarize, +, compare, and check. Based on the research findings of Kobayashi (2005), the method to be used in note-taking instruction for students with low academic success should be more strategic. Literature advocates that an academically competent learning strategy should be applied for note-taking skills (Bachhel & Thaman 2014; Campbell & Mayer, 2009; Butler et al., 2001; Stringfellow & Miller, 2005). It is also stated that strategy instruction can help students with learning disabilities and low academic performance to close the success gap regarding normally developing students (Bachhel & Thaman 2014; Titsworth & Kiewra, 2004).

The steps of the CUES + CC strategy show the steps students should follow while taking notes during the lesson. They also emphasize the cognitive strategies to be used at each stage and the metacognitive strategies used for the student's self-instruction and monitoring during the note-taking process. Especially, students with learning disabilities should know these stages for getting good grades (Baharev, 2016; Boyle, 2010a). Self-instruction and monitoring were used as a metacognitive strategy in this study. Self-monitoring helps students to follow the steps of the strategy accurately and completely, and to follow which task to do in which step while solving the problem, thus helping them to control themselves (Montague, 2007). In this study, self-monitoring allowed students easily to monitor whether the strategy steps used in note-taking were implemented during the lesson, and helped them learn self-control, self-evaluation and strategy steps. The increase in strategy performances played an important role in the permanent note-taking and exam performance, as well as generalizations to different courses.

In order for the students to become independent in the strategy, the study utilized supporters used in cognitive strategy instruction, such as tracing paper, classification paper, cue paper, and summary paper. The CUES + CC strategy tracing paper, which includes the steps of the CUES + CC strategy, helped students to monitor themselves and learn the strategy steps by marking the steps they went through while taking notes. The

classification paper made it easier to write the topic and identify the important steps in the lesson. The cue paper made it easier to catch the important clues in the lesson and increase the quality of the notes. Finally, the summary paper helped the students self-instruct and explained the five most important points related to the student in their own words. The supporters used in the CUES + CC strategy are structured sophisticatedly and are thought to help students use effective strategies rather than ineffective strategies.

Instruction Self-Regulation Strategy (SRS) is thought to have an important role in the effectiveness of the CUES + CC strategy. There are important reasons for this instruction to be effective on students (Graham & Harris, 2003). The first reason is that this instruction approach has emerged as a result of extended research and is used effectively (Graham & Harris, 2003). Another reason is that it has an inclusive feature that concentrates on the cognitive and academic characteristics of students with learning disabilities. Therefore, SRS includes basic information in terms of providing metacognitive information about the strategy to be taught to students with learning disabilities who have academic limitations and to support knowledge transfer processes. Finally, different self-regulation strategies (self-monitoring, self-instruction, self-reinforcement and self-goal setting) can be used together in the instruction approach. According to the literature, using these strategies together is more effective (Graham & Harris, 2003; Karabulut & Özmen, 2018; Reid & Lienemann, 2006). The main purpose of this instruction approach is to train self-regulated students (Reid & Lienemann, 2006). To achieve this, cognitive and metacognitive strategies should be combined with appropriate self-regulation strategies and implemented in coordination (Reid & Lienemann, 2006). Thus, applying of the CUES + CC strategy according to stages of the SRS (Self-Regulated Strategy Development) approach is believed to help the students with learning disabilities acquire these steps and be successful in their exams due to their note-taking performance.

The modeling stage of the SRS approach is necessary for the success of instruction (Karabulut & Özmen, 2018; Montague & Dietz, 2009). Cognitively modeling generally refers to modeling the process by using the model of thinking aloud while applying cognitive activities (Montague & Dietz, 2009; Özkubat & Özmen, 2018). At this stage, the practitioner becomes a model for how those who take strategic notes think and behave during the lesson. Thus, students had an opportunity to observe what should be considered while taking notes in the modeling phase, how they should monitor and control themselves. During the guided application and independent application stages, students were observed to apply thinking aloud (which they did not initially include in the note-taking process) and self-instruction and monitoring. This shows that students started to internalize the strategy. Also, students stated that they were more willing and successful when using the strategy. Findings showed that students generalized their note-taking performance and use of strategy to the different lesson (Turkish) after learning the CUES + CC Strategy. Why students generalize their note-taking performances and their use of strategies to the different lesson (Turkish) may be because of the following reasons: the strategy information they acquired as a result of the CUES + CC strategy instruction, supporters guiding the use of strategy, and the use of self-monitoring and self-instruction. Considering generalizing strategy performances to a different lesson (Turkish), this study shares similar findings with previous research conducted with normally developing students and students with learning disabilities (Baharev, 2016; Boyle, 2010b; Boyle & Weishaar, 2001).

Consequently, students using a certain strategy for note-taking used to take more notes. Thus, the quality of their note-taking increased which resulted in better exam success. Also, an increase was observed in their performance regarding recalling the information they had learned in the lesson. Despite having problems with memory and cognitive, note-taking skills of students with learning disabilities lasted for five weeks. Besides, they could generalize the note-taking skills they acquired to different lessons. The CUES + CC strategy provided significant support for students with learning disabilities to use metacognitive and self-regulation strategies. Findings indicate that basic cognitive skills, including processing what information is important and how to note and use that information, developed.

Based on the research findings, the following suggestions can be recommended. The CUES + CC strategy was found to be effective on the note-taking skills of students with learning disabilities. Therefore, it can be suggested that teachers of students with learning disabilities should use the CUES + CC strategy while gaining note-taking skills. For generalizability of the findings, further studies may be conducted with more participants

(both normally developing students and students with learning disabilities), including different courses as well as grades. Also, the effectiveness of the CUES + CC strategy can be tested on the note-taking skill of students with learning disabilities by creating a instruction package that includes self-regulation, self-instruction, self-assessment, and self-reinforcement.

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The Relationship Between Individual Innovativeness and Techno-Pedagogical Levels of School Administrators and Teachers*

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Abstract

In research on the use of technology in education, it is emphasized that it is an indispensable requirement of our age, therefore, educators should be developed in terms of techno-pedagogy. In this study, total 1735 school administrators and teachers' individual innovation qualifications and techno-pedagogical education competences were investigated, who are working at primary, middle school and preschool levels in Turkey's province Samsun. Within the scope of the research, personal information inventory, Technopedagogical Education Competence (TPACK - deep) Scale and Individual Innovativeness Scale were used. In the analysis of the data, the SPSS package program was used. According to the results of the research, it was seen that the techno-pedagogical education proficiency score of the participants was 4.01 which is in the advanced level. The average score that teachers got from the Individual Innovativeness scale was found to be 70.60 (category in the pioneer). According to the results of the correlation analysis, it was determined that both individual innovativeness and techno-pedagogical education competences levels have a significant correlation relationship with each other at the level of 0.01.

Keywords: Technopedagogy, Individual Innovation, Teacher, School Administrators

1. Introduction

1.1. Use of Technology in Education

The question of whether or not technology should be used in education, now has left its place to such questions; "How should we integrate technology into education?" and "In what environments, in what ways and in what

* This work was presented as an oral presentation at the "International Symposium on Business, Economics & Education" Congress on 08.04.2021.

proportion should we use technology in education?" Because it has become a necessity to use technology in a suitable environment and at sufficient rate in education (Akgündüz, 2016; Karaman, 2010). The hard conditions with Covid-19 epidemic, has showed how important the technology is in education. During the epidemic, some teachers adapted more easily to the use of technology in distance education processes, while others had difficulty accepting the existing situation (Alper, 2020). For this reason, technology integration in education is not just a matter of yesterday or today. Supporting learning for a specific plan and purpose, introducing new thinking processes, facilitating difficult activities and learning processes, and cooperating with stakeholders will also hold an important place in the future (Kurt, Şahin-İzmirli & Karakoyun, 2009).

The education process, which started with the chalkboard in the past, over time; continues with the use of many different devices and applications such as TV broadcasts, computers, overhead projectors, videos, podcasts, tablets, smart boards and wearable technologies in education (Kurtoğlu-Erden & Uslupehlivan, 2020). As technological devices develop, appropriate software and virtual reality applications are also produced., and it is really hard to estimate how far these developments will become. In this point, School teachers and principals, who are responsible to execute the education process, are expected to be open to innovations, to be pioneer to change in a planned way and should have the ability of technology-based teaching. (Şahin & Aslan, 2008).

While declaring the qualities which the Teachers should have, Ministry of National Education emphasizes the statement that “ In the process of teaching and learning, teachers are expected to use appropriate tools, information and communication technologies effectively” (Milli Eğitim Bakanlığı [MEB], 2017). According to all these, techno-pedagogical competence has an extremely important place in the professional development of teachers.

1.2. Technological Pedagogical Content Knowledge (TPCK)

In the relevant literature, for teachers to use technology more effectively in education it is seen that various models have been developed (Kaya & Yılayaz, 2013; Wang & Woo, 2007). “Technological Pedagogical Content Knowledge (TPCK)” approach put forward by Mishra and Kohler (2009) is one of them. They developed the "pedagogical content knowledge" model introduced earlier by Shulman (1986) and added the technology item to it. TPCK was first introduced as "Good teaching is not simply adding technology to the existing teaching and content domain. Rather, the introduction of technology causes the representation of new concepts and requires developing a sensitivity to the dynamic, transactional relationship between all three components suggested by the TPCK framework” (Koehler, M.J. & Mishra, P. 2005). As stated by Roblyer (2006), what is expected from the teacher is not how often she/he uses the technology, but that she/he is able use it by choosing the technology suitable for the educational content and pedagogical approach. In order to achieve a successful teaching, Techno-pedagogical education model requires teachers to use technology, pedagogy and content knowledge simultaneously (Kabakçı-Yurdakul et al., 2012).

Techno-pedagogy, in order to prepare a training program to provide a technology-supported education; It is described as an instructional design created by a team including teachers, students and instructional technologists (Kazu & Erten, 2011).

1.3. Factors Affecting Teachers' Use of Technology in Education

As Earle (2002) stated, technology integration is a process, not a product, and there are some factors that affect this process. Ertmer (2001) categorized the factors affecting teachers' use of technology in two groups: a. Those related to the teachers themselves (attitude towards technology, beliefs, practices and resilience) and b. Out of the teacher's control (access to technology, technical support, implementation time, etc.) T. Teo examined the factors affecting teachers' acceptance of technology in two headings: direct influencers and indirect influencers. According to him, the attitudes of individuals towards the use of technology and technopedagogical competencies are among the factors that directly affect teachers. He stated that the conditions related to the use of technology are among the factors that affect indirectly. Mazman and Usluel (2011), on the other hand,

discussed the factors that determine technology integration in education and play a role in the process in two dimensions: internal and external factors.

Kabakçı-Yurdakul and their friends (2014), who conducted a study in this field, conducted a study to determine techno-pedagogical education competencies and performance indicators. In this context, they determined the teachers' techno-pedagogical education competencies within six main competences: such as "designing the teaching process", "conducting the teaching process", "being open to innovations", "complying with ethical issues", "problem solving" and "specialization in the field", within the framework of the 120 performance indicators that determine these competences.

1.4. Individual Innovativeness

According to Rogers (2003), innovation in the most general sense is defined as "an idea, practice, or object perceived as new by individuals or adoptive units". He explains the dynamics of innovation with five items: Relative advantage, Compatibility, Complexity, Trialability, and Observability. Rogers defining innovativeness as one's adoption of new ideas earlier than others, states that instead of defining an individual as "less innovative than the average member of a social system", members of the social system can be classified on the basis of innovation. He makes the classification by dividing them into categories such as innovators, early adopters, early majority, late majority, laggards. In order to create positive results at the end, Özdemir (2000), defines innovation; as a pre-planned, controlled change. In order for the innovation to be adopted, it is also expected to have a testable feature and the emerging results to be visible or observable (Çuhadar et al., 2013). Innovation can also be defined as the willingness to try everything new and the desire to change (Braak, 2001; Hurt, Joseph, & Cook, 1977).

In a study conducted by Drent & Meelissen (2008) on teachers in the Netherlands, they found that personal entrepreneurship plays an important role in the use of information and communication technologies. According to Ertmer and Ottenbreit-Leftwich (2010), in order for teachers to use technology effectively in education; variables such as knowledge, self-efficacy, pedagogical beliefs and school culture should be taken into account. In the pandemic process in which distance education methods are applied, adaptation of teachers and school administrators to new conditions, and to carrying out the education in a healthy way, individual innovativeness features also have a great impact (Canpolat & Yıldırım, 2021). Especially, among the factors that affect teachers' use of technology, individual innovativeness plays an important role (Mazman & Usluel 2011).

Both the technological innovations of the 21st century and the compelling effects of distance education have created the need to investigate the technopedagogical levels of teachers and education administrators.

In the light of all these developments, it can be said that it is necessary to determine the techno-pedagogical education competencies of teachers and their individual innovativeness levels in the conduct of education and training processes and to investigate whether there is any relationship between these two.

1.5. Scope and Importance of The Research

In this study, it is planned to research the relationship between the techno-pedagogical education competencies of educators and their individual innovativeness. Within the scope of this general purpose, answers will be sought for the following questions.

1. What is the level of individual innovativeness and TPCK competence of teachers?
2. Do participants' individual innovativeness and techno-pedagogical education competencies show diversity according to the variables such as; gender, age, years of seniority, branch, school type, etc.?
3. Is there a meaningful relationship between educators' individual innovativeness characteristics and TPCK competencies?

The research is important in terms of professional development of teachers and school administrators, teacher training policies and technology integration in education.

2. Method

2.1. Research Design

In the study, relational scanning model was preferred among quantitative research methods. Relational scanning model is called scanning approach that aims to determine the existence of co-change between two or more variables. In the relational survey model, whether the variables change together or not; If there is a change, it is tried to be determined how it happened. (Karasar, 2011; Büyüköztürk et al. 2014).

2.2. Working Group and Research Process

The universe of the research consists of 20.581 teachers working throughout the city of Samsun. In the sample of the study, there are 1805 pre-school, primary and secondary school teachers selected by simple random sampling model from the universe. As a result of the statistical analysis, statements of 70 participants, who had extreme values and were left incomplete, were removed and not included in the evaluation. Accordingly, the sample of the study was determined as 1735 participants.

In order to collect data from the sample group, research permissions were obtained from Ondokuz Mayıs University Social and Human Sciences Ethics Committee and Samsun Provincial Directorate of National Education. Due to the difficulties brought by the Covid 19 process, it was decided to collect research data via Google Form application. The questionnaire text was uploaded to the system and the link address was sent to voluntary teachers between 1-30 September 2020, and no personal data was stored within the scope of the research.

2.3. Data Collection Tools

Techno-pedagogical Education Proficiency Scale (TPACK - deep) developed by Kabakci Yurdakul, Odabasi, Kilicer, Coklar, Birinci, Kurt (2012) was used as a data collection tool in order to determine the techno-pedagogical education competencies of teachers in the study. Techno-pedagogical Education Competence (TPACK - deep) Scale consists of 33 items and four factors. These factors are; design, implementation, ethics and specialization.

In this research was used "Individual Innovation Scale" adapted into Turkish by Kılıçer & Odabaşı (2010) in order to measure participants' individual innovativeness (originally developed in by Hurt and et al. in 1977). The validity and reliability of this scale was accepted by many researchers on testing different samples (internal consistency coefficient is 0.82, test-retest reliability is 0.87). It was determined that the 20-item Turkish scale has a four-factor structure, that its factor structures are valid.

Individuals can be categorized in terms of innovativeness according to the scores obtained on the scale. According to this, if individuals score above 80 points, they are interpreted as "Innovative", if between 69 and 80 points as "Pioneer", between 57 and 68 points as "interrogator", between 46 and 56 points as "Skeptic", and below 46 points as "Traditional" (Kılıçer & Odabaşı, 2010).

2.4. Data Analysis

The collected data was transferred to a computer environment. Inappropriate and extreme expressions has been removed from the data set. SPSS 22.0 package program was used in the analysis of the data and the significance level was accepted as 0,05 in the interpretation of the results. Independent sample t-test from statistics and one-way ANOVA were used, Correlation analysis and Regression Analysis, Tukey HSD test from Post Hoc tests was used.

3. Results

3.1. Findings Regarding the Demographic Characteristics of the Individuals Participating in the Study

The frequency and percentage values for the independent variables such as gender, duty, region, age, seniority year, school type of the teachers participating in the study are given in below.

Table 1: Frequency Tables

Independent Variable	Categories	N	Percent
Gender	Female	1027	59,2
	Male	708	40,8
District of Duty	Central District	621	35,7
	Remote District	1114	64,3
Age	20-30	192	11,1
	31-40	805	46,4
	41-50	519	29,9
	51 and above	219	12,6
Year Of Seniority	1-9 Years	427	24,6
	10-19 Years	762	43,9
	20-29 Years	423	24,4
	30 Years and above	123	7,1
School Level	Primary School	634	36,5
	Middle School	885	51,0
	Preschool	216	12,4
School Type	State school	1693	97,6
	Private school	42	2,4
Mission Title	Teacher	1519	87,6
	Assistant Manager	114	6,6
	Manager	102	5,9

As seen in Table 1, 59.2% of the teachers participating in the study are women and 40.8% are men. Considering the regions they work in, 64.3% of the teachers work in districts far from the centre. 46.4% of the participants are between the ages of 31-40, and in terms of years of seniority, it is seen that 43.9% of the participants have been working for 10-19 years. 51% of the participants are middle school teachers, 97.6% are employees in public schools and 87.6% of the participants are working as teachers.

3.2. Findings Regarding the General Purpose of the Study

The techno-pedagogical education proficiency score average of the participants in the study was found to be between 4.01 and advanced level. The mean scores of the sub-dimensions of TPCK, which are design, application, ethics and specialization levels, are given in Table 2 below.

Table 2: Techno-pedagogical Education Competence Scores of Teachers

		N	Minimum	Maximum	Mean	5- Likert	Std. Deviation
Technological	Design	1735	19,00	50,00	39,3931	3,94	6,44665
Pedagogical	Application	1735	22,00	60,00	48,6836	4,06	7,48853
Content	Ethical	1735	8,00	30,00	25,8323	4,31	3,57779
Knowledge	Specialization	1735	5,00	25,00	18,4697	3,69	3,97630
(TPCK)							

According to Table 2, it is seen that the highest average score of teachers for TPCK sub-dimensions belongs to the "Application" dimension. The lowest average score was found in the "Specialization" dimension.

Table 3: Teachers' Individual Innovativeness Tendencies

	N	Minimum	Maximum	Mean	Std. Deviation
Individual Innovation	1735	42,00	94,00	70,6023	10,35967

As seen in Table 3, the average score that teachers got from the scale of individual innovativeness is 70.60. Accordingly, we can say that the participants are in the "Pioneer" category. The results of the correlation analysis conducted to understand whether there is any relationship between teachers' technopedagogical education proficiency and their level of individual innovativeness are below.

Table 4: Correlation Analysis

Correlations		Bireysel Yenilikçilik	Teknopedagoji
Individual Innovation	Pearson Correlation	1	,557**
	Sig. (2-tailed)		,000
	N	1735	1735
Techno-pedagogical Competence	Pearson Correlation	,557**	1
	Sig. (2-tailed)	,000	
	N	1735	1735

**Correlation is significant at the 0.01 level (2-tailed).

According to the results of the correlation analysis, it was determined that both individual innovativeness and techno-pedagogical competence levels have a significant correlation relationship with each other at the level of 0.01.

The simple linear regression analysis results we have done to see whether teachers' individual innovativeness characteristics cause any difference on their techno-pedagogical competence levels are below.

Table 5: Regression Analysis

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the
1	,557 ^a	,310	,310	,51405

a. Predictors: (Constant), Individual Innovation

According to the results of the regression analysis, it was seen that teachers' individual innovativeness levels affect their techno-pedagogical competence levels at a level of 31.1%.

Table 6: Regression Anova^a Analysis

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	214,189	1	214,189	810,567	,000^b
	Residual	476,435	1733	,264		
	Total	690,623	1734			

a. Dependent Variable: Techno-pedagogical Competence

b. Predictors: (Constant), Individual Innovation

The Anova results show that the model created in the way that individual innovation characteristics at the level of .000 affect the techno-pedagogical levels is confirmed.

3.3. Findings Regarding the Sub-Goals of the Study

3.3.1. The t-test results made to determine whether there is a meaningful differentiation between TPCK and Individual Innovativeness levels according to the gender variable of the teachers is given below.

Table 7: Gender, TPCK and Innovation traits t-Test

Scales	Sub Dimensions	Gender	N	\bar{x}	Ss	sd	t	p
Technological Pedagogical Content Knowledge (TPCK)	Design	Female	1027	3,85	6,55059	1733	-6,915*	.000
		Male	708	4,06	6,08211			
	Application	Female	1027	3,99	7,67840	1733	-5,498*	.000
		Male	708	4,15	7,04925			
	Ethical	Female	1027	4,29	3,60115	1733	-1,353	.176
		Male	708	4,33	3,54152			
	Specialization	Female	1027	3,57	4,06523	1733	-7,829*	.000
		Male	708	3,87	3,67657			
Individual Innovation	Female	1027	69,90	10,53004	1733	-3.468*	.001	
	Male	708	71,63	10,02637				

When the data in Table 7 is examined, of the teachers in terms of TPCK; Design ($t = -6,915$), application ($t = -1,353$) and specialization ($t = -7,829$) dimensions and Individual Innovation levels were found to be significantly different in favor of male teachers.

3.3.2. The results of the t-test for the region variable where teachers work and TPCK and Individual Innovation scores are given in Table 8.

Table 8: The region where teachers work, TPCK and Innovation Scores T-test Table

Ölçekler	Alt Boyutlar	Bölge	N	\bar{x}	Ss	sd	t	p
Technological Pedagogical Content Knowledge	Design	Central District	621	39,1176	6,47756	1733	-1.327	.185
		Remote District	1114	39,5467	6,42715			
	Application	Central District	621	48,4412	7,50066	1733	-1,006	.315
		Remote District	1114	48,8187	7,48172			
	Ethical	Central District	621	25,8631	3,48484	1733	.271	.786
		Remote District	1114	25,8151	3,63000			
	Specialization	Central District	621	18,0419	4,17692	1733	-3.278	.001*
		Remote District	1114	18,7083	3,84121			
Individual Innovation		Central District	621	70,62	10,52451	1255	.048	.962
		Remote District	1114	70,60	10,27138			

According to Table 8, it has been observed that the TPCK Specialization dimension scores of the teachers working in the Central districts (İlkadım, Atakum, Canik ve Tekkeköy districts) are higher than those working in remote districts (Alaçam, Asarcık, Ayvacık, Bafra, Çarşamba, Havza, İlkadım, Kavak, Ladik, Ondokuz Mayıs, Salıpazarı, Terme, Vezirköprü, Yakakent). No significant difference was found between the groups as a result of the t-test conducted for the individual innovativeness levels depending on the region where teachers work.

3.3.3. The results of analysis of variance between teachers' age groups and TPCK and Individual Innovativeness

Table 9: Variance Analysis Table Age Group Variable and TPCK and Individual Innovation Scores

Scales	Sub Dimensions	Source	Sum of Squares	sd	Mean of squares	f	p
Technological Pedagogical Content Knowledge	Design	Intergroups	472,544	3	58,170	1,405	,130
		In groups	71591,373	1731	41,405		
		Total	72063,917	1734			
	Application	Intergroups	814,007	3	66,344	1,185	,272
		In groups	96425,275	1731	55,982		
		Total	97239,282	1734			
	Ethical	Intergroups	70,426	3	14,284	1,117	,333
		In groups	22125,766	1731	12,787		
		Total	22196,193	1734			
Specialization	Intergroups	244,954	3	35,611	2,279	,003	
	In groups	27171,207	1731	15,627			
	Total	27416,161	1734				
Individual Innovation		Intergroups	149,721	3	83,119	,773	,718
		In groups	185947,870	1731	107,548		
		Total	186097,591	1734			

According to the results of the analysis of variance between the age groups of teachers and TPCK competence and individual innovativeness scores, it was seen that teachers differed in the specialization dimension, which is the sub-dimension of TPCK, and there was no difference between the groups in terms of individual innovativeness levels. Tukey HSD test results in the dimension of specialization, are shown in the table below.

Table 10: Tukey HSD Test Showing Among Age Groups the Sub-Dimension of Specialization Differentiates

	\bar{x}	n	Gruplar	Groups			
				20-30	31-40	41-50	51 and over
Specialization	19,1042	192	20-30 Yrs			*	*
	18,6969	805	31-40 Yrs			*	
	18,0713	519	41-50 Yrs				
	17,7553	219	51 and over				

As seen in Table 10, it has been observed that the teachers between the ages of 20-30 have a higher average than the teachers 41-50 and over 51 in the "specialization" sub-dimension. In the same direction, it has been noticed that teachers between the ages of 31-40 have a higher average than those of 51 and over age group. According to these results, it can be said that teachers in the younger group have a significant difference in specialization compared to those in the older group.

3.3.4. Variance analysis table for TPCK and individual innovativeness scores according to the seniority variable of teachers is given below.

Table 11: Variance Analysis of Teachers' Seniority Year Variable with TPCK and Individual Innovation Scores

	Sub Dimensions	Source	Sum of Squares	sd	Mean of squares	f	p
Technological Pedagogical Content Knowledge	Design	intergroup	365,167	3	121,722	2,939	,032
		In-group	71698,750	1731	41,420		
		Total	72063,917	1734			
	Application	intergroup	523,868	3	174,623	3,125	,025
		In-group	96715,414	1731	55,873		
		Total	97239,282	1734			
	Ethical	intergroup	26,867	3	8,956	,699	,552
		In-group	22169,326	1731	12,807		
		Total	22196,193	1734			
	Specialization	intergroup	239,381	3	79,794	5,082	,002
		In-group	27176,781	1731	15,700		
		Total	27416,161	1734			
Individual Innovation	intergroup	286,267	3	95,422	,889	,446	
	In-group	185811,324	1731	107,343			
	Total	186097,591	1734				

As can be seen in Table 11, according to the results of analysis of variance between teachers' seniority years and TPCK proficiency and individual innovation levels, teachers' technopedagogic proficiency scores differed significantly in design, application and specialization dimensions, which are the sub-dimensions. No differentiation was found between individual levels of innovation and years of seniority. Below is the table showing the result of the Tukey HSD test, which we conducted to see in which working periods / seniority years the differentiation occurred.

Table 12: Tukey HSD test showing between which seniority years the Design, Application and Specialization subgroups differ

	\bar{x}	n	Groups	1-9	10-19	20-29	30 Yrs and over
Design	39,5972	427	1-9 Yrs				
	39,6942	762	10-19 Yrs			*	
	38,5887	423	20-29 Yrs		*		
	39,5854	123	30 and over				
Application	49,0023	427	1-9 Yrs				
	49,0774	762	10-19 Yrs			*	
	47,7991	423	20-29 Yrs		*		
	48,1789	123	30 and over				
Specialization	19,0094	427	1-9 Yrs			*	
	18,4383	762	10-19 Yrs				
	17,9527	423	20-29 Yrs	*			
	18,5691	123	30 and over				

According to the results of the Tukey HSD test, a significant difference was found between 10-19 years and 20-29 years in the design dimension, between 10-19 years and 20-29 years in the application dimension, and between 1-9 years and 20-29 years in the specialization dimension. It has been observed that those who have worked for 10-19 years in the design dimension differ from those who have worked for 20-29 years, those who have worked for 10-19 years in the implementation dimension compared to those who have worked for 20-29 years, and those who have worked for 1-9 years in the specialization dimension compared to those who have worked for 20-29 years. Based on these results, we can say that teachers who are in the lower group in terms of seniority years have higher mean scores in design, implementation and specialization sub-dimensions compared to teachers with seniority years ahead.

3.3.5. The results of variance analysis for the school level variable where teachers work and TPCK and Individual Innovation scores are given in the table below.

Table 13: Variance analysis of TPCK and Individual Innovativeness scores according to the school level variable where teachers work

	Sub-Dimensions	Source	Sum of squares	sd	mean of squares	f	p
Technological Pedagogical Content Knowledge	Design	Intergroup	159,011	2	79,506	1,915	,148
		Ingroup	71904,906	1732	41,516		
		Total	72063,917	1734			
	Application	Intergroup	223,038	2	111,519	1,991	,137
		Ingroup	97016,243	1732	56,014		
		Total	97239,282	1734			
	Ethical	Intergroup	81,919	2	40,959	3,208	,041
		Ingroup	22114,274	1732	12,768		
		Total	22196,193	1734			
	Specialization	Intergroup	54,448	2	27,224	1,723	,179
Ingroup		27361,713	1732	15,798			
Total		27416,161	1734				
Individual Innovation	Intergroup	75,810	2	37,905	,353	,703	
	Ingroup	186021,781	1732	107,403			
	Total	186097,591	1734				

According to Table 13, it was observed that the teachers differed in the ethical dimension, which is the sub-dimension of techno-pedagogical competence scores, and no differentiation was found between individual levels of innovativeness and the school level variable. The result of the Tukey HSD test we conducted in order to understand among which school levels the ethical dimension differs is given in the table below.

Table 14: School level variable TPCK ethical dimension Tukey HSD test

	\bar{x}	n	Groups	Groups		
				Preschool	Primary School	Middle School
Ethical	25,3611	216	Preschool			*
	25,7413	634	Primary School			
	26,0124	885	Middle School	*		

According to Tukey HSD results, a significant difference was observed between preschool teachers and secondary school teachers in the ethics sub-dimension. Middle school teachers' mean scores of ethics sub-dimension were found to be higher than the average scores of preschool teachers.

3.3.6. The results of the t-Test analysis of the school type variable and TPCK and Individual Innovation scores of teachers are given in the table below.

Table 15: School type variable with TPCK and Individual Innovation scores t-Test

Sub-Dimensions	School Type	N	\bar{x}	Ss	sd	t	p	
Technological Pedagogical Content Knowledge	Design	State school	1693	39,3314	6,44504	1733	-1,845	,010
		Private school	42	41,8810	6,07756			
	Application	State school	1693	48,6108	7,49099	1733	-2,682	,007
		Private school	42	51,6190	6,84658			
	Ethical	State school	1693	25,8151	3,57701	1733	-2,806	,212
		Private school	42	26,5238	3,58342			
	Specialization	State school	1693	18,4318	3,99093	1733	-1,266	,002
		Private school	42	20,0000	2,98778			
	Individual Innovation	State school	1693	70,5387	10,3836	1733	-3,329	,072
		Private school	42	73,1667	9,08474			

When the data in Table 15 were interpreted it was seen that there was a significant difference in the design, application and specialization dimensions of teachers, which are sub-dimensions of TPCK. In each of the design, application and specialization dimensions, it has been observed that the average scores of teachers working in private schools are higher than those working in public schools.

3.3.7. The variance analysis results of the job title variable and TPCK and Individual Innovation scores of the participants are given in the table below.

Table 16: Variance analysis for job title variable and TPCK and Individual Innovation scores

	Sub-Dimensions	Source	Sum of Squares	sd	Mean of Squares	f	p
Technological Pedagogical Content Knowledge	Design	Intergroups	878,085	2	439,043	13,86	,000
		In groups	71185,832	1732	41,100		
		Total	72063,917	1734			
	Application	Intergroups	1003,825	2	501,912	10,682	,000
		In groups	96235,457	1732	55,563		
		Total	97239,282	1734			
	Ethical	Intergroups	53,410	2	26,705	2,089	,124
		In groups	22142,783	1732	12,785		
		Total	22196,193	1734			
	Specialization	Intergroups	734,504	2	367,252	23,840	,000
		In groups	26681,657	1732	15,405		
		Total	27416,161	1734			
Individual Innovation	Intergroups	2932,018	2	1466,009	13,86	,000	
	In groups	183165,573	1732	105,754			
	Total	186097,591	1734				

It was observed that there was a difference in the job positions of the participants in school, their design, application and specialization features, which are sub-dimensions of TPCK, and their individual innovation features ($p < 0.05$). Tukey HSD test was conducted to understand among which groups this differentiation was present.

Table 17: Tukey HSD test for TPCK sub-dimensions with job title variable

	\bar{x}	n	Groups	Teacher	Asst. Mgr.	Manager
Design	39,1251	1519	Teacher		*	*
	41,1930	114	Assistant Manager	*		
	41,3725	102	Manager	*		
Application	48,3970	1519	Teacher		*	*
	50,7807	114	Assistant Manager	*		
	50,6078	102	Manager	*		
Specialization	18,2284	1519	Teacher		*	*
	19,8509	114	Assistant Manager	*		
	20,5196	102	Manager	*		
Individual Innovation	70,1145	1519	Teacher		*	*
	73,6842	114	Assistant Manager	*		
	74,4216	102	Manager	*		

As a result of the Tukey HSD test, it was detected that there was a difference in favor of the school principal in the mean scores of the TPCK scale design, application and specialization dimensions and individual innovation levels ($F=74,4216$). We can say that the principal has a positive level in both TPCK sub-dimensions and individual innovation scores according to the teachers and vice principals and also that the vice principal has a positive level in both TPCK sub-dimensions and individual innovation scores according to the teachers.

4. Discussion

According to the results of the research, it was determined that the techno-pedagogical education proficiency score of the participants was 4.01 which is in the advanced level, the highest mean score in the TPCK sub-dimensions belonged to the "Application" dimension, and the lowest mean score belonged to the Specialization dimension. The average score that teachers got from the Individual Innovativeness scale was found to be 70.60, so we can say that the participants were in the "pioneer" category.

In the study conducted by Çuhadar, Bülbül, and Ilgaz (2013), teachers' individual innovativeness characteristics were found to be in the "interrogator" category, and their TPCK levels were found to be highly sufficient with an average of 3.93. Solmaz (2019) found the teachers' individual innovation levels in the "Openness to Experience" category, while their techno-pedagogical education competencies were in the "Advanced Level" range with an average of 3.78. Özbek (2014) found that teachers' TPCK mean score is 3.86; Şimşek and others (2013) found it 3.76; Kaya and Yazıcı (2019) found ($\bar{x}=3,743$) in the "Advanced Level" range. The situation that individual innovativeness features give similar results in various studies can be associated with the general competency requirements of the teaching profession and educational situations.

Based on research results, it can be said that there is a significant correlation between teachers' individual innovativeness and techno-pedagogical education competence levels at the level of 0.01, and individual innovativeness levels predict their techno-pedagogical education competencies at the level of 31.10%. Konaklı and Solmaz (2015) examined the relationship between teachers' individual innovation levels and techno-pedagogical competencies. In the results of the research, it has been observed that there is a moderate, positive and significant relationship between individual innovation level and techno-pedagogical competencies. It is seen that this result is in parallel with similar studies in the field; (Çuhadar, Bülbül & Ilgaz, 2013; Hermans, Tondeur, Haerlemans & Blank, 2012; Braak & Valcke, 2008; Örün and others, 2015; Özbek (2014).

It was observed that male teachers' TPCK and individual innovation scores were higher than female teachers. There are also other researches that have found similar results; (Argon and Others, 2015; Kaya and Yazıcı (2019); Yalçın-İncik, 2017). There are also studies in the literature that do not find any difference between TPCK levels and gender; (Çuhadar, Bülbül & Ilgaz, 2013; Solmaz, 2019; Şimşek and others, 2013). In the Specialization dimension, which is the TPCK sub-dimension; It has been observed that they are ahead of those who work in central districts, and their level of individual innovativeness does not differ. This result may be due to the differentiation of roles for men and women in the society.

It has been observed that there is a significant difference in favor of young teachers in TPCK efficacy scores ($0.03<0.05$). In their study, Şimşek and others (2013) found that the average TPCK score of the lecturers in the age group of 31-40 was higher than those of the lecturers over the age of 50.

The research, it was seen that there is no difference between the age variable and individual innovativeness levels. Similarly, in the study conducted by Vatansever-Bayraktar & Karabulut (2020), there was no difference between age and individual innovativeness. The reason for the high TPCK scores of young teachers may be that they were born in the age of technology compared to older teachers.

It can be said that there is a differentiation between the years of seniority of teachers and the sub-dimensions of TPCK, design, application, and specialization the average scores of (in favor of with low seniority years) the teachers. Yalçın-İncik (2017) found that teachers whose seniority years are between 11-15 years have higher

TPCK proficiency scores than teachers with 26 years and more. Solmaz (2019) noticed a significant difference between the seniority variable and the "openness to experience" dimension of individual innovativeness and the design, implementation and specialization dimensions of the TPCK sub-dimensions in favor of teachers with seniority of 1-5 years; and also Özbek (2014) stated that the professional seniority year does not cause any differentiation on individual innovativeness.

In the TPCK Ethical dimension, it was determined that the mean scores of the teachers working at the middle school level were higher than the teachers working in pre-school ($\bar{x} = 26,0124$) and there was no difference in terms of individual innovativeness. When considered in terms of school type, it was observed that there is a significant difference in the design, application and specialization dimensions of TPCK sub-dimensions and individual innovativeness levels. It can be said that the teachers working in private schools have higher levels of techno-pedagogical competence and individual innovativeness than those working in public schools.

It was observed that there was a significant difference in the task positions (Teacher, Asst. Mgr., Manager) of the participants, TPCK design, application and specialization dimensions and individual innovation levels. Accordingly, it can be said that the techno-pedagogical competence and individual innovation levels of school principals are higher than the others. In the study conducted by Şimşek and others (2013) on faculty members who are university personnel, titles such as professor, associate professor and assistant do not cause any differentiation in the TPCK scores of faculty members. In the light of this research, we can say that in order to improve the techno-pedagogical education competencies of teachers, we need to develop their individual innovativeness characteristics and also we should take into account their different variables such as age, gender and job positions. It is thought that studying the findings of the research with a qualitative research, taking the mentioned variables into account, will be effective in terms of better enlightenment of the subject.

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Analyzing School Attachment of Secondary School Students' for Regards to Various Variables

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Abstract

The purpose of this study is to investigate whether school attachment levels of secondary school students change according to gender, class level, family income level, academic achievement, parents' age level, parents' job and parents' education level variables or not. The sample of the study consists of 382 (211 female, 171 male) students studying in 5th, 6th, 7th and 8th grades of two secondary schools in Beylikdüzü district of Istanbul in the 2019-2020 academic year. In this study, the "Personal Information Form" developed by the researcher and the "School Attachment Scale for Children and Adolescents" adapted to Turkish by Savi (2011) were used as data collection tools. T-test for binary variables and ANOVA statistical technique for multiple variables were used. According to the findings of the study, there was no significant difference between the variables of gender, academic achievement, parents' age level, mother's job, family income level and father's education level. However, A significant difference was found between the groups in the variables of the class level of the student, father's job and mother's education level. The findings were discussed and suggestions presented.

Keywords: School Attachment, Academic Achievement, Student

1. Introduction

Education is a complex process consisting of different variables. It is known that emotional processes contribute greatly to achieving educational goals during this period. The environment where the individual establishes the most relationship and interaction with others in the school. Therefore, school has a great and effective place in individuals' lives. The happier life of individuals in the future differs according to their education level (Alaca, 2011). School is the first environment where students socialize and begin to acquire the skills they need to adapt to society (Bellici, 2015). The quality of the process experienced at school affects the student's commitment to the school as they prepare the students for their future lives.

Driving students forward, the quality of the process experienced at school is one of the factors affecting student attachment to the school (Kalaycı & Özdemir, 2013). However, the school is considered successful as long as it

provides individuals to learn the subjects they need in order to be able to socialize and be happy (Yavuzer, 2002). The school, which has a great place in the development of every person and where the education and training process takes place, offers a protective environment for children. It also has the ability to reduce the likelihood of individuals exhibiting negative behaviors (Jackson & Warren, 2000). Learning is essential in developing self-actualization and competencies. Therefore, it is necessary to complete school education for the academic, personal and professional life of the individual (Garnier., Stein & Jacobs, 1997). It is necessary to establish positive relationships at school, for healthy development and adaptation to the school (Hepler, 1997). New bonds emerge with the school life, where children are separated from their families for the first time. Attachment to the school as a student's feeling of belonging to the school and embracing its goals (Finn, 1993) includes not only a simple liking or warmth, but also respect and support for the individual autonomy of the student (Goodenow, 1992). School attachment plays a protective role in students against negativities such as orientation towards negative behaviors towards school and personal inadequacy (Özdemir, 2015). Especially the communication of students based on trust with their parents will reflect positively on their bonding. Attachment creates a strong emotional system with the emotional bonds of individuals to the people they care about (Bowlby, 2012). Students' negative behaviors at school and the attitudes of school stakeholders (administrator, teacher and student) about the problems they experience have positive or negative effects on school attachment. For this reason, measures should be taken to evaluate the school as a whole, to increase the interaction between stakeholders and to solve problems (Antle, 2004).

Indicators of students' commitment to school are feeling themselves belonging to the school, accepting themselves as part of the school and having positive feelings about the school (Balkıs, E. Duru, Buluş, & S. Duru, 2011), and in a sense, the students should not feel the need to be elsewhere when they are at school. It is predicted that the strong emotional (Bowlby, 1988) attachment relationship between individuals and people they care about is not only a determinant of childhood, but also a process that affects the individual and the relationships they establish in later life (As cited in Ainsworth, 1989 Altuntaş & Sezer, 2017). Part of the primary effective school life includes adolescence for interacting with society, communication skills, forming peer groups and self-development (Henry & Slater 2007). The sense of attachment to the group, which is an important feeling for social development in adolescents, meets a psychological need (Osterman, 2000). Parents, teachers and friends are important sources of motivation in the lives of adolescents (Yıldırım, 1997). Since students' compliance with school rules will be supported by their friends and teachers, this attitude will positively affect the level of students' school attachment (Karababa., Oral & Dilmaç, 2018). All stakeholders of the school, which they interact with as much as they do, are effective in connecting students to the school. Naturally, the school stands out with the realization of high interaction as the social areas where students live the longest. According to Doğan (2015), like every human being, the student interacts as a social being, especially by communicating with their peers. It interacts with the members of the community in which it lives in order to meet the wishes and expectations of the basic needs of people. As a result of these interactions, they expect to belong to the environment, environment, person and group they live in, to be approved and adopted by them (Yazgan İnanç & Yerlikaya, 2010). Belonging to a group, being connected to its members means meeting the needs of students such as being accepted and supported by their class and school. Therefore, school attachment fosters positive feelings of students towards themselves and contributes to their integration with friends, teachers and other school stakeholders (Sarı & Özgök, 2014). In evaluating each student's education and school background, the quality of the school and their interactions with their friends and teachers should also be taken into account.

Individuals' experiences such as their interactions with their teachers, friends, participation in classes, extracurricular activities, skills and knowledge gained around the school play a big role in their lives. For this reason, the individual's attachment to the school is necessary for his development. For school attachment, students' attendance to classes and school also includes feelings of commitment towards the school. Although the obligation to attend school is provided by legal regulations in our country, this situation has not eliminated the problem of students being connected to the school (Önen, 2014).

Attending or being absent from school is a situation that occurs due to students' subjective attitudes toward school. The developmental period of the children is necessary for the emergence of this situation. According to Koç (2004), for middle school students, there may be a change in feelings and thoughts about school during

adolescence that starts at this school level. It is seen that the changes individuals experience depending on the values formed during this period also affect their education and their feelings towards school. Thanks to the protective feature of the sense of school attachment, students' negative behaviors such as absenteeism are reduced (Nichols, 2008). Especially considering the age and developmental periods of the students, it is important to establish relationships that will support motivation, competence, success, acceptance and support in a positive way (Goodenow, 1992). As a matter of fact, according to Yavuzer (2004), acceptance of children by their friends at this age enables them to gain self-confidence and strengthen their self-worth. Thus, they feel themselves as a part of the school and get away from negative behaviors and establish more positive relationships with their teachers and friends.

School attachment has important consequences for students' school life and future; influences young people's behavior and academic achievement (Hirschi, 2002). School attachment, sense of school belonging (Goodenow, 1991), the popularity of the student among his / her friends at school positively affects their school attachment and learning (Dworkin, 1987). As a psychological need, students' feeling of belonging to a group (Osterman, 2000), being valued and respected within this group increase attachment. Meeting the social needs of students increases their attachment to and belonging to the school. When the motivation for learning is not provided, school attachment weakens. Appreciation of children at school at an early age ensures that they are connected to the school throughout their school life (Goodenow, 1991). Alienation from the school environment reflects negatively on students' behavior. School attachment reduces the negativity of adolescence and increases academic success (Sharkey, You, & Schnoebelen, 2008). Attachment, which emerges mostly in emotional needs during adolescence and can be experienced as sharing feelings with the communicated person, is that adolescents move away from their parents and tend towards their friends (Damarlı, 2006). One of the factors influencing the academic status of students is school attachment (Mouton., et al., 1996). Adolescence is the period in which students experience the most intense psychological and emotional changes. In particular, the awareness of the school administration and teachers of this period, knowing and meeting the individual needs of the students will prevent possible problems by ensuring that they are connected to the school. Academic achievement stands out among students' goals for school. School attachment affects students' academic success and there is a linear relationship between them.

The concepts of school engagement and school attachment are used in the same sense as joining in school-related activities inside the school, valuing the goals of the school, and identifying with the school. Attachment includes an individual's active participation in a task or activity (Fredricks, Blumenfeld, & Paris, 2004) and the behavioral intensity and emotional qualities in this participation process (Reeve et al., 2004). School attachment can also be defined as being related to the school and feeling belonging to the school (Libbey, 2004). According to Covell (2010), attachment includes students' to be in education and training practices and in-school practices, their positive feelings towards their other stakeholders. The concept of school attachment; is considered important in preventing undesirable situations in the school and classroom environment such as students' failure, school drop out rate, alienation, boredom (NRCIM, 2004). School attachment creates an environment where students can express themselves freely and reduces personal anxiety by strengthening social interaction (Hill & Werner, 2006). If psychological needs such as autonomy, belonging, competence are met, school engagement takes place in three different dimensions. These dimensions can be expressed as an affective, behavioral and cognitive attachment (Çengel., Totan, & Çöğmen, 2017). School administrators, teachers, friends and their relationships with other people around the school are effective on the level of students' school attachment. The student's interactions with other people in the school will make him or her feel positive towards the school (Kızılay, 2008).

Practices in education are becoming increasingly widespread with an individual-priority approach (Yıldız & Kılıç, 2020). According to Thompson (2005), environmental factors and stakeholders directly affect the transformation of students in the education and training process. School engagement, which can be expressed as school enjoyment and devotion to the school, is one of the factors required for participation in academic activities and academic development (Fredricks et al., 2004). Education services are offered to individuals in schools as an environment where education is provided that is effective in the development of individuals. The quality of education has a lasting effect on students' interactions and experiences at school, their academic

success and future (Haynes, Emmons & Ben-Avie, 1997). School engagement is associated with a greater appreciation of school and education, greater participation in classroom academic activities (Adelabu, 2007; Cemalcılar, 2010). As school engagement increases, its contribution to the expected behavior development process at school will also increase. It is also seen as an important factor in reducing misbehavior in school (Ünal & Çukur, 2011). According to Bergin & Bergin (2009), some school policies and procedures can facilitate or weaken school attachment. Making interventions throughout the school, providing a different of social activities that students can access, keeping schools small, ensuring the continuity of people and space, facilitating transition to new schools, and ensuring in-and-out transitions affect school attachment. (Furlong & Christenson, 2008). Wehlage et al. (1989) stated that students are affected by the factors of commitment to classmates, compliance with school norms, participation in school activities and reliance in the competence of the school and commitment to education.

School attachment affects students' academic success (Calabrese, 1987). It is seen that negativities such as socio-economic inadequacies, low parental education level, absence from school, family unrest, being a minority, substance use negatively affect students' school attachment and success (McWhirter et al. 1993). It is observed that most of the students who feel deficient in school attachment are unable to focus on studying, the lessons are not interesting, they spend time with friends who are not related to the school (Hupfeld, 2007), low income and students with high academic success have high levels of school attachment (Conchas, 2001). Nowadays, students spend most of their time at school, students are prepared for exams with intensive education programs at all levels from the beginning of their education and training life to the process of having a profession. The priority of families and students is seen as academic success. According to Pereira (2015), Family, relationships with teachers, friendship, personal characteristics, psycho-social processes and school can be determinants in students' academic success (de Castro and Pereira, 2019). School attachment is about success and persistence in school as well as positive academic outcomes (Fredricks, Blumenfeld & Paris, 2004). Supportive teachers and peers in the school context as an open space for students' personal choices contribute to a higher commitment (behavioral, emotional or cognitive) to stimulating and specific tasks.

It is observed that students supported by their peers and encouraged by their teachers who are encouraged by their parents develop their feelings of belonging to the school, love, success, trust and attachment (Özdemir, Yalın & Sezgin, 2008). As students gain confidence in the school, their communication with friends, relationships, and attachment to their teachers and school also increase (Özdemir, Sezgin, Şirin, Karip & Erkan, 2010). Therefore, parents should always support their children, knowing that they will spend a long time at school, to be more interested in them, to feel better in the school environment and to positively affect their sense of school attachment.

The knowledge and skills students gain with education and training environment, their contacts with their friends, to be participate in lesson activities and similar behaviors play a very important role in their future life. In this respect, school and its commitment are important for the individual's multidirectional development (Önen, 2014). That's why it is essential to understand how students' attachment is affected over the years of school (Duy and Yıldız, 2014). School engagement, which contributes to the student's positive behaviors, academic success and etc., is considered very important because it is the key to solving the problems of low achievement, alienation from school, dropout and dropout (Anderson, et al., 2004). As with education' quality, students' life quality at school will turn into a satisfaction that supports their participation in educational activities at school, and will positively affect their behavior towards friends and teachers and their feelings of attachment (Hunt-Sartori, 2007). When the researches are examined, there are different results from each other. The research results show that younger students' level of school attachment is higher than older students; The school attachment level of students with a good family financial situation indicates that the level of school attachment of students with a poor family financial situation is higher. In addition, as the grade level of students increases, the decrease in their level of school attachment indicates that it decreases from primary school to high school. The level of school attachment of students with high academic achievement is higher than the level of students with low academic achievement. School attachment shows that there is a linear and positive relationship between the academic achievements of students with high level of attachment. Successful students see themselves as safe as they adopt the school, and receive love, respect and attention from their friends and

teachers.

In the context of today's educational understanding, school attachment stands out as an important factor especially for students. Accordingly, it would be useful to examine school attachment in terms of children's psychosocial development and to be taken into account in educational research for children of secondary school age. The fact that students with high levels of school attachment are more likely to be academically successful and avoid the hidden dangers of adolescence shows the importance of this study. The purpose of this study is to investigate whether secondary school students' level of school attachment differs according to gender, class level, family income level, academic achievement, parents' age, parents' education level and parents' job variables.

2. Method

Descriptive survey method was used in this study which aims to investigate secondary school students' school attachment in terms of various variables. This method aims to investigate the existing situation. According to Karasar (2003), scanning models are a research approach that aims to describe a past or present situation as it is.

2.1. Participants

The participants of the study are secondary school students studying in Beylikdüzü district of Istanbul. The sample consists of 382 students who were selected by random sampling method in the 5th and 8th grades of a state and a private secondary school in Beylikdüzü district in the 2019-2020 academic year. 211 (55.23%) of the students were female and 171 (44.77%) were male. In the study, an appropriate sampling method was used, which provides convenience in terms of time, money and labor, and is not based on probability, starting from the most accessible unit of the researcher (Büyüköztürk, et al., 2014).

2.2. Instruments

The school attachment level of the students was determined using the "School Attachment Scale for Children and Adolescents" adapted by Savi (2011) into Turkish. At the same time, a "Personal Information Form" was applied to determine the personal characteristics of secondary school students participating in the study.

Findings

The results of the t-test conducted to determine whether the mean scores of the School Attachment Scale for Children and Adolescents differ in terms of gender are given in Table 1.

Table 1: T-Test Results on the Comparison of School Attachment Scale Scores for Children and Adolescents in Terms of Gender

	Gender	N	X	S	sd	t	p
Attachment to School	Female	211	4,08	,75	380	-,18	,858
	Male	171	4,09	,77			
Attachment to teacher	Female	211	3,86	,73	380	-1,93	,055
	Male	171	4,00	,68			
Attachment to Friends	Female	211	4,43	,54	380	,64	,525
	Male	171	4,40	,57			
Total	Female	211	4,13	,50	380	-,66	,507
	Male	171	4,16	,49			

p < .05

As can be seen from Table 1, school attachment levels of students do not differ significantly according to gender in terms of school attachment, teacher attachment, friend attachment and total scores.

Table 2: ANOVA Results on the Comparison of School Attachment Scale Scores for Children and Adolescents in Terms of Class Level

	Source of Variance	Sum of Squares	sd	Mean Square	F	p	Significant Difference
Attachment to School	Between Groups	6,943	3	2,314	4,077	,007	6.class-7.class
	In-Group	214,600	378	568			6.class-8.class
	Total	221,543	381				
Attachment to teacher	Between Groups	3,344	3	1,115	2,194	,088	
	In-Group	192,055	378	,508			
	Total	195,399	381				
Attachment to Friends	Between Groups	,848	3	,283	,903	,440	
	In-Group	119,033	380	,313			
	Total	119,882	383				
Total	Between Groups	1,340	3	,447	1,800	,147	
	In-Group	92,779	374	,248			
	Total	94,119	377				

p < .05

As can be seen from Table 2, there is no significant difference among the school attachment levels of students in terms of teacher and friend attachment factors and total score levels. However, according to the results of multiple comparisons between groups, a significant difference is found between the groups in the school attachment factor. According to this result, it is seen that 6th grade students 'level of school attachment is higher than 7th and 8th grade students' level of school attachment.

Table 3: ANOVA Results on the Comparison of School Attachment Scale Scores for Children and Adolescents in Terms of Students' Academic Level

	Source of Variance	Sum of Squares	sd	Mean Square	F	p	Significant Difference
Attachment to School	Between Groups	,496	3	,165	,282	,838	
	In-Group	218,830	373	,587			
	Total	219,326	376				
Attachment to teacher	Between Groups	2,511	3	,837	1,625	,183	
	In-Group	192,157	373	,515			
	Total	194,668	376				
Attachment to Friends	Between Groups	1,143	3	,381	1,214	,304	
	In-Group	117,734	375	,314			
	Total	118,877	378				
Total	Between Groups	,205	3	,068	,271	,846	
	In-Group	93,100	369	,252			
	Total	93,305	372				

p < .05

As can be seen in Table 3, the level of school attachment does not differ significantly according to the academic achievement of the students in terms of school and teacher and friend attachment factors and total scores.

Table 4: ANOVA Results on the Comparison of School Attachment Scale Scores for Children and Adolescents in Terms of Student's Mother's Age

	Source of Variance	Sum of Squares	sd	Mean Square	F	p	Significant Difference
Attachment to School	Between Groups	1,977	3	,659	1,139	,333	
	In-Group	217,550	376	,579			
	Total	219,526	379				
Attachment to teacher	Between Groups	,204	3	,068	,131	,941	
	In-Group	195,158	376	,519			
	Total	195,363	379				
Attachment to Friends	Between Groups	,940	3	,313	,996	,395	
	In-Group	118,909	378	,315			
	Total	119,849	381				
Total	Between Groups	,520	3	,173	,692	,557	
	In-Group	93,264	372	,251			
	Total	93,785	375				

p < .05

In Table 4, school attachment levels of students do not differ significantly according to the mother age variable of the students in terms of school attachment, teacher attachment, friend attachment factors and total scores.

Table 5: ANOVA Results on the Comparison of School Attachment Scale Scores for Children and Adolescents in Terms of Students' Father's Age

	Source of Variance	Sum of Squares	sd	Mean Square	F	p	Significant Difference
Attachment to School	Between Groups	2,167	3	,722	1,277	,282	
	In-Group	210,975	373	,566			
	Total	213,142	376				
Attachment to teacher	Between Groups	,463	3	,154	,302	,824	
	In-Group	190,830	373	,512			
	Total	191,293	376				
Attachment to Friends	Between Groups	1,281	3	,427	1,372	,251	
	In-Group	116,710	375	,311			
	Total	117,991	378				
Total	Between Groups	1,046	3	,349	1,442	,230	
	In-Group	89,185	369	,242			
	Total	90,231	372				

p < .05

In Table 5, school attachment levels of students do not differ significantly according to the father age variable of the students in terms of school attachment, teacher attachment, friend attachment factors and total scores.

Table 6: ANOVA Results on the Comparison of School Attachment Scale Scores for Children and Adolescents in Terms of Students' Mother's Job

	Source of Variance	Sum of Squares	sd	Mean Square	F	p	Significant Difference
Attachment to School	Between Groups	,154	2	,077	,131	,877	
	In-Group	213,721	365	,586			
	Total	213,875	367				
Attachment to teacher	Between Groups	,952	2	,476	,911	,403	
	In-Group	190,591	365	,522			
	Total	191,543	367				
Attachment to Friends	Between Groups	,012	2	,006	,019	,981	
	In-Group	114,277	367	,311			
	Total	114,289	369				
Total	Between Groups	,067	2	,033	,134	,875	
	In-Group	90,014	361	,249			
	Total	90,081	363				

p < .05

In Table 6, school attachment levels of students do not differ significantly according to the mother's job variable of the students in terms of school and teacher and friend attachment factors and total scores.

Table 7: ANOVA Results on the Comparison of School Attachment Scale Scores for Children and Adolescents in Terms of Students' Father's Job

	Source of Variance	Sum of Squares	sd	Mean Square	F	p	Significant Difference
Attachment to School	Between Groups	2,458	2	1,229	2,109	,123	
	In-Group	215,548	370	,583			
	Total	218,006	372				
Attachment to teacher	Between Groups	2,096	2	1,048	2,062	,129	
	In-Group	188,098	370	,508			
	Total	190,194	372				
Attachment to Friends	Between Groups	1,444	2	,722	2,306	,101	
	In-Group	116,427	372	,313			
	Total	117,870	374				
Total	Between Groups	1,696	2	,848	3,445	,033	
	In-Group	90,085	366	,246			
	Total	91,781	368				

p < .05

As can be seen in Table 7, there is no significant difference among the school attachment levels of students in terms of school attachment, teacher attachment and friend attachment factors. However, according to the results of multiple comparisons between groups, there is a significant difference in the total score level between the groups. According to this result, it is seen that the students whose fathers are in the other profession group have higher levels of school attachment than the students whose fathers are in the special profession group.

Table 8: ANOVA Results on the Comparison of School Attachment Scale Scores for Children and Adolescents in Terms of Family Income Level of Students

	Source of Variance	Sum of Squares	sd	Mean Square	F	p	Significant Difference
Attachment to School	Between Groups	2,773	3	,924	1,596	,191	
	In-Group	165,028	285	,579			
	Total	167,801	288				
Attachment to teacher	Between Groups	3,432	3	1,144	2,247	,083	
	In-Group	144,564	284	,509			
	Total	147,997	287				
Attachment to Friends	Between Groups	,507	3	,169	,512	,674	
	In-Group	94,093	285	,330			
	Total	94,600	288				
Total	Between Groups	1,180	3	,393	1,498	,215	
	In-Group	74,052	282	,263			
	Total	75,232	285				

p < .05

As can be seen in Table 8, school attachment levels of students do not differ significantly according to the family income level variable in terms of school and teacher and friend attachment factors and total scores.

Table 9: ANOVA Results on the Comparison of School Attachment Scale Scores for Children and Adolescents in Terms of the Mother's Education Level

	Source of Variance	Sum of Squares	sd	Mean Square	F	p	Significant Difference
Attachment to School	Between Groups	6,100	4	1,525	2,669	,032	University- Primary School University- High School
	In-Group	215,443	377	,571			
	Total	221,543	381				
Attachment to teacher	Between Groups	1,785	4	,446	,869	,483	
	In-Group	193,613	377	,514			
	Total	195,399	381				
Attachment to Friends	Between Groups	1,383	4	,346	1,106	,354	
	In-Group	118,499	379	,313			
	Total	119,882	383				
Total	Between Groups	2,086	4	,522	2,114	,078	
	In-Group	92,033	373	,247			
	Total	94,119	377				

p < .05

As can be seen from Table 9, there is no significant difference among the school attachment levels of students in terms of teacher and friend attachment factors and total score levels. However, according to the results of multiple comparisons between groups, a significant difference is found between the groups in the school attachment factor. According to this result, it is seen that the level of school attachment of students whose mothers are university graduates is higher than students whose mothers are primary and high school graduates.

Table 10: ANOVA Results on the Comparison of School Attachment Scale Scores for Children and Adolescents in Terms of the Father's Education Level

	Source of Variance	Sum of Squares	sd	Mean Square	F	p	Significant Difference
Attachment to School	Between Groups	2,095	4	,524	,900	,464	
	In-Group	219,449	377	,582			
	Total	221,543	381				
Attachment to teacher	Between Groups	,866	4	,217	,420	,794	
	In-Group	194,533	377	,516			
	Total	195,399	381				
Attachment to Friends	Between Groups	1,693	4	,423	1,357	,248	
	In-Group	118,188	379	,312			
	Total	119,882	383				
Total	Between Groups	1,059	4	,265	1,061	,375	
	In-Group	93,060	373	,249			
	Total	94,119	377				

p < .05

As can be seen in Table 10, school attachment levels of students do not differ significantly according to the father's education level variable in terms of school attachment, teacher attachment, friend attachment factors and total scores.

4. Discussion

In this study, the school attachment levels of secondary school students were investigated according to demographic variables. In this study, it was determined that the views of secondary school students were similar and there was no significant difference in terms of attachment to school, attachment to teacher, attachment to friend and total scores according to the variables of gender, academic achievement, parents' age, parents' job, family income level and father education level. With this result, when the average scores (\bar{X}) of all variables were analyzed, it was determined that all of the scores were above average, they were effective in school attachment and all factors, and increased the level of school attachment.

When the research findings are evaluated; There was no statistically significant difference between male and female students in terms of school attachment. This result is similar to other studies showing that there is no difference in the level of school attachment by gender (Somers and Gizzi, 2001; Wei ve Chen, 2010; Duy and Yıldız, 2014; Altuntaş and Sezer, 2017; Yıldız and Kılıç, 2020). The fact that the academic achievement levels of the students studying at the schools where this study was conducted are medium and above (70-100 points range) causes the groups to show similarities in terms of students' school attachment levels. It is observed that problems such as anxiety, loneliness and absenteeism are low among students with a high level of school attachment, while intrinsic motivation and academic success are high (Cemalcılar, 2010). The most important part of connecting to school is the connection with friends. Students' interaction and communication with each other and with their teachers is very important for education. Because teachers are very effective in the school environment and they affect students at cognitive and affective levels (Wang & Eccles, 2013).

When the opinions of the participant students in the study were investigated, a significant difference was found between the groups in the factor of school attachment according to the level of the class they studied. According to this result, it is seen that the level of school attachment of 6th grade students is higher than the level of school attachment of 7th and 8th grade students. There is no significant difference among the school attachment levels of the students in terms of teacher attachment, friend attachment factors and total score levels. When the literature is examined, it has been determined that school attachment increases as the grade level decreases (Wei & Chen, 2010; Bellici, 2015; Yıldız & Kılıç, 2020).

When the views of the students participating in the study were investigated, a significant difference was found between the groups in the total score levels of the students according to the father's job. According to this result,

it is seen that the students whose fathers are in the other profession group have higher levels of school attachment than the students whose fathers are in the special profession group. There is no significant in terms of school attachment, teacher attachment and friend attachment factors difference among the school attachment levels of students.

When the opinions of the participant students were investigated, a significant difference was found between the groups in the school attachment factor according to the students' mother's education level. According to this result, it is seen that the level of attachment of the students whose mothers graduated to the school is higher than the students whose mothers are primary and high school graduates. There is no significant difference among the school attachment levels of students in terms of teacher attachment, friend attachment factors and total score levels.

It is stated that school attachment has a positive relationship with educational outcomes such as achieving academic success (LeCroy & Krysik, 2008); positive feelings towards school, active participation in different efficiencies at school (Thompson, 2005), and a decrease in the likelihood of committing crimes (Owens-Sabir, 2007) and engaging in risky behaviors. Besides, with the well-being of adolescent and children, decrease in the degree of anxiety, loneliness, school absenteeism in students (Savi, 2011); It also helps to increase autonomy, positive social behavior, intrinsic motivation, and academic achievement (Cemalcılar, 2010). Considering the importance and consequences of school attachment, it can be investigated with students of all age levels at different types of schools and levels, and with different variables.

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Concept Teaching in a History Course: An Analysis of Secondary Education History Curriculum and Course Books in Turkey

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Abstract

The purpose of this study was to review concept teaching for a history course, and analyze and compare the case of secondary education history curriculum and course books in Turkey in this context over the past decade. The concepts to be taught were written item-by-item in the 10th-grade (2008) history course curriculum, whereas this was not the case in the 9th- (2007) and 11th- (2009) grade history course curricula. The history course curricula that was prepared for the 9th, 10th, and 11th grades in 2018, and consolidated into a booklet, drew attention to the importance of concept teaching and aimed to teach the concepts within the course; however, it did not specify the concepts to be taught in this curriculum. While examining the history course books prepared for secondary education, it was observed that the 9th-grade history course book prepared in 2009 introduced the concepts under the heading 'Basic Concepts' at the beginning of each subject, and the 10th-grade history course book introduced the concepts under the heading 'Basic Concepts' at the beginning of each unit; however, there was no list of concepts in the 11th-grade history course book, neither at the beginning of the unit nor at the beginning of the subject. As a result, it may be suggested that the target concepts should be introduced word-by-word in history course curricula and these concepts should be taught in history course books using alternative teaching methods.

Keywords: Concept Teaching, Social Sciences Teaching, History Teaching, History Course Curricula, History Course Books

1. Introduction

Concepts have a significant role in the emergence and maturation of scientific thought and in learning at the expected level. For this reason, a specific terminology for a certain discipline has been formed in all branches of science (Köstüklü, 2019). The concepts that constitute the fundamentals of the discipline of history and history teaching provide historical researchers with ease of expression and representation, while on the other hand, they

facilitate the process of building knowledge for the discipline of history (Candan and Koçer, 2013; Kop and Katılmış, 2016). Because people build their knowledge on the fundamental concepts of any subject (Bruner, 1991:87). The realization of learning in a history course depends on understanding the concepts, such as the main source, causes, consequences, and changes, peculiar to history (Lee, 2005). Each concept belonging to the discipline of history is a tool used to think, question, define, analyze, synthesize, and discuss historical events and objects; organize historical information, derive general statements, see similar aspects and differences, find models, and establish connections between historical events (Van Drie and Van Boxtel, 2007; Çiydem and Özdemir, 2015). As in other branches of science, it is mandatory to accurately and completely teach the concepts specific to the field in order to achieve the goals aimed at teaching history (Kılınç et al., 2015). One of the main goals of history teaching is to ensure that the students are able to understand and use historical concepts (Van Drie and Van Boxtel, 2007). It would be rather difficult to succeed in a history course if the concepts are not fully taught (Candan and Koçer, 2013). The student will only be able to correctly use and apply the taught knowledge in daily life if it is taught using the correct means and techniques of teaching, and is properly internalized by the student (Güneş et al., 2010). In this way, students will be able to learn to evaluate complex problems using concepts (Twyman et al., 2006). Concepts make it easier for people to distinguish and relate events and thoughts (Ülgen, 2004; Coşkun and Köroğlu, 2016). Historical thinking ability develops depending on the conceptual development of the student (Dilek, 2007). When students learn historical concepts, they understand the relationships, events, institutions in history, and, in short, how life existed in that period. The student is expected to acquire the basic and historical thinking skills through teaching of the correct concepts. Since concept teaching constitutes the fundamentals of history teaching, this subject has also been widely discussed in the literature (Doğanay, 2002; Akınoğlu and Dirioz, 2007; Dilek, 2007; Dönmez et al., 2008; Yılmaz, 2008; Boadu, 2015; Çevik et al., 2017).

To correctly teach the concepts belonging to an age/period and their meanings, respectively, while explaining a certain age/period in history courses facilitates the student to better understand the knowledge to be acquired in the following years and to improve his/her mental depth towards the subject (Çiydem and Özdemir, 2015). However, the fact that some concepts in historical subjects are specific to a single period, and that the students will probably encounter these concepts only a few times throughout their history education, restrict their ability to understand and learn these concepts (Van Drie and Van Boxtel, 2007).

History, as a course, contains some problems for students and teachers arising from its own nature. One of these problems is the difficulty in making abstract history topics easy for students to understand (Safran, 2009). Gagne divided the concepts into two parts, as concrete and defined (abstract) concepts. Concrete concepts are learned spontaneously beginning in the first months of life. However, learning abstract concepts usually require instruction (Senemoğlu, 2000). Some historical concepts are more concrete and simple, while others are rather abstract and complex (Candan and Koçer, 2013). Since historical concepts are generally abstract and theoretical, students face various problems in understanding and using basic concepts (Van Drie and Van Boxtel, 2003). The abundance of abstract concepts in history lessons makes the lesson boring. It becomes even more boring, particularly for students who have not yet passed the abstract operations period (Aslan and Şeker, 2013) For example, additional concepts, such as parliament, representation, and government, should be referred to when explaining the concept of democracy. Each of these concepts is abstract and difficult to understand (Van Drie and Van Boxtel, 2003).

The concepts used in history education determine the structure and boundaries of language, as well as the framework of historical and social thought (Akınoğlu and Arslan, 2007). Teaching history is a difficult and challenging task for teachers, as most students perceive history as a boring subject. Many studies have revealed that students are not interested in learning history (Nair and Narayanasamy, 2017). One of the main reasons for this is the language of history. There are many historical concepts that even an adult finds difficult to understand and remember. This situation adversely affects the development of historical thought in students (Akınoğlu and Arslan, 2007). Concepts allow organizing historical information and historical thoughts, derive general statements, define similar aspects and differences, find models and establish connections between historical events (Stradling, 2003). Concepts should be used as they are referred to in the period, the geography that they belong to, and the sources of the relevant period. Thus, concepts will contribute to correctly constructing the

history (Köstüklü, 2019). Some of the concepts we use today may have a different meaning in history. Therefore, the meaning of the concepts may differ according to place and time. Students often interpret a concept based on their current knowledge; therefore, misunderstandings or misconceptions can very easily occur through anachronism. Students should be taught the difference between the meaning attributed today and the meaning referred to in a particular historical context (Van Drie and Van Boxtel, 2007). A number of tools are needed for this teaching to take place. Course books are the most widely used teaching tools at schools. Course books, which are listed in first place among the main sources of reference for students, have a significant impact on their learning (Kalın and Şahin, 2017). Course books play an important role in the student acquiring the desired behavior in lessons and actively participating in the learning environment (Cankılıç, 2010). The course book is crucial in guiding education and learning activities (Semerci, 2004). As course books have been the fundamental material used in history courses over the years, the structure and content of history books have always been very important (Aktekin, 2009). While determining the basic concepts that teachers highlight in their social science lectures, in his study, İltar (2017) concluded that teachers most frequently consider the concepts in the course books. For this reason, it is of great importance to prepare and organize the course books, which are the most widely referred to course materials by students, in a way that will contribute to the teaching of concepts (Ceyhan and Yiğit, 2003; Kabapınar, 2003; Küçükahmet, 2005; Demircioğlu, 2013; Aslan et al., 2015; Ecevit and Şimşek, 2017; Şimşek, 2017). From the point of view of the teacher, the fact that students perceive the course book as the basic resource in concept teaching can be explained by their continuous learning habit of memorizing the concepts rather than learning them by doing-living and thinking (Ecevit and Şimşek, 2017).

Studies have revealed that students try to learn the concepts introduced in the history course books by memorizing, that concept teaching in history is seen as difficult by both prospective teachers and teachers, and all concepts cannot be taught through presentation (Ülger, 2003; Tekin et al., 2004; Akınoğlu and Arslan, 2007; Bal, 2011; Memişoğlu and Tarhan, 2016; Seyhan, 2017; Ünal and Er, 2017). Success has been found to be low in studies carried out to assess the level of teaching historical concepts to students (Keskin, 2003; Bektaş and Bilgili, 2004; Kop and Satılmış, 2016). The deficiencies in concept teaching make learning difficult and even pose an obstacle before it (Novak, 1984).

It has been suggested to make use of methods such as organizing out-of-school tours to learning environments, such as museums and archaeological excavations, for students and benefiting from interactive concept cartoons and concept maps. It has also been determined that concept teaching would be easier if different teaching strategies, methods, and techniques, such as collaborative learning models and analogy, were used (Köksal, 2006; Akınoğlu and Aslan, 2007; Akbaş and Toros, 2016; Gürkan and Doğanay, 2016; Nair and Narayanasamy, 2017)

2. Aim

This study aimed to examine the concepts introduced in the history course curricula prepared for the 9th, 10th, and 11th grades of secondary education in Turkey, as well as history course books (between 2007 and 2019). In line with this purpose, the concepts planned to be taught through the curriculum and the course books will be determined and the methods, sample activities, and measurement tools offered by them for teaching concepts will be examined.

3. Methodology

The survey methodology was used in this study. Survey methodology is used to investigate an existing situation as it is. The aims in these studies are represented in the form of questions such as “What was the case?”, “What is the case?” and “What are the components?” (Karasar, 2009). Survey methodology was used in this study since it aims to investigate the significance of the concepts in history teaching, the importance of concepts in history course curricula, and reveal the current situation. Document analysis was used as a method of collecting the data. This method is based on analysis of the written and visual materials containing information about the subject to be researched.

3.1. Sampling

The following three subjects were determined as the sample in order to examine the concepts introduced in the history course curricula prepared for the 9th, 10th, and 11th grades of secondary education in Turkey, as well as the history course books (between 2007 and 2019). It was aimed to collect more diverse information by selecting cultural and political history topics that reflected different eras in Turkish history. Units and subjects differed in the curricula prepared between 2007 and 2019. For this reason, different units and subjects were selected in the 2019 curriculum (Table 1).

Table 1: Subjects examined within the context of concepts introduced in secondary education history course curricula.

<i>Grade</i>	<i>Year</i>	<i>Subject</i>	<i>Educational Attainments</i>
9. grade	2007	History Course Unit-5 Subject 2: First Turkish-Islamic State Structures	Evaluates the political, social, cultural and economic developments in Qarakhanid's period.
	2019	Unit-6 Subject 3: The Effect of Islam on Turkish State and Social Structure	Analyzes the changes caused by the adoption of Islamic belief in the Turkish state structure and social life based on the examples of Qarakhanids and Ghaznavids.
10. grade	2008	History Course Unit-2 Subject 6: The Age of Suleiman the Magnificent	Evaluates the effects of political and military activities engaged in the age of Suleiman I (the Magnificent) on the Ottoman Empire's being a world power.
	2019	Unit-5 Subject 6: The Power And Strategic Rivals Of The Ottomans	10.5.6. Analyzes the role of the long-term strategy implemented by the Ottoman Empire on its becoming a world power.
11. grade	2009	History Course Unit-1 Subject 1: State Organization in the First Turkish States	Understands the fundamental elements of the state understanding and organization in the first Turkish states. Key concepts such as independence, country, nation, people, sovereignty, organization and traditions will be mentioned.
	2019	Unit-4 Subject 2: Transition of Ottoman Empire to the Modern Army	11.4.2. Analyzes the political and social dimensions of the regulations on modern military organization and citizen military service in the Ottoman Empire.

4. Findings

4.1. Concept Teaching In Secondary Education History Course Curriculum

4.1.1.a. Concept Teaching in the Secondary Education 9th-Grade History Course Curriculum (2007 Academic Year)

The general objectives of the 9th-grade history course curriculum indicated that it was necessary to ensure the correct use of the methods and techniques, as well as the concepts, of the history discipline and the historian skills while doing research on the concepts in the field of history (MEB, 2007). However, the concepts to be taught were not specified separately in the 9th-grade history course curriculum.

The basic approach of the program stipulated that learning was achieved by prioritizing the development of knowledge, concepts, values, and skills. While the assessment tools were listed in the assessment and evaluation section of the history course curriculum, the section titled 'Research Report' of the check lists gave place to the following statement: "He/she used the concepts about the subject correctly and appropriately." The same expression was also included in the example of the rating scales, which was one of the assessment tools. Rubric, which was another assessment tool, evaluated the use of concepts in the same way. It was suggested that concept maps be made, in performance task examples, in order to acquire historical terminology (MEB, 2007).

4.1.1.b. Concept Teaching in the Secondary Education 10th-Grade History Course Curriculum (2008 Academic Year)

Historical comprehension skills, which were included under the title of historical thinking skills in the 10th-grade history course curriculum, stipulated that students should follow a historical approach, that is, they should be able to examine past events from the perspective of those who lived that past with the conditions and concepts of the relevant period in order to comprehend historical texts. For this purpose, students were required to avoid evaluating the past with the concepts and norms of today while examining the sources, such as past findings, documents, diaries, letters, works of art, and literary works. Instead, they were required to take into consideration the historical context in which the events occurred.

The explanations about the implementation of the 10th-grade history course curriculum included the concepts and historical terms listed in accordance with the units, and teachers were asked to introduce these concepts within the lecture text and via methods, such as dictionary work.

The concepts and historical terms determined within the 10th-grade history course curriculum, listed in accordance with the units, were as follows:

- *Unit-1: The Ottoman interregnum, dynasty, reign, customs, feudal landlord (teşfir), voivode, settlement, colonization, patrolling, manorial system, craftsman, ahi community (a Turkish-Islamic guild), guild, gedik system (monopoly of trade right in the Ottoman Empire), fütüvvet (a Turkish-Islamic guild), demesne, yoruks (Turkish nomads in Anatolia), tahrir (Ottoman cadastral records)*
- *Unit-2: Certificate of the Conquest, Amanname (the amnesty decree issued by the Sultan to non-Muslim subjects in particular), Babüssaade (Gate of Felicity), Renaissance, Reform, Catholicism, Orthodox belief, Protestant belief, Calvinism, inquisition, Pontification, dogmatism, humanism, harem, divan-ı hümayun (Imperial Council in Ottoman Empire), rayah, clerk, chamber, province, sanjak, district, muhtesip (Ottoman constabulary), yurtluk and ocaklık (concepts related to country estate), palace servants (birun), The Palace School of the Ottoman Empire (enderun), the military (seyfiye or askeriye), cultural (ilmiye), Scribal (kalemiye), concession, capitulation, treasury, Islamic Ottoman social complex (kulliye)*
- *Unit-3: Holy alliance, Ottoman Reform, parliament, constitutionalism, autocracy, mercantilism, tax farmers (multazim), Mukâta'a (Ottoman package of taxes)*
- *Unit-4: Enlightenment, modernism, insurrection, revolution, Bab-i Ali (Ottoman Sublime Porte), gentry, ayan (notables), malikane and esham (Ottoman treasury items), colonialism*
- *Unit-5: Tanzimat (Ottoman Reform Movement), Pan-Slavism, Pan-Islamism, Pan-Turkism, Ottomanism, Westernism, Ottoman Constitution (Kanun-i Esasi), Chamber of Deputies (Ottoman Empire: Meclis-i Mebusan), party, nationalism.*

Some methods and techniques that were included among the sample activities suggested within the scope of the explanations about the implementation of the 10th-grade history course curriculum required the students to write texts in which they could use their historical thinking skills. In this context, students were expected to pay attention to the correct use of term names, historical idioms, and terms and time concepts. However, the teachers were advised not to expect students to write texts like a historian and they were required to provide guidance to the students on this issue.

Within the scope of the explanations provided about the implementation of the 10th-grade elective history course curriculum, the teachers were required to give particular importance to teaching historical concepts and terms, and it was suggested that they should prepare concept maps and mind maps within this framework.

In the Assessment and Evaluation section, the information provided in the 9th-grade history course curriculum was repeated (MEB, 2008).

4.1.1.c. Concept Teaching in the Secondary Education 11th-Grade History Course Curriculum (2009 Academic Year)

The explanations provided about the implementation of the 11th-grade history course curriculum required that the 9th- and 10th-grade history course curricula should be reviewed in terms of acquiring the knowledge, skills,

concept teaching, as well as the continuity of the course. It was underlined that the acquisitions foreseen in the unit titled ‘History Science’ of the 9th-grade history course were related to the methodology of history and hence, it was suggested that it should be ensured that the students would be able to use the knowledge and skills acquired in this unit in the 11th-grade history course as well. It was stated that specific emphasis should be placed on teaching historical concepts and terms, as in the 10th-grade, and that concept maps and mind maps should be prepared within this framework. However, the concepts to be taught were not specified separately in the 11th-grade history course curriculum.

Some methods and techniques that were included among the sample activities suggested within the scope of the explanations about the implementation of the course curriculum required the students to write texts in which they could use their historical thinking skills. In this context, the students were expected to pay attention to the correct use of term names, historical idioms, and terms and time concepts. However, the teachers were advised not to expect students to write texts like a historian and they were required to provide guidance to the students on this issue. The following remark was placed in the ‘Explanations’ section of the 11th-grade history course curriculum: “The concepts of independence, country, nation, people, sovereignty, organization, and traditions should be mentioned” (MEB, 2009).

4.1.2. Concept Teaching in the Secondary Education 9th-, 10th-, and 11th-Grade History Course Curricula (2018 Academic Year)

The history course curricula for the 9th, 10th, and 11th grades of secondary education were consolidated in a single booklet in 2018. Thus, general explanations for the 9th, 10th, and 11th grades were presented together. General explanations on the concepts included in the history course curricula for the 9th, 10th, and 11th grades of secondary education are given below (MEB, 2018).

Concept teaching was emphasized as follows in the target competencies section of the 2018 history course curricula for 9th, 10th, and 11th grades of secondary education: The program aims to gain the competence to express and interpret the concepts, thoughts, opinions, feelings and facts in the native language, both verbally and in writing (MEB, 2018).

The significance of the concepts was emphasized under the general objectives title of the 9th, 10th, and 11th grade history course curricula of 2018, as follows: “*The curriculum, which aims to teach the topics that make up the content of the units together with the relevant concepts, will contribute to a meaningful and permanent learning process with this structure. The curriculum highlights the fundamental concepts, facts and generalizations provided in each unit. In order to learn historical events in a healthy way, learners need to understand the relationship between fundamental concepts, facts and generalizations related to each event. Students are expected to reach facts based on the concepts and eventually to generalizations based on facts*”. As was understood from these expressions, a meaningful and permanent learning process was aimed by teaching the concepts. It was emphasized that concept teaching was crucial in terms of deriving generalizations by understanding the facts. Concept teaching has been concluded as an important step for improving historical thinking skills into higher levels (MEB, 2018).

Through this program, students were intended to acquire the following attainments: “*To provide information pertaining to concepts, events, facts, individuals and institutions that we need to understand humanity/world, Turks and different periods of Turkish (Anatolian) history.*” As can be understood from these expressions, learning the concepts within the course subjects was determined as an important attainment (MEB, 2018).

With this program, the competencies and skills specific to the field were explained as follows:

“*Chronological Thinking Skill: The prerequisite for acquiring this skill is to comparatively teach temporal concepts such as day, month, year, period, age, century as well as calendar types and related concepts (BC, AD, century, etc.). In order to comprehend historical texts, students are also required to adopt the historical approach; that is, they should be able to examine past events with the conditions and concepts of the period they were lived in and from the perspective of those who lived in that period. For this reason, students should learn to avoid evaluating the past events with today's concepts and norms while examining historical sources such as*

findings, documents, diaries, letters, works of art, and literary products and they should take into consideration the historical context in which those events occurred". It was stated that learning the concepts of time and chronology constituted the infrastructure of chronological thinking skills. Learning the concepts of the past and the present was determined to be necessary in order to comprehend historical texts (MEB, 2018).

The issues that teachers should take into consideration in order to functionally use the curriculum of the history course prepared for 2018 are presented as follows: "*One of the fundamental elements that students should attain in order to ensure a meaningful and permanent learning process in history courses are the concepts. After determining the students' current level of knowledge about the unit topics, history teachers should undertake practices (concept maps, concept networks, structured grid, dictionary preparation, etc.) to teach the basic concepts related to a certain subject/topic*". Throughout this program, the teachers were recommended to undertake different methods while teaching the concepts and teach the concepts in a way that allowed students to create a mind map with different aspects (MEB, 2018).

The issues that should be taken into consideration while writing course books in order to functionally use the curriculum of the history course prepared for 2018 are presented as follows: "*While writing the course books, the basic resources pertaining to the field should be used; the concepts and terms related to the field should be written correctly. In addition, current sources that have published scientific studies on history should be used. Concepts specific to the content of each unit should be specified at the beginning of the unit and should further be explained in detail at an appropriate stage while the topic is being discussed. The concepts that are determined as compulsory in order to ensure the student to better understand the topic and at the same time appropriate for the level of the students should be included.*" Throughout this program, it was suggested that the concepts should be introduced at the beginning of the units while preparing the books and should be further discussed in detail within the subject (MEB, 2018).

The history course curriculum prepared in 2018 for secondary education the 9th grade stipulated to briefly explain the written works of the period, such as 'Qutadyu Bilig,' 'Divân-ı Lûgati't-Türk,' 'Atabetü'l-Hakayık,' and 'Divân-ı Hikmet.' Further concepts to be taught were not specified. The concepts to be taught in the 10th- and 11th-grade history course curricula of 2018 were also not specified (MEB, 2018).

4.2. Concept Teaching In The History Course Books Prepared For The 9th, 10th, And 11th Grades Of Secondary Education

4.2.1. Concept Teaching in the History Course Books Prepared for the 9th, 10th, and 11th Grades of Secondary Education in 2009

Concepts introduced at the beginning of Unit-5, Subject-2 of the 9th-grade history course book under the heading of 'Basic Concepts' were '*Dandānaqān, Kinik, Divan-ı Lügati't-Türk, Batiniyya, Qutadyu Bilig, Sultan, Nizamiye Madrasahs, Bukhara, and Samarkand*'. These concepts were further discussed in the same subject as follows: Dandanakan was referred in the text and in the reading text, Kinik was described as the tribe that the Seljuks belonged to, Divan-ı Lügati't-türk was included in the reading text, Batiniyya was mentioned in the reading text, Qutadyu Bilig was mentioned in the reading text, Sultan was defined as a concept and its features were explained, Nizamiye Madrasahs were referred in the reading text, and Bukhara and Samarkand were mentioned in the reading text. As is seen, only the concept of the Sultan was defined, while the other concepts were mentioned throughout the subject. The Assessment and Evaluation section of the 9th-grade history course book comprised 'fill in the blanks' and 'match the concepts' questions about these concepts. It was observed that the students were required to answer questions about these concepts with different aspects at the end of the subjects (MEB, 2009a).

The only concept mentioned while discussing the era of Suleiman the Magnificent in Subject-6 of Unit-2 in the 10th-grade history course book was the Capitulations. The concept of capitulation was defined in the book and questions were asked at the end of the subject (MEB, 2009b).

On the other hand, there was no mention about the concepts, neither at the beginning of the unit nor in the subject in the Subject-1 of Unit-1 in the 11th-grade history course book on ‘State Organization in the First Turkish States’. The following methods were used in the 11th-grade history course book to teach the concepts specified in the curriculum: Pictures were given for quiver, sword, saddle, and belt, and the students were asked to match them with the concepts. Concepts such as *kut* (administrative power, leadership), *ülüg-ülüş* (the division of the lands of a country among the members of the dynasty according to the central Asian old Turkish state tradition), and *küç* (God-donated powers and abilities) were explained by means of a table. Pincer Movement (Turan Tactic) was displayed via a diagram. State officials such as *ilteber*, *kül erkin*, *apa*, *tarkan*, *tudun*, and *bitikçi* were explained via a table (Figure 1). Concepts such as *boy* (tribe), *quriltai*, and *toy* were explained by drawn pictures (Figure 2). Concepts such as state, independence, custom, country, and army were displayed by a drawn concept scheme (Figure 3) (MEB, 2009c).

4.2.2. Concept Teaching in the History Course Books Prepared for the 9th, 10th, and 11th Grades of Secondary Education in 2019

Unlike in previous years, the history course books used in 2019 in the 9th, 10th, and 11th grades were written following the same order. The preparation of the history curricula of these three classes, based on the same principles and the collection of the curricula in a single booklet, ensured that the course books were written following the same system. Preparing the history course books of the 9th, 10th, and 11th grades following the same systematic order ensured that they would be more comprehensible for both the teachers and students.

Subject-3 of Unit-6 in the history course book for the 9th grade, titled ‘The effect of Islam on the Turkish state and social structure’, discussed the consequences of the adoption of Islam on the Turkish state structure and social life based on examples from the Qarakhanids and Ghaznavids. The concepts introduced at the beginning of Unit-6 were listed as follows: *Kök Tengri*, *Oguz*, *Qutadqu Bilig*, *Divânü Lügati’t-Türk*, *Atabey*, *Türkmen*, *Divân-ı Saltanat*, *Emir-i Dad*, *Siyasetname*, and *Melik*. The concepts were also specified at the beginning of the subject (MEB, 2019a).

The Subject-6 of Unit-5 in the history course book for the 10th grade, titled ‘Ottoman power and its strategic rivals’, discussed the role of the implemented long-term strategy in making the Ottoman Empire a world power. The concepts introduced at the beginning of Unit-5 in the history course book for the 10th grade were listed as follows: *Fatih (Mehmed the Conqueror)*, *Feth-i Mübin*, *Yavuz*, *Suleyman the Magnificent*, *Capitulation*, *Concession*, *Preveze War*, *Geographical Discoveries*, *Khilafet-i Ulyâ*, and *Protestant* (MEB, 2019b).

The Subject-2 of Unit-4 in the history course book for the 11th grade, titled ‘Transition to the Modern Army in the Ottoman Empire’, discussed the political and social dimensions of the regulations on modern military organization and citizen military service in the Ottoman Empire. The concepts introduced at the beginning of Unit-4 were listed as follows: *Insurrection*, *Nationalism*, *Revolution*, *Tanzimat (Ottoman Reorganization)*, *Reform*, *Liberalism*, *Capitalism*, *Socialism*, *Monarchy*, *Constitutionalism*, *Nizam-i Djedid*, *Vaka-i Hayriye*, *Influence*, *Marxism*, *Absolutism*, *Citizens' Military Service*, *Intellectual Movements*, and *Düyün-ı Umümiye* (MEB, 2019c).

While discussing the subject in the 9th-, 10th-, and 11th-grade course books, the concepts were explained in text. Some concepts were introduced in short reading texts. Additional information was provided throughout the subject under the headings “Do you know?, Explain!, Comment!, Answer!, Discuss!” in order to reinforce the concepts and questions were posed to encourage the students to think. Neither a concept map nor any figure/picture was used while explaining the concepts. The students were then required to answer questions about the concepts at the end of the subject.

5. Discussion, Conclusion, and Suggestions

This study examined and compared secondary education history course curricula and course books in Turkey within the context of the concepts over the past decade.

All of the curricula prepared in Turkey for secondary education history courses between 2007 and 2018 emphasized the significance of concepts for the history course and aimed to include concept teaching within the lectures. It has been emphasized in the literature that concept teaching should be included in all steps of formal education (Baysen et al., 2012).

While the concepts to be taught were written separately in the 10th-grade (2008) history course curriculum, they were not introduced separately in the 9th- (2007) and 11th- (2009) grade history course curricula. This issue was criticized in the current study, similar to the literature (Dündar, 2008; Avaroğulları, 2014). Introducing the concepts to be taught in the subject separately in the curriculum is important in terms of developing a common understanding of history.

The history course curricula for 9th, 10th, and 11th grades, which were collected in a single booklet in 2018, underlined the importance of teaching concepts and it was aimed to teach the concepts within the course; however, the concepts to be taught were not separately specified in this curricula.

When examining the secondary education history course books, it was observed that the concepts were introduced under the title of 'Basic Concepts' at the beginning of each subject in the 9th-grade history course book of 2009, while they were introduced under the heading 'Basic Concepts' at the beginning of the Units in the 10th-grade history course book. On the other hand, the 11th-grade history course book did not include a list of Basic Concepts, neither at the beginning of the unit nor at the beginning of the subject. Therefore, there was no unity in terms of the concepts introduced in the course books. These findings on this subject were similar to the findings in the literature (Akınoğlu and Arslan 2007; Aslan et al., 2015). This was a consequence of the difference between the 9th-, 10th-, and 11th-grade history course curricula. In their study confirming these findings on this issue, Aslan et al. (2015) stated the following: "*Failure to include explanations about the basic concepts at the beginning of any unit negatively affect students' ability to understand the Subject. Accordingly, introducing the basic concepts related to the Subject will have significant contributions on learning the course*". Findings similar to those of the current study on the attributions of the course books were also found in the literature (Oral and Tama, 2013).

It was observed that the concept teaching methods were used quite successfully in the 11th-grade history course book. The use of concept maps and pictures related to the concepts had major consequences in terms of better teaching of the concepts. Similar to the current study; Nair and Narayanasamy (2017), who further demonstrated experimentally that concept maps embedded in the historical learning process help students to learn historical concepts in a meaningful way, stated that: "*Sstudents try to organize the concepts from general to specific and they can comprehend the relationship between the concepts when they are displayed graphically*". Similar to the current study, the importance of teaching the relationship between concepts has been frequently emphasized in the literature (Çolak, 2010; Coşkun, 2011). Similar to the study herein, the necessity of using different methods aside from memorizing the words in concept teaching has also been emphasized in the literature (Aktekin, 2009; İltter, 2017).

It was further observed that the course books prepared in 2019 for the 9th, 10th, and 11th grades in secondary education were systematically similar. The concepts to be taught were listed at the beginning of the units in these books, not at the beginning of the subjects. It was further found that the books prepared in 2019 explained the concepts within texts and did not exhibit different methods in terms of concept teaching. Additional information was provided throughout the subject under the headings 'Do you know?', 'Explain!', 'Comment!', 'Answer!', 'Discuss!' in order to reinforce the concepts, and questions were posed to encourage the students to think. However, this method was thought to be insufficient for teaching concepts. These findings in this regard were similar to those of other studies in the literature. It was further revealed that the course books prepared by the Ministry of Education, as well as private publishing houses, for social studies did not follow a specific method for teaching concepts (Kılınç et al., 2015)

6. Recommendation

This research revealed that the concepts to be taught were not clearly stipulated in the curricula. The concepts to be taught should be clearly specified in the future curricula to be prepared. It is believed that the curricula will attain the expected feature of guiding teachers in this respect.

This study further revealed that the course books prepared in 2019 did not benefit from different teaching methods, such as concept maps and illustrated concept maps. It can be suggested that concepts can be taught in history course books using different teaching methods. In addition, it may be suggested to provide supplementary explanations in the context of unknown concepts in history course books, with short notes to be inserted at the beginning of the subjects or at the bottom of the pages.

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Examining Secondary School Teachers' Beliefs and Purposes about the Use of L1 in Foreign Language Classes

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Abstract

The present study reports on an investigation of secondary school teachers' purposes of the first language (L1) use in foreign language (L2) classes and reflects on teaching practices implemented in secondary schools in Turkey. The study also aims to explore the teachers' beliefs about the use of L1 in L2 teaching. The study utilized ethnography and employed classroom observations, field notes, and interviews. 19 secondary school teachers of English were included in the study. The findings of the study revealed that teachers' L1 use served the following functions: instructional functions, building up rapport, maintaining discipline, and intellectual functions. The findings also indicated that the reasons behind the teachers' L1 use in their classrooms were based on students' affective and cognitive needs.

Keywords: First Language (L1) Use, Foreign Language (L2) Teaching, Secondary Schools

1. Introduction

The issue of using the students' first language (L1) in second language teaching contexts is still a matter of debate. Although a number of well-known approaches strongly suggest exclusive use of the target language (L2), some scholars argue that there is no significant evidence for the requirement of TL-only teaching by re-examining this view (Atkinson, 1993; Auerbach, 1993; Cook, 2001). In addition, Macaro (2001) claims that using a foreign language (L2) exclusively does not necessarily mean an increase in the quantity of students' L2 production as the advocates of the L2-only approach have suggested. Du (2016) states that bilingual education programs have been supported rather than monolingual approaches in recent years because many empirical studies on teachers' and students' L1 use have revealed the positive effects of L1 in L2 contexts. Similarly, Blyth (1995) argues that classrooms should be admitted as multilingual communities instead of monolingual environments.

It is ineluctable that teachers who share the same L1 with their students may have to use L1 at some point in their teaching experience. Therefore, it is obvious that neglecting the use of L1 is beyond reality (Kohi & Suvarna Lakshmi, 2020). On the other hand, it is a known fact that discouraging or banning students' use of their own language has been a common belief since the late nineteenth century; and therefore, teachers need to be sure that their students use the language being taught during the classes (Hall & Cook, 2012). However, the growing literature shows that there are a great number of research studies that argue against the idea of monolingual teaching in foreign language classrooms. Moreover, as Harmer (2001) states, "there is little point in trying to stamp it (L1) out completely" (p. 132). Hence, recent studies have focused on the teachers' appropriate use of L1 in their pedagogy by questioning how much, when, and why L1 should be used in second language teaching contexts (Bozorgian & Fallahpour, 2015; Çelik, 2008; Kırkgöz, 2017; Kohi & Suvarna Lakshmi, 2020; Littlewood & Yu, 2011; Lo, 2015; Paker & Karaağaç, 2015; Storch & Wigglesworth, 2003; Taşçı & Aksu Ataç, 2020; Yenice, 2018).

This study argues for using L1 as a facilitative tool in second language teaching. As a result of conducted studies in different contexts, a number of researchers (Kırkgöz, 2017, Taşçı & Aksu Ataç, 2020; Yenice, 2018) report that teachers of English frequently use the L1 (Turkish) in their classes in Turkey. In order to see the whole picture of the teachers' implementations, it is necessary to gain a better understanding of how teachers of English use their L1 in foreign language classrooms. Therefore, this study aims to observe and reflect on teaching practices implemented in English as a Foreign Language (EFL) in secondary schools in Turkey.

1.1 Theoretical Rationales

The main rationale of advocates of target language-only teaching is that students could only be exposed to TL in the classroom, and therefore the highest rate of use of TL needs to be provided in language classrooms (Littlewood & Yu, 2011). Krashen (1982) contends that teachers need to provide comprehensible input in the target language if they want to teach effectively. Chaudron (1988) emphasizes the value of TL instruction by drawing attention to students' limited chance of natural and extensive engagement in TL environment. Obviously, teaching to students who do not share the same L1 is totally different from that of teaching context in which teachers and students share a common language; however, this fact cannot be asserted as an excuse by teachers (Chambers, 1991). Ellis (2005) describes language learning as a gradual and difficult process and points out the amount and the quality of L2 input by stating that "in general, the more exposure they receive, the more and the faster they will learn" (p.217). McDonald (1993) draws attention to student motivation and second language learning by stating that L1 may demotivate students because they make no effort to understand when the teacher uses L1 extensively (as cited in Turnbull & Arnett, 2002). Additionally, some methods (Direct Method and Audio-lingual Method) are very strict about using the TL in the classroom, which aims to teach students how to use TL communicatively. Although some other alternative methods are in favor of the use of L1 to some extent, in methodological discussions, there has been a strong emphasis on using the TL while teaching (Littlewood & Yu, 2011).

Because the predominant methodology of the twentieth century promotes L1 free teaching, "foreign language teachers build islands that are in constant danger of being flooded by the sea of the mother tongue" (Butzkamm & Caldwell, 2009, p. 24). Likewise, Cook (2001) points out that teachers misinterpret maximizing the TL, which results in avoiding the L1 in their classrooms. Hence, the notion of maximizing the TL in the classroom has been questioned and Turnbull and Arnett (2002) have addressed the question "how much exposure to TL input is optimal from a theoretical and pedagogical standpoint?" (p.205). In contrast to advocates of immersion, Blyth (1995) reported that teachers always endeavor to maximize the use of the TL in their classrooms; however, students claim that teachers' exclusive TL use results in an increase in their affective filter. In his theory, Butzkamm (2003) presents the mother tongue as "the master key to foreign languages, the tool which gives us the fastest, surest, most precise, and most complete means of accessing a foreign language" (p.31). Therefore, restricting L1 use leads teachers to overlook the fact that learners are cognitive individuals who connect newly-learned information with their existing knowledge, which results in higher success in foreign language learning

(De la Campa & Nassaji, 2009). Additionally, from a socio-cognitive perspective, L1 may provide a social and cognitive zone which extends students' collaborative interaction among them while they are dealing with the task (Anton & DiCamilla, 1999; Storch & Wigglesworth, 2003). In his study, although Levine (2003) found that instructors used the L2 immensely in their classes, he points out that rejecting the L1 use seems useless because it serves several functions in the L2 context. In addition, in order to keep students attentive, interested, and participative, teachers should be allowed to use L1 while they are teaching (Carless, 2007).

1.2 How much do teachers use L1 in an L2 context?

According to Ceo-DiFrancesco (2013), theory does not always work in parallel with research and practice; therefore, there is a discrepancy between theory, research and practice regarding the TL use in classrooms. Although many teachers feel under pressure because of strong declarations of researchers and the principles, a number of research studies from different teaching contexts indicate that teachers continue to use students' native language for various purposes and in different proportions. For example, one of the earliest studies conducted by Duff and Polio (1990) revealed that teachers had used the L1 90% at most. Lo (2015) examined twelve CLIL teachers' audio-recorded talk while they were teaching content subjects in order to find out their L1 and L2 use. The results indicated that the proportion of L1 use in different schools ranged from 20% to 96%. In Iran, Bozorgian and Fallahpour (2015) calculated the amount of L1 use of twelve EFL teachers and found that their minimum amount of L1 use was 0.33% while the maximum amount was 11.37%. De la Campa and Nassaji (2009) examined the discourse of two instructors teaching German in Canada and the results showed that their L1 use ranged from 4.6% to 25.1% during their classes. In his case study, Macaro (2001) analyzed the quantity of L1 used by six student teachers in secondary schools in England. He found that the proportion of L1 use ranged from 0% to 15.2%. One of the recent studies carried out by Kohi and Suvarna Lakshmi (2020) indicated that almost 78% of the teachers from twelve different countries stated that they "sometimes" used their learners' L1 in their classes. Another study conducted by Taşçı and Aksu Ataç (2020) with three Turkish EFL teachers revealed that the proportion of their L1 use ranged from 21% to 30%. These studies suggest that teachers somehow integrate students' mother tongue into their teaching in various second language teaching contexts even though the latest language teaching approaches argue for monolingual L2 teaching. Furthermore, "these ranges occur regardless of learner age, learner proficiency, or learning context" (Lee & Macaro, 2013, p.888). Consequently, it is necessary to help teachers to find their routes and explore the facilities of using the L1 in L2 contexts by providing a framework that shows when they should refer to the L1 in their classrooms (Kırkgöz, 2017; Macaro, 2001). On the other hand, Turnbull (2018) claims that developing such a framework is not as easy as it seems; therefore, he suggests that teacher training courses should include more education into the use of the L1 and specifically focus on facilitating roles of the L1 in the L2 classroom.

1.3 Practical implementations: Integrating L1 into L2 context

The studies mentioned in the previous section indicate that the context may be determining factor in the proportion of the L1 use in foreign language classes. Additionally, Hall and Cook (2012) contend that there is a growing tendency for L1 use in foreign language classrooms due to the changes in academic and political circles. When these facts are taken into account, it would be valuable to provide an outline for teachers in order to enlighten them on L1 use. That is, where and when should it be employed appropriately? Schweers (1999) provides a list of appropriate uses of L1 in foreign language classrooms which was suggested by Atkinson (1987). The list includes suggestions for classroom use such as eliciting language, checking comprehension, giving complex instructions to basic levels, co-operating in groups, explaining classroom methodology at basic levels, using translation to highlight recently taught language items, checking for sense, testing, and developing circumlocution strategies. In her study, Auerbach (1993, p.9) presents another detailed list prepared by Piasecka (1988) in order to introduce possible circumstances for using the L1: negotiation of the syllabus and the lesson; record keeping; classroom management; scene-setting; language analysis; presentation of rules governing grammar, phonology, morphology, and spelling; discussion of cross-cultural issues; instructions or prompts; explanations of errors; and assessment of comprehension. Some other scholars (Cook, 2001; Butzkamm & Caldwell, 2009) claim that teachers could use the L1 on purpose and in a systematic way. Cook (2001) prompts

teachers to use the L1 in order to convey and check the meaning of words or sentences, to explain grammar, to organize tests, to maintain discipline, to get contact with students and to implement tests. In their book, Butzkamm and Caldwell (2009) provide a guide for teachers in order to present the ways of how they are able to apply the bilingual approach to their teaching practice. In this approach, they offer a new synthesis of theory and practice which provides detailed explanations about the major domains of foreign language teaching. Littlewood and Yu (2011) contend that teachers should use the L1 in a principled way and present a framework that consists of strategic and compensatory use of L1. They suggest that the L1 may service some purposes such as managing the classroom, explaining grammar, responding to a communication problem, and giving effective support to students. Harmer (2001) remarks on the low-level students and states that it is may help both teachers and students use the L1 while they are explaining something, discussing, or making an announcement.

2. Method

This study utilized ethnography as a research method which focuses on cultures or groups and their daily practices, perceptions, and notion (Denscombe, 2010). As a qualitative approach, ethnography deals with “the behavior, language, and interaction among members of a culture-sharing group” (Creswell, 2007, p.69). It is an in-depth study that takes place in naturalistic settings and concerns with people’s actions analyzing their meaning, functions and results through observations and interviews (Hammersley & Atkinson, 2007). Observations that allow researchers to discover how things exactly work in a context are valuable data collection tools to access teaching practices while interviews enable the researcher to understand “both how something is and how something should be” (Flick, 2009, p.222). In this study, an ethnographic approach was applied in order to explore and reflect on teaching practices implemented by Turkish teachers of English within a local context. The present study was guided by the following research questions:

1. For what purposes do the teachers of English use L1 in their classes?
2. Do the purposes of using L1 vary according to students’ grades?
3. What are the opinions of teachers of English regarding the use of L1 in their classrooms?

2.1 Participants and Context

The present study was conducted in 18 public secondary schools in Adana, Turkey. The study was carried out for one semester in the academic years 2009/2010 and 2011/2012. The participants were 19 Turkish teachers of English whose teaching experience ranged from 9 to 24 years. Two of them were male while the rest of them were female. Table 1 contains information concerning their teaching experience, gender, class size, and learners’ grade. The number of students in each class ranged from 11 to 43. The students’ age ranged from 11 to 14 years old, and their mother tongue was Turkish.

Table 1: Teachers’ Characteristics.

Grade	5 th	6 th	7 th	8 th
Participants	T1; T2; T3	T4; T5; T6; T7	T4; T7; T8; T9; T10; T11; T12; T13; T14	T12; T15; T16; T17; T18; T19
Teaching experience	20-21 years	14-24 years	13-21 years	9-17 years
Gender	Female: 3	Female: 4	Female: 8; Male: 1	Female: 5; Male:1
Class size	25-30	18-41	11-42	18-43

2.2 Data Collection

Since the current study was an ethnographic study utilizing a qualitative approach, the data mainly based on class observations, field notes, and interviews. Observations were conducted by the second author as a non-participant observer during the ongoing teaching processes of English implemented in the classroom. The researcher audio recorded the classes and took notes in order to record teachers' purposes of L1 (Turkish) use in foreign language classrooms. In addition, interviews were conducted with five volunteer teachers in order to investigate their opinions about the use of L1 in their classes.

2.3 Data Analysis

The data collected through observations and transcribed lessons were analyzed and instances of L1 use were identified. The utterances were categorized under various functions. In the beginning, 18 different purposes were determined by the researcher and if the data included a different purpose, it was added to the list. Since the initial analysis was only carried out by the corresponding author, some parts of the data were also analyzed by the second author in order to achieve inter-rater reliability. Then, the first author re-examined all the observation data for intra-rater reliability. Ultimately, 23 different categories were determined and ranked from 1 to 23. The total use for each purpose was counted and the data were entered in the columns on the Excel spreadsheet. In order to respond to the first research question focusing on determining the purposes of teachers' L1 use, teachers' utterances were identified and categorized under four major functions and examples were presented in English in Table 2.

The interviews were conducted in Turkish by the corresponding author and audio-recorded. They were transcribed and then the extracts from the transcribed data were translated into English by the second author. The accuracy of the transcripts and translations was checked back by the corresponding author. Then, the transcripts of the interviews were read thoroughly and coded in order to address certain themes and categories. All participants' names in the interviews were labeled with T1, T2, T3, etc. for ethical considerations. The results obtained from the interviews were presented with relevant excerpts from the data.

3. Results

3.1 For what purposes do the teachers of English use L1 in their classes?

Regarding the first research question, instances of L1 use were identified and the analysis of the utterances resulted in four major and 23 minor categories (Table 2). The findings indicated that the most common major function was instructional functions that consisted of 9 sub-categories: giving instruction, asking questions, giving an explanation, checking, coping with administrative issues, revising, introducing a new topic, clarifying a difficult concept, and starting/ending the lesson. The second most widely observed major function was building up rapport and it also involved 9 minor functions: giving feedback/praising, eliciting student contribution, reacting to students' questions, correcting errors, motivating, making jokes, giving advice, making personal comments, and greeting. Another observed function was maintaining discipline that was composed of three sub-functions (managing the classroom, warning, and reprimanding). Intellectual functions of L1 use which included two minor functions (translating and eliciting) was the least widely-observed main function in this study.

The results are presented in descending order and examples are provided for each function. Additionally, the four major functional categories and the most frequently observed minor functions with teachers' L1 utterances in the corpus are discussed in more detail subsequently.

Table 2: Frequency of Instances of L1 Use

Major and Minor Functions of L1 use	Example	No of Instances
Instructional Functions		921
Giving instruction	We will find the difference between the sports bicycle and tour bicycle.	222
Asking questions	So, where is Ankara?	201
Giving an explanation	We use the infinitive form the verb after 'can'	165
Checking	Did you understand what you would do?	144
Coping with administrative issues	Is there anyone who hasn't filled the project form yet?	69
Revising	So, we learned how to make negative sentences and ask questions in our previous lesson.	43
Introducing new topic	Now, listen to me. Today, we will cover 'can/ cannot.'	33
Clarifying a difficult concept	What is the environment? It is the natural world around us.	32
Starting/Ending the lesson	The bell is ringing. Have a nice weekend.	10
Building up Rapport		553
Giving feedback/Praising	That's right. Well done!	200
Eliciting student contribution	Büşra, you read it!	141
Reacting to Ss' questions	S: Which page, teacher? T: Sixteen	74
Correcting Errors	That's right but you must use have instead of has.	71
Motivating	Cansu, can't you remember which verbs we use? Here the an auxiliary verb is 'do' and the main verb is 'come.' Now answer the question again according to this information.	25
Making jokes	One of my students called the firefighter 'yangın adam.'	21
Giving Advice	If you want to have high grades, you need to study hard.	14
Making personal comments	This is a good method. You can apply it.	5
Greeting	Good morning!	3
Maintaining Discipline		183
Managing the classroom	Sit down! Be quiet!	80
Warning	Please, go to the toilet during break time. Don't ask me for permission during the exam.	57
Reprimanding	Ahmet, shut up!	46
Intellectual Functions		166
Translating Sentences	<i>Resimlere bakın ve soruları yanıtlayın.</i> [Look at the pictures and answer the questions.]	104
Eliciting the language	What is the meaning of occupation?	62

3.1.1 Instructional functions

Instructional functions served different purposes such as explaining the instruction part of an activity or grammar rules, checking students' comprehension, asking questions about the activity, revising the previously learned knowledge, and so on. In this study, the findings revealed that teachers frequently used the L1 in order to give instruction with the aim of clarifying what the students were expected to do before completing an exercise or a task. The following excerpt was recorded while T3 was teaching the subject matter "ability (can/can't)" to 5th-grade students and it was presented in brackets to indicate that it was translated into English.

T3: [*Please open page 39 and look at exercise 3. Let's try to guess what these people are saying by looking at the pictures.*]

Similarly, another teacher (T5) taught the subject matter "how much, how many" to the 6th graders and explained to her students what they were supposed to do:

T5: [*Yes, children, match the pictures on the slide to the rules.*]

Another instance of L1 use was observed while T1 was teaching "how many" and "how much" questions with countable and uncountable nouns and she asked her 5th-grade students:

T1: [*Can you give me examples of uncountable nouns?*]

The third most widely observed sub-function was giving explanations. In the following excerpt, T9 tried to make it clear and explain to his 7th-grade students how to form superlative sentences by giving examples.

T9: [*Superlative means superiority. This is also a comparison. For example, when we say 'China is the most crowded country in the world,' we compare China with not only one country but all the countries*]

in the world. If the adjective has one-syllable, we need to add '-est' for the superlative form. For example, hot-hotter-hottest.]

The current study also confirmed that the teachers frequently used L1 for checking students' comprehension by using tag questions. The following excerpt belongs to the 8th-grade teacher, T18, who revises articles and checks whether the students understand the explanation or not:

T18: [*We are looking for answers to certain questions and we are referring to something plural, aren't we? Then, what should we do? We should use "the," shouldn't we? Do you all understand?*]

3.1.2 Building up Rapport

Building up rapport was the second largest main functional category. Teachers repeatedly used L1 for interpersonal purposes such as giving feedback or praising, eliciting student contribution, answering their questions, motivating them, making jokes, and so on. The findings of the study showed that giving feedback and praising are the two purposes commonly used together by teachers. In the following excerpt, L1 was used by the T16 after a 7th-grade student could write a correct present perfect sentence:

T16: [*Yes, Nilay, that's true. Good!*]

In the following excerpt, similarly, T2 used L1 after her 5th-grade student answered the question correctly:

T2: [*Well done Salih! Right. Very good.*]

The results showed that eliciting student contribution was the second most widely observed minor function. A 7th-grade teacher, T10, used L1 after her students read a dialogue related to finding and seeking for information. After they finished reading the dialogue, the teacher gave a command to her student:

T10: [*Buket, answer the question according to the dialogue.*]

Another teacher, T4, looked for volunteer students, and then she decided on the students who would complete the task:

T4: [*Who will write the questions on the board?*]

Ss: [*Me, me!*]

T4: [*Okay, then. Dilara and Esma, you write on the board. Dilara, you will write part A. And Esma, you will write part B.*]

3.1.3 Maintaining Discipline

The results of the study revealed that L1 was often used by the teachers in order to deal with discipline problems such as noisy students, distracting behaviors, talking and walking around the classroom. The following instance of L1 use was recorded while one of the 5th-grade teachers, T2, was trying to keep her noisy students quiet:

T2: [*Buse and Ahmet! Why are you talking to each other? Be quiet, we will start our lesson.*]

Another instance of L1 use was recorded when another teacher used L1 in order to prevent her student from walking around the classroom:

T1: [*How often do you stand up, Berkay! Sit down!*]

3.1.4 Intellectual Functions

Intellectual functions of L1 use were observed when teachers translated sentences and elicited the Turkish equivalent of an English word or the reverse. An 8th-grade teacher, T19, translated the instruction part into Turkish.

T19: [*Today as I said before we will do the exercises in your workbook. Open your books please.*]

The findings of this research study showed that teachers frequently asked the questions "How do we say it in Turkish/English?" or "What is the meaning of this word?" to their students. The following instance of L1 use was observed while T14 was teaching to her 7th-grade students:

T14: [*What is the meaning of 'different from'?*]

To sum up, four major functions emerged in the obtained data. The results indicated that teachers mostly used the L1 for instructional purposes, especially for giving instruction. L1 was also commonly used in order to build up rapport and giving feedback or praising was the most frequently observed minor function. Maintaining discipline was another main concern of teachers, 'managing the classroom' being the most widely observed sub-function. Teachers also used L1 for intellectual purposes in order to facilitate their teaching by translating sentences frequently.

3.2 Do the purposes of using L1 vary according to students' grades?

The data collected through observations indicated that teachers of English used L1 for a number of different purposes in different grades. The results revealed that fifth-grade teachers of English used L1 in order to give instructions, to give feedback or to praise, to ask questions, to manage the classroom and to elicit student contribution respectively. The results of the emerged data obtained from sixth-grade teachers revealed that their most common purposes of using L1 in their classes were: to give instruction, to give feedback or to praise, to ask questions, to elicit student contribution and to elicit the language. The results also showed that the first three purposes of the sixth-grade teachers' using L1 are similar to fifth-grade teachers'. As for seventh-grade teachers of English, the results indicated that they used L1 in order to ask a question, to give feedback or to praise, to check, to elicit student contribution and to give instruction. Although giving instruction was the most common purpose of fifth and sixth-grade teachers of English, it was in fifth place in the ranking list of the most common functions. The results also showed that the teachers teaching English to seventh-grade students used L1 to check students' comprehension while the fifth and sixth-grade teachers did not pursue such a goal. According to the data, eighth-grade teachers' most common purposes of using L1 in their classes were: to give instruction, to check, to ask questions, to give feedback or to praise, and to translate. The results indicated that eighth-grade teachers' used L1 in order to translate sentences into Turkish while it was not a widely-observed sub-function in previous grades.

The findings of the present study revealed that the use of L1 in four different grades served a number of different purposes. Although three of the identified purposes (giving instruction, asking a question and giving feedback or praising) were the same in each grade, several different minor functions were also observed in different grades. Additionally, teachers used L1 for some other common purposes such as reacting to students' questions, warning, dealing with administrative issues and correcting errors although they were not used as frequently as the presented purposes.

3.3 What are the opinions of teachers of English regarding the use of L1 in their classrooms?

In the interviews, teachers of English reported their opinions about using L1 in their classes. They gave some reasons for using L1. The T19 and T6 expressed an affective reason:

T19: *"I generally use L1 because they are adolescents, so they can lose their attention easily. I use L1 in order to increase their participation. Besides, I also use L1 so that they can feel relief and motivated."*

T6: *"When I use L1 it is easy for students to understand what they are going to do. And also I see that they feel comfortable in the classroom. They don't panic."*

Other teachers, T7, T13, and T18, emphasized the learner differences in their classes. They stated that it was necessary to use L1 in order to facilitate their students' understanding:

T7: *"In this level, students cannot understand everything clearly in L2. We explain the subject matter and teach grammar and vocabulary. They have difficulty in understanding target language, so we use L1 in this situation."*

T 13: *"My students' level of understanding is very low. They are so diverse that using L2 might be torture for them because some students do not understand even though I use L1. Therefore, I believe that it is necessary to use L1 while teaching them."*

T18: *“I think that it is obligatory to use L1 for this level especially for my students. Because the background of my students is really miserable so it is significant to use L1 in the class in order to make students understand the topic clearly.”*

During the interviews, the teachers explained for what purposes they used L1 mostly in their classes. According to the data obtained from observations, giving instruction was one of the most common functions. In the interviews, two of them also pointed out that they used L1 to give instruction correctly. For eliciting the language, T6, who taught to sixth graders, was the only teacher stating that she used L1 in order to explain the meanings of newly taught words and translate them. Of all interviewees, three of them stated that they used L1 for giving an explanation. In the interviews, one of the teachers claimed that the purpose of using L1 was to warn her students. Similarly, another teacher stated that she used L1 in order to maintain discipline in the classroom. One of the teachers, T13, pointed out that she switched to Turkish in order to teach grammar and give commands especially when she realized that the students did not understand. Nevertheless, to some extent, what the teachers claimed in the interviews was different from what they actually performed in the classrooms. Even though clarification was not one of the common functions frequently used by the teachers, three of the teachers claimed that they used L1 in order to clarify a difficult concept or meaning. Additionally, the data obtained from observations showed that giving feedback or praising, asking questions, checking comprehension, and translating English sentences into Turkish were the most common purposes; however, none of the teachers referred to these purposes during the interviews.

4. Discussion

This current study was conducted to provide insights into teaching practices implemented by Turkish teachers of English within a local context and their opinions about using L1 in their classrooms. All the teachers who participated in this study agreed that using the target language would be beneficial for their students. However, they admitted that it was inevitable to use L1 because it was a useful tool to overcome some problems such as learner differences, low level of language proficiency, and reluctance. The results revealed that the teachers' main concerns were to make their students participate in lessons, to motivate them, to provide a comfortable learning environment, and to achieve higher comprehension. The findings indicated that the teachers of English used L1 for four major functions that included different sub-functions: instructional functions, building up rapport, maintaining discipline, and intellectual functions. Similarly, in terms of functions and their frequency of use, Kohi and Suvarna Lakshmi (2020) and Yenice (2018) proposed the four major functions of L1 use respectively: language functional use, managerial functionality, affective functionality, and social functionality. Sali (2014) and Ong and Tajuddin (2020), in their research studies, reported that the most frequently used function was academic, managerial function the second, and social/ cultural the least frequent. Another study conducted by Lo (2015) presented three major categories observed in CLIL classrooms: social and affective functions, pedagogical functions: classroom management and content transmission. The results of this current study are also consistent with the findings of the previous studies conducted in different contexts which refer to L1 use of teachers of English for rapport building, making the topic/meaning clear and explaining difficult concepts (Paker & Karaagac, 2015); translation, activity instruction and elicitation of students' contribution (Bozorgian & Fallahpour, 2015) and giving instruction, classroom management, explaining aspects, establishing rapport, and eliciting answers (Kırkgöz, 2017; Ma, 2019).

5. Conclusion

The findings of this study showed that the use of L1 was a standard implementation for all teachers who participated in this study. That is, as Bozorgian and Fallahpour claim, “there was no reluctance for its use where it was necessary” (2015, p.78). It seems that the reasons behind switching into Turkish in EFL classrooms were based on students' affective and cognitive needs. Although the teachers of English find the idea of using L2 most of the time in their classes more effective, Storch and Wigglesworth (2003) suggest that using L1 could be beneficial for teachers even in an L2 setting. In addition, some researchers point out that it is a facilitative tool in terms of explaining complex grammar concepts, giving instructions for class activities, and classroom management (Sahabir, 2017); helping students better understand the content knowledge (Lo, 2015); conveying

meaning, managing the classroom, making a friendly environment, reducing students' anxiety, facilitating communication, elaborating on the course goals and clarification (Bozorgian & Fallahpour, 2015); helping learners work with the task at a higher cognitive level and provide each other definitions of unknown words in a direct and successful way (Storch & Wigglesworth, 2003). As Çelik (2008) suggests, language teachers should welcome L1 in their teaching and keep in their mind that using L1 consciously will be valuable and encourage students' language learning in an L2 context. Given the facilities of L1 use, it can be suggested that language teachers need to have a better understanding with respect to the function of L1 in L2 settings and they also need to be able to identify when L1 can be a facilitative tool. Thus, they will be able to provide a rationale for their L1 use in their classes instead of feeling guilty about, or avoiding using it in their classes.

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Determining Preservice Teachers' Levels of Self-Efficacy and Occupational Anxiety*

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Abstract

Teachers are among the key actors of education who are responsible for preparing students to become qualified and well-educated individuals. Therefore, teachers should be trained well throughout their education. The knowledge and skills that teachers acquire throughout their study may have either a positive or a negative impact on their future professional careers. Identifying factors involved in the teaching professional early in the teacher training processes and finding applicable solutions will change the direction of that impact. Against this background, the purpose of this study was to explore the relationship between preservice teachers' levels of teaching self-efficacy and occupational anxiety and find out whether their self-efficacy and occupational anxiety differ according to the year of study. To this end, a descriptive survey research design was used. The sample consisted of 156 preservice teachers studying at the faculty of education of a university. The "Occupational Anxiety Scale for Prospective Teachers" and the "Teachers' Sense of Efficacy Scale" were employed as data collection instruments. The analysis results showed that preservice teachers' self-efficacy differed according to the year of study, while their occupational anxiety did not differ. The results also showed a moderate positive correlation between preservice teachers' levels of teaching self-efficacy and occupational anxiety. Thus, based on the correlation between teaching self-efficacy and occupational anxiety, it is recommended to make efforts to increase preservice teachers' self-efficacy and decrease their occupational anxiety during their study.

Keywords: Preservice Teachers, Occupational Anxiety, Self-Efficacy

1. Introduction

Educational level of members in a society is one of the major factors that contribute to the level of development of societies. It is possible only through teaching and training activities performed at the desired level to prepare individuals to have a high level of education and qualifications. Given that teachers are among the basic components of an education system, teachers and how teachers educate individuals are the key determinants of

* This research was presented at the 10th International Scientific Research Congress (2021).

the success of that education system (Erden, 1998). Thus, teachers are of critical importance for the future of societies. The development of education is directly related to the quality of teachers. Therefore, teachers who will take part in the education system should be educated in a qualified way. The education teachers received affects their future teaching profession. At the end of education process, it is important to educate teachers equipped with the desired knowledge and skills.

Teachers' skills and behaviour are among the key factors in meeting the learning needs of individuals. For teachers to fulfil the learning needs of individuals and do effective teaching, they should be knowledgeable about the learning needs of students. To do this, teachers should have certain knowledge and skills and a sufficient level of belief in their capability to fulfil their responsibilities and duties. This situation is closely related to an individual's self-efficacy (SE) perception and many psychological factors affecting this perception (Doğan & Çoban, 2009; Yılmaz et al., 2004).

The notion of SE that lies at the core of Bandura's social learning theory is described as the belief in a person's capability to organise and satisfactorily perform activities necessary to perform a given task (Bandura, 1997; Goddard et al., 2004) SE is a person's belief about the capabilities and competences that he or she expects to show in a situation (Tschannen-Moran & Hoy, 2001). To put it differently, SE refers to people's perception of their capabilities to succeed in specific situations and overcome a certain problem (Senemoğlu, 2007).

SE beliefs have four main sources of (Bıkmaz, 2004). The first source relates to direct experiences that individuals gain from what they have achieved. While the successes of individuals through direct experiences create a positive effect on the individual, failures also have a negative effect. Indirect experiences are seen as the second most important source of individuals' SE beliefs. Indirect experiences, the result of the experiences of the person that the individual adopts as a model, affect the individual's SE. Individuals take as an example people they see close to them. Verbal persuasion made by the people around the individual is seen as the third source that affects the SE beliefs. Verbal persuasion is realistic verbal stimuli that allow individuals to seek and try harder to solve problems. The words they hear from other people support them in not losing their SE beliefs. The fourth relates to individuals' emotional and physical condition and if people feel mentally and physically well, they are more likely to fulfil expectations. Emotional and physical condition of individuals also have an important function in creating SE beliefs regarding the field of the person (Bıkmaz, 2004; Bandura, 1995).

With respect to teaching, SE refers to a set of knowledge, skills, and attitudes knowledge essential to fulfil certain tasks and responsibilities required by the teaching profession. In other words, teaching SE is a teacher's answer to the question "Can I plan and perform the thoughts and actions necessary to perform my tasks and responsibilities?" (Goddard et al., 2004). In general, teaching SE relates to teachers' belief in their capabilities to achieve the desired outcomes, such as interest and learning, even for unmotivated and difficult students (Kafkas et al., 2010). Additionally, SE is a key factor that has an impact on classroom management, the structure of education, and the way of overcoming problem behaviour (Chan, 2008).

Teachers need to have a high level of SE perceptions and have received a quality education so that they can perform their profession as best as they can (Ateş & Cevher Kalburan, 2016). Previous studies have shown that teachers with a high level of SE beliefs make more effort to teach and provide a more effective educational environment, thereby promoting students' achievement (Brouwers & Tomic, 2000; Sariçam & Sakız, 2014). Teachers with high SE are more willing to criticize student mistakes less, study more with difficult students, and apply new strategies to understand students' needs, etc. On the other hand, it is stated that teachers with low teaching SE behave less responsibly towards the profession. It is seen that these teachers use authoritarian, teacher-centered approaches and blame others for failure (Knoblauch & Woolfolk-Hoy, 2008; Lewandowski, 2005; Goddard et al., 2004; Ross, Cousins, & Gadalla, 1996).

Another factor that may affect preservice teachers' perceptions of the teaching profession is occupational anxiety (OA). The concerns about the profession, which are encountered during the educating of teachers and have a important effect on the quality of this process, may negatively affect the educational processes and motivation of preservice teachers'. This situation may also differ among pre-service teachers (Ralph, 2004). As active

members of education systems, teachers assume various duties and responsibilities towards the school administration, their students, and students' families. However, teachers' competence is the most important factor in succeeding in education and training. Thus, teachers must make efforts to improve and upgrade their skills and professional qualifications (Özer et al., 2009). Therefore, teachers are likely to have some professional concerns. Preservice teachers may experience several concerns about the teaching profession both during and after their educational life. Professional concerns may be caused by several reasons such as course subjects, overcrowded classrooms, student motivation, difficulties in implementing the curriculum, learning problems, teachers' own SE, extracurricular tasks, the lack of teaching materials, and individual differences such as (McCormack, 1996; Meek & Behets, 1999; Özer et al., 2009).

It can be said that teachers feel OA result due to the lack of knowledge, skills and competence. A normal or high level of OA may discourage preservice teachers and aggravate their concerns and fears about the conduct of the teaching profession (Çelen & Bulut, 2015).

It is hoped that by examining preservice teachers' OA and SE, the present study will contribute to efforts and endeavours to decrease preservice teachers' OA and increase their SE. It has been shown that one of the key factors that affect teachers' SE is the feeling of anxiety that they have while performing their profession is (Coladarci & Breton, 1997; Lin & Gorrell, 2001; Hoy & Spero, 2005). There has been a discussion on the existence of a positive or negative association between teachers' SE and OA (Davis, 2007; McGrath et al., 2015). In this sense, the present study also tried to explain the relationship between preservice teachers' SE perceptions and OA levels.

Studies investigating preservice teachers' SE and OA can be considered as studies aimed at promoting the qualification of preservice teachers trained in teacher training institutions. As a matter of fact, discovering preservice teachers' SE and OA plays an important role in training preservice teachers in how to be effective and efficient teachers (Cabı & Yalçınalp, 2013). It is thus of key importance to examine preservice teachers' SE and OA, which both are likely to influence their future success in the teaching profession, starting from the first year of their study and up to the fourth year when preservice teachers are now equipped with occupational knowledge and skills.

Against this background, this research purposed to explore the relationship between preservice teachers' levels of teaching SE and OA and find out whether their SE and OA differ according to the year of study. To this end, it sought answers to the following questions:

- What are preservice teachers' levels of OA about the teaching profession?
- What are preservice teachers' levels of teaching SE?
- Do preservice teachers' levels of OA about the teaching profession differ according to the year of study variable?
- Do preservice teachers' levels of teaching SE differ according to the year of study variable?
- What is the relationship between preservice teachers' levels of teaching SE and OA?
- What is the relationship between preservice teachers' levels of teaching SE and OA in terms of the year of study variable?

2. Methods

2.1. Research Design

The research design used for this study was a descriptive survey method. A correlational survey design was used to explore the correlation between preservice teachers' levels of teaching SE and OA and a cross-sectional survey design was used to find out whether their SE and OA differ according to the year of study. Correlational research is aimed at exploring the correlation between two or multiple variables without making any intervention in the variables. Cross-sectional research usually surveys a large sample of individuals with many different characteristics (Büyüköztürk et al., 2011).

2.2. Participants

The participants of this study consisted of 156 freshmans, sophomores, juniors, and seniors who are preservice teachers in the education faculty at a university.

Table 1: Distribution of the Participants across the Years of Study

Year of Study	N	%
1st Year (Freshmans)	41	26.3
2nd Year (Sophomore)	28	18
3rd Year (Juniors)	39	25
4th Year (Seniors)	48	30.7
Total	156	100

As shown in Table 1, among the participants, 26.3% were freshmans, 18% were sophomores, 25% were juniors, and 30.7% were seniors.

2.3. Data Collection Tools and Methods

The “Occupational Anxiety Scale for Prospective Teachers” developed by Cabı and Yalçınalp (2013) was used to measure preservice teachers’ OA. The eight-factor scale consists of 45 items and is rated on a 5-point Likert-type scale ranging from 1 (extremely anxious) to 5 (not at all anxious). A high score on the scale indicates a low level of anxiety, and a low score indicates a high level of anxiety. Cronbach’s Alpha for the scale was found to be .95. In this study, the internal consistency was recalculated for the entire scale and Cronbach’s alpha was found to be .97. The lowest possible score is 45 while the highest possible score is 225, and high scores indicate that students are less anxious about the teaching profession (Cabı & Yalçınalp, 2013).

The “Teachers’ Sense of Efficacy Scale” developed by Tschannen-Moran and Hoy (2001) was used to measure preservice teachers’ SE. The validity and reliability of the scale for the Turkish culture was tested by Çapa et al. (2005). The scale consists of 24 items under 3 sub-scale and is rated on a 9-point Likert-type scale ranging from 1 (nothing) to 9 (a great deal). In their study, Çapa et al. (2005) found Cronbach’s alpha to be .93 for the entire scale. The lowest possible score is 24 while the highest possible score is 216. Cronbach’s alpha was found to be .96 for the entire scale in this study.

2.4. Data Analysis

Frequency, standard deviation and mean values were calculated during data analysis. First, the Kolmogorov-Smirnoff test was employed to test the normality of the data. The results of the Kolmogorov-Smirnov test showed that the data obtained from both scales were normally distributed ($p = .200$, $p > .05$). Table 2 and Table 3 show the analysis results on the normality of the data.

Table 2: Normality Test Results for Teaching Self-Efficacy

	Kolmogorov-Smirnoff			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Total	.040	156	.200*	.985	156	.099

Table 3: Normality Test Results for Teaching Occupational Anxiety

	Kolmogorov-Smirnoff			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Total	.062	156	.200*	.973	156	.004

The correlation between the groups was analysed using the Pearson product-moment correlation coefficient (PPMCC) and the difference between the groups was analysed using one-way analysis of variance (ANOVA) and Tukey's HSD test.

3. Results

Table 4 gives the results of the descriptive statistics for preservice teachers' total scores on the "Occupational Anxiety Scale for Prospective Teachers" and the "Teachers' Sense of Efficacy Scale". Table 5 gives the results of the descriptive statistics for preservice teachers' levels of teaching SE and OA in terms of the year of study variable.

Table 4: Results of the Descriptive Statistics for Occupational Anxiety and Self-Efficacy

	N	Min	Max	Mean	Standard Deviation
Occupational Anxiety	156	45.00	225.00	159.1859	35.21964
Self-efficacy	156	39.00	216.00	151.1859	31.63640

Table 4 shows the minimum, maximum, arithmetic mean and standard deviation values of the pre-service teachers' SE and professional anxiety scale in general. As seen in Table 4, there was not a large difference between preservice teachers' mean SE scores and OA scores ($X_{SE} = 151.1859$; $X_{OA} = 159.1859$).

Table 5: Results of the Descriptive Statistics for Self-Efficacy and Occupational Anxiety according to the Year of Study

	N	Min	Max	Mean	Standard Deviation
1st year Occupational Anxiety	41	45.00	225.00	159.3659	37.53182
1st year Self-efficacy	41	83.00	216.00	154.7561	31.26002
2nd year Occupational Anxiety		95.00	225.00	155.9643	28.92837
2nd year Self-efficacy		39.00	206.00	153.9286	33.28655
3rd year Occupational Anxiety	39	66.00	225.00	153.4615	31.93154
3rd year Self-efficacy	39	70.00	216.00	132.2821	29.19711
4th year Occupational Anxiety	48	46.00	225.00	165.5625	38.88275
4th year Self-efficacy	48	108.00	207.00	161.8958	26.72177

Table 5 shows the minimum, maximum, arithmetic mean and standard deviation values of the general SE and professional anxiety scale depending on the years of study of the preservice teachers. Looking at the levels of teaching SE and OA in terms of the year of study in Table 5, it is apparent that the mean teaching SE and OA scores of the first-, second-, and fourth-year preservice teachers were close to each other. However, there was a difference for the third-year preservice teachers. Table 6 and Table 7 show the results of the one-way ANOVA conducted to determine whether preservice teachers' mean SE and OA scores differ according to the year of study.

Table 6: Results of the One-Way ANOVA for Occupational Anxiety according to the Year of Study

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	3521.628	3	1173.876	.945	.420
Within Groups	188743.981	152	1241.737		
Total	192265.609	155			

As seen in Table 6, the results of the one-way ANOVA yielded no statistically significant difference between the preservice teachers in their mean OA scores in terms of the year of study ($F = .945$; $p = .420$; $p > .05$).

Table 7: Results of the One-Way ANOVA for Self-Efficacy according to the Year of Study

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	20175.814	3	6725.271	7.575	.000
Within Groups	134957.795	152	887.880		
Total	155133.609	155			

Looking at the results of one-way ANOVA in Table 7, a statistically significant difference was found between the preservice teachers in their mean SE scores in terms of the year of study ($F = 7.575$; $p = .000$; $p < .05$). The Tukey's HSD test was conducted to detect the means that are significantly different from each other because the number of the groups was similar. Table 8 shows the results of Tukey's HSD test.

Table 8: Results of Tukey's HSD Test for Self-Efficacy

(I) year of study	(J) year of study	Mean Difference (I-J)	Standard Error	Sig.
1.00	2.00	.82753	7.30518	.999
	3.00	22.47405*	6.66497	.005
	4.00	-7.13974	6.33665	.674
2.00	1.00	-.82753	7.30518	.999
	3.00	21.64652*	7.38080	.020
	4.00	-7.96726	7.08573	.675
3.00	1.00	-22.47405*	6.66497	.005
	2.00	-21.64652*	7.38080	.020
	4.00	-29.61378*	6.42368	.000
4.00	1.00	7.13974	6.33665	.674
	2.00	7.96726	7.08573	.675
	3.00	29.61378*	6.42368	.000

Looking at the results of Tukey's HSD test in Table 8, preservice teachers' SE scores statistically significantly differed in the third year compared to the other years of study. Table 9 displays the results of the Pearson product-moment correlation analysis for the correlation between preservice teachers' overall levels of teaching SE and OA.

Table 9: Analysis Results for the Correlation between Self-Efficacy and Occupational Anxiety Scores

	N	r	p
Occupational Anxiety Self-Efficacy	156	.475	.000

As seen in Table 9, there was a significant moderate positive correlation between preservice teachers' SE and OA scores ($r = .475$; $p = .000$; $p < .05$). Table 10 present the results of the Pearson product-moment correlation analysis for the correlation between preservice teachers' overall levels of teaching SE and OA in terms of the year of study.

Table 10: Analysis Results for Correlation between Teaching Self-Efficacy and Occupational Anxiety Scores in terms of the Year of Study

Occupational Anxiety - Self-Efficacy	N	r	p
1st Year	41	.543	.000
2nd Year	28	.265	.174
3rd Year	39	.518	.001
4th Year	48	.494	.000

As can be seen from Table 10, there was a significant moderate positive correlation between preservice teachers'

SE and OA scores in the first year, third year, and fourth year of study ($r_1 = .543$; $r_3 = .518$; $r_4 = .494$; $p < .05$).

4. Discussion and Conclusion

This study set out to examine preservice teachers' levels of teaching SE and OA and explore the relationship between the two variables. To this end, preservice teachers' SE and OA were measured and analysed in relation to the year of study variable to find out whether their SE and OA differed according to the year of study.

The analysis results showed that the preservice teachers participating in the study had a low level of OA about the teaching profession. This finding is thought to be due to participants' low level of OA and their high SE beliefs in the teaching profession. This finding is in parallel with those of earlier research investigating preservice teachers' OA. This finding is consistent with those of previous studies reporting that preservice teachers had a low level of OA (Aycan & Üzümlü, 2019; Çelen & Bulut, 2015; Kahraman & Çelik, 2019; Varol et al., 2014). The analysis results also indicated that the preservice teachers had a high level of teaching SE, thereby increasing the probability that SE may have a positive effect on OA. To test this probability, the correlation between the two variables was analysed and as a result of the analysis, a moderate correlation was found. However, the results of earlier research into preservice teachers' OA contrast with the present results. Preservice teachers' OA was found to be moderate in Ünlü & Erbaş (2018) and in Brodar (2020) and to be high in Saban et al. (2004). This study found that preservice teachers' level of OA decreased with the advancing year of study. This result was predicted before the study; thus, preservice teachers' OA is expected to gradually decline from the first to the fourth year of their study. Additionally, it can be said that teaching practice classes offered at faculties of education allow preservice teachers to broaden their experience of teaching. All in all, it seems that the OA of preservice teachers who had gained experience in both theoretical and practical class decreased with their increasing experiences.

The analysis results showed that the preservice teachers had a high level of SE. This result is considered as an indication that the undergraduate education provided in the faculty at which the participants were studying fosters preservice teachers' SE perceptions. The literature includes other studies aimed at determining preservice teachers' levels of teaching SE. This finding is in accord with that reported by Karimova et al. (2020), Ahmad and Akbar (2020) and Dadandı et al. (2016). As discussed earlier, a possible explanation for this result might be that theoretical and practical classes that preservice teachers take during their study help them gain an idea of their occupational success. The analysis results also showed that preservice teachers' levels of teaching SE increased with the advancing year of study from the first to the fourth year of study excluding the third year. A possible explanation for this result might be that the participating preservice teachers were pursuing different years of their study. The reason for the decline of SE in the third year might be that the number of classes increases in the third year and third-year classes are relatively harder. The reason for the increase of SE in the fourth year might be that preservice teachers adjust to classes in their respective teaching discipline in the fourth year.

The analysis results showed that preservice teachers' OA did not differ according to the year of study. This finding was also reported by Aycan and Üzümlü (2019). The fact that preservice teachers' levels of OA did not differ according to the year to study might be due to their high level of SE. Another possible reason for this result could be that preservice teachers are not primarily responsible for instruction while gaining experience in both teaching practice and internship courses and this situation may cause preservice teachers to feel more comfortable. There are earlier observations, which are in contrast to the present finding. Some studies reported that preservice teachers' levels of OA differed according to the year to study (Sadıkoğlu et al., 2018; Uzundağ et al., 2020; Türkdöğen, 2014).

According to the analysis results, preservice teachers' levels of teaching SE differed according to the year of study and the difference was significant in the third year. This finding is consistent with those of previous studies reporting that SE levels differed according to the year of study (Durdukoca, 2010; Oğuz, 2012; Şahin & Şahin, 2017; Mauraji & Wiyarsi, 2021). The difference between preservice teachers' levels of teaching SE according to

the year of study could be explained by several reasons such as increasing adjustment with the advancing year of study, gaining experience during their study, increasing motivation, and a growing feeling of being a teacher. In contrast to the present finding, however, some studies reported that preservice teachers' levels of teaching SE did not differ according to the year to study (Aktağ & Walter, 2005; Seçkin & Başbay, 2013).

The analysis results showed a significant moderate positive correlation between preservice teachers' OA and teaching SE. This result could be seen as the proof that preservice teachers' high level SE perceptions contribute to their low levels of OA. Previous studies have reported a significant positive but low correlation between preservice teachers' SE and OA (Deniz & Tican, 2017; Kafkas et al., 2010). The present study found that the correlation between preservice teachers' SE and OA was moderate. It can thus be said that the higher preservice teachers' SE is, the lower their OA is. Additionally, the correlation between teaching SE and OA has been found to be negative, moderate, and high (Dadandı et al., 2016; Gökmen & Ekici, 2018; Gönüldaş, 2017; Kahraman & Çelik, 2019; Özmen, 2016; Ünlü & Erbaş, 2018; Sharma & Marwaha, 2020). According to the analysis results, a significant moderate positive correlation was found between preservice teachers' SE and OA in the first year, third year, and fourth year of study. However, there was an insignificant low positive correlation between preservice teachers' SE and OA in the second year of study.

The results of the study suggest that teaching SE and OA are correlated. It is clear that teacher SE and OA are issues that should be given importance in the educating of preservice teachers. It is thought that efforts to strengthen preservice teachers' SE beliefs and eliminate their OA will contribute positively to the teaching profession. Thus, an important practical implication is that faculties of education make efforts to promote preservice teachers' SE so that preservice teachers will have lower OA when they graduate. This study was carried out with a certain number of pre-service teachers using a cross-sectional design. Conducting such studies with a larger number of participants and faculties may contribute to the generalizability of the research findings. Further research may also employ a longitudinal design within the bounds of possibility to analyse different variables by monitoring the same group of preservice teachers for their entire four-year study. Data obtained from such studies are considered valuable as they provide insight into the competencies of academic staff and the effectiveness of undergraduate teaching programs training teachers of the future; thus, such studies could be repeated.

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The Effect of Middle School Students' Metacognitive Awareness and Logical Thinking Skills on Success in Mathematics Course*

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Abstract

The aim of this study is to investigate The effect of logical thinking skills on the success of mathematics course at the Metacognitive Awareness of Secondary School Students. The research was conducted in the Siirt city centre of Fevzi Çakmak Secondary School with 120 5th, 6th, 7th and 8th grade students in 2018-2019 education year. The data were collected through both Metacognitive Awareness Inventory Schraw ve Dennison (1994) and the Test of Logical Thinking Skills Tobin and Capie (1981). During the research, the collected data were analyzed using Pearson product-moment correlation coefficient, independent samples t-test, and linear regression on SPSS. According to the results, a positive effect is evident the success of mathematics course metacognitive awareness and logical thinking skills. There is a significant relationship between metacognitive awareness and grade point average mathematics (GPAM) scores. In addition, there is a considerable relationship between logical thinking skills and GPAM scores. The research results suggest that metacognitive awareness and logical thinking skills are positive predictors of mathematics academic achievement. Also, it was examined whether mathematics academic achievement, metacognitive awareness and logical thinking skills differ according to gender. Results show that secondary school students' mathematics academic achievement and metacognitive awareness levels differ significantly in terms of gender. Female students are more successful than male students. Besides, female secondary school students' metacognitive awareness levels are higher than that of male students. Also, the significant relationship was found between logical thinking skills with respect to the gender.

Keywords: Metacognitive Awareness, Logical Thinking Skills, Secondary School Students, Success of Mathematics

* This research has been produced from İsmail TOPÇUL's master thesis.

1. Introduction

In the century we live in, it requires educated people to generate knowledge and develop practical, permanent and successful solutions to real life problems. In this context, the Ministry of National Education, believing that the behavioral education theory was insufficient as of 2005, preferred the constructivist education theory, which aims to produce new knowledge by making use of individuals' own knowledge. The primary and secondary school programs, which were renewed as of 2005 in our education system, are revised according to the constructivist education approach and aim to raise students who can discover new information by using their existing knowledge, gain awareness of what and how they learn, and understand the cause-effect relationship between information.

A person with sufficient level of metacognition knows about the structure and functioning of his own mental processes. An individual with metacognitive awareness assumes the responsibility of learning by recognizing himself, discovering how he learns, and can successfully realize the learning process by building his own knowledge (Çakıroğlu, 2007a). In this way, the awareness provided by the beyond cognition ensures that education achieves its essential goals. As a matter of fact, Senemoğlu (1998) emphasizes that having awareness about their own learning activities and determining a direction for their self-learning is very effective in achieving students' success, and students need to gain the necessary awareness from primary school. In this context, Piaget named the mental development of children in school age as the abstract operational period in children aged 11-12 and above. During this period, new and stronger mental abilities develop (Yıldız, 2010). Although each child shows individual differences, it is observed that students of this age are generally subject to education at the secondary school level. It requires the development of metacognitive awareness of students in order to increase learning efficiency in educational institutions.

The main purpose of our education system is to gain skills in researching and discovering information rather than transferring existing information (Kaptan, 1999). Achieving this goal is possible with the effective use of high-level cognitive thinking skills. In other words, rather than memorizing information, it requires learning by comprehension, solving problems related to real life situations, and using skills related to scientific method process (Kaptan & Korkmaz, 2001). People with high level cognitive abilities become aware of their own learning processes.

On the other hand, it is aimed to raise students who are aware of how their own learning takes place instead of people who memorize information in today's educational institutions (Doğan, 2013). For this reason, children are asked to research, question and assimilate information and have basic skills to construct this knowledge (Balcı, 2007). Beyond cognition is putting problem-solving steps to work in the right place at the right time (Brown, 1987). According to these definitions, it can be said that situations such as the correct interpretation of a problem, the use of appropriate strategies after determining the methods that will ensure the correct solution of the problem, abandoning inappropriate strategies and analyzing the results after the strategies are applied draw attention to metacognition.

When the last half-century of studies on education are examined; It is seen that it is centered on providing students with high-level mental skills such as accessing information, learning information with the method of discovery and determining their own mental processes rather than providing ready-made information (Darling-Hammond, 2000). It is important for the individual to manage his / her own cognitive processes and to be aware of the method of learning information. In the cognitive process, the person conducts the flow of information on his own and the most important thing is that the information is applied. Studying mental processes, raising generations who are aware of their own cognitive processes based on the questions of how people learn information has brought about the concept of metacognition. The concept of metacognition, which was introduced to research in the field of education as a metacognition concept and first mentioned by Flavell in 1976, has been introduced into our language with different names (Çakıroğlu, 2007). Akin et al. (2007) have mentioned it as metacognitive. In this study, on the basis of Özsoy's (2007) application to the Turkish Language Institution, the word metacognition was used in return for the word metacognition. Metacognition; awareness of the learning process, planning and implementing, correcting mistakes, monitoring the learning process, using

strategies, controlling the efficiency of preferred strategies, changing the learning method and strategies when needed (Özsoy & Ataman, 2009; Özsoy et al., 2009).

While the learning and application of knowledge are conveyed through the mental process in students, even the learner's awareness of the cognitive development (which way he / she uses, what method he / she uses) and the process (what he / she does and what order he / she gains) in this process involves an awareness. Here, the concept of executive cognition, known as metacognition in subject studies, has taken place in the language. It can be said that metacognitive awareness includes the learner's ability to be aware of what and how to construct mentally, to form a thinking system, and ultimately to learn to learn (Çakıroğlu, 2007).

Logical thinking requires consistent thinking in order to obtain and evaluate a result. In essence, this thinking model has thinking stages that trigger each other. This task means obtaining all comments, facts, and results about the problem and arranging them in a way to relate them (Bozdoğan, 2007).

Logical thinking skill, which has an important function for people to develop successful solutions when they encounter daily life problems, is among the most important issues within the framework of studies on education (Barr, 1994). One of the mental skills is Piaget's logical thinking skills that develop in the pre-operational and abstract operations phase. Children in the concrete operations stage develop their own solutions to concrete problems by using the logical thinking skills they have acquired in the mental development process. These features differ individually among children. In the abstract operations phase, the mental progress process reaches the maturity level in terms of logical thinking skills. This skill is the development of various mental activities for children to find a solution to a problem or to discover new information by trial and error using the invention method (Yaman, 2005).

1.1. Problem Condition

The problem statement of this research is expressed as the effect of middle school students' metacognitive awareness and logical thinking skills on academic achievement in mathematics lesson.

In the content of the study, answers were sought for the following sub-problems.

- 1) Is there a significant relationship between metacognitive awareness inventory (PPI) scores and logical thinking skills test (MDYT) scores of students at all grade levels (5th, 6th, 7th, 8th grades) in secondary school?
- 2) Is there a significant relationship between middle school students' metacognitive awareness inventory (PPI) scores and academic achievement (MDAB) scores in mathematics classes?
- 3) Is there a significant relationship between the logical thinking skills test (MDYT) scores of middle school students and their academic achievement (MDAB) scores in the mathematics course?

1.2. The Purpose and Importance of the Research

The aim of this study is to examine the metacognitive awareness of middle school students at every grade level according to the problem solving steps (understanding the problem, writing and planning, implementing the plan, and checking the solution) the problems they encounter in mathematics lesson by using their skills of measuring, comparing and logical thinking. to provide a solution.

2. Materials and Methods

2.1. Research Model

This research is a survey model research in which middle school students' metacognitive awareness and logical thinking skills are measured. This study is also a correlational study, as the relationship between the sample's scores from three data collection tools will also be examined.

2.2. Universe and Sample

The universe of this research is 5th, 6th, 7th and 8th grade students who continue their education in Fevzi Çakmak Secondary School located in the city center of Siirt. The sample is 5/E, 6/A, 7/E, 8/C students who continue their education in a randomly selected branch at each grade level.

2.3. Data Collection Tools

Prepared by Scraw & Dennison (1994) and Akin et al. "Metacognitive Awareness Inventory (BFE)" translated by (2007) into Turkish was used. In addition, "Logical Thinking Ability Test (MDYT)" was applied to determine the logical thinking skill levels of middle school students. The "Logical Thinking Ability Test (MDYT)" was prepared by Tobin & Capie (1981) and contains 10 questions in order to determine the thinking abilities of the students in the research sample; A test was applied that measures the skills of defining and controlling variables, establishing proportionality, developing relationships, calculating probability and combining. The Logical Thinking Ability Test (MDYT), Geban et al. (1992) translated to Turkish. The reliability coefficient of MDYT was calculated as .77. At the stage of determining the academic success of the students in the mathematics course, the grades of the students' first term mathematics exams were taken as a basis.

The tests were applied under the supervision of the teacher of the lesson in the mathematics lessons in which the students participated. In order to collect the data completely and to answer the inventory in order to serve the purpose of the research, informative studies were carried out by the researcher. The data obtained were analyzed using the SPSS 22.0 program in computer environment.

2.4. Data Analysis

The data obtained in line with the objectives of the study were transferred to the computer environment and analyzed using the SPSS 22.0 (Statistical Package for The Social Sciences) program in computer environment using statistical techniques according to the characteristics of the data. In the beginning, Kolmogorov-Smirnov test and Shapiro-Wilk test were applied separately for each scale in order to understand whether the data showed normal distribution or not. The value found as a result of this test ($p < .05$) was found to be that the data showed normal distribution during the study phase and in this context, it was deemed appropriate to analyze it with parametric analysis methods.

Correlation analysis technique was used to determine whether there was a relationship between variables in the study. Pearson product-moment correlation studies are a technique used to describe the relationships between variables (Kaptan, 1998). If the Pearson moments correlation coefficient is close to 1.00 or 1.00, this positively correlates; Being close to -1.00 or -1.00 indicates a negative relationship; A value of 0.00 reveals that there is no relationship. Although there are no standard intervals for interpreting the Pearson product-moment correlation coefficient in terms of magnitude, the following limits are mostly used to interpret the correlation: Pearson's product-moment correlation coefficient is in the range of 0.70– 1.00 as an absolute value; It should be in the range of 0.70-0.30; The fact that it is in the range of 0.30-0.00 can be explained as a low level relationship (Büyüköztürk, 2002).

In addition, multivariate regression analysis technique was used to determine to what extent metacognitive awareness and logical thinking skills predicted academic achievement in mathematics course. Regression analysis refers to the process of explaining the correlation between two or more variables with a mathematical equation, one being the dependent variable and the others being the independent variable (Büyüköztürk et al., 2010).

3. Findings

In this section, problem statements, null hypotheses and alternative hypotheses are restated. Null hypotheses have been tested according to appropriate analysis techniques, and the findings and interpretations obtained by testing the hypotheses are included.

3.1. Normality Test Analysis Results of Data

Here, before proceeding with the hypothesis tests, it was investigated whether the data per group show normal distribution or not. Hypothesis tests all have various assumptions. The common assumption of all of the parametric tests (t-test, ANOVA, ANCOVA) is that the data distribution per group should be normal. In addition to this assumption, each hypothesis test has its own assumptions. Middle school students' Metacognitive Awareness Inventory (PPI) scores, Logical Thinking Ability Test (MDYT) scores and Academic Achievement (MDAB) scores in Mathematics Course were tested with normality test Kolmogorov-Smirnov test and Shapiro-Wilk test. If the group size was over 50, Kolmogorov-Smirnov test was used, while Shapiro-Wilk test was used if it was below 50 and 50. Normality test results are given in table 1.

Table 1: Kolmogorov-Smirnov and Shapiro-Wilk normality test results for PPI, MDYT, and MDAB data of secondary school students

	Kolmogorov-Smirnov			Shapiro-Wilk		
	KS	df	P	SW	df	P
PPI	.065	120	.200	.964	120	.003
MDYT	.097	120	.008	.960	120	.001
MDAB	.123	120	.000	.947	120	.000

As seen in Table 1, the results of the Kolmogorov-Smirnov test show a normal distribution of PPI [$BH(120) = 0.065$, $p = .200 > .05$] of the sample. However, it was observed that MDYT [$KS(120) = 0.097$, $p = .008 < .05$] and MDAB [$KS(120) = 0.123$, $p = .000 < .05$] did not show normal distribution. However, if the sample size is 30 and above, normality assumption can be neglected. In this study, the sample size is 120, which is considerably larger than 30. As a result, although the results of the Kolmogorov-Smirnov test showed that there was no normal distribution for MDYT and MDAB data, since the sample size was over 30 ($N = 120$), it was accepted that the data were normally distributed and it was decided to analyze the data with parametric tests. The results of Anova and t-test normality tests for PPI, MDYT and MDAB data of middle school students on the basis of classes and gender are also given in table 2 and table 3. Comments for table 1 can also be made for table 2 and table 3.

Table 2: Anova test analysis results for PPI, MDYT, and MDAB data of middle school students on the basis of classes

	Class	N	Average	Std. Deviation	f	p	Difference
PPI	5	30	112.93	15.77	3.45	0.019	7-8
	6	30	115.67	14.62			
	7	30	121.27	12.55			
	8	30	109.17	16.81			
	Total	120	114.76	15.48			
MDYT	5	30	3.10	2.20	21.27	0.00	5-6,7,8; 7-8
	6	30	6.33	2.02			
	7	30	5.67	2.12			
	8	30	7.60	2.61			
	Total	120	5.68	2.77			
MDAB	5	30	70.33	19.31	1.60	1.93	
	6	30	77.07	19.08			
	7	30	74.50	12.84			
	8	30	79.87	18.13			
	Total	120	75.44	17.67			

Table 3: T-test analysis results for PPI, MDYT and MDAB data of secondary school students on the basis of gender

	Gender	N	Average	Std. Deviation	Std. Error	t	p
PPI	Female	50	116.76	2.66	.38	1.20	.23
	Male	70	113.33	2.77	.33	1.15	.25
MDYT	Female	50	6.30	17.66	2.50	2.12	.04
	Male	70	5.23	13.66	1.63	2.14	.04
MDAB	Female	50	77.10	17.95	2.54	.87	.39
	Male	70	74.26	17.50	2.09	.86	.39

As a result, it was decided to test the PPI, MDYT and MDAB data of all groups with parametric tests.

3.2 Findings Regarding the First Sub-Problem

First Sub-Problem: Is there a significant relationship between metacognitive awareness inventory scores and logical thinking skills test scores of students at all grades (5, 6, 7 and 8 grades) in secondary school?

To solve this sub-problem, the correlation between middle school students' metacognitive awareness scores (PPI) and logical thinking skills test (MDBT) scores was investigated. For this, the null hypothesis was tested with the Pearson Correlation analysis technique.

3.2.1. Testing the First Sub-Problem

Null Hypothesis 1: H01: There is no significant relationship between Middle School students' Metacognitive Awareness Scores (PPI) and Logical Thinking Skills Test (MDBT) Scores.

H01: $p = 0$

Null hypothesis 1 was tested with the Pearson correlation analysis technique. Pearson correlation analysis results showed that there was a significant relationship between middle school students' PPI scores and MDBT scores at the 0.01 significance level, and according to this result, the null hypothesis 1 was rejected, $r(N = 120) = 0.176$, $p = .000 < .01$. This relationship is a positive and moderate relationship. According to this result, it can be said that there is a significant relationship between metacognitive awareness scores and logical thinking skills scores of middle school students.

Table 4: Pearson correlation analysis results of middle school students' MDAB, MDYT and PPI

		MDAB	MDYT	PPI
MDAB	Pearson Correlation	1	.644**	.229*
	Sig. (2-tailed)		.000	.012
	N	120	120	120
MDYT	Pearson Correlation	.644**	1	.176
	Sig. (2-tailed)	.000		.054
	N	120	120	120
PPI	Pearson Correlation	.229*	.176	1
	Sig. (2-tailed)	.012	.054	
	N	120	120	120

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

3.3 Findings Regarding the Second Sub-Problem

Second Sub-Problem: Is there a significant relationship between Middle School Students' Metacognitive Awareness scores and their academic achievement scores in mathematics lesson?

In order to answer this sub-problem, the correlation between the Metacognitive Awareness Scores of middle school students and their academic achievement in the Mathematics course was investigated. For this, the null hypothesis was tested with the Pearson Correlation analysis technique.

3.3.1 Testing the Second Sub-Problem

Null Hypothesis 2: H02: There is no significant relationship between Middle School Students' PPI scores and MDAB scores.

H02: $p = 0$

Null hypothesis 2 was tested with the Pearson correlation analysis technique. Pearson correlation analysis results showed that there was a significant relationship between the PPI scores of middle school students and MDAB scores at the 0.01 significance level, and according to this result, the null hypothesis 2 was rejected, $r (N = 120) = 0.229$, $p = .000 < .01$. This relationship is a positive and moderate relationship. According to this result, it can be said that there is a significant relationship between metacognitive awareness scores and academic achievement scores of middle school students.

3.4 Findings Regarding the Third Sub-Problem

Third Sub-Problem: Is there a significant relationship between the logical thinking ability scores of middle school students and their academic achievement scores?

In order to find an answer to this question, the correlation between the Logical Thinking Skills Test (MDBT) scores of pre-service science teachers and their Academic Achievement in Mathematics Course (MDAB) scores was investigated. For this, the null hypothesis was tested with the Pearson correlation analysis technique.

3.4.1 Testing the Third Sub-Problem

Null Hypothesis 3: H03: There is no significant correlation between MDYT scores and MDAB scores of middle school students.

H03: $p = 0$

Null hypothesis 3 was tested with the Pearson correlation analysis technique. Pearson correlation analysis results showed that there was a significant relationship between MDYT scores and MDAB scores of middle school students at the significance level of 0.01, and according to this result, the null hypothesis 3 was rejected, $r (N = 120) = 0.644$, $p = .000 < .01$. This relationship is a positive and high level relationship. According to this result, it can be said that there is a significant relationship between the logical thinking skills scores of middle school students and their academic achievement scores in the mathematics course.

4. Discussion, Conclusion, and Suggestions

4.1 Discussion

According to the results obtained from studies on metacognition, a significant relationship was found between metacognition and problem solving success. In addition, providing students with metacognitive and logical thinking skills increased the problem solving success in mathematics lesson. When qualitative studies on metacognition and problem solving were examined, it was determined that in most of these studies, metacognitive skills exhibited only in the problem solving process for mathematics were dealt with a limited number of samples. In qualitative research, unlike quantitative research, the sample is not large enough to represent the universe, so the results of such studies do not allow to reflect the general situation and make

analytical generalization. When quantitative studies on metacognition and problem solving are examined, it is seen that the relationship between these two concepts is determined using only correlation analysis. Such an analysis does not allow for deeper interpretations beyond revealing the strength of the relationship between variables. In this context, there is a need to use stronger statistics that allow the relationships between variables to be examined. In addition, when the studies in the literature are examined, it is seen that the number of studies dealing with the concept of metacognitive awareness in any course is quite limited. As a matter of fact, these studies try to examine the metacognitive awareness levels of students in general without any lesson-based. Unlike the studies in the literature, the relationship between metacognitive awareness and problem solving skill perception was evaluated within the scope of the mathematics course. In this study conducted at secondary school level, students' mathematical metacognitive awareness and perceptions of general problem solving skills were determined. The current study differs from the relevant studies in the literature in all aspects and also in terms of data analysis method. Based on this, the aim of this study was to determine the effect of middle school students' metacognitive awareness and logical thinking skills on academic achievement in mathematics lesson.

4.2 Conclusion

The problem solved in the study is as follows: "Do middle school students' metacognitive awareness and logical thinking skills have an effect on academic achievement in mathematics lesson?" in the form. The first of the sub-problems that need to be answered while seeking answers to this problem is, "Is there a significant relationship between the metacognitive awareness inventory (PPI) scores and the logical thinking skills test (MDYT) scores of students at all grade levels (5th, 6th, 7th and 8th grades) in secondary school?" As a result of the analysis performed to find an answer to this sub-problem, it was revealed that there was a positive significant relationship between middle school students' metacognitive awareness and logical thinking ability.

The second sub-problem of the study, "Is there a significant relationship between middle school students' metacognitive awareness inventory (PPI) scores and their academic achievement (MDAB) scores in mathematics class?" It was noted as. As a result of the analysis, it was determined that there is a moderately significant positive correlation between the metacognitive awareness scores and academic achievement scores of middle school students. When the studies on the subject are examined, studies supporting this result are encountered. Bağçeci et al. (2011) found a positive significant relationship between students' metacognitive awareness and their success in the SBS central exam, and it was found that there was a positive significant relationship between students' metacognitive awareness and year-end grade averages. According to the results obtained in the study, it can be said that metacognitive awareness is a positive predictor of course success. Gürşimşek et al. (2009) stated that students with high metacognitive awareness have a more comprehensive problem-solving understanding than students with low metacognitive awareness. As it is known, problem solving ability is one of the high level mental skills and is very important for learning. Considering that students with a high level of metacognitive awareness have a more positive understanding of problem solving, it can be stated that they may be more advanced in terms of course success. Young & Fry (2008) examined the relationship between the metacognitive awareness of university students and their academic success in their study and found similar findings. According to Young & Fry (2008), it has determined that there is a positive significant relationship between academic achievement and metacognitive awareness of university students. In addition, Coutinho (2007) conducted correlation and regression analysis in his research with 179 undergraduate students at Midwestern University and found that metacognitive awareness was related to academic achievement.

The third sub-problem of the study, "Is there a significant relationship between the logical thinking skills test (MDYT) scores of middle school students and their academic achievement (MDAB) scores in the mathematics course?" expressed in the form. According to the findings, there was a significantly and positively high level of relationship between the logical thinking ability scores of middle school students and their academic achievement scores. Kıncal and Yazgan (2010) obtained similar results in their study on primary and secondary school students and found a significant relationship between logical thinking and course success.

4.3. Suggestions

Within the framework of the teacher training and program, we can work in cooperation with the Ministry of National Education and our universities to determine and develop individuals' metacognitive awareness and logical thinking skills in order to ensure that the future generations of teacher candidates studying in Education Faculties at our universities have metacognitive skills. In addition, seminars and trainings can be given by experts in this field in public education centers and meeting halls within the scope of non-formal education of our teachers who are currently working as teachers. Metacognitive awareness and logical thinking skills, which have an effect on the academic success of teacher candidates studying at education faculties at universities, can be developed and exams that measure the development level of these skills can be applied by taking these skills into the acquisition.

New acquisitions can be prepared for students who are found to have low metacognitive awareness and logical thinking ability levels of our current teachers who have passed or have passed the trainings provided within the framework of the new principles, and new exams can be applied to students to experience success by examining these skills in terms of gender factor and supporting the group with a low level.

Courses including cognition, metacognition and logical thinking skills can be taught in educational programs of universities. Considering the practical studies, the effect of metacognitive awareness and logical thinking skills on learning can be investigated.

By organizing plans, programs and activities aimed at improving metacognitive awareness, their effect on the learning and teaching process can be investigated. However, lesson tools and materials that support the development of metacognitive skills and metacognitive awareness can be included in the curriculum.

Considering the effects of logical thinking skills and metacognitive awareness in achieving academic success, these skills can be included in learning environments.

In the light of the researches, teaching strategies that are thought to be effective in differentiating the level of metacognitive awareness and logical thinking ability according to the class level variable can be developed and integrated by examining in-class teaching methods and techniques.

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The Effects of High School Principals on Student Achievement

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Abstract

With this study, it was tried to reveal which leadership characteristics of school principals are effective in ensuring and increasing students' academic, cultural and sportive school success and the effects of these characteristics on student development. There are many factors and reasons for students to be successful not only in the academic field but also in the field of culture and arts, and school principals are perhaps the most important of these factors and reasons. The influence and importance of the principal cannot be overlooked in the efforts of teachers, students, staff and even parents in a school to work on the success of the students. The school principal can influence the stakeholders in his school with the work he has done and fulfills an important role in ensuring the success of the students in these effects. Teachers and students who are in the school to realize the learning can achieve significant success in learning thanks to the leadership qualities of the school principal. The characteristics of school principals as leaders may vary, but it is possible to say that all leadership qualities are united in the provision of successful education and training, which is the aim of the school.

Keywords: Principal, Academic Success, High School, School Culture

1. Introduction

The purpose of the existence of schools is to prepare students for life and to give absolutely successful graduates. The success of a school and school principal can only be measured by the success of its students. If the students are successful, the school and school principal are considered successful, and if the students are unsuccessful, the school and school principal are considered unsuccessful. However, Glasser (1999) states that children who come to school do not fail, learn about failure at school, and that the label of failure is affixed to the child at school. While schools should raise successful individuals, teaching failure to students is a problem. Therefore, in the twenty-first century, the place, importance and influence of the school in social life have been questioned

frequently by almost everyone. The Western world, which has entered into a rapid schooling process with the industrial revolution, today, instead of gathering students in a single building and teaching lessons such as collective rituals, distance education, e-content, educational technologies, etc.

Teachers and students who are in school to realize learning can achieve significant success in learning thanks to the leadership qualities of the school principal. The characteristics of school principals as leaders may vary, but it is possible to say that all leadership characteristics are united in the success of the school's aim of education and teaching. There are different applications in the world in the training and appointment of school principals with the characteristics of school principals.

Turkey in terms of training and cultivating professional managers in the world and the professionalization of management education has become widespread enough throughout the world. The USA has a wealth of knowledge and experience in the policy of training managers in the world. In our country, no serious policy has been produced in the training of educational administrators. Education administrators have been trained through in-service training. The extent to which the efficiency obtained in the in-service training activities carried out in this way is reflected in the field emerges as an important problem. In the historical process, the question of what should be the source of information in the training of educational administrators has been a matter of discussion. This debate continues today. The tension between technical knowledge and applied knowledge in the training of educational administrators has not been eliminated. (Forsyth and Murphy, 1999).

Today, it is seen that the technical knowledge produced in the field of education management is not well reflected in the application. Topics such as total quality management, learning organization, chaos management and strategic management are business-oriented information, and how this information will reflect on applied knowledge in the field of education management is a pending problem. For example; The strategic plan applied by the Ministry of National Education to schools is 5 years, but the term of office of school principals is 4 years and the strategic plan studies, which are never possible to be implemented, remain only on the paper and the school strategic plan reports are requested statistically by the district national education every 6 months and the district It has been observed that the data collected by the national education directorate are sent to the ministry in the provincial national education and after, and the reports in the annual bulletins never reflect the truth. For this reason, the inability to collect healthy statistical data and the incorrect reflection of these data on the field causes the determination of an incorrect roadmap in the studies to be prepared for effective projects and student development. The effect of school administrators on the success of educational activities in schools is an undeniable fact. The school administrator who wants to be effective in a positive way; They should take care to be a person who is responsible, takes effective decisions, is respected by the environment and is modeled (Drucker, 1996, p.54). In addition to these, it can be stated that the school administrator who follows the developments in his field, is flexible, takes his decisions on time, is consistent and fulfills his promises, is more successful in administration (James & Fleet, 1998, p. 93). On the other hand, it can be argued that people who take their power from their office are insufficient to create a positive atmosphere in their schools (Mutlu, 1995, p.9). In addition, school administrators who want to be successful must have effective communication skills (Gordon, 1999, p.5). Because it is the duty of the leader of the school to gather people around common goals, to motivate and to encourage them (Mimir, 2008, p. 4). When evaluated in terms of our education system, the duties, powers and responsibilities of principals in the regulations of the Ministry of National Education, education and training that is primarily responsible for the effective and efficient use of all resources, management and representation in order to achieve the goals of the school for the general purposes specified in the basic goals and principles of national education. They are depicted as leaders. In this context, the principals of the school

2. Method

Experienced school administrators in school management also contribute to having the competencies required to transfer their experiences to other school administrators. The leaders of the schools are undoubtedly the principals. Researches also reveal that students' perceptions of the principal have been shaped starting from the primary school level and that primary school students' perceptions of principals are mostly positive in painting

studies. It was determined that primary school 2nd and 3rd grade students emphasized the principal's professional competencies and 1st and 4th grade students' personal characteristics. Students call the school principal; They see them as a loving, kind, helpful and kindhearted person who spends time with students, communicates with them. This result of the research is similar to the studies of Cerit, (2008), Demirbaş and Alabay, (2017), Turhan and Yaraş (2013), Lum, (1997), Balcı, (1999), Aydoğdu, (2008), Yıldırım and It differs from the studies of Uğur, (2011), Yalçın and Erginer (2012, 2014). It is seen that the drawings of the students during the processes in which they are in contact with the principal are usually portrayed outside the school or in the garden.

Differently from this study, Tüzel and Şahin (2014) concluded in their study that the most depicted place for the school principal is the executive room. In the study, it is seen that most of the students in the school draw the school principal as a male. Although the majority of the participants are female students, it is thought that this is due to the fact that the principal at the school is male. When the school principal perceptions of primary school first grade students were examined, it was concluded that the principals drawn in the school were portrayed more and the professional characteristics of these principals were also emphasized. It was determined that the directors who were associated with their professional characteristics were portrayed while giving speeches to them at the National Anthem ceremonies. Similarly, in the study conducted by Tüzel and Şahin (2014), it was concluded that the students saw the figure of the school principal in the ceremonies where they addressed the students collectively. Students 2075 | ESMER & GÜNEŞ It was observed that the drawings of primary school students and the pictures about the verbal communication of the school principal were mostly portrayed in a dialogue with the principals, in a way that they were interested in them. Marzano, Waters, and McNulty (2005) point out that effective school principals can communicate effectively with students and teachers, and this communication increases students' academic success. The principals who communicate with them anywhere in the school and take part in the ceremonies point out that they will help the students to form a school identity, to feel valuable and to develop positive feelings towards the school. Another remarkable factor in the illustrations is that 1st grade students see their principals as an authority. New students' perception of the principal as an authority may negatively affect the attitude towards the school and the school principal. When the perceptions of primary school sophomore students are examined, it is seen that these students perceive the school principal as “the person who spends time together- the person who communicates verbally with them.”

In their drawings, it was seen that the school principals drew the school principals while they were teaching themselves something in the school, while talking to them in different parts of the school. This situation shows that the principal tries to act as an educational leader and gives importance to student interaction. In the study conducted by Demirbaş and Alabay (2017), it was concluded that students perceive school principals as participating in the educational process at high rates. In the pictures of the students, the principal with a sense of humor by caricaturing the principal who has a funny and humorous sense of humor is quite striking. Similar to this result, in the study conducted by Yıldırım and Uğur (2011), it was concluded that the students wanted a principal who did not get angry, shouted, friendly, smiling, resorted to violence or was violent. It is seen that primary school 3rd grade students' perceptions of school principals focus on the effective and transformative feature of the school. When the drawings of the students regarding this situation are examined, it is seen that the school garden should have parks and entertainment areas. Like 1st grade students, 3rd grade students also portray the school principal as an authority in their drawings. This result is in line with the studies (Balcı, 1999; Aydoğdu, 2008; Cerit, 2008; Yıldırım & Uğur, 2011; Yalçın & Erginer, 2012; Demirbaş & Alabay, 2017). In the study, it was concluded that the school principal was seen by the students as the authority and the person who runs the school. Another important result is that the school principal is portrayed as someone who maintains order in the school in the pictures of his students. In these illustrations, it is seen that the students hold the school principal responsible for the activities that are or may take place in their schools. It is seen that primary school 4th grade students' perceptions of school principal differ slightly from other classes. This difference focuses on the personal characteristics of the school principal. Students drew the principal of the school as a loving and kindhearted person in their pictures. Another noteworthy factor is that the school principal is also portrayed as someone who is tolerant, helps students and behaves well. Yalçın and Erginer (2014) concluded that the feature of being an element of love is one of the most drawn principal characteristics in their studies. The loving, kindhearted principal can help students develop a positive identity towards the school. Contrary to the result obtained

from the research, it is seen that in the study conducted by Tüzel and Şahin (2014), students are portrayed as negative situations such as being punished by the school principal or the school principal angry with the student. Golomb (2004) defines the human figure in children's drawings as the most informative element in terms of the child's cognitive development. In other words, as the child matures and develops cognitively, he thinks that he develops from simple representations in drawings to complex pictures. During the research process, it was observed that student drawings follow a developmental process. While 1st grade students drew the principal out of school and as authoritative, 2nd grade students made drawings of the principal outside the school and on the communication skills of the school principal. When the pictures of the 3rd grade primary school students are examined, it is seen that the pictures are different from the other classes, and the principal is drawn as an entertaining person and the owner of the school. In the drawings of the 4th grade students, it is seen that, unlike the other classes, the school principal draws his students as a thinker. Children's drawings not only develop pictorial development but also make sense of the society they live in and the individual's self 2076 | ESMER & GÜNEŞ When it is thought that primary school students influence the school principal with their drawings (Cherney, Seiwert, Dickey, & Flichtbeil, 2006), children's drawings provide us with clues about the perceived principal, school culture and management style. This study was carried out in a school where the male principal was a role model. Studies to be conducted in schools where female principals are role models can also be analyzed and their similarities and differences can be analyzed.

In the study, it was concluded that the professional, personal and communication characteristics of school principals are more prominent and the educational leadership behaviors expected from school principals are not sufficiently demonstrated. Based on this and similar research findings, it is recommended that both school administrations and official institutions take measures to improve students' and society's perception of school principals. In interviews with high school students about the type and quality of classroom observation behavior, how often the principal visits the classes, the time they devote to student observations, and the conversion of high and low perceptions of the principal to the behavior in the interviews with the students affect the student's learning. The transfer of only the disciplinary events and the interviews about the school discipline to the class during the classroom visits of the principals from the student interviews led to a punitive management perception of the principal. The perception of this management practice has little effect on the student. However, after class visits (it should be a 40-minute visit), principals who help students individually have a positive effect on both behavioral and academic development of the student, as they take the view of an instructive model directly over the student. It is also possible for school principals to make a high impact by conducting small group meetings as well as class visits, so that principals not only often give advice, but also kindly correct their mistakes, praise and encourage them. The presence of interactive principals who "know them" and "control their work" per student make their school more fun for students. The twenty-first century has been the century in which the boundaries between countries, societies and cultures have disappeared, interaction has been carried to the highest level, and the change in economic, political and social level, cultural life and technological structure has been the fastest and most rapid (Erdoğan, 2002). Therefore, it is an inevitable reality that the rapid change in values and expectations causes changes in the perception of professional roles. Various changes have occurred in the occupational system due to reasons such as the replacement of human labor by machines, technological developments, internet, and financial concerns (İlhan, 2015). Accordingly, the authorities and expectations of individuals working in various occupational groups and positions changed (Cascio & Montealegre, 2016) This situation was reflected in the role definitions of the stakeholders in the field of education and their expectations (Le Cornu, 2010). For example, while students' academic achievement in basic courses was taken as a criterion for success, nowadays students can write and speak the languages that are common in the world global awareness, financial-economic-entrepreneurial literacy, having knowledge of citizenship, being environmentally sensitive, creative thinking, teamwork. (Bellanca, 2010; Chu, Reynolds, Tavares, Notari, & Lee, 2017; Greenhill, 2009; National Education Association, 2012). Training employees are expected to provide training environments that will naturally enable learners to gain these skills and to be role models for them. From the student's point of view, it is seen that the principal's role model phenomenon starts with the student's step into the school. The concept of principal, which started to take shape on the basis of students from the primary school level, matures from the secondary school level and takes the form of a role model from the high school period. In a sense, high school principals contribute to students' professional, academic, cultural and social student development with their vision.

For the expected change for teachers, it should start with a change for principals. The principal, who is like the conductor, should organize the teachers and students as if the different instrumentals are conducting and motivate all voices to be one common voice. As stated by Turan (2007), the school administrator in successful schools is not only an administrator, but also an orchestra conductor who organizes school activities and designs the future of individuals and society together with their employees. Thus, the school administrator gains many skills in managing and becomes experienced in management business. Over the past century, it has been found sufficient that effective school principals often deal with more technical issues, such as maintaining order, dealing with staffing issues, dealing with school spending, and ensuring school security. However, it has now been demonstrated that school principals have a critical role in teaching and improving learning, and that they must serve as leaders for students' learning and the effectiveness of education (Institute for Educational Leadership [IEL], 2000). Today, as instructional leaders, principals have a mission to lead learning, focus on teaching and learning, support leadership of other stakeholders, create environments and opportunities that support professional development, base decision-making on data, and use resources creatively (King, 2002). The school principal, who carries these missions within his body, should shine a light around him, not just his bottom like a candle, and be a guide with these lights.

Helvacı and Aydoğan (2011) conducted one of the studies on the areas in which school administrators affect school success according to teachers' opinions. In this study, it was determined that the characteristics of the effective school are gathered under four main headings: education process, school-environment relationship, school climate-culture, and school-parent-parent relationship. In addition, it was determined that the characteristics of effective school principals are grouped under two main themes: leadership characteristics and task-responsibility. The main features under the education process theme are; conducting education and training as a whole; to be successful in social, cultural and sports fields; to be effective in education and to give importance to quality; to be successful in education, student-centered education; using and following technology in teaching. The main features under the theme of school-environment relationship are its ability to raise citizens who are beneficial to society; it can make its weight felt in the society and cause change; be in harmony with its environment, gaining the admiration of the society and being searched in the society; It is to give importance to the relationship between the school and the environment. The main features under the theme of school climate and culture are being disciplined; peace and happiness of students and teachers; having a healthy communication between teachers, which is compatible. The main features under the theme of school-parent relationship are the importance of school-family unity; teacher-parent relationship in the best way possible. The main characteristics under the theme of leadership qualities, one of the effective principal characteristics, are that he attaches importance to equality and justice; establishing good relations with its staff; to be consistent and stable; understanding and empathy; being a guiding leader; being open to developments, producing suggestions and solutions; be sensitive to problems; defending the rights of its staff; to be physically smooth and well-groomed; knowing how to behave to students and teachers Mehmet Akif Ersoy University Faculty of Education Journal ISSN: 1302-8944 Year: 2017 Issue: 43 Page: 93-109 96. The main characteristics of the principal under the task-responsibility theme are that they fulfill their responsibilities in the best way; act in accordance with legislation, regulations and rules; To be experienced and knowledgeable in the field; It is seen that it organizes social activities in the best way (Helvacı & Aydoğan, 2011).

It has been determined that one of the variables related to student achievement is school culture (Demirtaş, 2010b) and that there is a significant relationship between student achievement and school culture's collaborative leadership, teacher collaboration, and goal unity (Demirtaş, 2010'a). It is necessary for school administrators to establish and maintain positive communication with school stakeholders in order to positively affect their educational situation and to produce solutions to many educational problems (Kowalski, McCord, Petersen, Young, & Ellerson, 2010). In another study, it was found that school principals feel most responsible for humanitarian and material issues at school, have some problems with stakeholders and material issues, and are uncertain about whether administratorship should be a profession or a duty. At the same time, the participants stated that a school principal should be open to communication, patient, fair, having pedagogy and management knowledge, and having teaching experience (Turan, Yıldırım, & Aydoğdu, 2012). Student success is one of the output variables of the school system. This variable can be defined as internal-external or objective-subjective (Ergen, 2013). One of the factors affecting student success is the quality of the teacher as well as the quality of

the school principal. There are many studies showing that teacher quality affects student achievement (Akbaba Altun, 2009; Bedi & Marshall, 1999; Darling-Hammond, 2000; Nunn, 2014; Rivkin, Hanushek, & Kain, 2005). In order to increase the effectiveness of the education and training process in the classroom, the teacher should be responsible, attend the lessons prepared, support the education process by using different methods and techniques, increase the permanence of learning and motivate the student. Another determinant variable affecting the success of schools in the establishment of a school culture based on cooperation. Therefore, one of the most important roles of school principals is to build school culture. The school administrator can develop the school culture by using a number of strategies (Campoo, 1993). Many successful principals have created and supported a range of knowledgeable and experienced commissions to make decisions towards enhancing student learning. Working collaboratively, these committees consist of teachers, parents, and students, and have undertaken leadership roles (Jacobson, Johnson, Ylimaki, & Giles, 2005). The high level of social capital of schools, which has dimensions such as trust, values, social networks and participation, is also important for increasing school success (Gündüz & Ergen, 2014). One of the variables that positively affects success is that schools have sufficient physical infrastructure (Akbaba Altun & Çakan, 2008, Önder, 2016). Physical facilities and equipment of schools are among the indicators that negatively affect the quality of education and cause performance differences between schools (Önder, 2016). School administrators have a great contribution to improving the physical infrastructure of schools. In another study conducted on organizational variables that determine effective schools, variables determining success; school management, managerial leadership, employee stability (stability), employee development, family interest and support, allocating sufficient time for learning, and community support (Cole-Henderson, 2000). The instructional leadership of the principal also indirectly affects student achievement through academic pressure (Alig-Mielcarek, 2003). School administrator is one of the most important determinants of successful or unsuccessful continuation of the functioning in schools. School administrators have important roles in reducing the differences in success between schools. For this reason, it is emphasized that it is not enough to appoint principals based on the teaching profession and according to exam scores after a certain seniority in the profession. School administrators should be trained in different fields (Önder & Güçlü, 2014).

Likewise, many research results revealed that school principals have a significant influence on the improvement of the school and student achievement (Andrews & Soder, 1987; Hallinger & Heck, 1996; Lashway, 2003; Marzano, Waters, & McNulty, 2005). Helvacı and Aydoğan (2011) conducted one of the studies on the areas in which school administrators affect school success according to teachers' opinions. In this study, it was determined that the characteristics of the effective school are gathered under four main headings: education process, school-environment relationship, school climate-culture, and school-parent-parent relationship. In addition, it was determined that the characteristics of effective school principals are grouped under two main themes: leadership characteristics and task-responsibility. The main features under the education process theme are; conducting education and training as a whole; to be successful in social, cultural and sports fields; to be effective in education and giving importance to quality; success in education; student-centered education; using and following technology in teaching. The main features under the theme of school-environment relationship are its ability to raise citizens who are beneficial to society; it can make its weight felt in the society and cause change; be in harmony with its environment, gaining the admiration of the society and being searched in the society; It is to give importance to the relationship between the school and the environment. The main features under the theme of school climate and culture are being disciplined; peace and happiness of students and teachers; having a healthy communication between teachers, which is compatible. The main features under the theme of school-parent relationship are the importance of school-family unity; teacher-parent relationship in the best way possible. The main characteristics under the theme of leadership qualities, one of the effective principal characteristics, are that he attaches importance to equality and justice; establishing good relations with its staff; to be consistent and stable; understanding and empathy; being a guiding leader; being open to developments, producing suggestions and solutions; be sensitive to problems; defending the rights of its staff; to be physically smooth and well-groomed; knowing how to behave to students and teachers Mehmet Akif Ersoy University Faculty of Education Journal ISSN: 1302-8944 Year: 2017 Issue: 43 Page: 93-109 96. The main characteristics of the principal under the task-responsibility theme are that they fulfill their responsibilities in the best way; act in accordance with legislation, regulations and rules; To be experienced and knowledgeable in the field; It is seen that it organizes social activities in the best way (Helvacı & Aydoğan, 2011). It has been determined that

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The instructional leader is someone who communicates the mission of the school to the staff, parents and students in an effective and determined manner, understands and implements the features of instructional effectiveness in the management of the curriculum (Lezotte, 2001). According to Levine and Lezotte (1990), an effective instructional leader exhibits excellence in four behaviors or activities: defines and communicates the school's vision, manages the program and teaching, monitors student development, and develops a supportive work environment. Şişman (2002), by examining the studies conducted on the instructional leadership behavior of school principals (De Bevoise, 1984; Daresh & Ching-Jen, 1985; Hallinger & Murphy, 1985; Reed & Others, 1988; Heck & Others, 1990; Krug, 1992) He categorized the instructional behaviors of the administrators under five headings consistent with the behaviors expressed by Levine and Lezotte: o Determining and sharing the school goals: The school principal must first lead the definition of the school's goals by determining the vision and mission of the school. The important goals of the school should be constantly emphasized and explained in discussions with students, teachers and families. Aslantaş and Özkan (2014) also determined in their research, according to the ranking of teachers and administrators, the most important feature that an effective school administrator should have as "ensuring the formation of a common goal." Management of the curriculum and teaching process: The necessary conditions and maximum learning opportunities should be prepared for the successful implementation of the program, which is one of the main inputs of the school. In successful schools, the principal plays an important role in the planning, implementation and coordination of the program. Cotton (2000) states that an effective administrator manages the program and teaching by constantly appearing at the school. The program of the manager, Pamukkale University Journal of Social Sciences Institute, Issue 26, January 2017, F. Çobanoğlu, Y. Another way Badavan manages teaching is through classroom observations. Togneri (2003) states that as effective administrators observe classroom teaching, they give teachers non-evaluation-free feedback to enrich teaching. Hallinger & Heck (1996) analyzed studies on school effectiveness and found that administrators indirectly affect students' achievement through teaching quality. Teaching process and assessment of students:

This dimension includes actions such as supervision of teaching, evaluation of programs, monitoring and evaluation of student development. The school principal should discuss the teaching process and the results obtained from the evaluation of the students with the school staff and provide the necessary feedback. The results should be used to determine the level of achievement of the school and program and to set new goals. Cotton (2000) argues that, as instructional leaders, administrators need to lead the school's efforts to collect, analyze, and discuss achievement data. According to Terry (1996), an effective manager is familiar with a wide range of assessment tools that monitor student development. Togneri (2003) states that an effective manager uses assessment data to shed light on his decisions and teaches and encourages the use of test data to his staff. o Support and development of teachers: One of the main responsibilities of the school principal is to contribute to the development of all individuals in the school in terms of professional skills. In addition, it also provides an opportunity for teachers to reflect the new knowledge and skills they have acquired in school. Another important role of the administrator in this dimension is to reward and recognize teachers for their various achievements. o Creating a regular teaching-learning environment and climate: School administrators have to create and maintain a positive teaching-learning environment and climate that will enable students and teachers to work willingly. Terry (1996) suggests that the administrator is responsible for creating a learning climate in his school and in every classroom. Ubben, Hughes, and Norris (2001) argue that an effective administrator manages, organizes and operates the school to develop a safe, efficient and effective learning environment. Marzano (2003) and

Pepperl and Lezotte (2004) agree with this idea, adding that administrators should convey the idea that teaching time is a sacred time and should only be interrupted in important situations.

3. Results

The most important success indicator for a school is undoubtedly the success of its students. The school is as successful as the success of its students. The principal of the school is undoubtedly responsible for the success of a student. In a school where there is no school principal or where it is run by proxy, students may still graduate and even win various schools and universities as a result of the exam, but this success will not be accidental or spread to the general. The principal must first formulate the educational philosophy of the school and put it into practice. Expecting a high level of success from students in a school without an educational philosophy can be a compelling expectation. A school that has revealed the reason for its existence with its educational philosophy has taken an important step in providing a suitable environment for students to be successful.

Studies on the roles of school principals show that the change in the roles of principals is mostly in the areas of authority establishment, responsibility, development of curriculum and practices, financial issues, staff assessment, establishment of school policies and decision participation. Today, schools are changing to a great extent and school principals are expected to exhibit different behaviors than before. The main goal of schools is to enable our current students to be successful in the global and international competitive economy (Brown, 1993). However, it is often stated that our schools are not sufficient to prepare their students in a way that is competent to survive in this global competitive environment (Murphy & Hallinger, 1992). For this reason, schools and school principals are faced with increasing social expectations for student achievement and learning quality (Hallinger, 1992; Leithwood, Day, Sammons, Hopkins and Harris, 2006). In an assessment on this subject, Grogan (2004) states that all efforts made in an environment where it is known that students do not receive a quality education are in vain. Based on this, Fullan (2002) states that leaders should make an effort to increase the success of each student in their schools. In this context, today schools are an important part of the analysis for improvement and school principals become the persons responsible for increasing student performance in line with these purposes. For this reason, in today's education systems, it is not enough for principals to place teachers in classrooms, to provide course materials and to ensure that students and teachers attend school. Based on all these changes and expectations, it can be said that the roles performed by the school principal today are very different and different from the traditional roles. If principals do not fulfill many new roles that have changed in addition to their teaching leadership role, they cannot train their students in the direction required by the information age. This situation may cause the position of the school in the society to be questioned again. Another issue is that there are different students in terms of ethnic, religious and economic status in schools due to economic, cultural, social developments, immigration, student mobility. Students with these different characteristics are able to carry their own problems to the school from time to time. For this reason, it is expected that the principal of the school will successfully manage the diversity and contribute to each individual student's achievement of the school's goals and their own goals.

4. Discussion

The main goal in the school is to realize the education in line with the determined goals. In this context, the principal has to ensure that all activities in the school are carried out in accordance with academic purposes. Therefore, in addition to their traditional roles, principals are expected to perform a new set of roles set out in this study. Principals need a deep professional knowledge and experience in order to fulfill the new roles they currently carry out and need to fulfill. For this reason, principals are now obliged to take more responsibility and adapt to change without being indifferent to what is happening around them. A rapid change and 86 Contemporary School Principals' Changing Roles... A. Balyer in this century of transformation. In other words, principals are expected to carry their schools to the mindset of the future. For this purpose, principals need to prepare the school community for new situations such as goals, priorities, financial conditions, staff, learning resources, assessment methods, use of technology, time and space (Levine, 2005; Foster, 2007; Salazar, 2007; NASSP, 2007). ; Usdan, 2000). In the current school systems, "command-command" type administrative practices do not make sense anymore, instead managerial practices that distribute authority, facilitate change

(faciliator) and adopt a constructivist approach are successful (Hale & Moorman, 2003). In addition, modern school principals need to be models in terms of curriculum, data-based decision making, change and developing different teaching strategies (Cooner et al., 2008). When all these are evaluated, school principals perform the roles of teaching leader, community leader, visionary leader, organizational architect, mentor, supporter, security expert, social worker, subject of change, supervisor, legal expert, time manager, program development expert, disciplinary figure and economist. However, the role and change in their environment should not result in the principals being completely bureaucratic and political people by leaving aside the instructional processes (Crow et al., 2002). Matters (2005) states that principals should learn to manage themselves before managing others, and the role of school principal should be reconsidered accordingly. According to him, the educational leadership roles of twenty-first century principals are expected to include a number of important elements such as vision development, leadership, learning society, and communication because, in general, their role has varied in the historical process and expanded beyond the school (Degenhardt, 2006). According to Schmoker (2005; Crow et al., 2000; Usdan, 2000), school principals are the most important elements in the education system, but considering their selection, training, appointment, in-service training situations and workloads, it is being evaluated. Therefore, directors should be selected, trained and appointed in line with international standards. In this process, it is recommended to reevaluate the election, training and appointment criteria of principals. For this purpose, it should be ensured that principals are trained in the education system of our country by establishing a university-ministry cooperation. In addition, the competencies of the current managers should be reviewed and it is thought that it would be beneficial to establish principal academies or centers in order to develop them through in-service training if their deficiencies are detected. In these academies, experts from universities and the ministry should be recruited to serve in principal training. Another issue is that deputy principal should be considered as a source of principal training.

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The Science Course-Focused Responsibility Scale Towards Primary School Students': Study of the Validity and Reliability

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Acknowledgement: This article is derived from Sevda Nur Açıkgöz's master thesis entitled "Developing science lesson-focused student responsibility scale and determining elementary school students' responsibility levels", conducted under the supervision Mutlu Pınar Demirci Güler.

Abstract

The research is a scale development research that aimed to develop a valid and reliable measurement tool that may determine the science course-focused student responsibility levels of primary school students. The research was carried out in three central districts in Kayseri province in the 2018-2019 academic year. The research' sample was made up of three different study groups and research was carried out with the participation of 870 students. The data of the first study group were used for the pilot application phase, the data of the second study group for the exploratory factor analysis (EFA), the data of the third study group for the confirmatory factor analysis (CFA). As a result of the validity-reliability analysis of the study by adopting a Likert-type scale development model, a 17-item scale structure with Cronbach Alpha internal consistency coefficient .87, consisting of 4 factors, was collected, which explains 50.83% of the total variance

Keywords: Science Course, Scale Development, Responsibility

1.Introduction

1.1 Introduce the Problem

Responsibility is an individual's choice-making for his personal or social life and undertaking the possible consequences of these choices (Douglass, 2001; Glasser, 2005). It directs individuals to undertake various duties

to protect the social life, peace, and security environment in which individuals live. This orientation stems from the sense of responsibility that individuals have.

The concept of responsibility, which is so effective in human life, is mainly examined under two headings as individual responsibility and social responsibility. While the aspect that looks at the personal life of the individual is considered as individual responsibility, the aspect facing his social life is considered as social responsibility (Berkowitz & Lutterman, 1968; Burke et al., 2001; Eraslan, 2011; Glasser, 2005; Özen, 2015).

The sense of responsibility, in the process of transforming the choices into action, contributes to the individual's self-knowledge, increase in self-control, and at the same time reach the awareness of being "We" in the society he/she lives in (Cüceloğlu, 2017; Glasser, 2005; Wubbolding, 2015). Individuals with a sense of responsibility are people with developed self-esteem, strong empathy skills, and compliance with social rules. Therefore, they cannot remain indifferent to environmental and social problems. They always feel ready to act to prevent and solve these problems (Ergül & Kurtuluş, 2014; Karagöz, 2013; Messina, 2004).

The awareness of individual and social responsibility is an indispensable element for maintaining order in every aspect of social life, including family life, friendship relations, educational activities, and the hierarchical order in management systems. It can be said that many military, political, social, economic, and ecological problems encountered in daily life stem from the failure to fulfil the responsibilities undertaken at the right place and time. For this reason, it is necessary to raise awareness of responsibility in making individuals sensitive to environmental and social problems (Aladağ, 2009; Hayta Önal, 2005; Tillman, 2000).

Responsibility is an awareness that individuals should gain by assigning tasks appropriate to their ages, developmental levels, and gender, starting from early childhood. Firstly family, then school life and social relations are crucial in the development of an awareness of responsibility (Cüceloğlu, 2017; Glasser, 2016; Luckner, 1994; Yavuzer, 1996).

Educational institutions are among the institutions that have direct responsibility and instill responsibility in terms of their functions (Demirci Güler & Açıkgöz, 2019). They contribute to individuals' learning the basic knowledge, skills, and values that they need to gain physical and mental well-being and to raise them as individuals who will carry society forward. In this respect, the school is important in the individual's self-realization and integration with society by meeting the academic and psychological needs of the individual during the development of various skills and attitudes (Maslow, 1954; Rothstein, 2000).

1.2 The Relationship Between Science Education and Responsibility

There is a parallel relationship between the development level of countries and the quality of education. According to the result of TIMSS (2019) and PISA (2018), it is seen that countries with the highest success rate are located among the high-level welfare countries. The education programs of these countries have a comprehensive and effectively planned science education process, and their goals are to raise science-literate individuals (Finnish National Agency for Education, 2020, Ontario Ministry of Education, 2007; Hong Kong/Education Bureau, 2017; Republic of Estonia/Ministry of Education and Research, 2014).

"A science literate person is one who can read and understand common media reports about science and technology, critically evaluate the information presented, and confidently engage in discussions and decision-making activities that involve science and technology" (Science Teachers' Association of Ontario, 2006: 1). With this purpose, science education aims to raise students as responsible citizens who respect the ecosystem and act with the awareness of sustainability. So special attention should be given to science education in raising responsible individuals who can produce information and technology (Ayas, 1995; Çepni et al., 2003; Matthews, 2017). In the study carried out for this purpose, the studies on responsibility scale (Altunok Çal & Yeşil (2019a; 2019b), Coles & Schofield (2008), Doğan (2014), Eraslan (2011), Filiz & Demirhan (2015), Golzar (2006), Gough, McClosky & Meehl (1952), Kaya & Doğan (2014), Özen & Gülaçtı (2011), Şahan (2011), Yeşil (2014; 2015) in the literature were examined, accepting that responsibility awareness is so important in the process of

raising science-literate individuals. When the researches were investigated, no study was found about developing a responsibility scale intended for the science course. Therefore, the research is expected to contribute to the literature.

1.3 The Aim of the Research

This research aimed to develop a data collection tool that may determine the science course focused student responsibility levels of primary school third and fourth-grade students.

2. Method

This research is a scale development study that aimed to develop the science course-focused student responsibility scale.

2.1 The Population and Sample

The population of the study has been determined as third and fourth-grade students in primary school which is in Kayseri in the 2018-2019 academic year. The research samples consisted of 870 students attending third, fourth grade levels, and 4th grade graduate in 3 central districts of Kayseri in 2018-2019 academic year. In determining the sample, the typical case sampling method and convenience sampling method was preferred. "The typical case sampling method is to collect information from this sample by determining a situation that is typical in many situations in the universe, related to the research situation" (Büyüköztürk et al., 2018:94). "Convenient sampling method, the sample is chosen from easily accessible and practicable units due to the limitations in terms of time, money and labor" (Büyüköztürk et al., 2018: 95).

The data collection tool of the research was developed in the fall semester of the 2018-2019 academic year. Therefore, as regards the reliability of the data, the research was carried out with 4th grade graduate students who have mastered the 3rd, and 4th-grade acquisitions and continue their education in three central districts in Kayseri. In this context, the data collected from 3rd, 4th-grade levels, and 4th-grade graduate students in the pilot application phase of the study were examined, and the data collected from 4th grade graduate students during the exploratory and confirmatory factor analysis process were used.

In the research sample of this study, which is made up of three different study groups, consists of 870 students in total. The first study group, which provided data for the pilot implementation phase of the study, consists of 32 third grade, 35 fourth grade, and 32 fourth grade graduate students and a total of 99 students. The second study group, which provides data for the exploratory factor analysis of the research, consists of 371 students. The third study group providing data for confirmatory factor analysis (CFA), consists of 400 fourth grade graduate students.

2.2 The First Study Group (Pilot Implementation Group)

The data collected from the first study group were used in the pilot implementation phase of the research. Class-gender distributions of the students who formed the first study group are examined. The first study group comprises 99. When the information gave is analyzed based on gender; The first study group consisted of 49 female and 50 male students. When the data are analyzed based on classes; 32.3% of the first study group comprised third grade ($f=32$), 35.4% was fourth grade ($f=35$) and 32.3% was fourth-grade graduate ($f=32$) students.

Table 1: Distribution of the First Study Group by Grade and Gender

Grade	Gender				Total	
	Female		Male		f	%
	f	%	f	%		
3rd Grade	15	46.9	17	53.1	32	32.3
4th Grade	18	51.4	17	48.6	35	35.4
5th Grade	16	50	16	50	32	32.3
Total	49	49.5	50	50.5	99	100

When Table 1 is investigated, it indicates that a total of 99 students participated in the first study group. When the information given is analysed based on gender; It is seen that 49.5% of the first study group is female (f = 49) and 50.5% is male (f = 50) students. When the data are analysed based on classes; It is seen that 32.3% of the first study group was third year (f = 32), 35.4% was fourth grade (f = 35) and 32.3% was fifth grade (f = 32) students.

2.3 The Second Study Group (EFA)

In the study, the data collected from the second study group consisting of fourth grade graduate students were used for Explanatory Factor Analysis (EFA). The distribution of the students in the second study group by gender was given in Table 2 below.

Table 2: Distribution of the Second Study Group by Gender

Gender	f	%
Female	184	49.6
Male	187	50.4
Total	371	100

Table 2 indicates that a total of 371 students participated in the second study group. The data indicates that 49.6% of the second study group is female (f = 184) and 50.4% are male (f=184) students. Nine students that four of them did not mark the majority of the items in the scale, and five of them answered an item by ticking more than one option, were not included in the study group. According to Field (2005), the percentage of samples required for exploratory factor analysis should be 10 times the number of items, and according to Tabachnick and Fidel (2015), it should consist of at least 300 participants. In this study, the sample size can be considered to be at a good level, since data were collected from 371 people for exploratory factor analysis.

2.4 The Third Study Group (CFA)

The data collected for the confirmatory factor analysis of the study were collected from a different study group. Table 3 indicates the gender distribution of the students in the third study group.

Table 3: Distribution of the Third Study Group by Gender

Gender	f	%
Female	209	52.3
Male	191	47.8
Total	400	100

Table 3 indicates that the third study group consists of 400 students in total. Regarding gender, this table indicates that the third study group consisted of 209 female (52.3%) and 191 male (47.8%) students. Ten students, who eight of them did not mark most of the items in the scale, and two of them answered more than one option to an item were not included in the study group.

2.5 Development of the Data Collection Tool

Scale development studies are phased studies that contain discipline (Karasar, 2016; Tezbaşaran, 2008). After studying the literature, it was determined that there were many scale developments approaches, and it was decided to conduct the research by adopting the Likert Type Scale Development Approach.

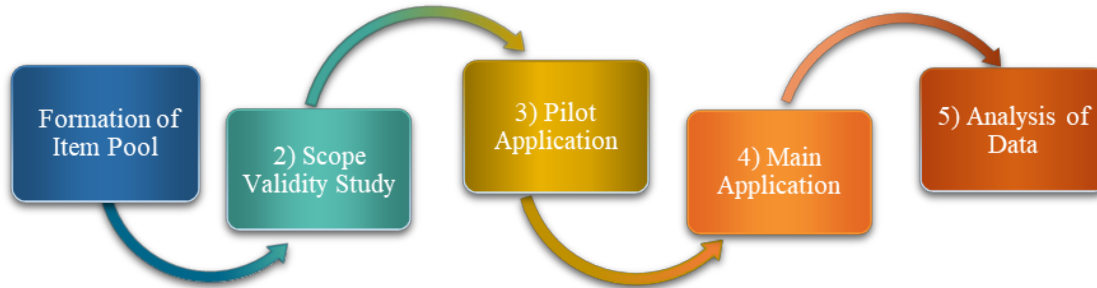


Figure 1: Likert type scale development basic approach (as cited in Tezbaşaran, 2008)

In the study, it was decided to prepare the item pool by considering the study of Demirci Güler & Açıkgöz (2019) titled " Examination of the Science Course Curriculum of the Year 2018 in Terms of Including Course Outcomes Regarding Responsibility ". The study was investigated the acquisitions of the 2018 Science Course (3rd and 8th grade) Curriculum in detail, considering the concept of responsibility. The outcomes were categorized under tiles of "individual responsibility" and "social responsibility," "conscious resource consumption," "environmental awareness," "health awareness" and " Security awareness."

The reliability of the categories was calculated using the Miles & Huberman (1994) model ("reliability = consensus/consensus + disagreement"), and it was determined that Consensus-Disagreement coefficient was .95. In this context, the mentioned research was decided to use for the formation of the item pool of the scale.

Considering the class levels of the population and the sample of the research, it was decided to limit the item pool to the responsibility gains at the 3rd and 4th grade. In this context, an item pool of 35 items in total was formatted, 27 of which were positive and 8 of which were negative was created under titles of "Conscious Resource Consumption," "Health Awareness," "Environmental Consciousness" and " Security Awareness." It was decided that the scale aimed to be developed in the study should be prepared in Likert type rating scale developed by Likert (1932), which is used more frequently and more widely than other scales in measuring many personality traits in social sciences (Oppenheim, 1979; Judd, Eliot & Kidder, 1991; Sommer & Sommer, 2002; Fraenkel & Wallen, 2003: as cited in Tezbaşaran, 2004). Likert scale was prepared in 3-Likert type to be appropriate for the age of the study group (Bourke & Frampton, 1992; Adelson & McCoach, 2009: as cited in Adelson & McCoach, 2010: 797). Likert grades were graded from positive to negative (3 = Always, 2 = Sometimes, and 1 = Never) (Tezbaşaran, 2008).

2.6 Scope Validity

For the content validity study of the research, a total of 11 expert opinions were taken from one expert in each field of Turkish language and literature, 3 experts in each field of psychological counselling and guidance, education programs and primary school education, and 2 experts in each primary school classroom teachers who were experts in classroom education and science education. The items were presented to the experts by preparing an expert opinion form and each item was asked to be evaluated under the criteria of "Suitable," "Not Suitable" and "Developable". While taking expert opinions, Lawshe (1975) technique was adopted, and the content validity ratios of each item were calculated. Content validity ratio is the rate of agreement of experts on an item during the scale development process, or in other words, the rate of considering the item as "essential" (Lawshe, 1975).

Content validity ratio determination formula (Lawshe, 1975:567):

$$CVR = \frac{N_e - N/2}{N/2}$$

(Equation 1)

*N = Total number of experts

*N_e = Number of experts who find the item "essential"

2.7 Pilot Application

After taking expert opinions in the research, pilot application of the draft scale was performed. The pilot application is an application which tests the functionality of the scale by applying the scale to be developed on a small group and to eliminate possible problems (Borg & Gall, 1971: as cited in Karasar 2017). The pilot implementation of the study was conducted with the voluntary participation of 99 students. The required corrections were made to the items, as a result of the feedback received from the students. Thus, the draft scale consisting of 27 items was made ready for construct validity analysis.

2.8 Construct Validity

The construct validity of the draft scale was examined. "Construct validity indicates the degree to which the test can accurately measure an abstract concept (factor) in the context of the behaviour to be measured. For examining the construct validity factor analysis, cluster analysis, internal consistency analysis, and hypothesis testing techniques are used" (Büyüköztürk, 2018: 180). The exploratory and confirmatory factor analysis of the data was performed in the construct validity study.

2.9 Exploratory Factor Analysis

In scale development studies, data must normal distribution to be suitable for exploratory factor analysis (Özdamar, 2016). Otherwise, correlation-based relationships that allow factor analysis will not emerge (Can, 2017). In this context, the normality test of the data set was performed. Then exploratory factor analysis was performed. "Exploratory factor analysis is a type of statistical analysis that aims to combine variables of similar nature and explain this measurement with fewer factors to determine the theoretical constructs in which the variables in the data set are constructed, to what extent these theoretical structures represent variables" (Büyüköztürk, 2018; Henson & Roberts, 2006).

In the study, the exploratory factor analysis performed on the data collected from 371 fourth grade graduate students. During the analysis, if an item is distributed to more than one factor, it has been paid attention that the factor values are at least .40 and the difference between the two factor load values is at least .10. (Büyüköztürk, 2018; Tabachnik & Fidell, 2015). Principal Component Analysis was performed during the analysis. Within the framework of the concept of responsibility, the Oblimin rotation method was used because the sub-factors are interrelated (Can, 2017; Çokluk et al., 2018).

2.10 Confirmatory Factor Analysis

The confirmatory factor analysis was carried out to measure if the data collected as a result of the exploratory factor analysis is compatible with pre-determined factor levels (Meydan & Şeşen, 2011). The confirmatory factor analysis was carried out with the data collected from 400 fourth-grade graduate students. During the analysis, the results were evaluated by considering the CFA fit index values of Hu & Bentler (1999).

2.11 Security

As a result of the use of a data collection tool by different researchers, similar outcomes of the data collection

tool are desired. This situation shows that the data collection tool is consistent and authentic (Karasar, 2016). In the reliability analysis of the research, it was examined Cronbach Alpha internal consistency coefficient which shows the fit levels of the items in the scale.

2.12 Analysis of Implementation Phase Data

In the study, the data were carefully analysed and transferred to the computer. The data was removed that impede the validity and reliability of the research, and the data set was made ready for analysis. Then the validity and reliability studies of the "Science Course Focused Student Responsibility Scale" were carried out. It was determined that the scale is a valid and reliable scale.

The score ranges of the data collection tool are calculated using the $n-1/n$ (n = Likert number) formula to determine the level of responsibility of students focused on the science course. Since the scale has got 3 items and 2 even intervals, the score range is calculated as $.66$ ($2/3 = .66$). Likert levels calculated according to the score ranges are as such: never = 1 point (1.00 -1.66), sometimes = 2 points (1.67-2.33), always = 3 points (2.34-3.00) (Büyüköztürk, 2018).

The structure validity-reliability analyses of the data collection tool were carried out using IBM SPSS Statistics 25 and LISREL 8.8 package programs.

3. Results

During the content validity study, 11 expert opinions were received. While taking expert opinions, Lawshe (1975) technique was adopted, and the content validity ratios of each item were calculated. The CVR values show that the value of 8 items (I9, I13, I15, I16, I17, I20, I22, I23) is lower than the minimum CVR value (.59) valid for 11 experts. As a result, it was decided that 8 items exclude from the scale (Lawshe, 1975). In the research, it was conducted the test of normality to find out whether the data set was suitable for analysis, and the Skewness and Kurtosis values of the data were checked. It was determined that the Skewness value was $-1,041$ and the Kurtosis value was 749 . When Skewness and Kurtosis values are between -1 and $+1$ values, it is accepted that the data set is normally distributed. In this context, it can be said that the data set is distributed normally (Hair et al., 2013: 34; Morgan et al., 2011: 51).

3.1 Science-Course-Focused Student Responsibility Scale Explanatory Factor Analysis Findings

Before performing exploratory factor analysis, the Bartlett Sphericity test and the Kaiser Mayer Olkin (KMO) coefficient values were examined (Büyüköztürk, 2018: 136). Since the KMO coefficient is greater than $.80$, it can be said that the sample size is at an acceptable level. (KMO = 0.86) (Hutcheson & Sofroniou: as cited in Seçer, 2017). According to the result of the Bartlett Sphericity test ($x^2 = 2603.002$; $df = 351$; $p < .05$), it can be said that the data are suitable for factor analysis (Büyüköztürk, 2002; Tabachnick & Fidell, 2015). After checking the KMO and Bartlett Sphericity tests, the exploratory factor analysis was performed.

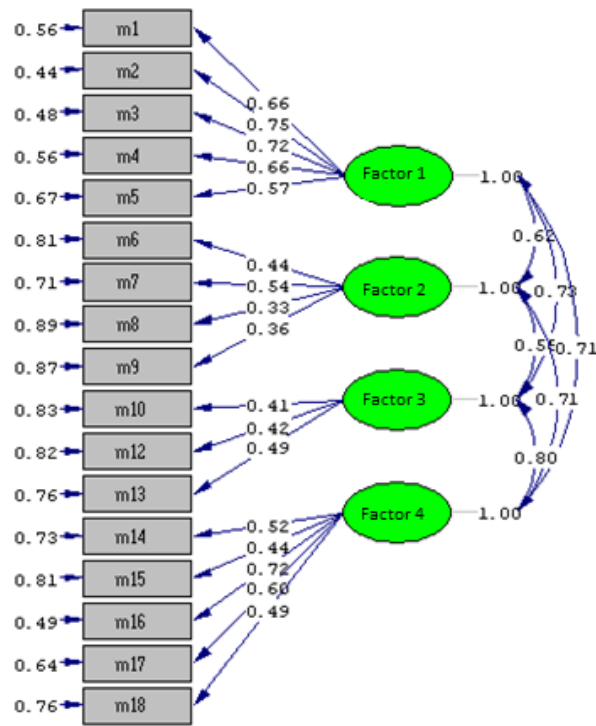
Table 4: Factor Loadings of the Science Course Focused Student Responsibility Scale

Item	Factors			
	Conscious Resources Consumption	Security Awareness	Health Awareness	Environment Awareness
I-8	.791	-.004	.062	-.048
I-14	.752	-.046	-.013	.104
I-2	.741	.051	-.038	-.047
I-27	.679	-.005	.071	.144
I-19	.650	.005	.076	.112
I-17	-.012	.789	.086	-.139
I-22	-.106	.631	.085	.194
I-10	.102	.618	-.179	.048
I-23	.300	.547	.100	-.273
I-4	.071	.071	.740	-.104
I-1	.113	-.192	.685	-.010
I-9	-.152	.337	.505	.173
I-13	.162	.077	.436	.227
I-7	-.005	-.138	.071	.667
I-18	.067	.009	-.018	.663
I-15	.184	.247	-.198	.609
I-11	.154	.370	.007	.480
I-3	.125	-.069	.204	.475

During the analysis, it was seen that the 6th, 12th, 16th, 20th, 24th, 26th items were not placed under certain factors. Contents of the 5th, 21st, and 25th items were found to be irrelevant in terms of the factors in which they were placed. These items were not included in the analysis. When table 4 examined, it is seen that reveals that the factor loadings of the "Conscious Resource Consumption" sub-dimension items are between .65 and .79, the "Security Awareness" sub-dimension items are between .54 and .78, the "Health Awareness" sub-dimension items are between .43 and .74 in, "Environmental Consciousness" sub-dimension items are between .47 and .66. When the variance values of the factors are examined, it is seen that the self-value of the "Conscious Resource Consumption" sub-factor comprising five items is 4.848 and its variance is 26.931%. It is seen that the self-value of the "Security Awareness" sub-factor comprising four items is 1.681, and its variance is 9.340%. It is seen that the self-value of the "Health Awareness" sub-dimension comprising four items is 1.324, and the variance is 7.353%. It is seen that the self-value of the "Environmental Consciousness" sub-dimension comprising five items is 1.298 and its variance is 7.210. As a result of the factor analysis, it is detected that the scale comprised 18 items and 4 factors, and the total self-value of the scale is 9.151 and its total variance is 50.834%. After performing exploratory factor analysis, item discrimination levels of the scale items were examined. To determine the internal consistency of the scale items, it was performed the t-test to the lower 27% and upper 27% groups of the second study group. According to the results, it was determined that there was a significant difference between the lower 27% and upper 27% groups ($p < 0.05$), and the item discrimination levels of the scale items can be accepted level.

3.2 Confirmatory Factor Analysis Findings of the Science Course Focused Student Responsibility Scale

After the exploratory factor analysis is done, confirmatory factor analysis is done. The model resulted from the analysis, is shown in Figure 2.



Chi-Square=290.31, df=113, P-value=0.00000, RMSEA=0.063

Figure 2: Standardized Factor Loadings of Confirmatory Factor Analysis

Standardized factor loadings for the analysis in Figure 2 indicates that the factor loadings for all items are higher than 30. The factor load (.13) of M11 was decided to be excluded from the analysis since it was below 30 (Seçer, 2017).

When the confirmatory factor analysis fit indices are examined, it can be said that the Chi-Square value ($\chi^2 = 290.31$, $sd = 113$, $p < 0.001$) is significant. As a result of the analysis, the " χ^2 / sd " ratio was calculated as 2.56. It can be stated that the value collected is within the acceptable range. When the other collected fit indices are examined, the "Normed Fit Index" (NFI=0.92), "Non-Normed Fit Index" (NNFI=.94), "Relative Fit Index" (RFI=.90), "Comparative Fit Index" (CFI=.95), "Adjusted Goodness of Fit Index" (AGFI=.92) and "Root Mean Square Error" (RMSEA=.063) values are found to be acceptable. "Increasing Fit Index" (IFI)=.95, "Goodness of Fit Index" (GFI)=.92, "Root Mean Square Residuals" (RMR)=.018 values are seen to be at the perfect fit level (Hu & Bentler, 1999; Schermelleh-Engel & Moosbrugger, 2003).

3.3 Reliability Analysis Findings of the Science-Course-Focused Student Responsibility Scale

As a result of the confirmatory factor analysis, it is detected that the scale comprised 17 items and 4 sub-factors. Then, the Cronbach Alpha internal consistency coefficient was examined for the reliability analysis of the scale, and this value was found to be .87. In this context, the reliability of the scale is high (Büyüköztürk et al., 2018).

Then the reliability coefficients for each sub-factor of the scale were examined. It was seen that the internal consistency coefficient of the "Conscious Resource Consumption" factor is .81; the internal consistency coefficient of the "Environmental Consciousness" factor is .71; the internal consistency coefficient of the "Security Awareness" factor .60, and the internal consistency coefficient of the "Health Awareness" factor is .55. In this context, it can be said that the internal consistency coefficients of the "Conscious Resource Consumption" and "Environmental Awareness" sub-factor are high. It can be said that the internal consistency coefficients of the "Security Awareness" factor and of the "Health Awareness" factor are acceptable because they are higher than .40 (Tavşancıl, 2006).

4. Discussion, Conclusion and Suggestions

This research was performed with the intention of prepare a valid and reliable scale that can be used to determine the responsibility levels of primary school 3rd and 4th-grade students focused on the science course. Discussions, results, and recommendations regarding the research are presented below.

4.1 Science Course Focused Student Responsibility Scale

This research was performed intending to prepare a valid and reliable scale that can determine the Science Course Focused Responsibility levels of primary school 3rd and 4th-grade students. Discussions, results, and recommendations regarding the research are given below.

Considering the age level of the students, the scale was decided to be prepared in a 3-point Likert type (Adelson & McCoach, 2010). After the literature was reviewed, an item pool comprising 35 items was prepared. Then, 11 field experts were consulted for the content validity study. Based on the feedback received from experts, the Content Validity Ratio (CVR) of each item was calculated (Lawshe, 1975). When the CVR values of the scale items were examined, it seen that the value of 8 items was lower than the minimum CVR value (0.59) which is valid for 11 experts at a 95% confidence interval. Therefore, these items were excluded from the draft scale (Lawshe, 1975).

For the construct validity analysis of the research, exploratory factor analysis and confirmatory factor analysis were performed. The data was collected from 371 students for exploratory factor analysis, and 400 students for confirmatory factor analysis. With the intention of obtain healthy results in the exploratory factor analysis, the sample size should be at least 300 according to Tabachnick & Fidel (2015), and 10 times the number of items in the scale according to Field (2005). In this context, the sample size of the research is at a fair level.

With the intention of check whether the data set belonging to the exploratory factor analysis is suitable for analysis, Skewness and Kurtosis values were checked and the normality distribution was examined (Can, 2017). It was observed that the Skewness value was -1.041 and the Kurtosis value was 749. When Skewness and Kurtosis values are between -1 and +1 values, it is supposed that the data set is distributed normally. In this context, it can be said that the data set is normally distributed and is suitable for factor analysis (Hair et al., 2013: 34; Morgan et al., 2011: 51). After the normality test, with the intention of check whether the sample size is suitable for factor analysis, "the Bartlett Sphericity Test" values were examined to determine whether there was a relationship between the "Kaiser Mayer Olkin" (KMO) coefficient and the variables (Büyüköztürk, 2018: 136). Since "the Kaiser Mayer Olkin" coefficient (KMO = .86) is greater than .80, the sample size is very good (Hutcheson & Sofroniou: as cited in Seçer, 2017). As the values of the "Bartlett Sphericity test" ($\chi^2=2603.002$; $df = 351$; $p<.05$) are significant, the data are also suitable for factor analysis (Büyüköztürk, 2002; Tabachnick & Fidell, 2015).

After the preliminary examinations for the construct validity, the exploratory factor analysis of the data set was performed. During the analysis, principal components were subjected in the analysis, and" the Direct Oblimin" rotation method was used as it was thought to be related to one of the sub-factors (Can, 2017). As a result of the exploratory factor analysis, a scale construct consisting of 18 items and 4 sub-factors was collected. Each factor was analysed in terms of content and named as "Conscious Resource Consumption," "Environmental Consciousness," "Safety Awareness" and "Health Awareness." It can be stated that the collected value meets the recommended 50% total variance value (Hair et al., 2009).

Confirmatory factor analysis was carried out to determine whether the data collected after the exploratory factor analysis in the research were compatible with predetermined factor levels (Meydan & Şeşen, 2011). Since after the analysis, the factor load of an item was less than 30, it was decided to be excluded (Seçer, 2017). Collected fit indices as a result of confirmatory factor analysis. As a result of the analysis, the values of $\chi^2/df=2.56$, "NFI"=.92, "NNFI"=.94, "RFI"=.90, "CFI"=.95, "AGFI"=.92, "RMSEA"=.063 were found to be at acceptable levels; "IFI"=.95, "GFI"=.92, "RMR"=.018 values are seen to be at the perfect fit level (Hu & Bentler, 1999; Schermelleh-Engel & Moosbrugger, 2003).

Cronbach Alpha coefficient was examined for the reliability analysis of the scale, and it was found to be .87. In this context, the reliability of the scale is high. The results indicated that the reliability of the scale is high. Then the reliability coefficients for each sub-factor were examined. They were determined that the "Conscious Resource Consumption" factor was .81, the "Environmental Consciousness" factor was .71, the "Safety Awareness" factor was .60, and the "Health Awareness" factor was .55. In this context, it is understood that the internal consistency coefficient of the "Conscious Resource Consumption" sub-factor is high, and the internal consistency coefficients of "Environmental Awareness," "Safety Awareness," and "Health Awareness" factors are higher than .40 (Tavşancıl, 2006). The high number of items in the scale's reliability affects the reliability coefficient of the measurement tool positively. In this research, since the health and reliability factors were items removed from the scale structure after CFA, the number of items for both factors was lower than other factors. That's why it can be indicated that the Cronbach Alpha reliability coefficient of health and safety awareness factors is lower than the expected level.

5. Suggestions

According to the results obtained from the research, various suggestions for the development process of the "Science-Course Focused Student Responsibility Scale" and determining student responsibility levels are given below.

"Science Course Focused Student Responsibility Scale":

- 1- Determining science courses-focused responsibility number of students in different cities, different countries or Turkey can be used in the studies that aim to examine them according to different variables.
- 2- It can be used as a data collection tool in researches about the relationship between science and responsibility.
- 3- It can be used as a data collection tool in various studies to examine the relationships between students' academic achievement, science class attitude level, science class interest and curiosity level.
- 4- It can be revised and used for different grades in future studies.
- 5- Different scale development studies can be done for each sub factor of the data collection tool.

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The Impact of COVID-19 Lockdown Process on Dietary Behaviours and Physical Activity Habits of High School Students

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Abstract

This study aimed to investigate the effects of home confinement as a result of lockdown on physical the activity (physical activity and dietary behaviors), and their determinants, on Turkey high school students (14-18 years). Methods: A total of 490 students (mean age = 16.40 ± 1.75) participated in the study. An online questionnaire consisting of sociodemographic data, nutritional behavior and physical activity habits was applied to the participants. He compared physical activity level (PA), dietary behavior (DB), and sitting time before and during lockdown. Results: BMI (kg/m²) has increased compared to before Covid-19, Physical activity levels of high school students decreased ($p < 0.001$), increased more their sitting time during lockdown (0.041***), eating habits changed (0.310***). Conclusion: Our data show that high school students are affected by isolation and lockdown and exhibit negative behavioral changes.

Keywords: Lockdown, COVID-19, Physical Activity, Eating Habits, High School Population

1. Introduction

1.1 Introduction to the Problem

COVID-19 has spread rapidly all over the world since the beginning of 2020. Since the first case was confirmed, more than 133,883,398 million COVID-19 have been detected worldwide, and more than 2,904,617 people have died (as of April 9, 2021) (Brancaccio et al., 2021). In addition to the mortality rates associated with COVID-19, some negative effects on physical and mental health have been identified, such as increased anxiety, depression, or stress during lockdown (Chambonniere et al., 2021, Demirci et al., 2018). Anybody movement produced by skeletal muscles that cause energy expenditure is defined as physical activity and includes various subgroups

such as walking, cycling or sports. A subset of physical activity aimed at planned, purposeful, repetitive, and fitness gains are typically referred to as "exercise" (Morres et al., 2021). To be physically active, to improve the health of individuals and society, and to contribute to the social, cultural and economic development of all nations, to enable people to perform their daily lives in safer and more convenient environments. Therefore, it is aimed to prevent the increase in inactivity in adults and adolescents by 2030 and achieve a relative decrease of 15% (WHO, 2018). Changing our exercise habits and lifestyle behaviors should be the main goal in order to maintain a certain level of physical activity (PA) and adequate health, and to counteract the negative consequences of certain diseases (Ozemek et al., 2019). Therefore, it is very important to maintain an active lifestyle at home during the outbreak, and not to completely interrupt or change people's lifestyles for the health of the general population, especially those with additional risk factors and the elderly. Regular physical activity is one of the most important activities you can do for your health. For all of us, children, young and old, regular physical activity is synonymous with protecting our health. Most of the time, it is suggested that moderate physical activity strengthens the immune system compared to sitting (Demirci, 2020). During the lockdown period, all primary and secondary schools were completely closed, and all teaching activities were carried out online (Carriedo et al., 2020; Chouchou et al., 2020). As a direct consequence, reduced of physical activity and increased of inactivity have been associated with impaired well-being, mental, physical, and metabolic health. In this process, surveys were conducted in many countries to evaluate the effects of lockdown on inactivity and to reveal the insufficient physical activity (Genin et al., 2020; Werneck et al., 2021).

When cross-sectional and experimental studies on the young were examined, it was seen that they had positive and negative effects on physical activity and inactivity, respectively. According to the data of the World Health Organization; 60 min. moderate (aerobic) and vigorous (anaerobic) intensity physical activity each day of the week, or 150 min. of aerobic activity each day of the week, or an equivalent combination of 75 minutes of anaerobic activity, seizures of 10 minutes are recommended. This highlights the importance of increased physical activity for better health in adolescents. According to some research results conducted among children and adolescents; In a study conducted by Moore et al. (2020) in Canada, 1,472 children aged 5-17 years showed that only 4.8% of children (5-11 years) and 0.6% of youth (12-17 years) had reached the recommendations for a healthy lifestyle (24h movement guidelines) during this lockdown. At the same time, Medrano et al. (2020) obtained similar results in their study with 113 children aged 12, López-Bueno et al., (2020) with 860 Spanish teenagers aged 3-16. However, Gilic et al., (2020) aged 688 Bosnia-Herzegovina youth ages 15-18 and Elnaggar et al., (2020) maize juveniles and Pombo et al. (2020) achieved similar physical activity results in 2,159 Portuguese children aged 13. In fact, the Coronavirus emergency has highlighted how the pandemic has affected the lifestyle of the world's population, which has led to an increase in sedentary life in both childhood and adulthood. Therefore, it has been suggested that the social distance and restrictions applied during the quarantine period upset the habits of the students.

It is suggested that the COVID-19 epidemic, which is effective in all areas of life, is one of the factors that can affect eating behaviors and appetite (Haleem et al., 2020). It is seen that many individual and social factors from childhood to adolescence are effective on nutritional behavior. The lockdown due to the epidemic led to some changes in eating habits, and some studies on humans revealed that it increased unhealthy food consumption, uncontrolled eating, more snacks between meals and generally more main meal consumption (Ammar et al. others, 2020; Güzel et al., 2020). Several studies have revealed changes in many nutritional behaviors, including binge eating habits. Di Renzo et al. (2020) argued that the consumption of homemade products and plates increased with the products that may have been purchased from the grocery store. Similarly, another study by Sidor & Rzymiski (2020) reported that the participant ate more. In addition, Phillipou et al. (2020) suggested that both restrictive and binge eating behaviors increased.

1.2 Objective of the Study

This study aims to evaluate the factors that may affect PA and DB in high school students before and during the lockdown imposed by the COVID-19 outbreak. Within the scope of this main aim, the following research questions were investigated:

- Did the eating habits of high school students change according to gender before and during the epidemic?
- Did physical activity habits of high school students change according to gender before and during COVID-19?
- Is there a significant difference in high school students' physical activity habits before and during lockdown?

2. Method

2.1. Participants and Study Design

After deciding to fill in the questionnaire, information about the study was made to the high school population and participants using online Google Forms and communicated via e-mail and WhatsApp. The surveys obtained from the participants were made ready and attention was paid to the protection of all personal data. Inclusion criteria in the questionnaire used in the research process, high school (only students from randomly selected schools were allowed to be included), age (only students aged 14-18 were allowed to be included), and voluntary participation consent form were completed. After the data obtained from the questionnaires were collected, the forms were verified by making comparisons, and forms containing incorrect or incomplete information or conflicting information were excluded from the study. When making a selection, no distinction was made between the answers (the same answers to all questions using the same scale) and the information was deemed unreliable if it gave uniform responses to all questions considered to be related. Finally, a total of 490 high school students were included in the study. An online questionnaire consisting of socio-demographic data, nutritional behavior and physical activity habits was applied to the students. He compared physical activity level (PA), feeding behavior (DB), and sitting time before and during lockdown. The questionnaire created by the researchers has been applied anonymously to the high school population (students) via an online platform. Respondents were asked to answer the questions of the self-administered online questionnaire (completed in less than 5 minutes), informing them that they could stop compiling at any time without the obligation to justify the decision. The work was carried out in accordance with the Declaration of Helsinki and the current privacy law and the data were processed (EU Regulation 2016/679 and Privacy Code D.Lgs. 101/2018). No formal agreement has been requested with the ethics committee as we are conducting an anonymized survey online.

Socio-demographic data prepared by the authors (age, gender, weight before covid-19, and current of covid-19, height, BMI and evaluate the status of caught with covid-19 disease. In the section on nutritional behavior and physical activity habits; eating habits consumed before and during covid-19, consumption of more food than before quarantine, consumption of fruits and vegetables during quarantine, consumption of more fast food and fast food compared to the pre-quarantine period, eating breakfast, eating without hunger during the day, snack consumption frequency. When investigating physical activities performed before quarantine, the time spent in moderate or vigorous activities on weekdays, pre-quarantine exercise frequency, previous physical activity level compared to the quarantine period, the current exercise frequency during quarantine, and the effect on the time spent sitting during the quarantine process.

2.2. Statistical Analysis

The normality of the data in the study was carried out using the Shapiro-Wilk test. Then, means and standard deviations, percentages and frequencies were calculated according to sociodemographic characteristics. Factors associated with the evolution of the three indicators (PA level, sitting time, and Dietary Behavior) before / during the lockout (increase, similarity, decrease) were studied with Pearson's chi-square test. Univariate comparisons between groups and variables were investigated using Fisher's exact test for categorical data or the nonparametric Wilcoxon rank sum test when appropriate for continuous data. Statistical significance was taken at the level of <0.05 .

3. Results

The comparison of sociodemographic characteristics by gender is presented in Table 1. 43.6% (n = 214) of participants were females with mean age 16.30±1.74 (females) and 56.4% (n = 276) with mean age 17.50±1.76 years (males). We found statistically significant differences based on gender in relation to sociodemographic variables: age, weight before and during covid-19, height, pre-covid-19 BMI and present (<0.01**). In particular, during the quarantine both females and males underwent weight gain. It was determined that there was an increase in the overweight and obese status of the participants during the Covid-19 process (<0.001 ***). In addition, it was found that 34.5% of the participants did not caught Covid-19, 3.8% were covid-19 patients, and 61.7% did not get tested (Table 1).

Table 1: Comparison of high school students' sociodemographic characteristics by gender

	Total n = 490	Female n = 214	Male n = 276	p-Value
Age (years)	16.40± 1.75	16.30±1.74	17.50±1.76	< 0.05*
Weight (kg) before Covid-19	63.3 ±11.0	58.2 ±10.4	68.4 ±11.6	<0.01 **
Current weight (kg)	66.9 ±12.8	61.2 ±12.4	72.6 ±13.2	<0.01 **
Height (cm)	171.4±8.0	167.5 ±6.8	175.4 ±9.2	<0.01 **
BMI (kg/m ²) before Covid-19				
<i>Underweight (<18.5)</i>	9 (%1.8)	5 (%2.3)	4 (%1.4)	<0.01 **
<i>Normal (18.5- 24.9)</i>	452 (%92.2)	197 (%92.1)	255 (%92.4)	
<i>Overweight (25-29.9)</i>	19 (%3.9)	8 (%3.7)	11 (%4.0)	
<i>Obese (≥25)</i>	10 (%2.1)	4 (%1.9)	6 (%2.2)	
BMI (kg/m ²) current				
<i>Underweight (<18.5)</i>	7 (%1.4)	4 (%1.9)	3 (%1.1)	<0.001***
<i>Normal (18.5- 24.9)</i>	426 (%86.9)	184 (%86.0)	242 (%87.7)	
<i>Overweight (25-29.9)</i>	33 (%6.7)	15 (%7.0)	18 (%6.5)	
<i>Obese (≥25)</i>	24 (%4.9)	11 (%5.1)	13 (%4.7)	
Did you caught Covid-19?				
<i>No</i>	170 (%34.5)	96 (%44.9)	74 (%26.8)	0.360***
<i>Yes</i>	18 (%3.8)	7 (%3.3)	11 (%4.0)	
<i>I did not a test</i>	302 (%61.7)	111(%51.8)	191(%69.2)	

Body Mass Index (BMI),

It was determined that more food was consumed than before covid-19 (0.310 ***), while fruit consumption increased by 18.1% during the quarantine period, 69.9% remained unchanged (0.170 ***). More meals were cooked at home than before the covid-19 (0.317 ***), breakfast habits changed by 87.9% compared to before. Although they did not feel hungry, their eating and snacking behavior increased (0.160 ***) (Table 2).

Table 2. Eating habits before and during the pandemic period of the high school students' by gender.

	Total n = 490	Female n = 214	Male n = 276	p-Value
How was your eating habits before Covid-19?				
<i>2 meals a day</i>	133 (%27.1)	55 (%25.7)	78 (%28.3)	0.260***
<i>3 meals a day</i>	327 (%66.7)	145 (%67.7)	182 (%66.0)	
<i>3 or more meals a day</i>	30 (%6.2)	14 (%6.6)	16 (%5.7)	
How was your eating habits period Covid-19?				
<i>2 meals a day</i>	65 (%13.3)	28 (%13.1)	37 (%13.4)	0.310***
<i>3 meals a day</i>	346 (%70.6)	152 (%71.0)	194 (%70.3)	
<i>3 or more meals a day</i>	79 (%16.1)	34 (%15.9)	45 (%16.3)	

Continuation of Table 2. Eating habits before and during the pandemic period of the high school students' by gender.

	Total n = 490	Female n = 214	Male n = 276	p-Value
<u>Has your fruit consumption changed during the Covid-19?</u>				
<i>Increased</i>	89 (%18.1)	32 (%14.9)	57 (%20.7)	0.170***
<i>Decreased</i>	61 (%12.4)	26 (%12.1)	35 (%12.7)	
<i>Not changed</i>	340 (%69.9)	156 (%73.0)	184 (%66.6)	
<u>How was your food consumption habits compared to the period before Covid-19?</u>				
<i>Normal</i>	101 (%20.6)	43 (%20.1)	58 (%21.0)	0.317***
<i>More home cooking</i>	372 (%75.9)	163 (%76.2)	209 (%75.7)	
<i>More ready meals</i>	17 (%3.5)	8 (%3.7)	9 (%3.3)	
<u>Did your breakfast habits change during the Covid-19?</u>				
<i>Yes</i>	431 (%87.9)	191 (%89.3)	240 (%87.0)	<0.01 **
<i>No</i>	59 (%12.1)	23 (%10.7)	36 (%13.0)	
<u>How often do you eat during the day, even though you are not hungry?</u>				
<i>Every meal</i>	132 (%26.9)	62 (%29.0)	70 (%25.3)	0.415***
<i>1-2 times / A week</i>	43 (%8.8)	17 (%7.9)	26 (%9.4)	
<i>3-4 times / A week</i>	83 (%17.0)	36 (%16.8)	47 (%17.0)	
<i>Sometimes</i>	184 (%37.5)	78 (%36.4)	106 (%38.4)	
<i>Never</i>	48 (%9.8)	21 (%9.8)	27 (%9.9)	
<u>How often are you feeding as an operative in the Covid-19 process?</u>				
<i>Every meal</i>	35 (%7.1)	13 (%6.1)	22 (%8.0)	0.160***
<i>1-2 times / A week</i>	126 (%25.7)	53 (%24.8)	73 (%26.4)	
<i>3-4 times / A week</i>	214 (%43.7)	98 (%45.8)	116 (%42.0)	
<i>Sometimes</i>	92 (%18.8)	41 (%19.2)	51 (%18.5)	
<i>Never</i>	23 (%4.7)	9 (%4.1)	14 (%5.1)	

To investigate the effects of lockdown on physical activity habits, we asked the participants whether their physical activity habits changed during lockdown. As shown in Figure 1, an increase in sedentary behaviors was found in the participants (<0.01 **) (Fig 1).

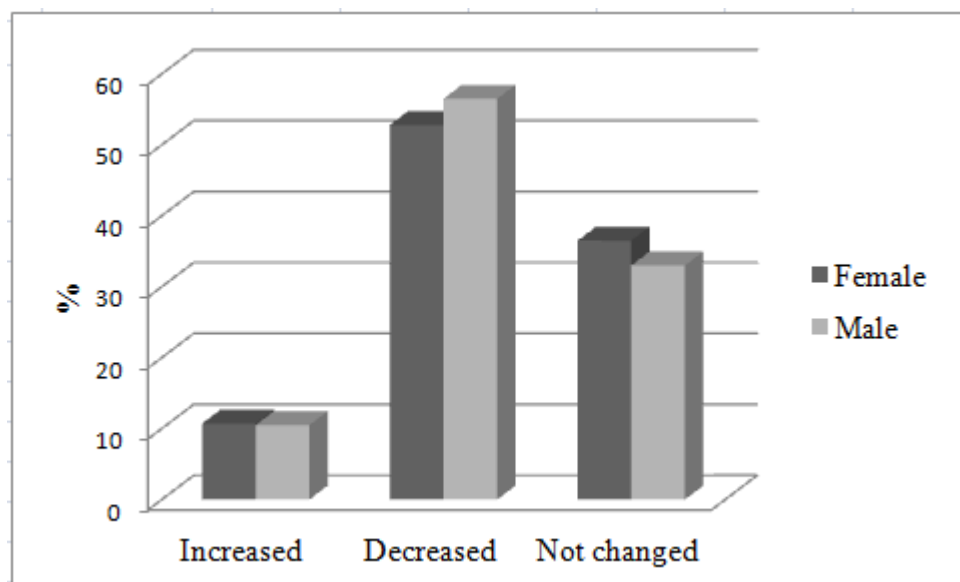


Figure 1: The change in physical activity habits of high school students before and during lockdown

Before Covid-19, the rate of those who did not participate in the activity was 40.6%, while the most attended activity was determined to be 23.5%. Moderate physical activity for a week 43% of women and 30.8% of men <30 min. It was observed that they allocated time under (0.001 ***). While those who did not exercise before Covid-19 were 48%, those who exercised once or twice a week were determined as 24.5%. 3.5% stated that they exercised every day of the week (0.002 ***). On the other hand, the rate of those who spent time sitting in the covid-19 process was 79.8% (0.041 ***) (Table 3).

Table 3: Physical activity habits before and during the COVID-19 period of the high school students' by gender.

	Total n = 490	Female n = 214	Male n = 276	p-Value
<u>What activities did you attend before COVID-19?</u>				
<i>None</i>	199 (40.6)	87 (%40.6)	112 (%40,6)	<0.001 ***
<i>Runing/walk</i>	26 (%5.3)	11 (%5.2)	15 (%5.5)	
<i>Swimming</i>	56 (%11.4)	22 (%10.3)	34 (%12.3)	
<i>Gym</i>	53 (%10.8)	32 (%14.9)	21 (%7.6)	
<i>Team sports</i>	115 (%23.5)	45 (%21.1)	70 (%25.3)	
<i>Other (specify)</i>	41 (%8.4)	17 (%7.9)	24 (%8.7)	
<u>How much time do you spend on aerobic physical activity during a week?</u>				
<i>< 30 min</i>	177 (%36.1)	92 (%43.0)	85 (%30.8)	0.001 ***
<i>30–90 min</i>	135 (%27.5)	57 (%26.6)	78 (%28.3)	
<i>90–150 min</i>	108 (%22.1)	40 (%18.7)	68 (%24.6)	
<i>150–300 min</i>	50 (%10.2)	19 (%8.9)	31 (%11.2)	
<i>> 300 min</i>	20 (%4.1)	6 (%2.8)	14 (%5.1)	
<u>How much time do you spend on anaerobic physical activity during a week?</u>				
<i>< 30 min</i>	235 (%48.0)	105 (%49.1)	130 (%47.1)	0.001 ***
<i>30–90 min</i>	120 (%24.5)	54 (%25.2)	66 (%23.9)	
<i>90–150 min</i>	83 (%16.9)	36 (%16.8)	47 (%17.0)	
<i>150–300 min</i>	35 (%7.1)	14 (%6.6)	21 (%7.6)	
<i>> 300 min</i>	17 (%3.5)	5 (%2.3)	12 (%4.4)	
<u>How much did your exercise frequency before the Covid-19?</u>				
<i>None</i>	235 (%48.0)	83 (%49.1)	96 (%47.1)	0.002 ***
<i>1 or 2 times a week</i>	120 (%24.5)	74 (%25.2)	85 (%23.9)	
<i>3 times a week</i>	83 (%16.9)	41 (%16.8)	69 (%17.0)	
<i>4 or 5 times a week</i>	35 (%7.1)	13 (%6.6)	19 (%7.6)	
<i>Everyday a week</i>	17 (%3.5)	3 (%2.3)	7 (%4.4)	
<u>Has there been any change in your physical activity level process the Covid-19?</u>				
<i>Increased</i>	52 (%10.6)	23 (%10.7)	29 (%10.5)	<0.01 **
<i>Decreased</i>	269 (%54.9)	113 (%52.8)	156 (%56.5)	
<i>Not changed</i>	169 (%34.5)	78 (%36.5)	91 (%33.0)	
<u>Did the Covid-19 process affect the time you spent sitting?</u>				
<i>No</i>	62 (%12.6)	28 (%13.1)	34 (%12.3)	0.041 ***
<i>I spend less time sitting</i>	37 (%7.6)	16 (%7.4)	21 (%7.6)	
<i>I spend more time sitting</i>	391 (%79.8)	170 (%79.5)	221 (%80.1)	

4. Discussion

The COVID-19 outbreak has led to the lockdown of the population around the world, especially students. Numerous scientific studies have been conducted to evaluate the effect on individual movement behavior during

and after this lockdown. As a result, it explained the overall decrease in PA and DB levels. This study aims to determine the impact of lockdown on physical activity, inactivity and eating behavior among high school students, while classes are given online and their physical activities are interrupted. In line with national and international statistics (Farooq et al., 2018), the majority of high school students in our sample were defined as inactive before lock-in (40.6% of women and men). Given the strong links between the health of physical activity and healthy movement behavior (Tremblay et al., 2011), the situation in students before social and physical restrictions was already alarming. According to our results; 52.8% of women and 56.5% of men reported a decrease in PA during lockdown. These results are consistent with those observed in other countries such as Spain (López-Bueno et al., 2020), Bosnia and Herzegovina (Gilic et al., 2020), Egypt (Elnaggar et al., 2020), Canada (Moore et al., 2020), or French children and adolescents (Chambonniere et al., 2021) among others. As a result, the outbreak-related measures, including movement restrictions, were more rigorous. Tighter lockdown measures resulted in more action among people, which resulted in the minimization of time spent outside of homes, resulting in a larger drop in PA and DB for high school students.

The Covid-19 outbreak is often an unpleasant experience for those who suffer from lockdown. Because social distancing, closing schools, banning group meetings, and restricting physical activities suddenly turned the traditional lifestyle upside down (Scudiero et al., 2021). Our study for the first time analyzed basic aspects of high school students' daily life, such as physical activity and eating habits. In our study, we found significant differences in participants' age, weight, height, and BMI before and during covid-19. Both women and men gained weight, especially during the quarantine. In the Covid-19 process, it was determined that the participants were overweight and obese. In addition, it was determined that during the quarantine period, more food was consumed compared to before covid-19, and fruit consumption remained largely unchanged. More meals were cooked at home due to covid-19, breakfast habits changed by 87.9% compared to the previous one. While high school students suffer significantly from quarantine and the deprivation it causes, we can demonstrate that their discomfort in weight gain is accompanied by fessfoot-type food intake. Although they did not feel hungry, their eating and snacking behavior increased. Healthy eating emerged as a secondary important determinant of better well-being. Indeed, it has been suggested that in the COVID-19 outbreak, healthy eating is linked to improved well-being components such as lower depressive and anxious symptoms (Chi et al., 2020). However, eating behavior patterns worsened in the COVID-19 outbreak (e.g. number of main meals or snacks between meals, uncontrolled eating or type of food) (Ammar et al., 2020). Therefore, initiatives towards healthy eating behavior are very important, but potentially challenging due to the poor well-being of high school students. However, the many benefits of physical activity reveal promising perspectives for a healthier diet. In particular, physical activity reduces inactivity and sleep disturbance, which is linked to less impaired eating behavior (Ruiz-Roso et al., 2020).

According to our results; this severe global decline in PA affected high school students during the lockdown period. Before Covid-19, the rate of those who did not participate in the activity was 40.6%, while the most attended activity was determined to be 23.5%. Moderate physical activity for a week 43% of women and 30.8% of men <30 min It was observed that they allocated time under. While those who did not exercise before Covid-19 were 48%, those who exercised once or twice a week were determined as 24.5%. On the other hand, the rate of those who spent time sitting in the covid-19 process was 79.8%. In our study, unlike physical activity and healthy eating behavior, sedentary time predicted a worsening of well-being in high school students. Moreover, students living in COVID-19 lockdowns exhibited increased inactivity and lower well-being (Margaritis et al., 2020; Bates et al., 2020); in particular, the sitting time increased dramatically Ammar et al., 2020). During the COVID-19 outbreak, tackling sedentary time and related deadlocks should be prioritized to reduce sitting time methods among high school youth. Towards this direction, it is important to consider the potential harmful effects of online education on physical activity and emphasize the importance of physically active breaks in the daily schedule. WHO (2018) guidelines recommend that adolescents (5-17 years) do 60 minutes / day (420 minutes / week) of physical activity for better mental health. Physical activity of participants in this study was well below what WHO levels recommend. The beneficial health effects of physical activity during the COVID-19 pandemic have also been demonstrated in young Chinese who report that more than 60 minutes of physical activity per week is associated with a lower risk of well-being (Qin et al., 2021). Finally, we shed light on exercise and physical activity habits. First, we highlighted an increase in sedentary lifestyle by analyzing the

high school student population (Figure 1); Most likely, this increase comes with spending much more hours on lockdown and online training online.

Conclusions; In the high school student population, the administration of this survey showed how the lockdown measures implemented during the COVID-19 pandemic affected their usual lifestyle. Changes in students' lifestyle (including physical activity and eating habits); It caused weight gain, increased sedentary lifestyle, inconsistent eating behavior, lack of physical activity, and an increase in fessot type nutrition. Therefore, it can be argued that it has negative effects on the physical and psychological health of all students. Therefore, this study can be a reference for the functional studies that will be needed when such lockdown measures are completely eliminated.

4.1. Limitations

There are some limitations to this study. Because it is a cross-sectional design, it does not provide any information about the structure and the established relationships can be difficult to interpret. In addition, self-reported data are open to bias information. Finally, the use of unverified questionnaires raises the problem of generalizing the results.

4.2. Author Contributions

Conceptualization; N.D., P.D.; methodology; N.D., H.K., P.D.; investigation; N.D., H.K.; data collecting; H.K., N.D., P.D.; writing original draft; N.D., P.D.; review and editing; N.D., P.D., H.K., contributed to the review of the article. All authors have read and agreed to the published version of the manuscript.

4.3. Conflicts of Interest

The authors declare no conflict of interest.

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Comparison the Course Books Used in Teaching Turkish and English as a Foreign Language in Terms of Culture Transmission

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Abstract

Foreign language teaching is not only the teaching of the grammar and vocabulary and the acquisition of basic language skills of the target language, but it is also the teaching of the culture of the target language. Because foreign language always brings it with a foreign culture. It is extremely important that individuals learn the cultural characteristics of the country when they are learning its language for a better understanding of language. It is an undeniable fact that language and culture cannot be separated and culture must also be learnt when learning a language. Because of the perfect relation between language and culture, teaching a language also means teaching of the culture. In today's foreign language teaching, it is observed that the transmission of the culture is very important. Foreign language course books reflect the characteristics of the society that speaks the language in question, and that acts as the carrier of the culture. The role and importance of the course books used in teaching Turkish and English as foreign languages were questioned in this study, and the Gazi Turkish Teaching Set for Foreigners for A1-A2, B1-B2 levels and the New Headway Beginner, Elementary, Pre-Intermediate, Intermediate course books were analyzed and evaluated according to certain criteria. As a result of the analyses and evaluations, it was observed that Gazi Turkish Teaching Set course books included more elements of the Turkish culture, and New Headway course books included mostly universal cultural elements. In conclusion, it is possible to claim that there is not a balanced distribution between the local cultural elements and universal cultural elements in the course books prepared by the Turkish and English authors; and for this reason, these course books have missing points in the acquisition process of the cultural awareness by students.

Keywords: Cultural Transmission, Foreign Language Teaching, Course Books

1. Introduction

Though the people define culture differently, it is possible to describe its general terms with common definitions. For instance, Kongar (1999: 19) has specified for culture that it is everything produced by human beings in

addition to those created by Allah and formed by nature. According to Peck (1998), culture is all of the accepted and arranged behaviors of individuals. Upon this definition, it could be said that culture is the set of values binding a group of people and separating them from others. Holiday, Hyde, and Kullman (2004: 59) have seen culture as a complex structure formed by the belief, art, ethics, law and traditions as a whole obtained in society. All these definitions show that culture is the total of the stuff like all kinds of productions (tools, appliances, foods etc.), traditions and behavior ways etc. belonging to a certain group of people and not emerging in natural ways. Two important elements come to the forefront here. The first one is that culture is not a gift of nature, but a product of human beings. The second one is that it belongs to a group of people (nation). However; there could also be issues being beyond this group and being valid for everyone; this situation is called universal culture. Universal culture is the common share of humanity.

Talking about culture is talking about human action, human activities and human production in absolute meaning. Culture is a structure which is not natural, not existent in a ready state, produced and formed later on (Alver, ?: 14.). Therefore, it draws the attention of other people. People wonder and want to learn what other people produce. EU being aware of this has supported cultural teaching, intercultural exchange and multiculturalism in its language teaching programs with the policies they develop. The concept of culture taking its place in the language teaching programs also together with the impact of European common language criteria has an important function especially in the area of foreign language teaching; because, an individual learning a foreign language should know how the owners of that language live, what they produce and what they value to be able to comprehend the language in a healthier way. This definition means that the individuals learning a new language meet another culture other than theirs. The individual realizes the existence of another culture other than his/her culture. This gives him/her the opportunity of making a comparison between the cultures and developing different viewpoints by becoming aware of his/her own culture (İşci, 2012: 33).

Another reason for the foreign language learners to be obliged to learn the culture of the target language is the inseparable bond between language and culture. Individuals cannot decode the codes of the language as long as they cannot realize and comprehend this bond between them. According to Kramsch (1993), foreign language/second language learner should definitely learn the culture of the target language; because, he thinks that language cannot be learnt without learning the cultural context. In the same way, Byram and Morgan (1994) assert that cultural teaching is an inseparable part of language learning. For this reason; it is obligatory for the students to be aware of the differences between their own cultures and the culture of the target language. Teacher should also consider culture as an inseparable part of language teaching and handle the subject of culture in language classes. S/he should find ways for teaching culture and design experiences that will facilitate cultural learning for students. For this, teachers should find/develop materials and conduct activities for cultural teaching (İşcan, 2017: 31).

1.1 Course Books of Foreign Language Teaching and Cultural Transmission

According to Cortazzi Jin (1999), the course books used in foreign language teaching could undertake different tasks; they could be a teacher, a guide, a resource, a tutor and an authority. There are many alternative teaching materials today and course books continue to be an integral part of language learning in classroom environment. These materials are also one of the most important elements of cultural transmission. Especially when there is still no official program for teaching Turkish as a foreign language, the importance of books increases again. These books both undertake the function of being a schedule and a teaching material.

Questioning how the course books tightly held by teachers depending on their professional experiences and confidences are prepared in terms of principles is important in terms of being able to determine the success of the book, reach a better one and increase the efficiency of the lesson (Yılmaz and Esen, 2016: 85). These books should not be prepared only for grammar teaching. They should also transmit the cultural concepts within the frame of life – experience areas as well as gaining language skills and grammar rules. The course books best for purpose are those based on target and international culture among the course books that could base the cultural transmission on the source language, target language and international cultures; because, thanks to these course

books, both the convenient living patterns in the culture of the learnt language are transmitted and the cultural variety in the world is reflected (Özışık, 2004).

1.2. Criteria for the Assessment of the Cultural Elements in Course Books Used in Foreign Language Teaching

According to Kılıçkaya (2004), there are also subjects necessary to be checked while examining the cultural content in the course books in addition to the needs of students and the role of teachers. Every course book has a program peculiar to itself. This implicit program may contain socio-cultural factors, generalizations and clichés. This may slow down the development in intercultural communication. For this, the transmission of the cultural elements should be ensured by taking the viewpoints, perceptions and needs of students into consideration.

Within this context; it is necessary to determine some criteria while examining the cultural elements in course books.

National Program of England emphasizes in the cultural awareness part that students should have knowledge about various states and their cultures, compare the culture of the target language to their own cultures and make speaking exercises with native speakers (Qualification and Curriculum, 1999). Okur and Keskin (2013) have examined the cultural elements in the course books of teaching Turkish as foreign language under 7 main headings (daily life; interpersonal relations; values and education; literature, art and music; traditions and folklore; social life; geography and place). Their assessment table has also been taken as the basis for this examination.

2. Method

The data for this study were obtained from the document analysis of the books used for teaching English and Turkish as a foreign language. Document review is the analysis of all kinds of official or private written material that provides information about a subject under investigation (Creswell, 2012; Şimşek & Yıldırım, 2011). The books examined are the A1-A2, B1-B2 books of Gazi Turkish Teaching Set for Foreigners for teaching Turkish as a foreign language, and the textbooks named New Headway Beginner, Elementary, Pre-Intermediate, Intermediate for English. These books were determined using the simple random sampling method. The findings obtained from the books are handled with a theme analysis perspective. According to this analysis method, documents are divided into categories and sub-themes under the upper themes. In a sense, the subject, category and sub-themes related to the phenomenon studied in the documents are determined. In addition, the frequency and percentages related to this scoreboard table can be given.

2.1. Subject Characteristics

The study is limited with the Gazi Turkish Teaching Set for Foreigners A1-A2, B1-B2 Level course books used as course books in Teaching Turkish to Foreigners Centers of many universities mainly Gazi University TÖMER; and the New Headway Beginner, Elementary, Pre-Intermediate, Intermediate Level course books used almost all over the world in teaching English as a Foreign Language.

2.2 Sampling Procedures

Foreign language teaching books, according to the Common European Framework of Reference for Languages; A1 and A2 for beginner users; for intermediate users, B1 and B2; for advanced users, it is prepared at C1 and C2 levels. While preparing foreign language teaching books, it is necessary to include different or universal cultural elements as well as the cultural elements from which the language is formed. Because language teaching is also a cultural education in a way. However, its limits and the place and balance of national culture and universal culture in language teaching are very important. In this study, it was investigated which cultural elements are included in the textbooks used in teaching Turkish and English as a foreign language. For this, the cultural elements included in A and B (Beginner, Elementary, Pre-Intermediate, Intermediate) levels were determined

and classified according to their themes. While making this classification, previous studies were used and the classification style followed by Okur and Keskin (2013) was adapted to this study.

2.3.1 Sample Size, Power, and Precision

In this part, information will be given on the New Headway Beginner, Elementary, Pre-Intermediate, and Intermediate Level course books, and on Gazi Turkish Teaching Set for Foreigners A1-A2, B1-B2 Level course books, which were included in the study.

New Headway Beginner

The book consists of 14 units related with the following topics; 1st Unit, knowing people, introducing oneself and others; 2nd Unit, countries and cities in the world; 3rd Unit, Jobs and Personal Information; 4th Unit, Family and Friends; 5th Unit, Foods and Beverages, Sports, Languages and Nationalities; 6th Unit, Time and Lifestyles; 7th Unit, Beloved places; 8th Unit, The Place Where We Live; 9th Unit, Birthdays; 10th Unit, Past Tense; 11th Unit, Various Grammar Subjects (capability, modals-proficiency verb, subjunctive and imperative moods); 12th Unit, Foods-beverages and Shopping; 13th Unit, Colors, Clothes, and Present Continuous; 14th Unit, Present Continuous with a Future Meaning; Repeating Question Words, transportation and travel.

New Headway Elementary

The book consists of 14 units related with the following topics; 1st Unit, Meeting people from different countries; 2nd Unit, Elements on Family; 3rd Unit, Jobs of people from different nationalities and the daily lives of these people; 4th Unit, Familial and professional lives of people from different nationalities and their hobbies; 5th Unit, The Living Room and the kitchen and the things in these rooms; 6th Unit, World-famous people and languages; 7th Unit, Things people did in the past, their earnings, and special days of the British Culture; 8th Unit, Past Tense; 9th Unit, Foods; 10th Unit, Comparisons; 11th Unit, External looks of people; 12th Unit, Different languages and different cultures; 13th Unit, Adjectives, adverbs and question types; 14th Unit, Countries and their flags, and the English Breakfast Culture.

New Headway Pre- Intermediate

The book consists of 14 units related with the following topics; 1st Unit, Knowing people, 2nd Unit, Our lifestyles; 3rd Unit, Stories on various topics; 4th Unit, Shopping; 5th Unit, Future events and future tense; 6th Unit, Different Cities from the world; 7th Unit, Famous couples; 8th Unit, Things we have to do, and we do not have to do; 9th Unit, Various countries and cities under the title of ‘Traveling to Other Places’; 10th Unit, Fear from Death; 11th Unit, Things that changes the world; 12th Unit, Dreams and Realities; 13th Unit, Interesting Jobs and People; 14th Unit, Love and leave.

New Headway Intermediate

The book consists of 12 units related with the following topics; 1st Unit, The World; 2nd Unit, Free time; 3rd Unit, Streets and alleys; 4th Unit, Doing the right thing; 5th Unit, Our Changing World; 6th Unit, Various texts under the title of ‘The things that are important for me’; 7th Unit, Passions and Fashion; 8th Unit, Bravery and Courage; 9th Unit, Looking at events from a different angle; 10th Unit, Technology and Our Life; 11th Unit, Seeing is Believing; 12th Unit, Celebrities.

Gazi A1 Turkish Book

The book consists of 6 units related with the following topics; 1st Unit, introducing oneself, introductions, jobs, knowing the environment; 2. Unit, recreational activities, eating, shopping and health; 3rd Unit, Art; 4th Unit, Technical Processes; 5th Unit, asking and giving directions and the cities of Turkey; 6th Unit, special days and celebrations.

Gazi A2 Turkish Book

The book consists of 5 units related with the following topics; 1st Unit, sports, traffic accident news, natural disasters, and some different topics like art and literature, tourism, weather report, etc.; 2nd Unit, letters, notifications, short messages, conversations, departure and arrival hours and destinations of public

transportation, texts about handicraft, recreational activities; 3rd Unit, information on daily events, fairs, social and cultural activities; 4th Unit, emotional bonds in family, social life, working environment; 5th Unit, important values of the Turkish history, scientists who left important marks in history, lifestyles and eating habits of from different cultures and education.

Gazi B1 Turkish Book

The book consists of 5 units related with the following topics; 1st Unit, “It is very easy to be famous (!),” “Virtual Realm,” “The history of the book,” “Superstitions;” 2nd Unit, texts on psychology, personal development and economy; 3rd Unit, texts from different fields like “A Success Story,” “Coffee and Book,” “Road to Fear,” “Our World is Under Threat;” 4th Unit, literature and art; 5th Unit, story and novel.

Gazi B2 Turkish Book

The book consists of 5 units related to the following topics; 1st Unit, “Fine Arts,” “Useful and Harmful: GMO / GMO with useful and harmful ones,” “Archaeology,” “Education of the Highly Intelligent Individuals;” 2nd Unit, “Choosing the Right Job,” “A News Start,” “Establishing Communications”, “The Emperor of the Depths;” 3rd Unit, culture and art; 4th Unit, science, art and literature; 5th Unit, again, art and science.

2.3.2 Measures and Covariates

While obtaining this research data, the main themes in the table below were taken into consideration. These themes were prepared on the basis of ELP (European Language Portfolio) and were previously used in many studies, especially in the work of Okur and Keskin (2013).

Table 1. Cultural Elements Table

Sub-Element	1.DAILY LIFE	2.INTERPERSONAL RELATIONS	3.VALUES AND EDUCATION	4.LITERATURE ART AND MUSIC	5.TRADITIONS AND FOLKLORE	6.SOCIAL LIFE	7.GEOGRAPHY AND LOCATION	8. FOREIGN (UNIVERSAL) CULTURAL ELEMENTS
a	Foods-beverages	People	Values	Literature	Special days and Traditions	Fashion		
b	Meal hours, manners at dining table	Greeting expressions and behaviors	Education	Music	Verbal expressions and verbal traditions	Bans		
c	Official holidays-working hours	Family structures and relations, relations among generations	Language and history Conscious / Love	Art	Behaviors based on religious rules	Applause and good behaviors		
d	Free time activities, hobbies	Relations between political and religious groups	Others	Performance arts	Birth, marriage traditions	Others		
e	Words and structures to be used in dialogues according to age, gender, proximity, social status, and official status	Hospitality-Catering and gifts		Handicraft traditions	Festivals, ceremonies, celebrations			
f	Eating and drinking habits	Others		Others	Dances			
g	Games				Social practices, rituals, superstitions			
h	Sports				Social sciences, practices on the universe and the nature			
i	Music				Others			

3. Findings

3.1. *Way of Transmission Cultural Elements: Some of the cultural elements included in the books are tabulated below:*

Table 2. Gazi Teaching Turkish to Foreigners Course Book A1 Level

Sub-Element	Way of Transmission Cultural Elements	Place in the Book Level-Page
1a	<i>Döner kebab</i> and other kebab types, and homemade foods like <i>mantı</i> , <i>yaprak sarması</i> (=stuffed leaves), <i>taze fasulye</i> (=fresh beans).	A1-32
1a	Rice pudding, baklava and <i>künefe</i> (=kunafah).	A1-32
1b	We celebrate after prayer and have breakfast altogether.	A1-102
1h	Wrestling, archery ...	A1-28
2a	The name of our daughter is Elif, The name of our son Can	A1-10
2a	First week of Yasemin at her workplace.	A1-104
2b	Have a good business! May it be easy!	A1-38
3c	See Anıtkabir in Ankara	A1-17
4b	Well, "Farewell" from Şebnem Ferah then".	A1-70
5a	Happy October 29, Republic Day!	A1-96
7	We walked nearby the Tuz Gölü (The Salt Lake), we took photos.	A1-90
8	Hans Goldman is a German.	A1-5
8	I am Jamila Anar. I am thirty years old. I am from Kazakhstan	A1-13

Table 3. Gazi Teaching Turkish to Foreigners Course Book A2 Level

Sub-Element	Way of Transmission Cultural Elements	Place in the Book Level-Page
1f	I love pastry like <i>mantı</i> and <i>gözleme</i> (=pancake).	A2-82
2e	... They offered lokum (=Turkish delight) and foamy coffee after dinner.	A2-49
3a	Sabiha Gökçen is the first woman soldier pilot of Turkey and the World.	A2-76
4a	The sixth book of İhsan Oktay Anar, who is one of the master authors of Turkish literature, was placed in on the bookshelves in booksellers in September. The author will take the reader to a new journey with a wide imagination in this book.	A2-8
4c	Neşet Ertaş, who was the famous Turkish poet and singer, was born in 1938 in Kırşehir. UNESCO gave him the reward "Living Cultural Treasury" in 2010.	A2-68
4e	Glass painting, miniature, sand art, knitting, jewelry design ...	A2-46
7	The tour will take place to Kuşadası.	A2-37
7	The Yedigöller National Park in Bolu is like a corner from the paradise ...	A2-88
8	Raw fish, rice, sea food and fresh vegetables are the indispensable elements of the Japanese cuisine ...	A2-80
8	And Newton finds the "Law of Gravity," doesn't he? ...	A2-77

Table 4. Gazi Teaching Turkish to Foreigners Course Book B1 Level

Sub-Element	Way of Transmission Cultural Elements	Place in the Book Level-Page
1a	Lady Aysel baked <i>su böreği</i> (=pasta with cheese and parsley filling), which was her son's favorite dish.	B1-63
1f	My coffee arrived, and it tasted very bitter despite the lokum (=Turkish delight) next to it.	B1-88
2a	" Zeynep , I think you are the rightest person to help me" "Lady Neslihan had three grandsons () named Semih () Esat and Veli and three grandsons named Betül () Zeynep. "	B1-27, 57
2f	My condolences.	B1-10
3b	About this issue, Galatasaray Primary School students organized a science festival, which was named after our famous mathematician Cahit Arf."	B1-26
4a	" Masnawî ," which opens the gates of the mind and the heart, is the most important work of Mevlana.	B1-80
5e	" Kırkpınar Oil Wrestling "	B1-52
5g	Child: Dad, what are you nailing on the door? Dad: Horse shoes , son. Child: Why are you nailing horse shoes? Dad: To protect us from evil. Child: Does that really protect us? Dad: Our ancestors always used to hang horse shoes on their doors , we learnt from them.	B1-17
8	"I was born in 1988, in Freiburg Germany. "	B1-72

Table 5. Gazi Teaching Turkish to Foreigners Course Book B2 Level

Sub-Element	Way of Transmission Cultural Elements	Place in the Book Level-Page
2a	Now, let us know the viewpoints of our specialist doctor Kadir Şafak on this topic.	B2-97
4a	Fuzuli , who is one of the greatest artists of the Classical Turkish Poetry in 16 th Century, is the poet of the Masnawi of Leyla and Mecnun "	B2-6
4a	As far as I learnt from him " The Root of the Rose Bay " was an autobiographical novel. In fact, Muzo in the novel was Muzaffer İzgü himself!	B2-54
4d	"Let our children know Karagöz-Hacivat , which is one of the traditional performance arts of ours, and <i>Meddah</i> (public story-teller) and <i>Orta Oyunu</i> (light comedy).", " Karagöz is a shadow-show. It is performed behind a scene to which light is cast. In this play, Karagöz and Hacivat entertain people with their battle of words." " Hacivat and Karagöz. "	B2-44, 76,77
4e	Copper-work , saddle-maker, pottery, spoon-maker, carpet business... All of these arts require great handicraft, dexterity and mastership.	B2-94
7	The rain, which lasted nearly three hours in Trabzon caused great losses in Sürmene County, and in Beşkøy County, which was wiped out from the maps, caused great loss of lives, destroyed families...	B2-90
8	When the education of highly-intelligent children is considered in the light of the "Multiple Intelligence Theory" of Howard Gardner , this issue may develop in many different areas.	B2-18

Table 6. New Headway Beginner

Sub-Element	Way of Transmission Cultural Elements	Place in the Book Level-Page
1a	He has a big breakfast-coffee, eggs and toast.	BE-44
1e	Hi! Guys, how are you?	BE-22
2a	His name is Simon. He is British.	BE-13
3b	She is a student at university of London.	BE-28
4a	Who was Shakespeare?	BE-66
5a	On Christmas Day we usually all go to my parents' house.	BE-100
7	Toni is from the North of England.	BE-28
8	Her name is Rosely. She is Brazilian.	BE-13

Table 7. New Headway Elementary

Sub-Element	Way of Transmission Cultural Elements	Place in the Book Level-Page
1a	A full English breakfast - Bacon, eggs, toast and marmalade.	EL -111
2d	Margaret Thatcher is the first woman prime minister in Europe.	EL -57
4b	Liverpool's most famous musicians are the Beatles.	EL -79
7	Liverpool is the Britain's second biggest port after London.	EL -79
8	I live in a house in Toluca in Mexico.	EL -16
8	Konnichva!, Bom dia!, Buongiorno!, Privyet!, Sziaszto!, Buenos Dias!, Guten Tag!, Bonjour!	EL-8
8	Visit the pyramids, Fly over the Grand Canyon, See Mount Fuji, See the tulips, Walk along the Great Wall, Watch flamenco dancing, Take photographs of the lions, Sunbathe on Copacabana beach, Walk in Red Square, Visit the Taj Mahal	EL-92

Table 8. New Headway Pre Intermediate

Sub-Element	Way of Transmission Cultural Elements	Place in the Book Level-Page
1h	He has scored fifty goals for Manchester United, and has played for England over thirty times.	PI -58
2a	My name is Robert Palmer.	PI -77
3b	She went to school in the south of England, and studied English at Oxford University.	PI -55
4a	The Big Issue is a magazine sold by homeless people in Britain.	PI-102
5a	In Britain your 18th birthday is important, because it is the birthday when you become an adult.	PI -84
7	River Thames near Oxford	PI -33,49
8	What does she think of living in New York? 'It's very similar to Hong Kong. It's a busy city, very exciting, and people walk very fast!	PI -19

Table 9. New Headway Intermediate

Sub-Element	Way of Transmission Cultural Elements	Place in the Book Level-Page
1h	England has never won the World Cup.	IN-7
2f	In California "How are you?" is considered friendly but here in London some people react with a cold look.	IN-30
3b	In Victorian England, education played a very small role in most children's lives.	IN-32
3b	Problem arose when boys from the different schools went to the Universities of Oxford and Cambridge and wanted to continue playing. (...) Oxford.	IN-58, 91
3c	How long has Elizabeth II been Queen of England?	IN-7
4a	"J.K. Rowling-Harry Potter Book Series," "Joanne Kathleen Rowling, author of the best-selling Harry Potter series of books, was born in 1965, near Bristol, England."	IN-54, 55
5a	My kids are so excited on Christmas Eve, they can't sleep.	IN-48
6d	75% of British households own a car.	IN-17
6d	You have to drive on the left in Britain.	IN-31
7	The idea for Harry came to Rowling while she was travelling by train between Manchester and London.	IN-55
8	Ongota Rangai is a small town near the capital Nairobi.	IN-10

3.2. Comparison of cultural elements in books according to the Cultural Elements Table: Some of the cultural elements included in the books are tabulated as follows:

Table 10. Headway Beginner Course book and Gazi A1 Course Book Culture Transmission Rates

	HEADWAY BEGINNER		GAZI A1	
	f	%	f	%
Daily Life	16	14,41	34	17,5
Relations among People	27	24,32	85	43,8
Values and Education	2	1,80	2	0,01
Literature, Art and Music	3	2,70	5	0,02
Traditions and Folklore	3	2,70	13	6,7
Social Life	2	1,80	14	7,2
Geography and Location	9	8,10	12	6,1
Foreign Cultural Elements	49	44,14	29	14,9
TOTAL	111	100	194	100

According to Table 10, the rate of the cultural elements in Daily Life in Headway Beginner was 14,41%; in Gazi A1 Course Book 17,5%; the rate of the cultural elements in relations among people in Headway Beginner was 24,32%; in Gazi A1 Course Book 43,8%; the rate of the cultural elements in values and education in Headway Beginner was 1,80%; in Gazi A1 Course Book 0,01%; the rate of the cultural elements in literature, art and music in Headway Beginner 2,70%; in Gazi A1 Course Book was 0,02%; the rate of the cultural elements in traditions and folklore in Headway Beginner 2,70%; in Gazi A1 Course Book 6,7%; the rate of the cultural elements in Social Life in Headway Beginner 1,80%; in Gazi A1 Course Book 7,2%; the rate of the cultural elements in Geography and Location in Headway Beginner 8,10%; in Gazi A1 Course Book 6,1%; and when the rate of the cultural elements was considered in Foreign Cultural Element, it was 44,14% in Headway Beginner,

14,9% in Gazi A1 Course Book. Based on these data, it was determined that the local cultural elements in Headway Beginner (aside from values and education, literature, art and music and Geography and Location) were few when compared with the Gazi A1 Course Book; however, it was also determined that the Foreign Cultural Elements were more in Headway Beginner when compared with the Gazi A1 Course Book. When the total of the Cultural Elements were considered, it was understood that the Gazi A1 Course Book included more cultural elements than Headway Beginner.

Table 11. Headway Elementary Course book and Gazi A2 Course Book Cultural elements Numerical Distribution

	HEADWAY ELEMANTARY		GAZİ A2	
	<i>f</i>	%	<i>f</i>	%
Daily Life	11	12,35	33	34,7
Relations among People	17	19,10	27	28,4
Values and Education	4	4,49	5	5,2
Literature, Art and Music	2	2,24	8	8,4
Traditions and Folklore	3	3,37	5	5,2
Social Life	2	2,24	1	1,05
Geography and Location	2	2,24	11	11,5
Foreign Cultural Elements	48	53,93	5	5,2
TOTAL	89	100	95	100

According to Table 11, the rate of the cultural elements in Daily Life topic in Headway Elementary was 12,35%; and 34,7% in Gazi A2 Course Book; the rate of the cultural elements in Relations among People topic in Headway Elementary was 19,10%; and 28,4% in Gazi A2 Course Book; the rate of the cultural elements in values and education topic in Headway Elementary was 4,49%; and 5,2% in Gazi A2 Course Book; the rate of the cultural elements in literature, art and music topic in Headway Elementary was 2,24%; and 8,4% in Gazi A2 Course Book; the rate of the cultural elements in traditions and folklore topic in Headway Elementary was 3,37%; and 5,2% in Gazi A2 Course Book; the rate of the cultural elements in Social Life in Headway Elementary was 2,24%; and 1,05% in Gazi A2 Course Book; the rate of the cultural elements in Geography and Location in Headway Elementary was 2,24%; and 5,2% in Gazi A2 Course Book; and the rate of Foreign Cultural Elements in Headway Elementary was 53,93%, and 5,2% in Gazi A2 Course Book. Based on this data, it was determined that the local cultural elements in Headway Elementary are less than Gazi A2 Course Book; however, Foreign Cultural Elements in Headway Elementary are more than Gazi A2 Course Book; and Gazi A2 Course Book cared more about the distribution of Cultural Elements than the Headway Elementary and included more cultural elements.

Table 12. Headway Pre-intermediate Course Book and Gazi B1 Course Book Culture Rates

	HEADWAY PREINTERMEDIATE		GAZİ B1	
	<i>f</i>	%	<i>f</i>	%
Daily Life	28	19,04	8	5,51
Relations among People	29	19,72	59	40,68
Values and Education	3	2,04	6	4,13
Literature, Art and Music	7	4,76	12	8,27
Traditions and Folklore	5	3,40	5	3,44
Social Life	2	1,36	0	0
Geography and Location	5	3,40	14	9,65
Foreign Cultural Elements	68	46,25	41	28,7
TOTAL	147	100	145	100

According to Table 12, the rate of cultural elements in Daily Life topic was 19,04% in Headway Pre-intermediate, and 5,51% in Gazi B1 Course Book; the rate of cultural elements in Relations among People topic in Headway Pre-intermediate was 19,72%; 40,68% in Gazi B1 Course Book; the rate of cultural elements in values and education in Headway Pre-intermediate was 2,04%; 4,13% in Gazi B1 Course Book; the rate of cultural elements in literature, art and music in Headway Pre-intermediate 4,76%; 8,27% in Gazi B1 Course Book; the rate of cultural elements in traditions and folklore topic in Headway Pre-intermediate was 3,40%; 3,44% in Gazi B1 Course Book; the rate of cultural elements in Social Life topic in Headway Pre-intermediate was 1,36; this cultural element was not determined in Gazi B1 Course Book. The rate of cultural elements in Geography and Location topic in Headway Pre-intermediate was 3,40%; 9,65% in Gazi B1 Course Book; the rate of cultural elements in Foreign Cultural Elements topic in Headway Pre-intermediate was 46,25%; 28,7% in Gazi B1 Course Book. Based on these data, it was determined that local cultural elements in Headway Pre-intermediate were more than Gazi B1 Course Book (aside from Daily Life topic); however, foreign cultural elements were more in Headway Pre-intermediate than Gazi B1 Course Book. When the total number of cultural elements was considered it was observed that more cultural elements were included in Headway Pre-intermediate than Gazi B1 Course Book -although with a very little difference.

Table 13. Headway Intermediate Course Book and Gazi B2 Course Book Culture Rates

	HEADWAY INTERMEDIATE		GAZI B2	
	<i>f</i>	%	<i>f</i>	%
Daily Life	19	10,27	11	8,05
Relations among People	14	7,56	17	12,23
Values and Education	13	7,02	1	0,71
Literature, Art and Music	10	5,40	34	24,4
Traditions and Folklore	9	4,86	0	0
Social Life	8	4,32	0	0
Geography and Location	10	5,40	11	7,91
Foreign Cultural Elements	102	55,13	65	46,7
TOTAL	185	100	139	100

According to Table 13, the rate of cultural elements on Daily Life in Headway Intermediate was 10,27%; 8,05% in Gazi B2 Course Book; the rate of cultural elements on Relations among People in Headway Intermediate was 7,56%; 12,23% in Gazi B2 Course Book; the rate of cultural elements on values and education in Headway Intermediate was 7,02%; 0,71% in Gazi B2 Course Book; the rate of cultural elements on literature, art and music in Headway Intermediate 5,40%; 24,4% in Gazi B2 Course Book; the rate of cultural elements on traditions and folklore in Headway Intermediate was 4,86%; this cultural element was not determined in Gazi B2 Course Book. The rate of cultural elements on Social Life in Headway Intermediate was 1,36%; this cultural element was not determined in Gazi B2 Course Book. The rate of cultural elements on Geography and Location in Headway Intermediate was 3,40%; 9,65% in Gazi B2 Course Book; when the rate of foreign cultural elements was analyzed, it was determined that it was 55,13% in Headway Intermediate; and 46,17% in Gazi B2 Course Book. Based on these data, it was determined that Headway Intermediate included both local cultural Elements (aside from Relations among People and Geography and Location) and foreign cultural elements more than Gazi B2 Course Book. When the total number of cultural elements was analyzed, it was determined that Headway Intermediate included more cultural elements than Gazi B2 Course Book.

4. Result

In this study, the role and importance of culture in foreign language teaching was analyzed and the culture and cultural elements conveyed in the textbooks were examined and presented in detail. The Turkish language teaching set for Gazi foreigners, which is used as a textbook in the centers of Turkish teaching to foreigners of many universities, especially Gazi University TÖMER, and the textbooks of the level of A1-A2, B1-B2, and New Headway Beginner, Elementary, Pre -Intermediate, Intermediate level textbooks were examined and evaluated within the framework of certain criteria in terms of cultural transfer.

In the age we live in, the necessity of cultural transfer in foreign language education is an undeniable phenomenon. During the language learning process, the student should have the experience of getting to know their own cultural values and the values of the target culture closely, thus observing the differences between their own culture and the target culture. In this case, cultural differences can be evaluated unconditionally and without prejudice. In other words, with the awareness created by the different functions of common cultural values in different societies, the student will develop his world view and will not perceive values as just "right" or "wrong." Thus, the student will see that the communities in the world have their own cultural systems and realize that the cultural elements in these cultural systems should be evaluated according to the cultural order they are in.

Foreign language learning is an acculturation process. During this process, the student will experience being more tolerant while learning the target language; will take a universal approach to the events and facts he observes and experiences. In foreign language learning, cultural transfer cannot be regarded as a process or phenomenon that can occur spontaneously. Teachers have an important role in this framework, because they are in one-to-one communication with students throughout the education and teaching process. Students need the help of their teachers in the process of realizing their own cultural values. With this awareness, students can have the opportunity to compare their own culture with the culture of the target language. In this way, the transfer of culture in foreign language teaching can be carried out effectively. In this way, it will be ensured that students develop their intercultural communication skills. Being able to view the culture of the target language from an equal distance with its own culture has a great importance and effect in the context of culture transfer. Apart from the aforementioned data, teachers cannot be expected to provide competence on this subject alone; in addition, the course materials should be arranged in accordance with the cultural transfer. Textbooks used in foreign language teaching should be carefully and cautiously selected according to certain criteria for the realization of cultural transfer.

Comparative culture transfer has an important role in foreign language teaching. Not only should the culture of the target language be transferred to the students, the subjects that the student can compare with his / her own culture should be taken into consideration. If the student is exposed to the target culture values excessively, the student will not be able to assimilate the subject as he / she cannot make a comparison even if he / she grasps the culture structure in which the target language is used. This situation will adversely affect the transfer of culture. In this context, while selecting the textbooks and the texts they contain, in order for the transfer of culture to take place properly, the source culture and the universal cultural elements should be presented together, as well as the data of the target culture, and student comparison should be provided (Soyşekerçi, 2015).

When Gazi A1-A2, B1-B2 level textbooks were examined in terms of cultural transfer, it was seen that Turkish culture, which is the target culture, was presented to students with different aspects, and it was found to be able to provide success in conveying Turkish culture to the student population that it aims to teach Turkish. Although this situation is appropriate in terms of cultural transfer, when it is considered in terms of intercultural communication, it is revealed that there are some deficiencies that will affect the student's acquisition of intercultural communicative competence and cultural awareness. When the textbooks at New Headway Beginner, Elementary, Pre-Intermediate, Intermediate levels are examined in terms of cultural transfer, it is seen that the elements of British culture are given less than the universal cultural elements. This situation may benefit students in intercultural communication, but it will create deficiencies in gaining cultural awareness. Because in

order for students to develop their cultural awareness skills, they need to know the elements of the target culture well. Thus, it can be said that there is no balanced distribution of the target culture and elements of universal culture in the textbooks written by British and Turkish authors.

Similar to the result of this study, Yılmaz (2012) examined the Turkish New Hittite series textbooks for foreigners in terms of cultural transfer, it has been determined that the books contain many elements in which the target culture of Turkish culture is presented to students with different aspects and that it aims to teach Turkish in this way, and that it can provide success in conveying Turkish culture to the student mass. On the other hand, Okur and Keskin (2013), in their study evaluating the Istanbul Turkish Teaching Set for Foreigners in terms of cultural elements, focused more on the number of cultural elements different from this study, found that cultural elements were used less in basic level textbooks, and these elements were included more although it is given, it has the opinion that it should benefit more from cultural elements. The results of his master's thesis study by Lappalainen (2011), in which he examined the transfer of American culture in foreign language textbooks, are consistent with the results of this study. As a result of his study, he found that textbooks do not fully support the principles of intercultural learning and teaching, that American culture is very little compared to other cultures. Karababa and Taşkın (2012), in their study, in which the textbooks used in teaching Turkish as a foreign language were evaluated within the framework of teachers' views, focused on the visuality and themes in the books, unlike this study. As a result of the research, it was found that the New Hittite Turkish textbooks for foreigners are sufficient in terms of visuality and the texts provide integrity; it has been determined that the texts in the books provide integrity with the unit themes. The result of the study of Shin and his friends (2011) examining the reflection of the culture in English teaching textbooks is completely opposite to the result of this study. According to the research, although the cultural dimensions of each textbook are proportionally different, it has emerged that the local cultural content dominates most of the textbooks. Again, in the study of Rajabi and Ketabi (2012) on cultural elements in English textbooks, which do not coincide with the results presented in this study, the findings of the investigated studies reveal that English teaching has become more local in many countries. Kutlu (2012), in his study examining the transfer of culture in Turkish teaching textbooks to foreigners in the example of the Turkish Teaching Set for Gazi Foreigners, thinks that the total number of cultural elements is low, unlike this study. Özişik (2004), in his master's thesis, in which he examined cultural elements in New Headway English textbooks, thinks that these books are successful in cultural transfer. Soyşekerci (2015) examined cultural elements in English and Turkish textbooks, and examined the Izmir A2 Textbook and Global English Teaching textbook, which she took as a sample, and reached similar results with this research. According to the research, when the Izmir A2 Textbook is examined in terms of cultural transfer, it is seen that the target culture, the Turkish culture, contains many elements that are presented to students with different aspects, and the source culture and universal culture elements do not take place in Izmir as much as in the Global; when considered in terms of intercultural communication, it is revealed that there are some deficiencies that will affect the student's acquisition of intercultural communicative competence and cultural awareness. Çelik and Erbay (2013), in their analysis of cultural perspectives in English textbooks in Turkey, the studied language training series, although it has found that European-oriented though students' cultural perspectives include different cultural elements that may help to expand. Abdullah and Chandran (2009) made the following determination in their research, which does not coincide with the result of this study: in many countries, the teaching of English is becoming much more localized, integrating local flavors with those of the target culture. The use of local characters, places, and issues as the content for textbooks is subtly interspersed with the cultural contexts of English-speaking countries. This is a necessity as language could not be totally divorced from culture (Abdullah & Chandran, 2009: 17). Tajeddin and Teimournezhad (2015), in their study examining the presentation of local and universal cultural elements in English teaching textbooks, concluded that a balance should be established between local and universal elements in the textbooks, as we emphasized in our research. In his study, Yuen (2011) analyzed the cultural content in two textbooks used in teaching English by Hong Kong students, and found that the cultural content given in these textbooks was mainly related to English-speaking countries, that is, universal cultural elements.

As a result, it can be said that while cultural elements are given in foreign language textbooks, there should be a proportional balance between local cultural elements and universal cultural elements. Because intercultural

transfer is very important in today's language teaching. Teachers have a great responsibility in this regard. In this context, foreign language students should be told first of all that there is not a single thought and life system in the world, but that there are different cultural groups and lifestyles. The point to be considered here should be to make students compare these different cultural groups and lifestyles with their own way of life and thinking, that is, with their own culture. In Choudhury (2014), he argues that foreign language classes should be taught English to students in connection with their own culture. Thus, students can demonstrate the correct cultural awareness behavior. Writers who prepare foreign language textbooks should also have this point of view; students should be able to find the opportunity to compare the target culture with different cultural values in the books.

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Situational Interest and Its Sources: A Comparison Between Expressed and Observed Situational Interest about Heat Transfer

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Abstract

Latest studies on situational interest (SI) point out that the expressed situational interest (ESI) and observed situational interest (OSI) of students that emerge during science courses differentiate from each other. However, the studies aiming to determine this difference are rare. Accordingly, the purpose of this qualitative case study is to compare the ESI and OSI of middle school students emerging during a science course and determine what type of sources these students show in relation to their SI changes. Turkish six-graders (N= 30, age 11–12 years) participated in a heat transfer course, and this course was video-recorded. The SI of the students was measured repeatedly in different sequences and periods of the course and examined by combining student self-evaluations and observations from the video recordings. As a result of the study, it was observed that although the SI of the students increased especially during hands-on activities, it decreased in general towards the end of the course, ESI and OSI differentiated with time, and the prominent sources included novelty, personal relevance, concreteness and engagement.

Keywords: Science Education, Observed Situational Interest, Expressed Situational Interest, Heat Transfer, Middle School Students

1. Introduction

In terms of the fact that interest is a psychological state or a positively charged cognitive and affective experience that involves environmental factors in a particular situation, it is related to motivation towards learning (Ainley, Hidi, & Berndorff, 2002; Hidi, 2006; Hidi & Renninger, 2006; Palmer, Dixon, & Archer, 2016; Rheinberg, 2008). Motivation itself is formed through individual/object interactions where the aforementioned conditions are interpreted within the needs system of individuals (Hidi, 2006; Ryan & Deci, 2002). Therefore, it may be stated that positive experiences related to these interactions will increase individuals' motivation towards learning. Moreover, adequate motivation is a requirement for learning to take place, and it is

needed for this motivation to be provided by high attention focused on the learning activity or task at hand (Deci, 1992; Durik & Harackiewicz, 2007; Rheinberg, 2008; Rotgans & Schmidt, 2018; Sansone & Thoman, 2005). When it is considered in the context of high motivation and focused attention, interest may be thought alongside SI that is argued to be in closer relationships with individualized motivation that is discussed within the individual needs system that constitutes the foundation of learning experiences (Loukomies, Juuti, & Lavonen, 2015).

SI and individual interest are different concepts that have a certain level of hierarchical relationship (Krapp, 2002). Thus, they are generally discussed independently of each other in educational research (Hidi, 1990). As opposed to individual interest, which shows a permanent connection to the values and knowledge structures of individuals and is considered as a relatively enduring predisposition, SI is a temporary state that is triggered with the help of an environmental stimulus that attracts attention spontaneously (Hidi & Renninger, 2006; Schraw, Flowerday, & Lehman, 2001). For example, a striking demonstration of a funny experiment carried out in the classroom may stimulate the focused attention of some students who generally have lower individual interest in the science course (Palmer, 2009). Since individual interest exhibits a general predisposition, this accumulation is more suitable to be classified in interest categories where it is examined on the basis of vocational interest (Dierks, Höffler, Blankenburg, Peters, & Parchmann, 2016; Duruk, 2020). Above all, it may be argued that SI is a useful gateway and predictor in the road to individual interest (Durik & Harackiewicz, 2007; Hidi, 2006; Linnenbrink-Garcia et al. 2010; Loukomies et al. 2015).

Theoretically, SI is examined under two components—*triggered-SI* and *maintained-SI* (Hidi & Renninger, 2006). While triggered-SI refers to the driving interest that precedes individuals' encounters of more environmental stimuli during their learning experiences, maintained-SI rather indicates holding this temporary interest that is formed in terms of allowing the understanding of the content offered by the learning material to the student. Triggered-SI is directly associated with the learning environment's capacity to catch the attention of students (Linnenbrink-Garcia et al. 2010). Specifically, in terms of this component, it is highly important that activities or tasks that are included in learning environments create positive learning experiences in students, and these experiences are accompanied by positive emotions. This is because emotions play a significant supportive role in the transition from triggered-SI to maintained-SI (Harackiewicz, Barron, Tauer, Carter, & Elliot, 2000). Transformation of triggered-SI into maintained-SI by increasing these positive emotion experiences requires the support of the activities provided by the teacher conducting the instruction inside the classroom and the contents of these activities (Loukomies et al. 2015). Hence, due to its situation-specific structure, SI is also closely related to the SI sources by which the learning environments that are supported with the activity contents which are used during learning situations are nourished. In educational research, several sources related to SI such as novelty (Dohn, 2011; Palmer et al. 2016; Renninger & Hidi, 2002; Silvia, 2008), task concreteness (Tapola, Veermans, & Niemivirta, 2013), personal relevance (Harackiewicz et al. 2000; Renninger & Hidi, 2002; Palmer et al. 2016), humor (Dohn, Madsen, & Malte, 2009) and engagement (Sun & Rueda, 2012) are being discussed. It has been observed that findings related to these sources indicate that the SI of students increases as they learn new information and encounter new contents, as the tangibility and personal relevance of the aforementioned tasks at hand increase, and as they feel humor during activities. Nevertheless, the potential sources of SI have been rarely questioned within studies conducted in the field of science education (Dohn, 2013). It has been observed that studies have usually been conducted inside the classroom (Kang, Scharmann, Kang, & Noh, 2010; Lin, Hong, & Chen, 2013; Logtenberg, Van Boxtel, & van Hout-Wolters, 2011; Loukomies et al. 2015; Palmer, 2009; Palmer et al. 2016) or in outdoor environments (Bølling, Hartmeyer, & Bentsen, 2019; Dohn, 2011). It has drawn attention that, while some researchers planned instruction based on SI measurements in the form of a single session (Loukomies et al. 2015; Palmer, 2009; Rotgans & Schmidt, 2010), others spread instruction through a semester (Volgkulluksn, Matewos, Sinatra, & Marsh, 2018; Palmer et al. 2016). Furthermore, it has been seen that studies on SI have been conducted with almost all types of samples including undergraduates (Dohn et al. 2009; Linnenbrink-Garcia et al. 2010; Palmer, 2004; Palmer et al. 2016), primary school students (Loukomies et al. 2015; Rotgans & Schmidt, 2017, 2018), middle school students (Ayotte-Beaudet, Potvin, & Riopel, 2019; Linnenbrink-Garcia et al. 2010) and high school students (Dohn, 2011; Knogler et al. 2015; Palmer, 2009; Rotgans & Schmidt, 2014). Among those studying subject matter, it has been observed that studies investigating subject matter such as physical science (Lin, Hong, & Chen, 2013; Palmer, 2004), density (Kang et al. 2010) and

heat transfer (Loukomies et al. 2015) have utilized instruction approaches such as student-generated questions (Logtenberg, et al. 2011), a discrepant event (Kang et al. 2010) and scientific inquiry skills (Lin et al. 2013; Palmer, 2009).

It is stated that the number of studies where SI and its effects in motivating students in science classes towards learning have been investigated is very low (Palmer, 2009). However, there is a need for studies that include practices that will make the science course more fun for students (Palmer et al. 2016). This study considered the literature review provided above and provided various warrants in terms of presenting the originality of the study. First, in the relevant literature, only one study examining SI by making a distinction between ESI and OSI was encountered (e.g. Loukomies et al. 2015). Therefore, the aforementioned study was taken as a reference in this study. Accordingly, the topic of heat transfer, repeated measurements of SI excluding an electronic clicker, instructional sequences and periods that were used by the researchers were adopted exactly in relation to the implementation stage of this study. Second, it has been reported that interest in the science course generally decreases along with increasing age (Tytler, Osborne, Williams, Tytler, & Cripps, 2008). For the purpose of testing this issue in the context of SI, as opposed to the researchers who worked with fourth-grade students, this study worked with sixth-grade students in an older age group. Third, before the implementations, determination of student prior knowledge regarding heat transfer was not carried out. This was because it was stated that student prior knowledge is more closely related to the development of individual interest rather than SI (Dohn et al. 2009). Fourth, in their study, among three different sequences, the researchers used only one demonstration in the first sequence for an SI trigger, they used small group activities in the second sequence, and they used student presentations in the third. In this study, these and many more were used in a way to include various instructional tools in most sequences (e.g., demonstrations, experiments, videos, teacher-led conversations, general discussions). This was because a previous study determined that, in the triggering and holding of SI, presentation of several sources of interest together indicated the formation of a strong interest (Dohn, 2013). Fifth, in order to more clearly observe the decreasing and increasing SI in this study, throughout the periods, the study included relatively concrete activities (e.g., experiments) and activities that students generally enjoy engaging in (e.g., listening to a song, reading a poem), as well as demonstrations and teacher-led conversations. Sixth, considering that there could be students with low levels of prior knowledge on heat transfer before the implementation (Duruk, Akgün, & Güngörmez, 2021), it may be stated that utilization of concreteness and engagement-providing activities may compensate for the fact that no prior knowledge measurement was made (Tapola et al. 2013). Overall, this study aims to fill the gap in and contribute to the science education literature by means of the issues above through examining middle school students' SI and comparing ESI and OSI in a real classroom context.

The key research questions guiding the study were:

- (1) Are the expressed and observed SIs of students consistent throughout a science course?
- (2) What kind of sources do students have in relation to their expressed SIs?

2. Method

2.1 Research Design

This study adopted a qualitative approach to the inquiry of SI in practice. Specifically, the case study approach was considered the most appropriate research design for this study to explore the complexity of issues related to SI in the school context. Qualitative studies are studies where qualitative data collection methods such as observation, interviews and document analysis are used, and a process that aims to realistically and comprehensively present perceptions and events in their natural environment is followed (Merriam & Tisdell, 2015). This study was planned and carried out with a holistic multiple case study design as a qualitative research method. In a holistic multiple case study design, the objective is to reveal results obtained regarding a certain, studied case (Baxter & Jack, 2008). The middle school students who participated in the specifically designed instructional context constituted the cases.

2.2 Participants

The participants of the study were determined with the method of convenience sampling, which is a purposive sampling method. The participants were thirty (13 female, 17 male) grade 6 students and a science teacher recruited from a public middle school. The school where the implementations were carried out is located in a district with a high socioeconomic level in one of the metropolitan provinces of Turkey. The science teacher had a total work duration of three years at this school. The students who were enrolled in a compulsory science course within the school year of 2015-2016 participated in the heat and temperature unit with heat transfer as the focal topic.

2.3 Instructional Context

In Turkey, classes are held in 40-minute periods between which 10-minute breaks are provided. For the implementation sequences to be distinctively distinguished from each other and for a better observation of changes in SI, it was decided with the implementer teacher to hold a 70-minute block class. The instructional context of this class is presented in Table 1.

Table 1: Instructional context of the science course

Measurement time	Sequences	Activities in the classroom
		Initial measurement
(0-10)	1	<ul style="list-style-type: none"> • Questions as starting prompts used in opening discussions • Heat transfer: collision of particles • Using the forms of Think-Pair-Share • Related experiment: Heat conductivity
(10-20)	1	<ul style="list-style-type: none"> • Demonstration and teacher-led conversation: a video about heat conduction • Demonstration and teacher-led conversation: lecture about heat radiation • Using the forms of Think-Pair-Share • Related experiment: Heat radiation
(20-30)	2	<ul style="list-style-type: none"> • Demonstration and teacher-led conversation: A video about the greenhouse effect • Demonstration and teacher-led conversation: The disadvantages of the greenhouse effect. • Global warning prevention methods
(30-40)	2	<ul style="list-style-type: none"> • Demonstration and teacher-led conversation: convection • Demonstration and teacher-led conversation: Cloud formation • Demonstration and teacher-led conversation: Hot air balloons
(40-50)	3	<ul style="list-style-type: none"> • Demonstration and teacher-led conversation: Heat conduction • Related experiment: Heat Convection
(50-60)	3	<ul style="list-style-type: none"> • General discussion • Listening to a song about the topic
(60-70)	3	<ul style="list-style-type: none"> • General discussion • Reading a poem about the topic

Before starting the implementation, the students in the classroom were divided into five groups, each consisting of six students, and all students participated in the activities provided throughout the implementation in their assigned groups. After each group selected its own group leader and informed the teacher about their selection,

the forms to be used in the measurement of SI were distributed to the students, and information was provided on how to fill the forms. At the end of each period of the class consisting of 3 sequences and 7 periods, the students were asked to take notes on their evaluations regarding whether the class was fun or boring.

In the first period of the class, the students were asked the questions: “what do you think about a metal spoon inside a pot on a stove getting hotter?”, “what do you think about solid fat melting inside a hot pan?”, “how should we select houses to live in in regions that are hot or have cold winters?”, “why is the Earth cold at nights?” and “why nights with clear weather are colder than cloudy nights?” These questions were asked to trigger the preliminary knowledge of the students regarding the concepts and help them get motivated to learn new concepts. Afterward, using slides, the topics of the transfer of heat energy through conduction and collision of particles were discussed, and right after this, a related experiment was conducted. For the experiment, each group was given a glass of hot water, a wooden spoon, a metal spoon and a plastic spoon. After leaving the spoons inside the glass, the students were asked to touch each spoon and share their comments on the temperatures of these spoons. After the students observed the spoons one by one, the first period of the class was completed.

In the second period of the class, after the students were instructed to watch a video about forms of heat transfer, their opinions were asked, they were taught the topic of transfer through radiation, and the period continued with the question-answer technique with the participation of all groups. After this, the period went on with an experiment on transfer via radiation. For the experiment, each group was given a candle and a container to keep the candle stationary. The group leaders were given lighters and instructed to light the candle. Time was provided for the students to understand how the burning candle warmed up their both hands. Following this time, various questions were asked to the students, and with the completion of the experiment, the second period of the class ended.

In the third period of the class, the teacher firstly provided information about the greenhouse effect for the students, and afterwards, the students watched a video on the topic. After the video, the harmful effects of global warming were emphasized, and an intergroup discussion was held on what could be done to prevent these harmful effects. The discussions were supported by visuals provided by the teacher. With the completion of the discussions, the second period of the class ended.

In the fourth period of the class, the teacher taught the topic of convection, and mainly the formation of clouds was focused on. Discussions were held with the students on how clouds are formed, and the working principle of hot air balloons was mentioned. These discussions were, again, supported by visuals provided by the teacher.

In the fifth period of the class, a convection experiment was conducted. In this demonstration experiment, each group used four glasses of water, two hot and the other two cold, and red and blue poster paint. Before starting the experiment, the students were asked whether or not the hot water and the cold water would mix, and after their responses were obtained, red poster paint was added to the hot water glasses, and blue poster paint was added to the cold water glasses. After this, the top of the cold water glass was covered with paper, and the cold water glass was placed upside down on the top of the hot water glass. The students were asked whether or not the waters would mix if the paper separating the glasses was removed. After the guesses that were made, the teacher made sure that the students observed the hot water moving up after the teacher pulled the paper away. The same procedure was repeated with the hot water glass on the top this time. The students were asked whether or not the water would mix. After guesses were made in relation to this case, it was observed that the hot water and the cold water did not mix when the paper was pulled away. After the experiment ended, it was made sure that the groups discussed why the waters did not mix. After the discussions, a general repetition was made to summarize the experiment process.

In the sixth period of the class, by using questions related to all topics that had been covered, a general classroom-wide discussion took place under the supervision of the teacher. After this discussion, the students watched a video clip of a song about the forms of heat transfer. In the last period of the class, the students

watched a course review video again, and each group was asked to write a poem about the topic. The group leaders recited the poems for the entire classroom.

2.4 Data Collection

All data were collected during the course of one day (Rotgans & Schmidt, 2010). The data were collected by using video recordings of the class and the SI evaluation forms developed by the author. A self-report questionnaire was used to identify sources of SI. In determination of SI, it is a prevalent method to collect data through video recordings (Bølling et al. 2019; Loukomies et al. 2015). As recommended, a video camera was positioned at the back of the classroom in a way that all groups would be included in the frame. The video recording was used for the purpose of collecting data regarding the observed SIs of the students in the class consisting of 3 sequences and 7 periods in total. The measurement took place 7 times during the course. The other data collection instruments, the SI evaluation forms consisted of two parts. The first part included scores given by the students regarding whether the class was boring or fun for each period, while the second part included the justifications the students provided for the scores they assigned. In other words, the students were asked to first score the class after each period in the form of 1-very boring, 2-boring, 3-alright, 4-fun and 5-very fun, and then, write down their reasons for giving these scores.

2.5 Data Analysis

In this study, in order to find answers to the research questions, an analysis of a video recording and SI evaluation forms was carried out. In the analysis of the video recording, the analysis of the periods consisting of 10 minutes each within the 70-minute class hour in terms of SI was carried out separately. Before starting the analysis of the video recording, the author, the implementer science teacher and a researcher who is an expert in the field of science education gathered to discuss the analysis framework that would lead the data analysis process of the study. In this meeting, discussions were held about the main assumptions and components of the theoretical framework based on which the analysis would be conducted (Silvia, 2008), and for being able to achieve consistent scoring, it was aimed to adopt a common understanding regarding the analysis. These components were as follows: (1) the student does not participate in the activity, and their attention is in a different direction, (2) the interest of the students is insufficient, and they appear tired and bored, (3) the interest of the student in the activity and their facial expressions are unclear, (4) the student raises their hand to participate in the activity, and their facial expressions are positive, (5) the student is happy during the activity and is having fun. This framework provided an opportunity of the analysis where SI was scored on 5 hierarchical levels. Each student was independently evaluated through the video recording in terms of observed SI by one pair of observers including the implementer science teacher (observer 1) and a science education expert (observer 2). The interobserver reliability of the analysis including seven periods all together was found .81 as meritorious (Miles, Huberman, & Saldaña, 2018).

In the analysis of the first part of the SI evaluation forms, the author took the average of the scores given by each student to all seven periods in the range of 1-5. The values on the graphs are given based on these averages. In the assessment of the second part, the reasons for the scores were calculated collectively. It was assumed that a higher frequency of a reason would indicate that the reason in question was more effective in the scoring made by the students.

3. Results

This section subsequently presents the overall graph of expressed and observed SI, the individual SI change graphs of students selected as examples, and finally, the reasons for the increases and decreases in SI for each sequence and period.

While looking for an answer to the first research question (How do the observed and expressed SIs of students differentiate from each other?), especially the video recordings of the class and the individual SI evaluation

forms were utilized. Following the separate analysis of these recordings carried out by two different observers, the graph given in Figure 1 was obtained.

As shown in Figure 1, it was observed that the students had a high level of SI at the beginning of the class. On the other hand, it was determined that this general tendency started to change after the first twenty minutes. Following the completion of the first twenty minutes of the class, it was seen that both student and observer evaluations indicated a decrease in SI. As opposed to the increase in SI starting with the fourth period and continuing until the end of the fifth period determined by the second observer, the first observer and the students reported a decrease in SI for the same periods. As opposed to the increase in SI starting with the fifth period and continuing until the end of the sixth period determined by the students, both observers determined a reduction in SI. For the time starting with the sixth period towards the end of the seventh period, it was observed that both the students and the observers collectively reported a decrease in SI. Table 2 presents the descriptive statistical values that were taken as a reference for the findings shown in Figure 1 and the interpretations of these findings.

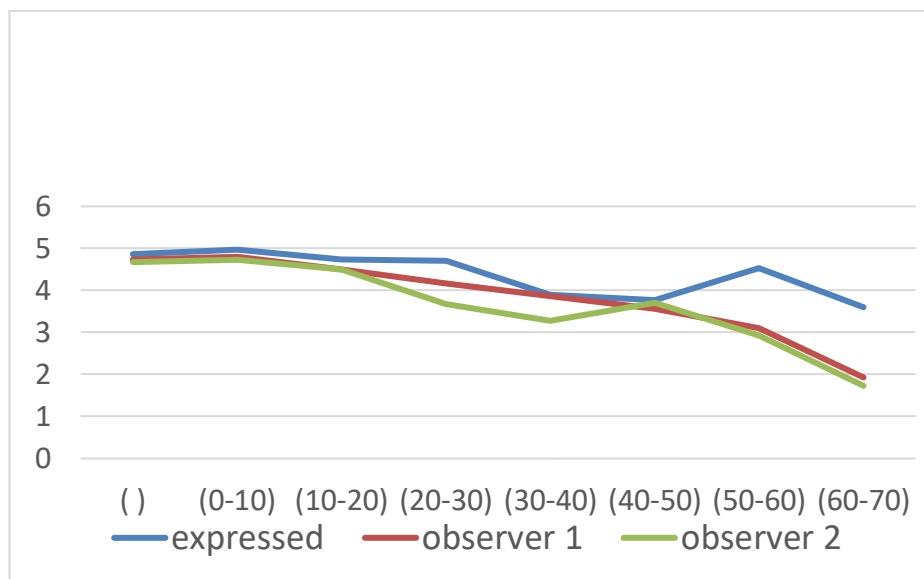


Figure 1: The comparison of all students' expressed and observed SI

Table 2: Means (X) and standard deviations (SD) based on single measurements and sequences, based on observations and students' evaluations

	Sequence 1		Sequence 2		Sequence 3		
Measurement	(0-10)	(10-20)	(20-30)	(30-40)	(40-50)	(50-60)	(60-70)
X_obs1	4.80	4.50	4.17	3.87	3.57	3.10	1.93
(SD)	(0.41)	(0.68)	(0.986)	(1.07)	(1.07)	(1.03)	(1.11)
X_obs2	4.73	4.50	3.67	3.27	3.70	2.93	1.73
(SD)	(0.45)	(0.57)	(0.61)	(0.74)	(1.09)	(0.91)	(1.05)
X_students	4.97	4.73	4.70	3.90	3.77	4.53	3.60
(SD)	(0.18)	(0.58)	(0.75)	(1.21)	(1.27)	(1.11)	(1.65)
X_obs1	4.65	4.65	4.02	4.02	2.87	2.87	2.87
(SD)	(0.58)	(0.58)	(1.03)	(1.03)	(1.27)	(1.27)	(1.27)
X_obs2	4.62	4.62	3.47	3.47	2.80	2.80	2.80
(SD)	(0.52)	(0.52)	(0.70)	(0.70)	(1.02)	(1.30)	(1.30)
X_students	4.85	4.85	4.3	4.3	3.97	3.97	3.97
(SD)	(0.44)	(0.44)	(1.07)	(1.07)	(1.40)	(1.40)	(1.40)

To be able to more specifically examine the overall graph, it may be useful to examine the individual SI change graphs of students who were selected as examples. Accordingly, the individual SI graphs of four students considered to be information-rich are presented comparatively below.

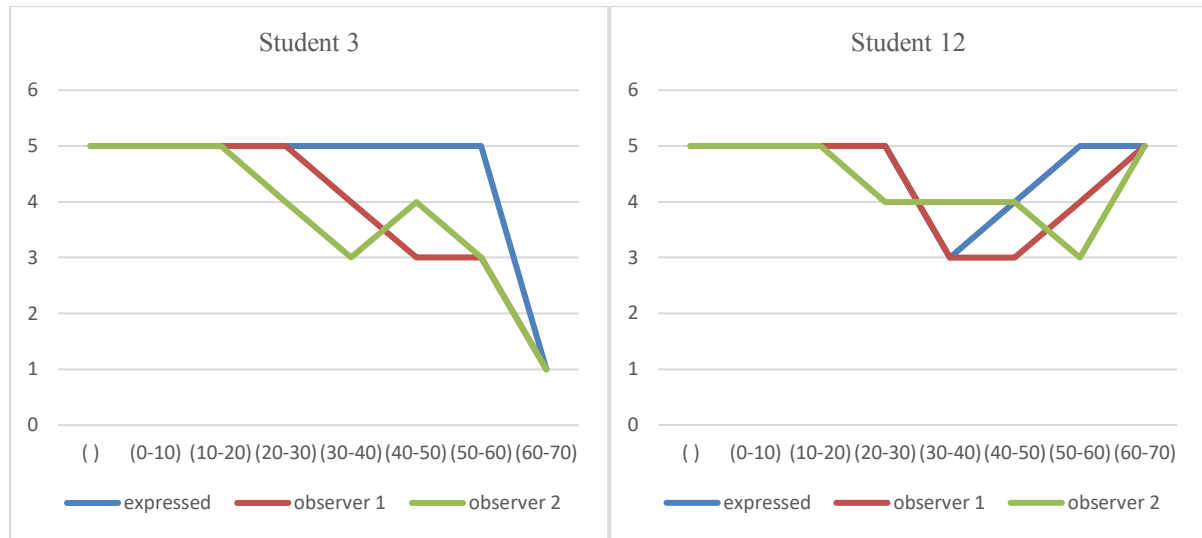


Figure 2: Pairwise comparison of SI

As seen in Figure 2, it was observed that both students had similar SI trends until the end of the second period. While Student 3 reported that their interest did not change from the third period to the sixth period, Student 12 stated that their interest decreased starting with the third period, while it increased throughout the fourth and fifth periods.

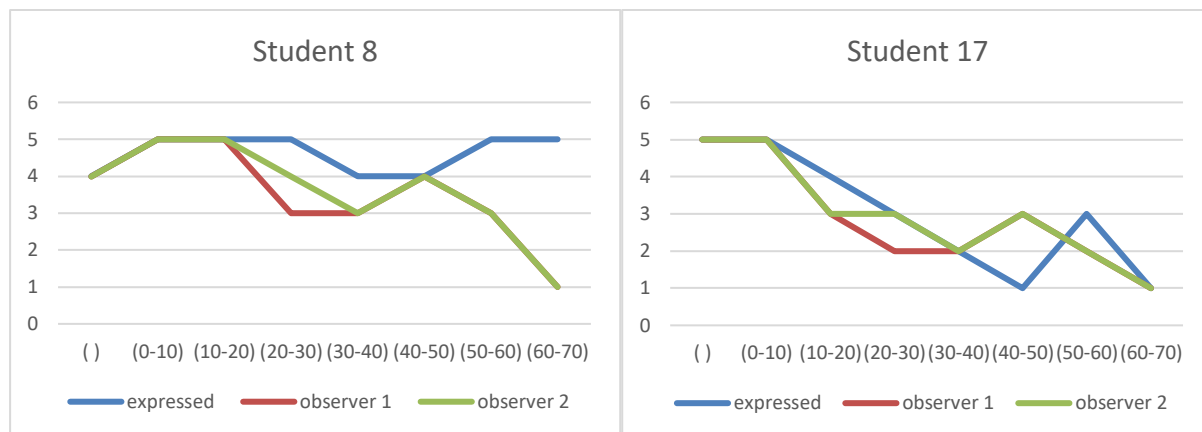


Figure 3: Pairwise comparison of SI

Figure 3 shows that the interest of both students started to decrease by the end of the first and second periods. On the other hand, it was observed that the interests of the students showed a different trend after these periods. After these periods, while Student 8 reported an increasing trend starting with the fifth period, Student 17 reported a decrease from the first period to the fifth period followed by an increase similarly starting with the fifth period. In contrast to the former, Student 17 reported a regular decrease starting with the sixth period.

The reasons for the increases and decreases in SI levels for each sequence and period were obtained as a result of the analysis of the individual SI evaluation forms of the students. The determined reasons are presented below separately for the periods under each sequence based on their frequency of expression.

(0-10 m)

In this period,

The class was found to be fun by:

- 26 students as they found the experiments fun
- 3 students as they learned new information
- 1 student as they considered the observers to be fun
- 1 student due to the interesting nature of the experimental materials.

Not only because it was the beginning of the class but also due to the inclusion of the experiments, the observers evaluated the interests of the students to be high. While the first observer measured the mean SI of the students as 4.80 (SD: 0.41), the second observer measured the same parameter as 4.73 (SD: 0.45). The class that started with asking questions managed to draw the attention of the students, and the responsibility was in the hands of the students during the experiment. All students checked the spoons one by one during the experiment, and it was observed that their interest was high, and all of them participated in the class, because they were asked to fill out think-gather-share questionnaires about the experiment.

(10-20 m)

In this period,

The class was found to be fun by:

- 4 students as they used candles in the experiments
- 4 students as they learned new information
- 1 student due to the funny situations that experienced while trying to light the candles
- 10 students as they generally considered the experiment to be fun.

However, it was stated that the class started to be boring by:

- 1 student as they had a complaint about the group leader
- 1 student as they thought their group members were behaving selfishly
- 1 student as they thought the class became boring in general
- 1 student as it was inappropriate for children to play with fire, and we provided them with lighters to light the candles.

The evaluations made by the observers also indicated that the interest in the class dropped. While the mean SI of the students was measured as 4.50 (SD: 0.68) by the first observed, the second observed measured the same parameter also as 4.50 (SD: 0.57). The students became dormant while a video about heat transfer through conduction was being watched, whereas they were remobilized with the experiment that was conducted about transfer through radiation. At this stage, the task of lighting the candle assigned to the group leader led funny moments to be experienced by the students, and it was sufficient to motivate the students. However, some students were troubled by the fact that the task was assigned to the group leaders only. When the students who tried to intervene in cases where the leaders were not able to light the candles were not given the opportunity, behaviors of walking away from the class and backing out of the experiment were observed.

(20-30 m)

The class was found to be fun by:

- 13 students due to the experiments conducted in the first two periods
- 3 students as they generally liked the science course
- 7 students as they learned new information
- 1 student who mentioned the applicability of the experiments in daily life.

While 4 students expressed that the class was boring due to the increase in noise in the environment, the evaluations of 2 students were considered invalid. In contrast to the evaluations of the vast majority of the students, the observers witnessed that the interest in the class decreased. While the mean interest expressed by the students was 4.70 (SD: 0.75), the mean interest measured by the first observer was 4.17 (SD: 1.21), and that measured by the second observer was 3.67 (SD: 0.61). The observers stated that, although the interest levels of the students dropped, these levels were still high. The active participation of the students in the class ended, and

as there was only a video presentation and a lecture on the topics, although there were students who interest in the class continued with the excitement of the previously conducted experiments, there were also students who lost interest.

(30-40 m)

The class was found to be boring by:

- 10 students as they did not like the videos
- 2 students as the topics did not draw their attention
- 1 student as they did not like the topic
- 1 student as the experiments ended
- 2 students as they had headaches due to noise
- 5 students as they did not like the videos
- 2 students as they did not learn new information
- 2 students without a reason.

On the other hand, 2 students stated that the fun aspect of the class continued as they learned new topics. The evaluation of one student in this period was considered invalid. As there were no experiments or videos in this period, the interest of the students decreased, and although it was attempted to keep their interest live with questions-answers, and although the observer wanted to ensure that everyone would have a say in a 30-person classroom, they were not able to, and there were students who got offended by the observer and did not listen to the class as they were not given an opportunity to speak. One student was distracted from the class as they could not listen to the entire response to their question after they were given an opportunity to speak. When the students whose interest decreased started to make noise as the class progressed, they led other students whose interest had not dropped to be distracted from the class. As it was a block class, when the break bell rang for other classrooms, the interest of the students dropped even further.

(40-50 m)

The class was found to be fun by:

- 2 students as they liked the videos
- 1 student as they found the experiment funny
- 5 students as they found the experiment fun
- 2 students as they liked the question-answer part.

It was thought that the class was boring by

- 9 students as the videos were boring
- 2 students as the class lasted a long time
- 1 student as the lecture was poor
- 1 student as they found the experiment boring
- 1 student due to noise
- 1 student as they though this part of the class was boring
- 1 student as they did not learn a new thing
- 1 student as the videos ended
- 1 student as they had a headache.

While the mean evaluation of the students regarding their interest was 3.77 (SD: 1.27), the observers made evaluations indicating that the interest levels increased in comparison to the previous period. The mean interest level of the students was reported as 3.57 (SD: 1.03) by the first observer and as 3.70 (SD: 1.27) by the second observer. In this period, the observer wanted the students to regain interest by conducting a demonstration experiment and became somewhat successful in this. However, the fact that the experiment was a demonstration experiment was evaluated to be boring by some students. It was tried to continue with questions-answers.

(50-60 m)

- 24 students thought the course became fun again as they liked the song
- 3 students stated that they could not reach the mood completely while the music led them to have a little

bit more interest

- 1 student thought the class was boring as they did not like the song
- 1 student thought the class was boring as they were completely distracted from the class
- The response of 1 student was considered invalid for this period.

In this period, although the students liked the song, they could not gather recover interest. The noise level that increased due to the prolonged class and distracted attention lead the students to lose interest. While the first observer assessed the mean interest of the students in this period as 3.10 (SD: 1.03), the second observer provided the score of 2.93 (SD: 0.91).

(60-70 m)

- 10 students considered the class to be fun as they liked the poem recited in this period

On the other hand, the class was found to be boring by:

- 7 students as they did not like the poem
- 1 student as there was too much noise, and they could not listen to the class
- 4 students as the poem was not properly recited
- 1 student as they did not like the person who recited the poem
- 1 student as it was the end of the class.

However, in this period, among the students who stated that the class was fun, one stated this because the person reciting the poem was their closes friend, and another stated this because they were in a relationship with the person who recited the poem. The fact that multiple persons recited the poem, and the voice of some of these were weak led the exhausted students to completely lose interest and the students who tried to maintain their interest to have reduced interest.

4. Discussion, Conclusions and Implications

As a result of this study, like in previous studies, it was found that the SI levels of students could be increased (e.g. Dohn, 2013; Loukomies et al. 2015; Palmer, 2009; Rotgans & Schmidt, 2011; Tapola et al. 2013). At the outset of the science course, it was reported that the SI levels of the students were high. This was an expected result, because positive emotions are key to SI in the classroom, and students generally express relatively high interest at the beginning of courses (Vongkulluksn et al. 2018). It is also worth noting that this high SI level was achieved in relation to a topic that is considered to be difficult by students like heat transfer. However, this interest started to decrease towards the end of the second period. This result was consistent with the prior research that has investigated how SI changed in regular science courses at school (Loukomies et al. 2015; Rotgans & Schmidt, 2010), except for the study by Tapola et al. (2013) who provided evidence that SI was rather stable in two-task conditions. Furthermore, students' SI at the beginning of the course was predicted by mastery-intrinsic goal orientation and subject-specific interest (Tapola et al. 2013). The results in this study showed that the SI level of the students declined for the first time with the presentation of the first video demonstration following the experiment related to heat conduction in the second period of the course. This reduction may be interpreted in the context of sources such as that the students were different in terms of their subject-specific interest (Tapola et al. 2013), topic-related personal relevance (Palmer et al. 2016; Renninger & Hidi, 2002) or concreteness (Tapola et al. 2013). In particular, the SI of the students who achieved active involvement through hands-on activities (e.g., experiments) in the first period and at the beginning of the second period decreased in the transition to the teacher-led demonstrations that require relatively less engagement. According to Sun and Rueda (2012), SI has a significant correlation with all components of engagement. That is, as engagement decreases, SI also decreased. Additionally, hands-on activities provide students with concrete experiences (Holstermann, Grube, & Bögeholz, 2010). In a study which investigated the SI of sixth-grade students in terms of task characteristics (Tapola et al. 2013), the students performed better in the more concrete tasks. It may be considered that, along with previous results, this result that was derived from a similar sample could explain the decrease in SI in the transition from experimentation to demonstration.

It was observed that the ESI and OSI evaluations of the students and the observers generally differed throughout the last 5 periods. In one of the rare studies making this comparison, Loukomies et al. (2015), as in the case of this study, compared the ESI and OSI values of fourth-grade students participating in collaborative tasks during a science course held on the topic of heat transfer. As a result of their analyses, they concluded that ESI and OSI values were generally not consistent with each other. In this study, it was seen that the inconsistency between the ESI and observer evaluations was the highest in the sixth and seventh periods. In the sixth period, the general discussion in the classroom was followed by listening to a song about the topics. It was observed that, with the help of the song, there was a sudden increase in the ESI of the students in comparison to the previous period. In the last period involving reading a poem about the topic, the ESI values started to drop again. While the difference between ESI and OSI was in the same direction in the seventh period, it was in the opposite direction in the sixth period. These results that were obtained may be discussed in terms of some contextual variables. In the third period, the finding that OSI changed although ESI did not change may be explained by that the video about the greenhouse effect was perceived to be more interesting and novel in comparison to previous activity contents in the class (Palmer et al. 2016). This way, the students might have preserved their ESI trend in the first two periods. The first substantial drop in terms of ESI was experienced in the fourth period, and the OSI values were consistent with this. In this period, the fact that the class started with a video and continued with demonstrations regarding cloud formation and hot air balloons may have preceded the drop in student engagement and the subsequent drop in ESI (Sun & Rueda, 2012). One of the sources of SI, humor, may have been effective in the increase by the help of the song (Dohn et al. 2009). Moreover, the same expected SI increase could not be achieved during the poem. Rather than humor, this situation may be explained by personal relevance and the fact that the poem activity required less active involvement (Renninger & Hidi, 2002). Overall, the difference between ESI and OSI may be interpreted from different perspectives. SI is influenced by situation-specific effects, and these effects have a strong influence on ESI (Knogler et al. 2015). The observers may have subjectively interpreted the states of the students by assessing them over their gestures and facial expressions in the video recordings, and they might have developed an incorrect view in relation to the situation (Loukomies et al. 2015).

Finally, various sources in relation to the students' ESI emerged during the science course. The prominent source that drove the students' SI positively was hands-on activities provided to the students with active engagement (Blankenburg et al. 2016). In this study, ESI was reported to be high in the first, second and sixth periods where active engagement was relatively high. Other sources that could be mentioned are personal relevance (Renninger & Hidi, 2002), novelty (Ayotte-Beaudet et al. 2019), knowledge-deprivation (Rotgans & Schmidt, 2014), humor (Dohn et al. 2009) and concreteness (Tapola et al. 2013). As the reason for their high ESI in the first three periods, the students proposed their learning of new information in compliance with the knowledge-deprivation theory. The experiments were generally associated with humor and concreteness by the students, and as the positive effects of the aforementioned sources decreased, it was determined that both ESI and OSI values decreased towards the end of the class.

Regarding the research questions for which answers were sought in the scope of the study, the following conclusions were reached:

- SI had a general tendency to decrease towards the end of the class.
- The ESI and OSI of the students were generally inconsistent, except for two periods.
- The inconsistency levels were lower in the periods where the experiments were dominant, except for the fifth period.
- ESI, which dropped towards the end of the class, increased with activities involving personal relevance and novelty.
- The sources in relation to ESI proposed by the students were similar to those reported in studies in the fields of both educational psychology and science education.

These results are valid within the context of some limitations. First, the results regarding the increase and decrease in SI observed throughout the periods were limited to the seventy-minute, single-session science class designed and implemented in the scope of this study. For increasing ecological validity, new, similar science

courses may be designed by taking into account the class hours accepted by each country on the level of middle school. Second, the ESI values were limited to the self-reporting of the students. In this study, the short time that was lost for the students to make their ESI evaluations in the transitions between the periods was neglected. It may be recommended for future studies to utilize electronic clickers for students to be able to make these evaluations in real-time. Third, in order to increase SI, which generally decreases towards the end of the class, in future studies, the use of activities based on active learning may be increased especially in later periods. Fourth, as SI has a situation-specific nature, the results obtained with this study were limited to the SI that emerged while teaching middle school students the topic of heat transfer. Besides heat transfer, which is one of the topics that are considered to be difficult for students in general, it may be recommended to conduct studies on other topics that are included in the science curriculum. Finally, it could carry the literature further to categorize students in terms of personal relevance and academic achievement before determining SI and examine SI development by comparisons among these categories on the basis of ESI and OSI.

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Examining How Management Skills of School Administrators Contribute to Organizational Climate according to the Perceptions of Teachers Working in Public High Schools: Konya Province Case

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Abstract

The purpose of the study is to explore how management skills of school administrators contribute to organizational climate according to the opinions of teachers working in public high schools. The data were collected by using “Contribution of Managers’ Management Skills to Organizational Climate Scale” developed by Akar (2006). The teachers who work in public high schools in Konya province in Turkey were the target population of this study and 448 teachers were determined as the sampling. In addition, T-test and ANOVA test were used to calculate the significance levels for the scale dimensions according to demographic information. The findings revealed quite high values for “Thrust” and “Aloofness” dimensions as well as a significant difference in “Aloofness” dimension for “School Type” variable. Halpin (1966), in his study, determined six organization types and suggested that open climate is the most positive one. The high values obtained for “Thrust” and “Aloofness” dimensions in this study indicate lack of open climate; therefore, management skills of school administrators are not sufficient in creating an open climate at schools and fail to have a holistic effect on teachers.

Keywords: Management Skills, Organizational Climate, School Administrators

1. Introduction

1.1. Introduce the Problem

Each school environment involves active students, teachers and administrators who continuously communicate with each other. Communication is the main instrument that builds up a common ground among these groups and

serves as the building blocks of an organization (Mumby & Stohl, 1996). It is acknowledged that we can talk about an organization when two or more individuals come together and communicate with each other (Barnard, 1994, p. 35). Schein (1970, p. 40) defines organization as mental harmony of activities carried out collaboratively by people who come together to achieve predetermined common goals within a hierarchy of authorities and responsibilities. It is obvious that there is a continuous communication in any organizations (Schein 1970, p. 40). Each organization has a unique climate which provides information about relationships among its members since it gives clear hints about the psychological state of this particular organization (Dönertaş, 2008, pp. 8-9). Accordingly, organizational climate can be defined as an interaction-based environment created by members of an organization. Organizational climate affects members of the organization and is often affected by them (Eren & Çekmecelioğlu, 2002). Due to ongoing interaction among individuals in a school environment, we can also talk about a sort of climate stemming from such relationships in a school.

Just like in every organization, there is an administrator in a school organization as well. Thus, the nature of communication between administrator and organization members positively or negatively affects how effective these organization members will be. Quality communication can be achieved through a collaboration-based management strategy (Putti & Aryee, 1990, p. 44). Since positive climate and organizational success can be achieved when members are aware of organizational objectives and effectively adopt them, quality communication between administrator and group members is more likely to result in higher levels of sustainable achievement. In other words, it is essential for administrators in an organization to have multidimensional communication and activity skills (Açıklalın, 1994, p. 139; Stonar & Wankel, 1986, p. 397). The current study aims to explore the contribution of management skills of school administrators to organizational climate according to the perceptions of teachers working in public high schools in Konya province in Turkey. The findings of this study are expected to contribute to the related literature by providing data about the role and responsibilities of administrators in creating an organizational climate in a school environment. In addition to the question “What are the contributions of management skills of school administrators to organizational climate according to the opinions of teachers working in public high schools?” the following question will also be answered within the scope of the study: “Do scale dimensions which involve the perceptions of teachers working in public high schools about how management skills of school administrators contribute to organizational climate differ according to independent variables “school type” and “gender”?”

1.2. Explore Importance of the Problem

Teaching profession has the power to affect societies directly and guide the future of children who are considered the main building blocks of a society. Indeed, it is essential to try to solve problems teachers face while trying to do their jobs. Therefore, this current study aims to explore to what extent management skills of school administrators affect school climate. It is believed that the findings of the study will provide invaluable guidance to policy makers and administrators in creating environments to encourage more effective teaching. In addition, the study is expected to contribute to both national and international literature with its findings. Finally, it is believed that when the suggestions presented in this study are implemented in the future, more quality school climates and more productive teaching-learning environments will be achieved.

1.3. Describe Relevant Scholarship

Celep (2002) points out that teachers working in public high schools affiliated to Ministry of National Education often fail in their classroom management practices since they are not qualified enough in this issue at the beginning of their careers. In addition, disobedient behaviors and attitudes of students negatively affect teachers (Özdemir, 2006, p. 73). Such certain behaviors give harm to school organizational climate as well. For example, administrators might fail to adopt effective management skills, which is believed to be a factor preventing teachers from teaching effectively (Ardıç & Polatçı, 2008, p. 73).

The related studies found that information sharing between administrators and employees has positive effects on employees’ “job satisfaction” and “perception of justice” levels. Successful communication opportunities provided

by administrators do not just indicate a quality communication cycle. Such an opportunity will also lead to higher levels of “perception of justice” among employees who will, in turn, enthusiastically work on and complete all tasks (Putti and Aryee, 1990, p. 44). Stonar and Wankel (1986, p. 397) and Açıkalın (1994, p. 139) suggest that a positive, creative and productive organizational climate is clearly dependent on members’ awareness about and adoption of organizational goals. Therefore, managers are primarily responsible for positive development and progress of an organizational climate while trying to achieve organizational goals.

When administrators lack necessary management skills required to create a positive organizational climate or fail to put these skills into practice, it is almost impossible to achieve organizational goals (Açıkalın, 1994, p. 139; Stonar & Wankel, 1986, p. 397). Indeed, it is believed that school administrators generally fail to display these necessary management skills. Therefore, the purpose of this study is to investigate the contributions of management skills of school administrators to organizational climate according to the opinions of teachers working in public high schools.

1.4. State Hypotheses and Their Correspondence to Research Design

The findings of the study are believed to provide invaluable guidance to policy makers and administrators in creating environments to guarantee more effective teaching. In addition, the study is expected to contribute to both national and international literature with its findings. Finally, it is thought that when the suggestions presented in this study are implemented in the future, more quality school climates and more productive teaching-learning environments will be achieved.

2. Method

This section presents information about the research model, the research limitations, the population and the sampling, and the data collection technique and instrument.

2.1. Identify Subsections

This study uses comparative model, which is a type of survey model. Survey model describes cases or phenomena in the past or the present as they are without making any changes while comparative model has at least two variables and independent variable is tested against dependent variable to determine the presence of any variations (Karasar, 1999, p. 108).

2.2. Participant (Subject) Characteristics

This study is limited to the opinions of school administrators and teachers working in public science high schools, anatolian high schools, religious (vocational) high schools and vocational high schools located in Karatay, Meram and Selçuklu districts of Konya province in Turkey during 2017-2018 academic year. The sampling is limited to the teaching staff working in the schools affiliated to Ministry of National Education.

2.3. Sampling Procedures

This section presents information about the population and sampling of the study, the procedures followed for the administration of the scale, the sampling method used and the analyses.

2.3.1. Sample Size, Power, and Precision

The population of the study was 4226 subject-matter teachers working in public high schools in Konya province during 2017-2018 academic year. According to the sampling method used, 500 scales and questionnaire forms

were administered to the participants. A total of 448 scales and questionnaire forms were used in the analysis when those with wrong and missing information were excluded from the analysis.

2.3.2. Measures and Covariates

In order to collect data, the study used *Contributions of Perceived Management Skills of Managers to Organizational Climate Scale*. Developed by Akar (2006), this scale is similar in terms of items and dimensions to the scale which was developed by Halpin (1966) in order to determine organizational climate types (Akar, 2006, p. 21). Since Halpin (1966, p. 132) suggests that his scale can be used for all organizations, it can be said that the scale developed by Akar (2006) can be used in high schools as well.

The scale was administered face-to-face after the researcher informed the participants about the scale and the study.

As for the reliability of the scale, Cronbach Alpha value was calculated as .95. An extra factor analysis was not preferred since the validity analysis results of the scale in the literature were already consistent with each other (Yıldırım, 2009, pp. 57-61).

This 5-point Likert type scale consists of thirty items and four dimensions: Production Emphasis, Consideration, Aloofness and Thrust (Akar, 2006, p. 21). The score ranges of means for each degree of Likert points are as follows:

- 1,00-1,80 : I do not agree at all
- 1,81-2,60 : I hardly agree
- 2,61-3,40 : I agree to some extent
- 3,41-4,20 : I agree to a large extent
- 4,21-5,00 : I totally agree

2.3.3. Research Design

Since it is difficult to access all the population of the study, stratified sampling method was used to determine the sampling of the study. In this method, certain variables and characteristics are taken into consideration to determine equal number of participants with similar characteristics from an overall population (Altunışık et al., 2005, p. 55). Accordingly, the total number of participants in each high school type was determined by calculating their percentages in proportion to overall number of participants. According to stratified sampling method, equal number of participants was determined for three different districts of Konya by equally dividing the number of participants determined for each school type into three.

The scale was administered face to face after the participants were determined by using convenient sampling method. In this method, participants are selected by researchers themselves to facilitate data collection procedure (Ural & Kılıç, 2006, p. 40; Altunışık et al., 2005, p. 56). Thus, the schools with the highest number of teachers in these particular districts were preferred so that the necessary number of participants could be accessed in a relatively shorter time.

3. Results

SPSS 22.0 software was used for the analysis of the data collected from the scale and the questionnaire form prepared by the researcher. Since the data set was found to have normal distribution and be homogenous, parametric tests were used for the data analysis.

Descriptive statistics, T-test and One-Way Variance Analysis (ANOVA) were used as the analyses at 0,05 degree of significance.

3.1. Statistics and Data Analysis

This section presents information about the descriptive statistics and the variance analyses as well as the normality values.

3.1.1. Descriptive Statistics about the Participants

In this section, frequencies and percentages of demographic information were calculated and tabulated as follows.

Table 1: Descriptive Statistics about the Demographic Information about the Participants

School Type	FREQUENCY	PERCENTAGE
Religious (Vocational) High Schools	167	37,3
Vocational High School		
Anatolian High School	167	37,3
Science High School	91	20,3
	23	5,1
Gender		
Female	206	46
Male	242	54

Table 1 shows that % 37,3 (167) of the participants attend religious (vocational) high schools, % 37,3 (167) vocational high schools, %20,3 (91) anatolian high schools and %5,1 (23) science high schools. As for gender variable, %46 (206) of the participants are female and %54 (242) male.

3.1.2. Statistics about Normal Distribution

Whether the data had normal distribution or not was tested by using descriptive method (Ghasemi & Zahediasl, 2012; Abbott, 2011, p. 50). In this method, normality of the data is determined by examining mean, median, skewness and kurtosis values (Abbott, 2011; Kirk, 2008). The results of normality test are presented as follows:

Table 2: Normality Test Results of the Scale

Scale Items	KURTOSIS	SKEWNE SS	MEAN \bar{X}	MEDIAN
1. Administrator closely tracks each phase of activities carried out by teachers.	-,236	-,464	3,44	3
2. Administrator is successful in persuading others in meetings.	,046	-,645	3,58	4
3. Administrator gives importance to completion of all tasks without making any mistakes.	,323	-,829	3,92	4
4. Administrator devotes himself to his work and institution.	,068	-,819	3,75	4
5. Administrator supports social and cultural development of teachers, students and other staff.	-,483	-,620	3,56	4
6. Administrator shares information with teachers while trying to solve a problem.	-,709	-,524	3,54	4
7. Administrator has a friendly approach towards teachers.	-,718	-,506	3,50	4
8. Administrator trusts teachers in that they make correct judgments.	-,578	-,472	3,53	4

Continuation of Table 3: Normality Test Results of the Scale

Scale Items	KURTOSIS	SKEWNESS	MEAN \bar{X}	MEDIAN
9. Administrator accepts the fact that everybody can make mistakes and tolerates these mistakes when necessary.	-,340	-,555	3,55	4
10. Administrator gives importance to teachers' opinions and takes them into consideration.	-,451	-,529	3,51	4
11. Administrator tries to encourage collaboration among teachers.	-,567	-,511	3,51	4
12. Administrator cares about personal problems of teachers.	-,832	-,141	3,11	3
13. Administrator generally organizes meetings to announce the activities to be done in the school.	-,439	-,510	3,59	4
14. Administrator asks the staff to obey regulations and refuses any discussions or criticism about rules.	-,971	-,240	3,20	3
15. Administrator only makes routine decisions in our school such as distribution of courses and classrooms.	-,773	,443	2,43	2
16. Administrator provides an environment where teachers can work efficiently.	-,358	-,595	3,61	4
17. Administrator helps teachers to solve their problems.	-,633	-,480	3,51	4
18. Administrator notifies teachers in writing regarding all extra tasks and activities.	-,039	-,721	3,78	4
19. Administrator uses his authority to help teachers when needed.	-,789	-,445	3,49	4
20. Administrator takes constructive criticisms of teachers into consideration.	-,559	-,458	3,45	3,50
21. Administrator is sensitive about arriving at school before teachers.	-,322	-,726	3,79	4
22. Administrator searches for methods to promote teachers' professional development and shares them with teachers.	-,683	-,266	3,31	3
23. Administrator emphasizes and supports teachers' achievement rather than their failures.	-,639	-,409	3,44	4
24. Administrator is careful about his personal care, appearance and health.	,262	-,892	3,97	4
25. Administrator is consistent and realistic in his decisions and behaviors.	-,312	-,566	3,61	4
26. Administrator is strong against difficulties and never dreads them.	-,438	-,498	3,66	4
27. Administrator is aware of and applies methods to cope with stress.	-,306	-,495	3,56	4
28. Administrator is self-confident.	,232	-,847	3,82	4
29. Administrator has the ability to think out of the box and uses this ability when needed.	-,468	-,383	3,54	4
30. Administrator is aware of the developments in information and communication technologies and follows them.	-,262	-,579	3,66	4

When Table 2 is examined, it is seen that skewness values range between $-1,141$ and $-0,892$; and kurtosis values between $0,323$ and $-0,971$. Skewness and kurtosis values between ± 1 and arithmetic means and median values that are close to each other indicate that data has normal distribution (Tabachnick & Fidell, 2013, p. 48; McKillup, 2012, pp. 77-78; Howitt & Cramer, 2011, p. 68).

3.1.3. Variance Analyses of Dependent Variables and Independent Variables

In this section, T-test and One Way Variance Analysis (ANOVA) were done for school type and gender variables.

“Post Hoc” Test was done to determine how dimensions differ according to the groups in ANOVA test. Prior to the PostHoc test, “Levene” test was done to see whether groups are distributed normally or not and it was found that variances were equal ($p > 0,05$). LSD test is used to test variances between groups when these variances are equal (Kayri, 2009; Büyüköztürk, 2004, p. 43). Therefore, LSD test was done as part of PostHoc Test.

The results of T-test and ANOVA Test for scale dimensions and demographic information are presented below:

Table 3: Descriptive Statistics about the Dimensions of the Scale

Dimension	N	\bar{X}	STANDARD DEVIATION (Ss)
Production Emphasis	448	3,62	,88
Consideration	448	3,47	1,02
Thrust	448	3,65	,84
Aloofness	448	3,07	,91

Table 3 shows descriptive statistics about the scale dimensions. According to the analysis, the highest mean was for “Thrust” dimension (3,65) and the lowest for “Aloofness” dimension (3,07).

Table 4: Independent Sample T-test Results between Scale Dimensions and Gender Variable

Dimensions	Gender	N	\bar{X}	Ss	t	p
Production Emphasis	Female	206	3,66	,85	,739	,460
	Male	242	3,59	,90		
Consideration	Female	206	3,44	1,00	-,564	,573
	Male	242	3,50	1,03		

Table 4: (Continuing) Independent Sample T-test Results between Scale Dimensions and Gender Variable

Thrust	Female	206	3,69	,84	,944	,346
	Male	242	3,61	,84		
Aloofness	Female	206	3,03	,93	-,942	,347
	Male	242	3,11	,89		

According to Table 4, T-test done between dimensions in relation to gender variable did not reveal any significant differences among the groups ($p > 0,05$).

Table 5: ANOVA Test Results between Scale Dimensions and School Type Variable

Dimension	School Type	N	\bar{X}	Ss	F	p
Consideration	Religious (Vocational) High Schools	167	3,61	,84	,023	,995
	Vocational High School	167	3,63	,96		
	Anatolian High School	91	3,62	,80		
	Science High School	23	3,61	,85		
Production Emphasis	Religious (Vocational) High Schools	167	3,51	,99	,390	,760
	Vocational High School	167	3,42	1,08		
	Anatolian High School	91	3,46	,96		
	Science High School	23	3,62	,96		

Table 5: (Continuing) ANOVA Test Results between Scale Dimensions and School Type Variable

Thrust	Religious (Vocational) High Schools	167	3,69	,77	2,789	,829
	Vocational High School	167	3,63	,92		
	Anatolian High School	91	3,62	,80		
	Science High School	23	3,55	,85		
Aloofness	Religious (Vocational) High Schools	167	2,96	,95	2,789	,049
	Vocational High School	167	3,23	,83		
	Anatolian High School	91	2,97	,93		
	Science High School	23	3,02	,96		

According to Table 5, ANOVA test results reveal a significant difference among school types only in “Aloofness” dimension ($p < 0,05$). In order to determine between which school types the scale dimensions differ, LSD test was done and it was found that there is a significant difference between vocational high school, anatolian high school and religious (vocational) high school ($p < 0,05$).

4. Discussion

This section presents the findings obtained in national and international studies focusing on perceived organizational climate and its effect on organizations and compares these findings to those of the current study. The participant teachers were asked to reply the items on the scale that are related to management skills. Since these items measure an overall skill level, they consist of some dimensions. Developed by Akar (2006, p. 67), the scale used in this study has four dimensions: Production Emphasis, Consideration, Thrust and Aloofness. The names and characteristics of these dimensions are similar to those in the scale developed by Halpin (1966) by focusing on organizational climate (Akar, 2006, p. 21). Therefore, the values of the dimensions obtained in this current study were compared to those of organizational climate types found by Halpin (1966, pp. 174-181).

Open climate suggested by Halpin (1966, p. 174) in his study conducted with primary school teachers to determine organizational climate types implies a harmonious work relationship between school administrators and teachers. In addition, Halpin (1966, p. 174) found that Production Emphasis (PE) and Consideration (C) dimension values were higher than the mean and Aloofness (A) and Thrust (T) values were lower than the mean. However, the values obtained in the current study are far from the open climate values obtained by Halpin since aloofness dimension is equal to the mean and others are higher than the mean (Table 3). This difference is not also consistent with other climate types (Table 7). The dimension values found in this study are parallel with those of the study conducted by Yıldırım (2009, p. 67) with primary school teachers and the study carried out by Kaya (2010, p. 80) with teachers working in technical vocational schools in order to examine the contribution of school administrators to organizational climate. Moreover, the results of the studies by Akar (2006, p. 67) and Gökçen (2014, p. 141) are quite far from the dimension values of open climate. The dimension values found in the studies focusing on organizational climate were tabulated below.

Table 6: Dimension Values obtained in the Studies Dealing with Organizational Climate

Dimensions	Mean Scores - 1 (Akar, 2006, p. 67)	Mean Scores - 2 (Yıldırım, 2009, p. 67)	Mean Scores -3 (Kaya, 2010, p. 80)	Mean Scores -4 (Gökçen, 2014, p. 141)	Mean Scores in the current study (Table 3)
Consideration (C)	2,45	3,67	3,75	1,99	3,47
Production Emphasis (PE)	2,41	3,83	3,72	2,10	3,62
Thrust (T)	2,70	3,72	3,69	2,02	3,65
Aloofness (A)	2,78	3,32	3,29	2,38	3,07

As we can see from Table 6, the mean scores of dimensions in above mentioned studies do not match mean values of dimensions related to open climate because the scores of consideration and production emphasis are higher than the mean scores and the values of thrust and aloofness lower than the mean scores. This result is clearly seen in the table.

Table 7: Comparison of Organizational Climate Types according to Dimension Mean Score Levels (Halpin 1966, pp. 174-181)

Mean Score of Dimensions	Open Climate	Autonomous Climate	Controlled Climate	Familiar Climate	Paternal Climate	Closed Climate	The Climate in the Current Study
High	PE, C	PE, C, A	T	C	T	T	PE, C, T
Low	A, T	T	C	PE	PE	PE, C	
Equal							A

Table 7 displays the dimension values related to climate types obtained and classified by Halpin (1966, pp. 174-181) in his study dealing with organizational climate. According to Table 6, the results of the studies in Turkey do not correspond to any climate type and open climate is not observed in Turkish contexts, which is in parallel with dimension values obtained in the current study.

Davis (1982, p. 123) suggests that examining organizational climate provides invaluable information about to what extent an organization actively operates and the content of regulation revisions to be made in organizations. Similarly, Halpin (1966, p. 133) tried to determine organizational climate types because he claimed that some scales used in the previous studies focusing on organizations failed to provide sufficient and accurate information about organizational climates. Halpin (1966, pp. 174-181) determined the climate types in his study by using the dimension values obtained while developing the scale. Since these dimensions cover some management skills, they inform us about how certain behaviors are practiced in an organization and how necessary regulations should be applied accordingly.

The answer to the question “Are the students in open climate schools academically successful?” greatly varies in different studies (Paknadel, 1988, p. 29). Hoy and Miskel (1982, p. 193) suggest that the belief that any organization with an open climate will be successful can lead to wrong assumptions. Therefore, it can be misleading to associate academic achievement of students only with teacher-administrator interaction. However, it is also true that policies with a potential to result in academic achievement and more quality learning are more likely to be achieved in organizations displaying the characteristics of an open climate (Paknadel, 1988, p. 29). Halpin (1966, p. 131) emphasizes that positive or negative relationships between teachers and school administrators somehow affect students, which can easily be observed by visiting different schools. Hartley and Hoy (1972), in their comparative study carried out with primary school teachers, showed that students and the staff experience less alienation in the schools with an open climate (cited by Hoy & Miskel 1982, p. 193 from Hartley and Hoy, 1972). In addition, the studies revealed that teachers are more confident and efficient (Andrews, 1965, p. 317) and administrators are more determined, more self- confident, more cheerful, more sociable, more practical, stronger and search for new developments and new trends more (Anderson, 1964, p. 71) in schools with an open climate.

Climate types range from open to closed and open climate refers to a positive climate type that an organization should have (Halpin, 1966, p. 137). When the dimension values obtained in the current study are compared to the dimension values of climate types displayed in Table 7, it is seen that those in the current study do not match any climate type. Therefore, there are not specific climate types we can classify in the current study; however, it can be concluded that these dimension values clearly indicate the absence of an open climate (Table 6). Although production emphasis and consideration dimensions reflect the dimension values of an open climate, thrust and aloofness values are extremely high. Similarly, “thrust” dimension value is higher than the mean and aloofness value is equal to the mean. In fact, it is necessary to obtain thrust and aloofness values lower than mean so that an open climate can be achieved in educational environments.

It is not as easy as it seems to change climate types in schools (Paknadel, 1988, p. 34) because Halpin (1966, p. 137) claims that closed or almost closed climate types are similar to the sensitive relationship between a psychiatrist and his patient. Thus, he emphasizes that a positive approach to organization members should be based on psychodynamic factors and be initiated through certain approaches such as understanding, analyzing and assisting (Halpin, 1966, p. 137). In other words, it is not easy to change climate type; however, changing the pattern of working in an organization will make climate change easier (Paknadel, 1988, p. 34). When the dimension values in the current study are considered, we can clearly understand how difficult it is to change climate type. Although the dimension values in this study do not match any climate types, thrust and aloofness values clearly indicate a deviation from an organizational climate, even far from the expectations. Indeed, if a teacher evaluates his school administrator as a hardworking, helpful, role model and sociable person who tries to do his best for organizational productivity and empathizes with others in terms of production emphasis and consideration dimensions and again if the same teacher perceives the same administrator as an exceedingly formal and reserved person who strictly follows current regulations, continuously controls teachers and does not take teachers’ opinions into consideration (Halpin, 1966, pp. 132-135), this situation implies that such an administrator has unpredictable behaviors.

Similarly, if an administrator is sympathetic and understanding at one time but strict, remote and authoritarian at another time, teachers will experience a dilemma in their relationships with this administrator. Since school administrator is the first person that teacher will consult when they make a decision related to school, relationship between teacher and school administrator is crucial. Therefore, it might be useful to provide in-service training programs for administrators and, more importantly, to track the quality of management skills of administrators by carrying out regular audits. In addition, administrators who fail to apply necessary management skills can be replaced with new administrators. Finally, it is essential that communication among administrators at similar levels of hierarchy should be effective and consistent.

Acknowledgments

All authors deserve recognition for their hard work.

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